

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



School Safety Engineering Project

FINAL REPORT: P.S. 217, Col. David Marcus School, Brooklyn



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



JUNE 8, 2006

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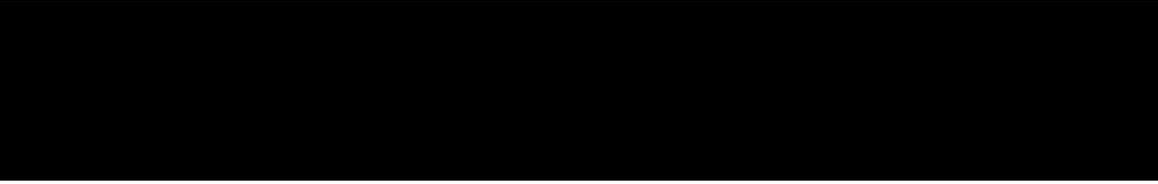
1. INTRODUCTION

PROJECT DESCRIPTION

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

Under this consultant study, the School Safety Engineering Project, accident data in the vicinity of all program schools was reviewed. As a result, schools were ranked in terms of pedestrian safety, and 135 “priority” schools were identified Citywide. At each of these priority schools safety improvements are being recommended (e.g., new school crosswalks, new traffic signals and signal timing modifications, new speed reducers). In addition, 32 of these schools will receive further investigation to design physical improvements (e.g., raised center medians, widened sidewalks, “neckdowns” or “bulbouts” at intersections). P.S. 217 (Col. David Marcus School) in Brooklyn is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS



2.2 NEIGHBORHOOD DESCRIPTION

P.S. 217 is located on Newkirk Avenue and occupies most of the city block between Coney Island Avenue, Newkirk Avenue, Westminster Road and Foster Avenue. Newkirk Avenue is a mostly residential street with 5-6 story residential buildings and private one and two family homes (see Exhibit 1 for Aerial Photograph).



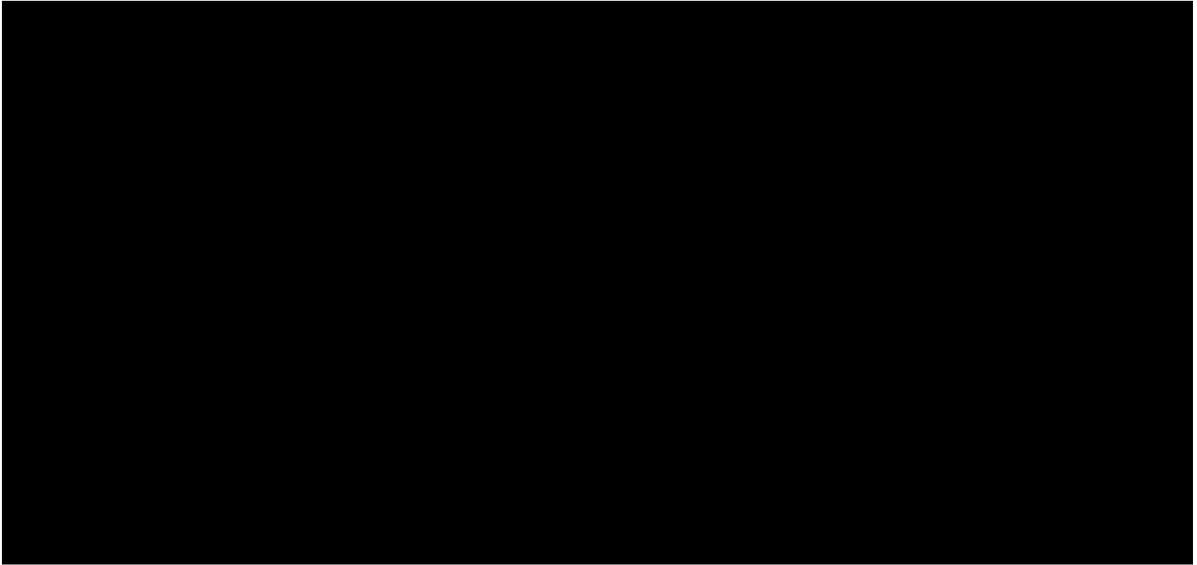
Figure 1: Looking west on Newkirk Avenue in front of P.S. 217, Ditmas Park, Brooklyn

2.3 MEETING WITH SCHOOL REPRESENTATIVES

The consultant team and representatives from P.S. 217 met at the school on the morning of May 21, 2004. Representatives from the school included the school principal, a crossing guard and the parent coordinator.

The school representatives identified the following concerns regarding student pedestrian safety:

- Vehicles running the stop sign on Newkirk Avenue at the intersection with Westminster Road
- Children crossing in the mid-block along Newkirk Avenue and Westminster Road





1 inch equals 125 feet

EXHIBIT 1
P.S. 217, BROOKLYN
COL. DAVID MARCUS SCHOOL
AERIAL PHOTOGRAPH



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 217 Brooklyn
COLONEL DAVID MARCUS SCHOOL

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

Map created on 11/16/2006 **EXHIBIT 3**

COMM. BOARD: 314
 PRECINCT: 70

1.5.1

2.6 PRIMARY MODE OF TRANSPORT TO AND FROM SCHOOL

According to the school officials, approximately 90% of the students attending P.S. 217 walk to school. Approximately 110 public transportation passes are handed out monthly to P.S. 217 students, which indicates that 8.5% of students use the city bus or subway system to get to and from school.

TABLE 1: MODE OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	
DESCRIPTION	PERCENTAGE
Walk	90%
Driven by car, livery cab or mini-bus	1%
School bus	0.5%
MTA bus or subway	8.5%
TOTAL	100%

2.7 OTHER STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are numerous private schools in the area, however none are in the immediate vicinity of P.S. 217. According to school representatives, there are no specific destinations that P.S. 217 students visit after school. However there are numerous supermarkets, delis and candy stores on Coney Island Avenue, and a large supermarket (Figure 2) on Newkirk Avenue directly across the street from P.S. 217.

2.8 CROSSING GUARD LOCATIONS

All four intersections abutting the school are designated as school crossings, and all four have crossing guards on duty during student arrival and dismissal time. The intersection of Coney Island Avenue and Newkirk Avenue has two crossing guards (Figure 3). See Exhibit 4 for a map of the crossing guard locations.



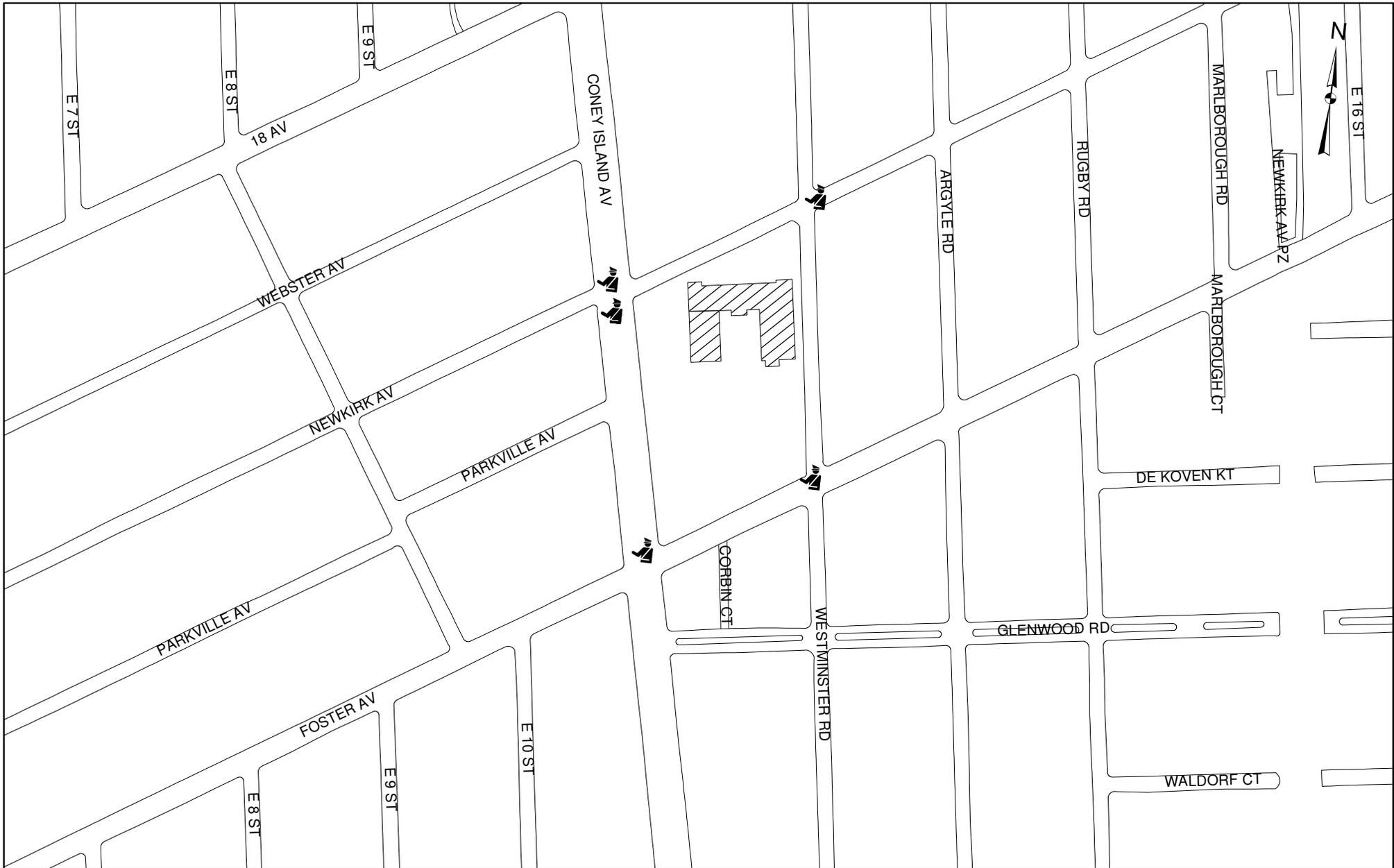
Figure 2 - Crossing guard at Newkirk Avenue and Westminster Road during dismissal time.



Figure 3- Two school crossing guards directing traffic at the Coney Island Avenue and Newkirk Avenue intersection during dismissal time



Figure 4- Crossing guards at Westminster Road and Foster Avenue during dismissal time



1 inch equals 250 feet



CROSSING GUARDS ASSIGNED TO P.S. 217

EXHIBIT 4

**COL. DAVID MARCUS SCHOOL
P.S. 217, BROOKLYN**

CROSSING GUARDS

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representatives, school buses transport only handicapped students. The total number of handicapped students is 35. School buses load and unload students on Newkirk Avenue.



Figure 5: School bus on Newkirk Avenue in front of P.S. 217

3.2 PARENT DROP-OFF OPERATIONS

According to school officials, approximately 1% of P.S. 217 students are driven to and from school by parents or guardians. Field observations taken on May 21, 2004 indicated that parents use Westminster Road as a student drop-off point. Although vehicles mostly double-park, the resulting congestion is moderate.



Figure 6: Vehicles double-parked on Westminster Road during afternoon dismissal time

3.3 PARKING REGULATIONS

Exhibit 5 shows parking regulations on the roadways surrounding the school. On Newkirk Avenue “NO PARKING 7:00 AM – 4:00 PM SCHOOL DAYS” parking signs are posted for approximately one half of the block between Coney Island Avenue and Westminster Road.

“NO PARKING 7:00 AM – 4:00 PM SCHOOL DAYS” signs are posted on Coney Island Avenue for the length of schoolyard. 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 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 8.

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. 217 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.

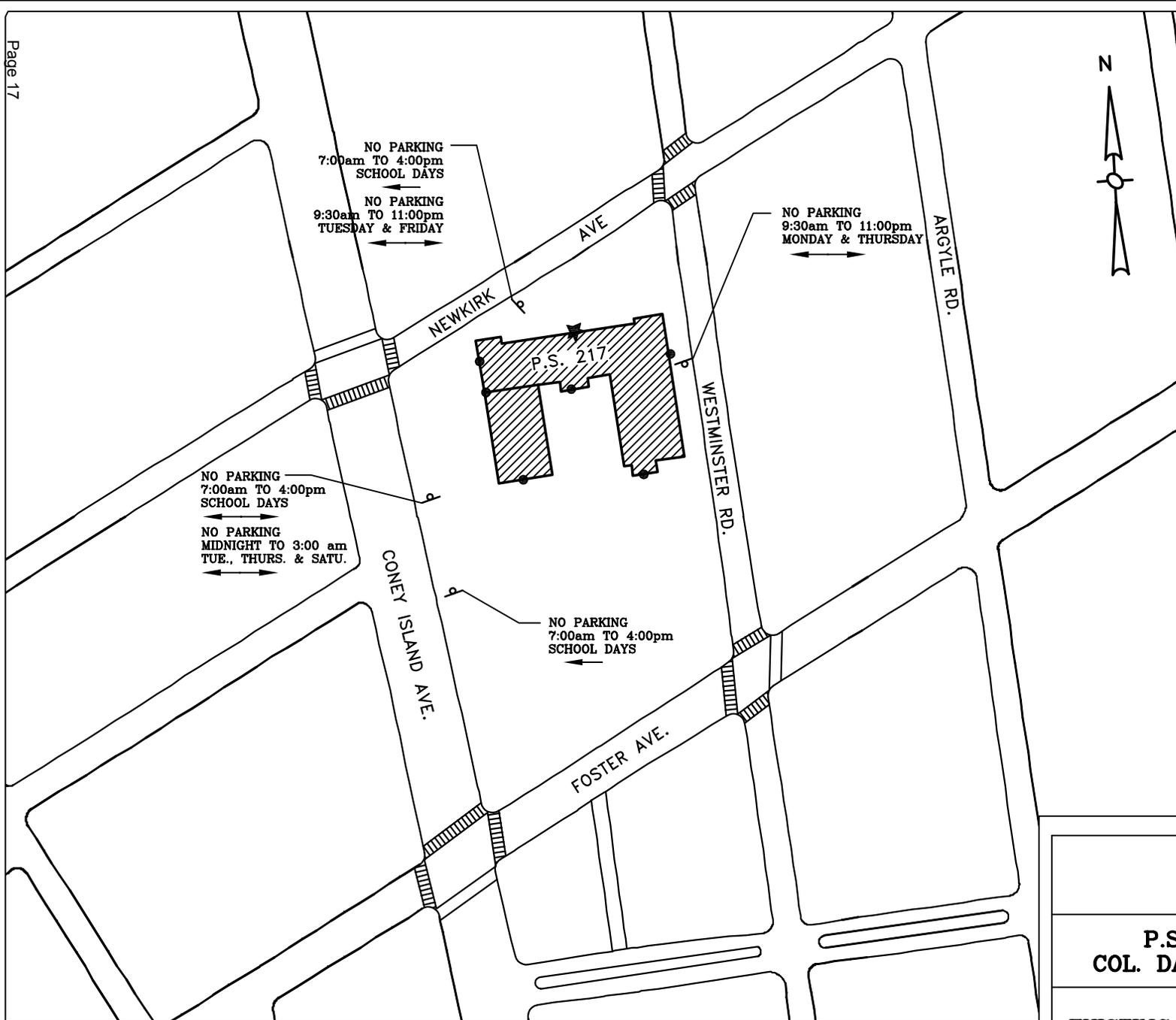
This report targets intersections closest to the school where the highest concentration of student pedestrians occurs. Intersections farther from the school and locations for which detailed data was not available at the time of this study will be addressed with the ongoing work of DOT’s School Safety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

TABLE 2: DMV THREE-YEAR ACCIDENT SUMMARY (1998-2000)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Ditmas Avenue and Stratford Rd	3	0	0	0
Coney Island Avenue and Ditmas Avenue	73	2	0	0
Coney Island Avenue and Webster Ave	14	1	0	0
Coney Island Ave and Newkirk Ave	40	4	0	2
Coney Island Ave and Parkville Ave	12	1	0	0
Coney Island Ave and Foster Ave	74	5	0	1
Coney Island Ave and Glenwood Road	14	0	0	0
Westminster Road and Newkirk Ave	9	0	0	0
Westminster Road and Foster Ave	16	0	0	0
Westminster Road and Glenwood Road	1	0	0	0
Argyle Road and Newkirk Ave	6	0	0	0
Argyle Road and Foster Ave	17	1	0	0
Rugby Road and Foster Ave	15	0	0	0
TOTAL	294	14	0	3

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

TABLE 3: NYPD FOUR-YEAR ACCIDENT SUMMARY (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Ditmas Avenue and Stratford Road	9	0	0	-
Coney Island Avenue and Ditmas Avenue	210	16	0	-
Coney Island Avenue and Webster	17	3	0	-
Coney Island and Avenue Newkirk Ave	50	5	0	-
Coney Island Avenue and Parkville Ave	21	1	0	-
Coney Island Ave and Foster Avenue	119	10	0	-
Coney Island Ave and Glenwood Road	27	0	0	-
Westminster Road and Newkirk Ave	8	1	0	-
Westminster Road and Foster Avenue	14	1	0	-
Westminster Road and Glenwood Road	3	0	0	-
Argyle Road and Foster Avenue	13	0	0	-
Argyle Road and Newkirk Ave	6	0	0	-
Foster Avenue and Rugby Road	17	1	0	-
TOTAL	514	38	0	-

* School-Related Accidents could not be identified since accident data did not provide pedestrian age.



LEGEND

- ★ MAIN ENTRANCE
- OTHER ENTRANCES
- P STREET SIGN

EXHIBIT 5

**P.S. 217, BROOKLYN
COL. DAVID MARCUS SCHOOL**

EXISTING PARKING REGULATIONS

SCALE 1" = 150'



1 inch equals 250 feet

ACCIDENT LOCATION *
 SCHOOL CROSSWALK ASSIGNED TO P.S. 217 [Solid Rectangle]
 SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL [Dashed Rectangle]
 CROSSWALK [Open Rectangle]

X/X/X/X

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

EXHIBIT 6
COL. DAVID MARCUS SCHOOL
P.S. 217, BROOKLYN
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. 217.

3.6.1 Coney Island Avenue and Newkirk Avenue

Coney Island Avenue is a two-way 70-foot wide roadway with two travel lanes in each direction and parking on both sides. There is a left turn bay for southbound traffic. Newkirk Avenue is a one-way (eastbound) 28-foot wide roadway with one travel lane and parking on both sides. The intersection is signal controlled. Many students use this intersection en route to P.S. 217 as indicated by the pedestrian counts performed on Tuesday, April 12, 2005. Coney Island Avenue is a busy four-lane high volume arterial. During peak hours, vehicles occasionally block the intersection and crosswalks, requiring pedestrians to negotiate their way between vehicles in order to cross the street (Figure 8).



Figure 7: Looking west on Newkirk Avenue at Coney Island Avenue

Between 1998 and 2000, forty accidents occurred at this intersection. Four pedestrian accidents, of which two were school related accidents, were reported in this period. There were no fatalities.

According to the accident data, a nine-year old pedestrian was crossing Newkirk Avenue in the north-south direction and was struck by an eastbound vehicle. The report indicates the pedestrian was crossing against the signal.

The second school related accident involved a ten-year-old who was crossing Coney Island Avenue when struck by a southbound moving vehicle. The report indicates this accident was attributed to pedestrian error since the pedestrian was crossing against the signal. Both accidents occurred at approximately 4:00 pm during the school year.

In addition, three pedestrians were struck on Coney Island Avenue between Newkirk Avenue and Webster Avenue, of which one was school related. According to the accident data, a 10-year old was struck while crossing in the mid-block. No further information is available.



Figure 8: Coney Island Avenue at Newkirk Avenue during afternoon rush hour

3.6.2 Newkirk Avenue and Westminster Road

This is an un-signalized, all-way stop controlled intersection. Westminster Road is a one-way (southbound) 28-foot wide roadway with one travel lane and parking on both sides.

There were no pedestrian accidents in the 1998-2000 three-year period. However, a seven-year old was struck by an eastbound vehicle. No further information is available.

School crosswalks are located at all but the east leg of the intersection (Exhibit 3). School administrators identified this intersection as the primary concern for student safety at this school. School officials indicated that vehicles speed along Newkirk Avenue and often disregarding the STOP sign at Newkirk Avenue and Westminster Avenue. School officials felt that a traffic signal should be considered at this intersection.

To assess the potential for a signal to meet the warrant criteria, a one-hour traffic count was conducted at this intersection on Thursday, March 24, 2005. At this intersection, $214+48=262$ pedestrians were crossing Newkirk Avenue, and $239+542=781$ pedestrians were crossing Westminster Road. Due to the relatively low vehicular volumes (52 vehicles southbound, 173 vehicles eastbound), the intersection does not meet the MUTCD requirements for a signal installation. See Section 4 for alternative measures to improve pedestrian safety.



Figure 9: Looking north on Newkirk Avenue at Westminster Road

3.6.3 Westminster Road and Foster Avenue

This is a signal controlled intersection. Foster Avenue is a 44-foot wide two-way roadway with one travel lane and parking on both sides of the street. School crosswalks are delineated across the north, south, and west legs.

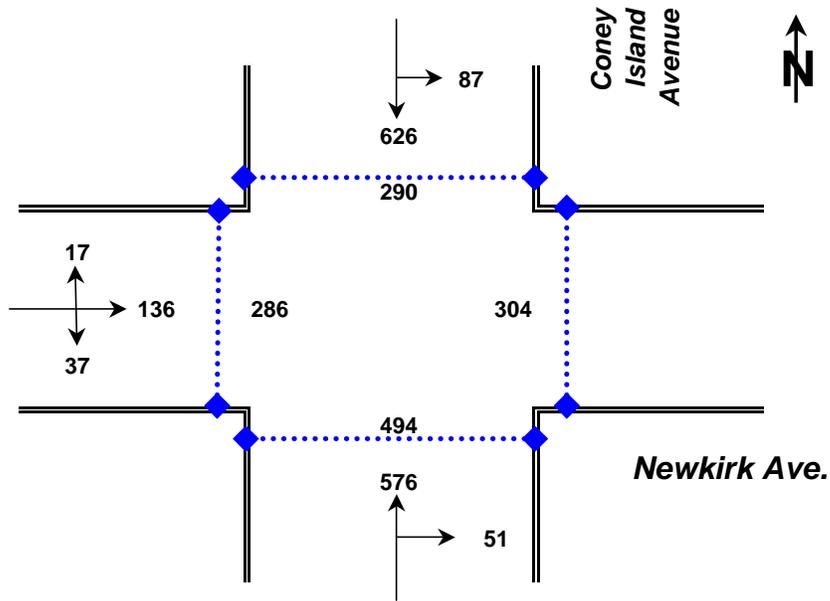
There were no accidents involving pedestrians during the three-year period, 1998-2000. Generally, this intersection was observed to operate well during school arrival and dismissal time.



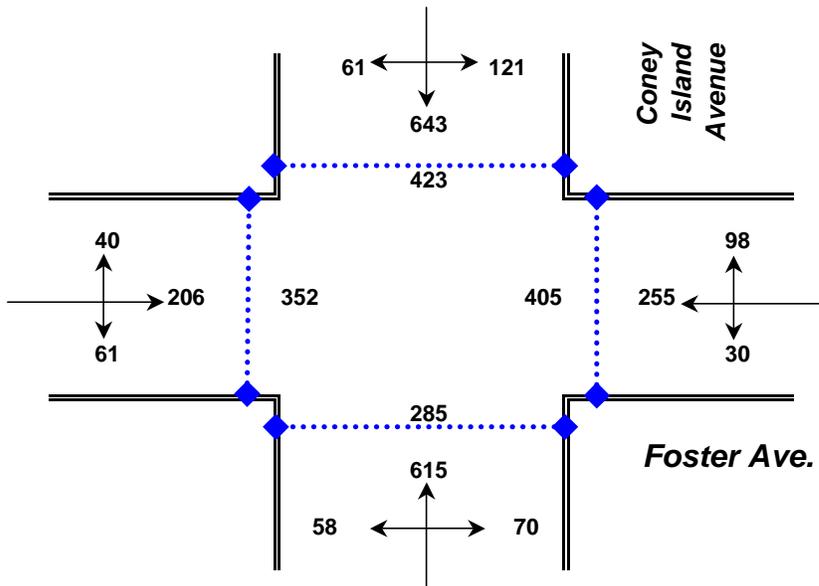
Figure 10: Looking south on Westminster Road at Foster Avenue

One Hour Traffic Count Volumes

(2:30 PM - 3:30 PM April 12, 2005)



Intersection of Newkirk Avenue and Coney Island Avenue



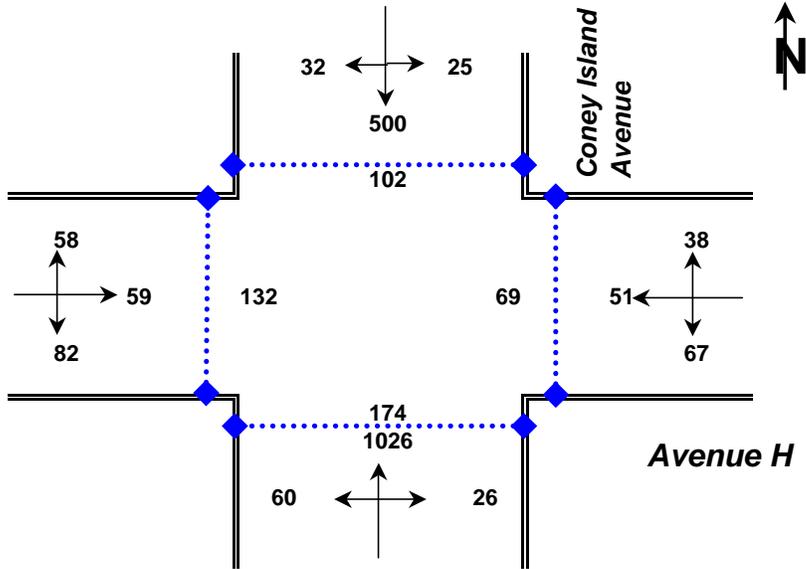
Intersection of Foster Avenue and Coney Island Avenue

- 

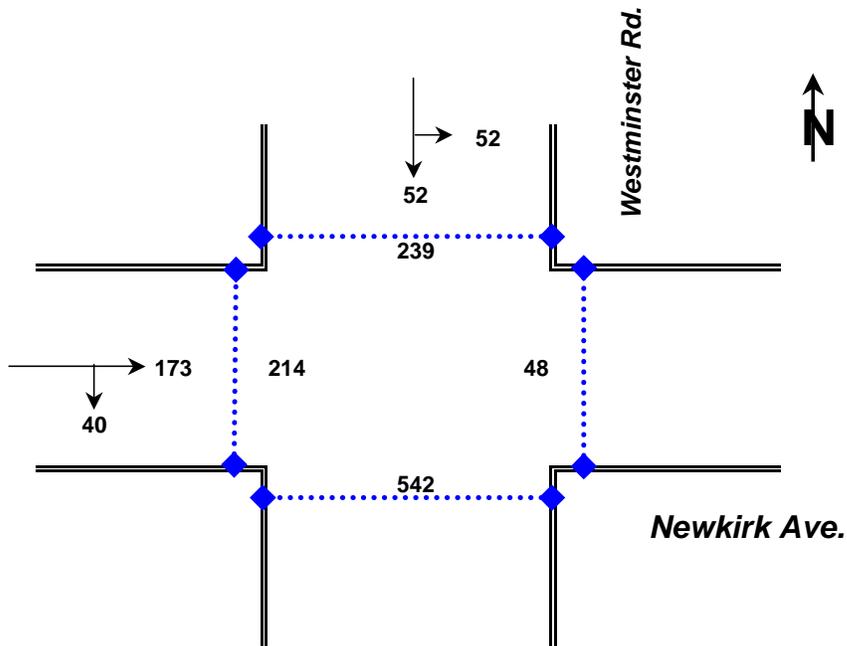
 Number of Pedestrians
- 
 Pedestrian Crossing
- 
 Vehicle Movement
- 
 Number of Vehicles

EXHIBIT 7A
P.S. 217, BROOKLYN COL. DAVID MARCUS SCHOOL
TURNING MOVEMENT COUNTS

One Hour Traffic Count Volumes
(7:30 AM - 8:30 AM March 24, 2005)



Intersection of Coney Island Avenue and Avenue H



Intersection of Westminster Rd. and Newkirk Avenue

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

EXHIBIT 7B
P.S. 217, BROOKLYN COL. DAVID MARCUS SCHOOL
TURNING MOVEMENT COUNTS

3.6.4 Coney Island Avenue and Foster Avenue

This intersection had the highest number of accidents of all school crosswalks associated with P.S 217. There were 74 accidents between 1998-2000, including five pedestrian accidents, and one school related accident. There were no fatalities.

According to the accident data, one school age pedestrian (10 years old) was struck crossing at this location. There is no information on the exact location of the accident, but it appears that the pedestrian was crossing outside a crosswalk either in the center of the intersection or on a leg of the intersection when struck by an eastbound moving vehicle.

Because of high left-turn volumes from Coney Island Avenue to eastbound Foster Avenue, and a high number of pedestrians crossing Foster Avenue, the possibility of prohibiting left turns was investigated. Vehicles wishing to go east would be required to turn left at Avenue H. Traffic counts were conducted at this location on Thursday, June 2, 2005 to determine the impact of diverting traffic from Foster Avenue to Avenue H. It was concluded that because of high northbound traffic volumes on Coney Island Avenue (1026 vehicles/hour) additional left turning vehicles would face excessive delays to make a left turn. In addition Avenue H is not a continuous eastbound street, and vehicles making a left on Avenue H would have to use a circuitous route to continue eastbound. Therefore, prohibiting left turns at Coney Island Avenue and Foster Avenue is not recommended, however alternate recommendations for improving the pedestrian safety of this intersection are discussed in Section 4.



Figure 11: Looking west on Foster Avenue at Coney Island Avenue

3.6.5 Newkirk Avenue and Argyle Road

This is an unsignalized intersection with stop control on Argyle Road. Argyle Road is a one-way (northbound) street with one travel lane and parking on both sides. School crosswalks are delineated across the north and south legs. Six accidents occurred at this intersection during the 1998-2000 period. None of the accidents involved pedestrians.

3.6.7 Coney Island Avenue and Webster Avenue

Webster Avenue is 24-foot wide one-way (westbound) roadway with one travel lane and parking on both sides. This T-intersection is uncontrolled since traffic on Webster Avenue is westbound away from the intersection. Fourteen accidents occurred at this location between 1998 and 2000, of which one involved a pedestrian. This accident was not school related.

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of P.S. 217, and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches (Table 3).

TABLE 3: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
Intersection Name	Crosswalk Width (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)	Timing Adjustment? (Yes/No)
Coney Island Ave and Newkirk Ave				
crossing Coney Island Avenue	70	34	26	NO
crossing Newkirk Avenue	32	76	14	NO
Coney Island Ave and Foster Ave				
crossing Coney Island Avenue	77	35	29	NO
crossing Foster Avenue	48	45	19	NO
Westminster Ave and Foster Avenue				
crossing Westminster Avenue	31	30	14	NO
crossing Foster Avenue	31	20	14	NO

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

3.8 PHYSICAL CONDITIONS (ROADWAY AND SIDEWALK)

The roadways and sidewalks were generally observed to be in good condition.

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRAIN SAFETY

Potential 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 (Exhibit 8).

4.1 SHORT-TERM OPTIONS

- Upgrade No parking to No-Standing Zone

“NO PARKING, 7 AM – 4 PM, SCHOOL DAYS” parking regulation on Newkirk Avenue should be upgraded to “NO STANDING, 7 AM – 4 PM, SCHOOL DAYS”. In addition, this parking regulation should be extended east for approximately 40 feet, so that sufficient clear frontage is provided in front of school’s main entrance for school buses to drop-off and pick-up students.

“NO PARKING, 7 AM – 4 PM, SCHOOL DAYS” parking regulation on Coney Island Avenue should be upgraded to “NO STANDING, 7 AM – 4 PM, SCHOOL DAYS”

Also, “NO STANDING, 7 AM – 4 PM, SCHOOL DAYS” parking regulation is recommended on Westminster Road in front of the school exit for a length of 30 feet (see Exhibit 8 for detail).

- Install new school crosswalks on Glenwood Road

School officials noted that P.S. 217 students walking to school currently cross Glenwood Road. Therefore, it is recommended that new school crosswalks be striped at the following locations: (see Exhibit 8 for detail).

- *Coney Island Avenue and Glenwood Road*
- *Westminster Road and Glenwood Road*

- 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, and instructing students not to cross at mid-block locations.

4.2 LONG-TERM RECOMMENDATIONS

- Install curb extensions at the following intersections:
 - *Coney Island Avenue and Newkirk Avenue*
 - *Coney Island Avenue and Foster Avenue*
 - *Newkirk Avenue and Westminster Road*

Curb extensions should be installed at the corners as shown in Exhibit 8.

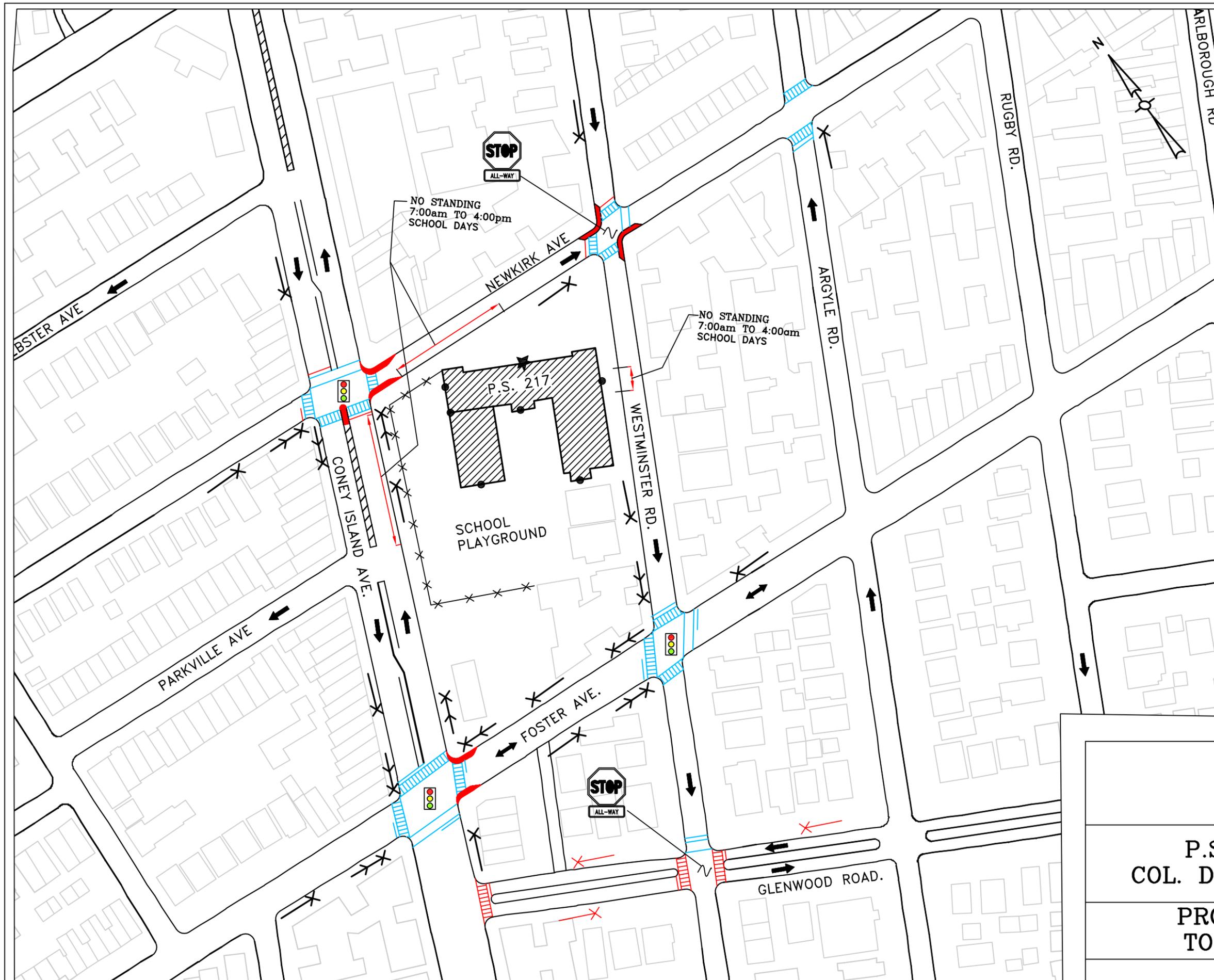
The purpose of the curb extensions is to reduce speeds of vehicles approaching and turning at these heavily utilized school crosswalks.

These curb extensions will not eliminate or reduce the width 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.

- Install a Pedestrian Refuge Island on Coney Island Avenue at Newkirk Avenue

A pedestrian refuge island is proposed at the south leg of Coney Island Avenue and Newkirk Avenue. This will provide pedestrians crossing Coney Island Avenue at the school crosswalk, with a refuge from moving vehicles but will also slow turning vehicles and reduce pedestrian-vehicle conflicts.

The refuge island is placed at the center of the street in place of the painted median. The island should extend completely through the crosswalk with a 'nose' or 'end cap' to protect pedestrians from turning vehicles. The refuge island should also include an ADA compliant at-grade cut through for pedestrians (see Exhibit 8).



- 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
 -  EXISTING ALL-WAY STOP
 -  PROPOSED ADVANCE WARNING SIGN WITH ARROW
 -  PROPOSED ADVANCE WARNING SIGN
 -  PROPOSED STOP LINE
 -  PROPOSED SCHOOL CROSSWALK
 -  PROPOSED TRAFFIC SIGN
 -  PROPOSED CURB EXTENSION (NECKDOWN)
 -  PROPOSED MEDIAN
 -  PROPOSED PARKING REGULATIONS

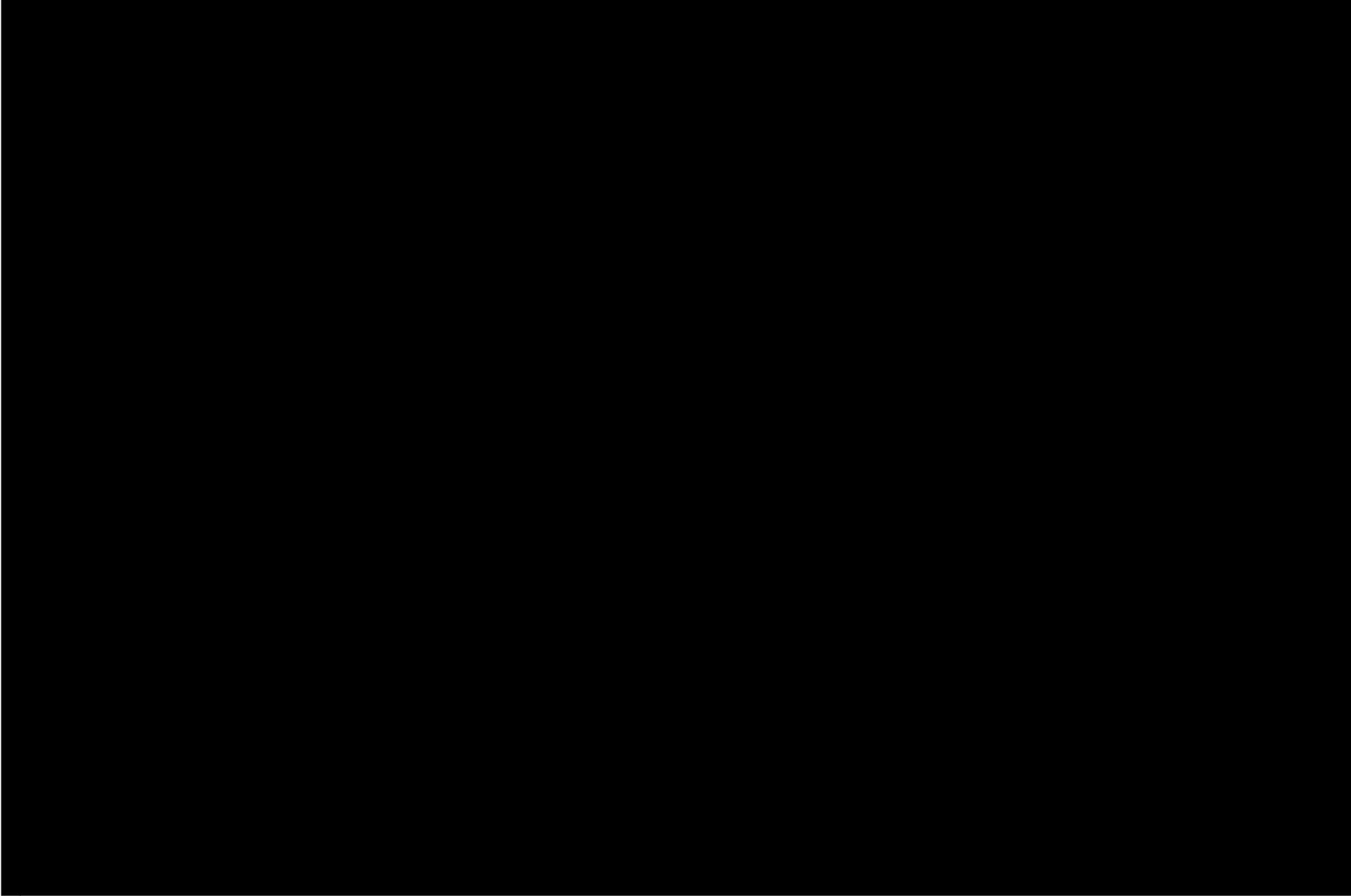
SCALE: 1" : 120'

EXHIBIT 8

**P.S. 217. BROOKLYN
COL. DAVID MARCUS SCHOOL**

**PROPOSED MEASURES
TO IMPROVE SAFETY**

APPENDIX



P.S 217
 APRIL 12, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 04/12/05

Combined
**Peds not included in table data*

Begin Time	Total	CONEY ISLAND AVE			NEWKIRK AVE			CONEY ISLAND AVE			NEWKIRK AVE		
		SB-R	SB-T	SB-L				NB-R	NB-T	NB-L	EB-L	EB-T	EB-R
14:30:00	125	0	40	5	0	0	0	4	40	0	1	34	1
14:45:00	457	0	183	28	0	0	0	16	187	0	13	25	5
15:00:00	491	0	201	27	0	0	0	18	187	0	11	41	6
15:15:00	457	0	202	27	0	0	0	13	162	0	12	36	5
	1,530	0	626	87	0	0	0	51	576	0	37	136	17

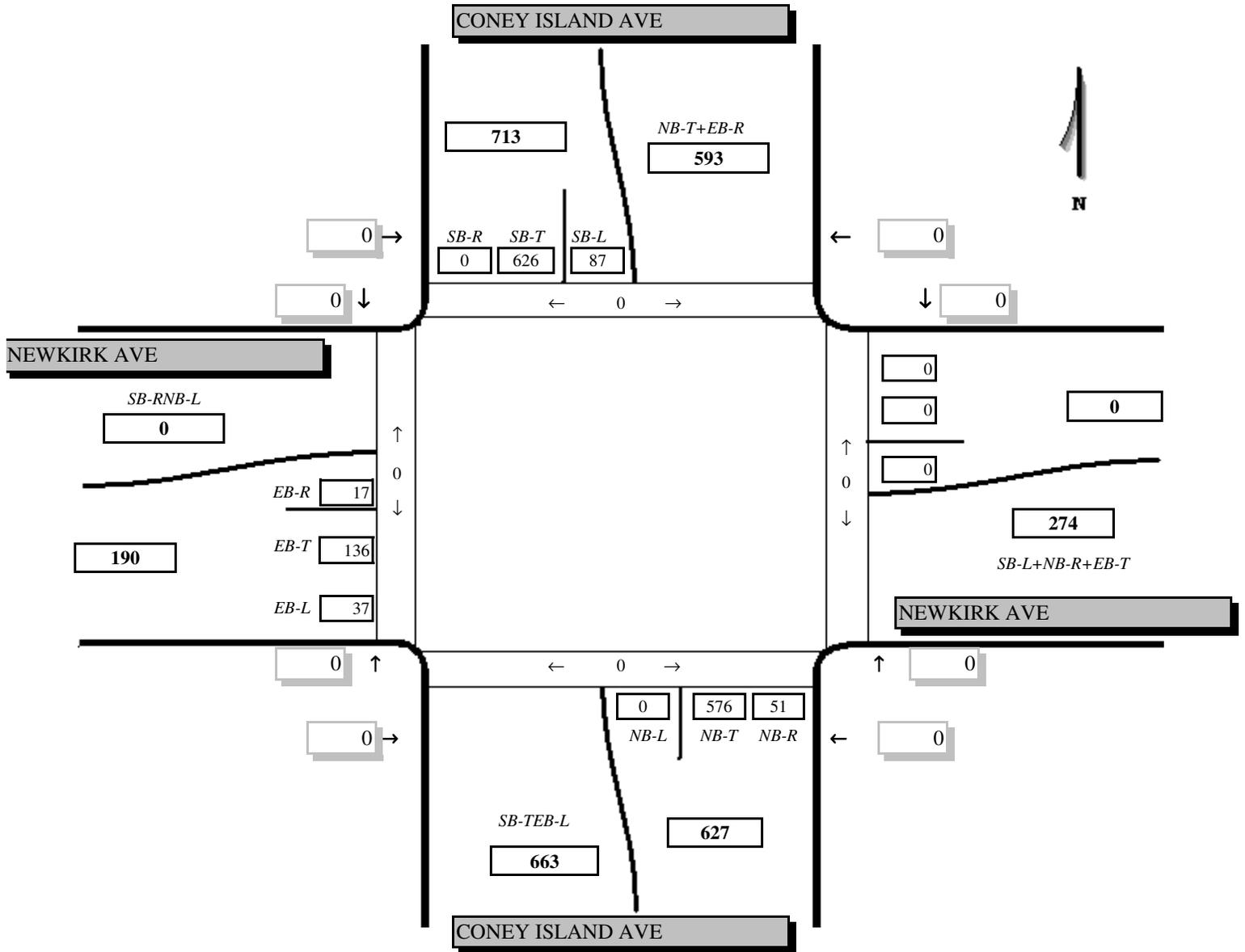
Peak Volume Periods (1 hour Res:15 min.)					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	NA	To NA	0
Noon	10:00:00	To 15:00:00	14:15:00	To 15:15:00	582
PM	15:00:00	To 20:00:00	14:30:00	To 15:30:00	1,530

P.S 217
 APRIL 12, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 04/12/05

Combined
 *Peds not included in table data

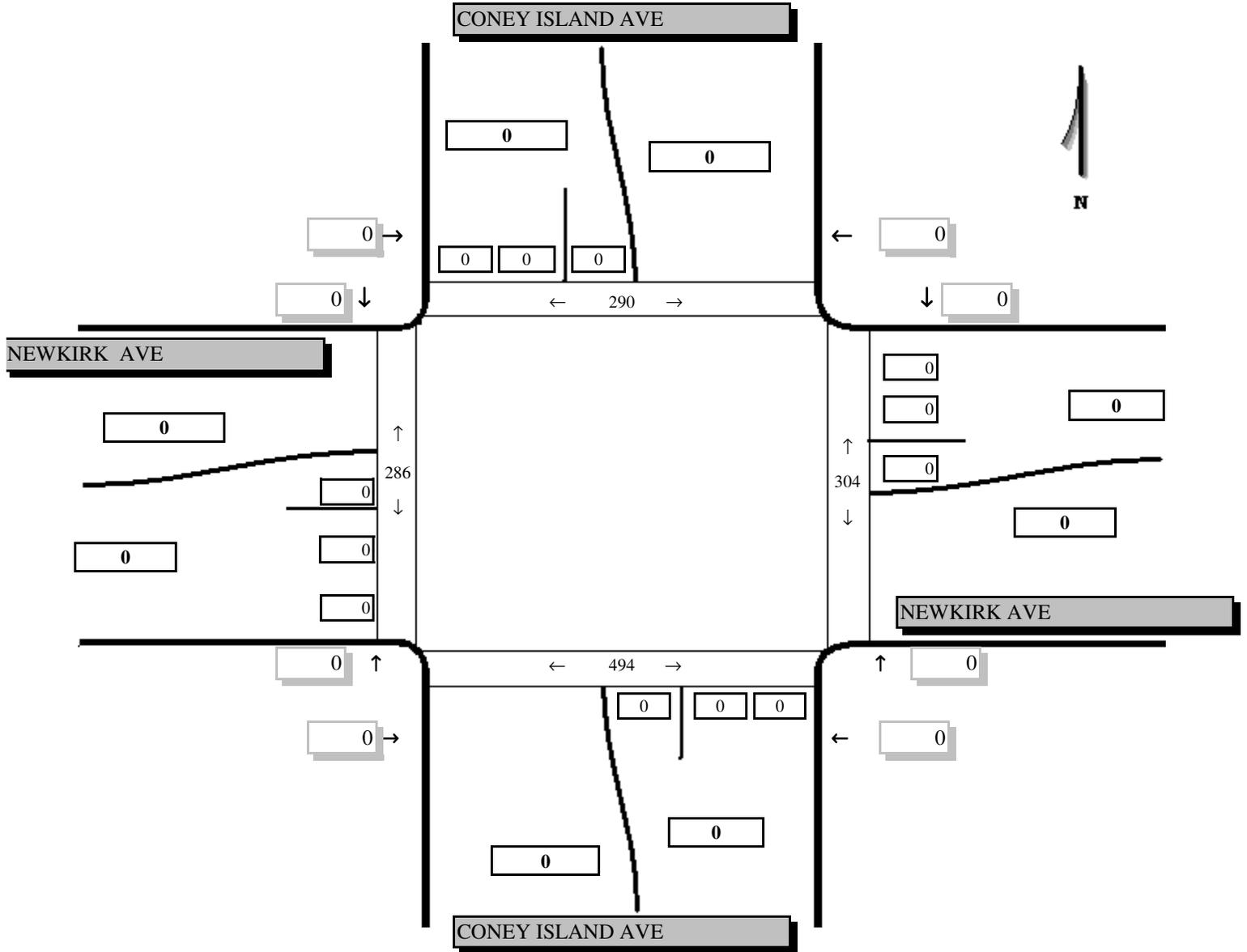


P.S 217
APRIL 12, 2005
2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
Title2 : BOROUGH OF BROOKLYN
Title3 : NYC-DOT

Site:
Date: 04/12/05

Combined
**Peds not included in table data*



P.S 217
 APRIL 12, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 04/12/05

Combined
 *Peds not included in table data

Begin Time	Total	CONEY ISLAND AVE			FOSTER AVE			CONEY ISLAND AVE			FOSTER AVE		
		SB-R	SB-T	SB-L	WB-R	WB-T	WB-L	NB-R	NB-T	NB-L	EB-L	EB-T	EB-R
14:30:00	506	15	144	22	20	61	9	14	141	13	10	51	6
14:45:00	520	19	130	28	17	57	11	19	146	16	20	48	9
15:00:00	547	15	157	27	23	59	4	16	151	12	15	54	14
15:15:00	633	12	212	44	15	51	4	21	177	17	16	53	11
2,206		61	643	121	75	228	28	70	615	58	61	206	40

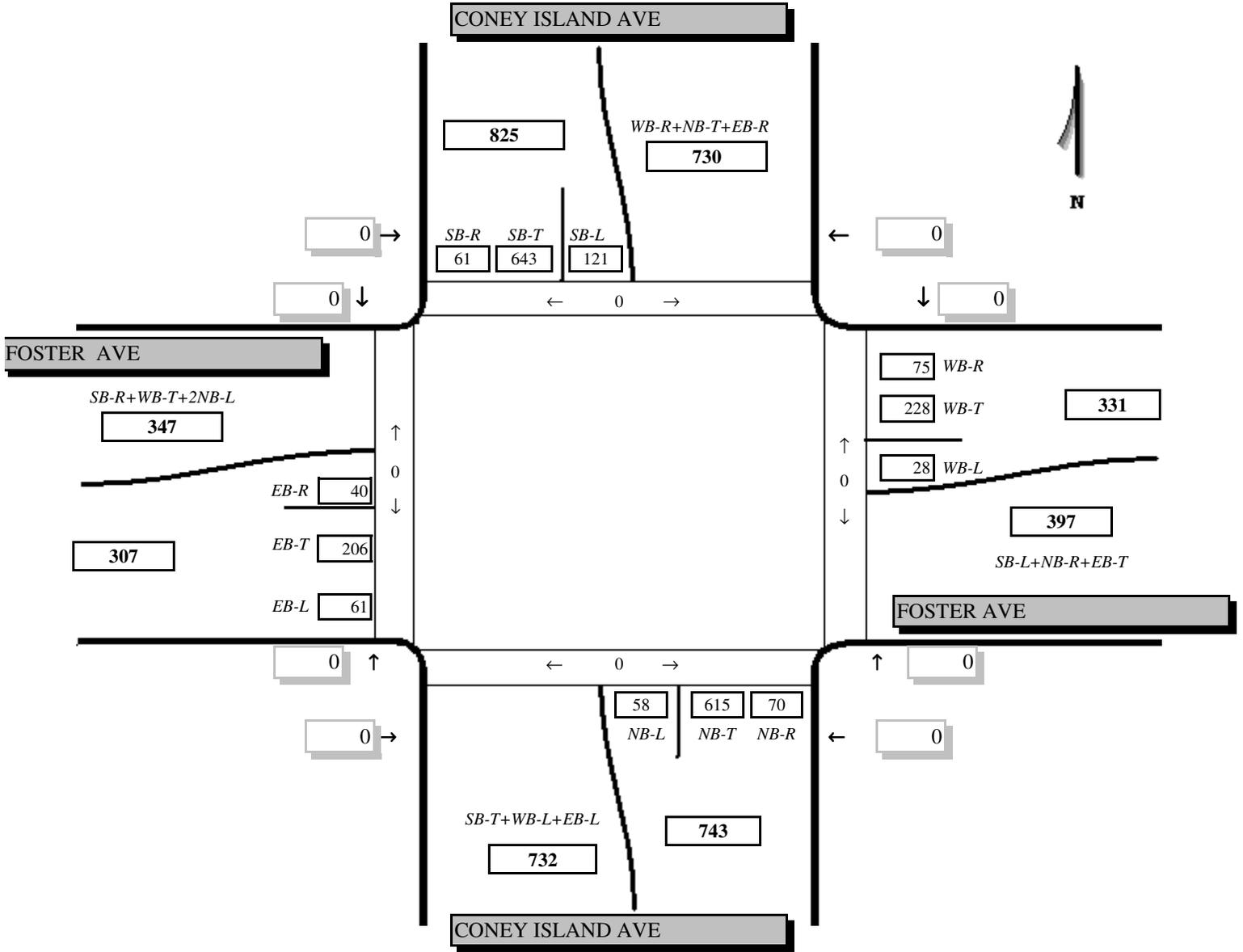
Peak Volume Periods (1 hour Res:15 min.)					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	NA	To NA	0
Noon	10:00:00	To 15:00:00	14:15:00	To 15:15:00	1,026
PM	15:00:00	To 20:00:00	14:30:00	To 15:30:00	2,206

P.S 217
 APRIL 12, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 04/12/05

Combined
 *Peds not included in table data

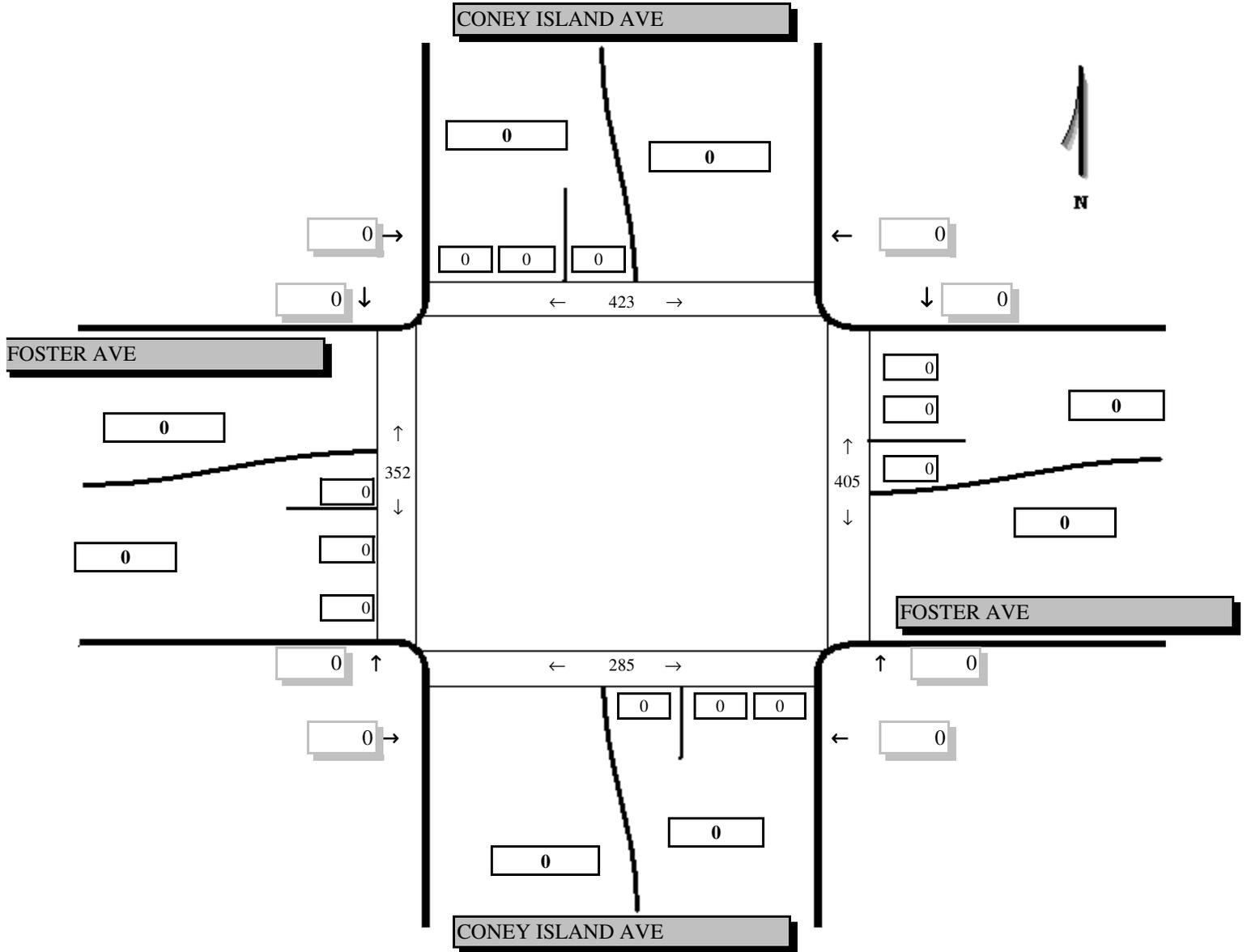


P.S 217
APRIL 12, 2005
2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETYENGINEERING
Title2 : BOROUGH OF BROOKLYN
Title3 : NYC-DOT

Site:
Date: 04/13/05

Combined
**Peds not included in table data*



P.S 217
 March 24, 2005
 7:30 am - 8:30 am

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 03/24/05

Combined
**Peds not included in table data*

Begin Time	Total	WESTMINSTER RD			NEWKIRK AVE			WESTMINSTER RD			NEWKIRK AVE		
		SB-R	SB-T	SB-L	WB-R	WB-T	WB-L	NB-R	NB-T	NB-L	EB-R	EB-T	EB-L
07:00:00	71	0	9	7	0	0	0	0	0	0	6	49	0
07:15:00	64	0	11	7	0	0	0	0	0	0	11	35	0
07:30:00	88	0	8	20	0	0	0	0	0	0	10	50	0
07:45:00	95	0	24	18	0	0	0	0	1	0	13	39	0
318		0	52	52	0	0	0	0	1	0	40	173	0

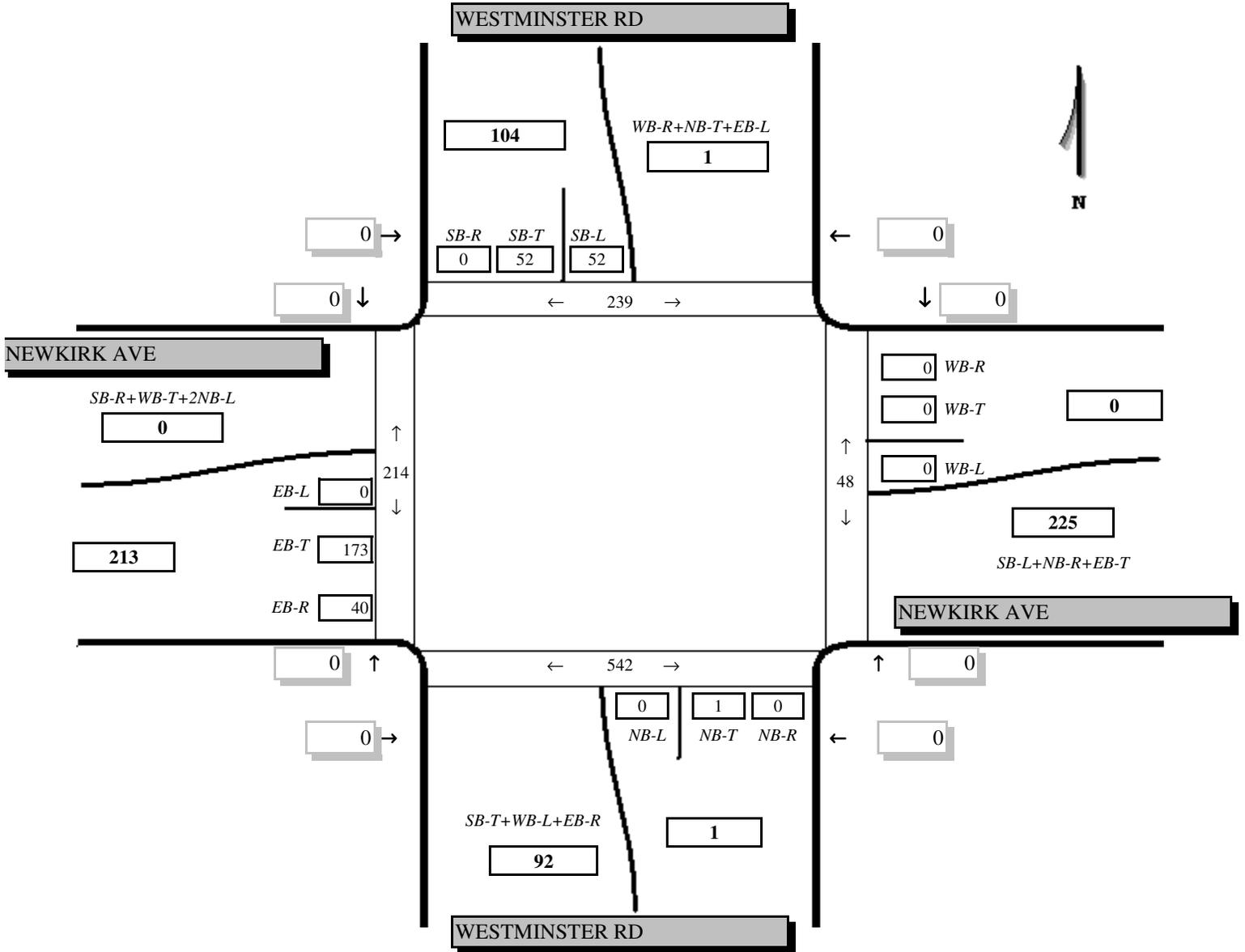
Peak Volume Periods (1 hour Res:15 min.)					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	07:00:00	To 08:00:00	318
Noon	10:00:00	To 15:00:00	NA	To NA	0
PM	15:00:00	To 20:00:00	NA	To NA	0

P.S 217
 March 24, 2005
 7:30 am - 8:30 am

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 03/24/05

Combined
 *Peds not included in table data



P.S 217
 June 2, 2005
 7:30 am - 8:30 am

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 06/02/05

Combined
**Peds not included in table data*

Begin Time	Total	CONEY ISLAND AVE			AVE H			CONEY ISLAND AVE			AVE H		
		W-R	W-T	W-L	N-R	N-T	N-L	W-R	W-T	W-L	N-R	N-T	N-L
07:30:00	288	0	0	0	6	7	15	7	246	7	0	0	0
07:45:00	301	0	0	0	12	10	23	6	239	11	0	0	0
08:00:00	376	0	0	0	15	17	18	6	299	21	0	0	0
08:15:00	303	0	0	0	5	17	11	7	242	21	0	0	0
1,268		0	0	0	38	51	67	26	1,026	60	0	0	0

Peak Volume Periods (1 hour Res:15 min.)					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	07:30:00	To 08:30:00	1,268
Noon	10:00:00	To 15:00:00	NA	To NA	0
PM	15:00:00	To 20:00:00	NA	To NA	0

P.S 217
 June 2, 2005
 7:30 am - 8:30 am

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 06/02/05

Combined
**Peds not included in table data*

Begin Time	Total	CONEY ISLAND AVE			AVE H			CONEY ISLAND AVE			AVE H		
		S-R	S-T	S-L							E-R	E-T	E-L
07:32:00	154	7	99	1	0	0	0	0	0	0	16	22	9
07:45:00	186	5	135	5	0	0	0	0	0	0	19	11	11
08:00:00	207	9	129	6	0	0	0	0	0	0	26	17	20
08:15:00	209	11	137	13	0	0	0	0	0	0	21	9	18
756		32	500	25	0	0	0	0	0	0	82	59	58

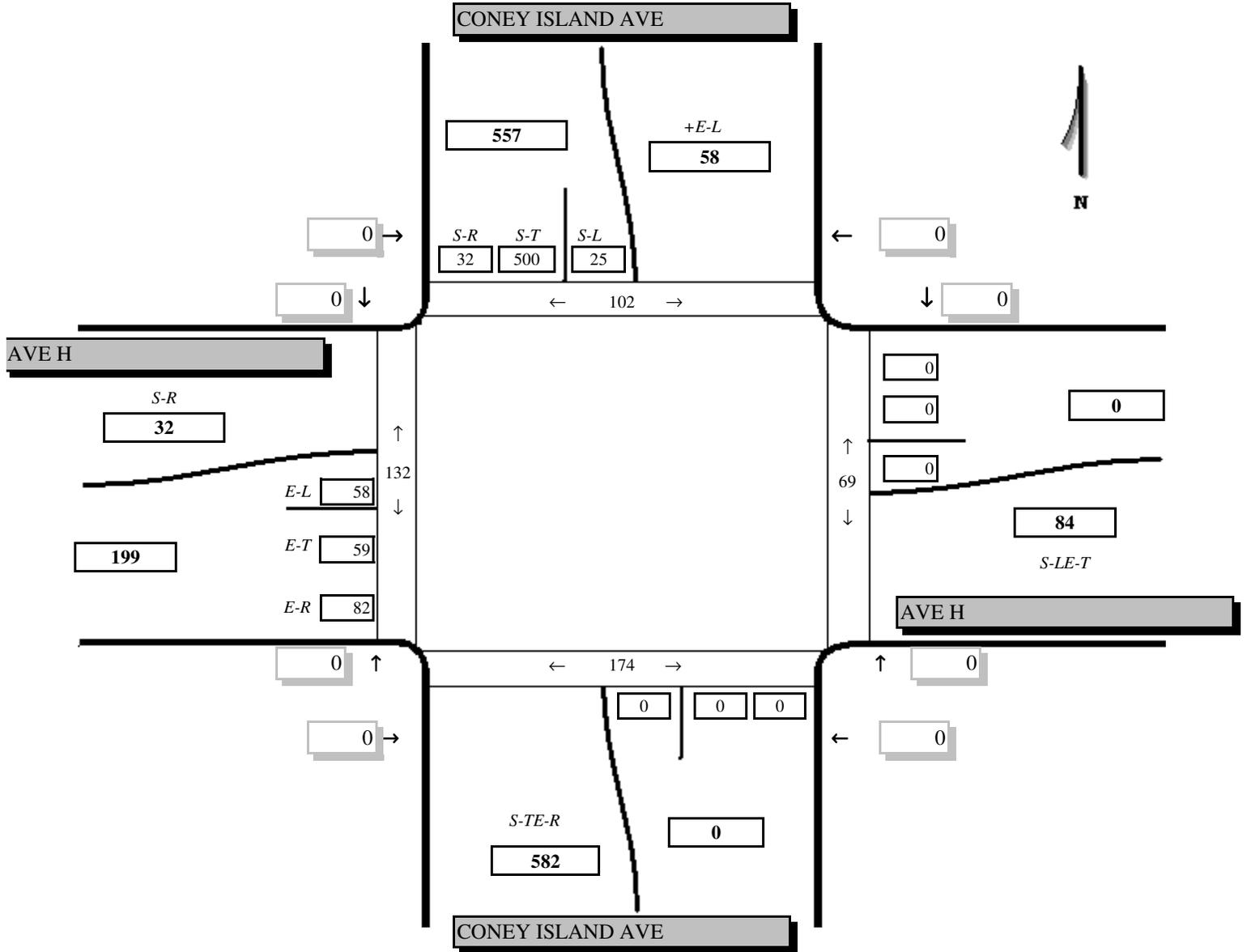
Peak Volume Periods (1 hour Res:15 min.)					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	07:30:00	To 08:30:00	756
Noon	10:00:00	To 15:00:00	NA	To NA	0
PM	15:00:00	To 20:00:00	NA	To NA	0

P.S 217
 June 2, 2005
 7:30 am - 8:30 am

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF BROOKLYN
 Title3 : NYC-DOT

Site:
 Date: 06/02/05

Combined
 *Peds not included in table data



Analyst: The RBA Group
 Agency: NYC-DOT
 Date: 5/25/2005
 Period: AM
 Project ID: EXISTING CONDITIONS - NO LPI
 E/W St: NEWKIRK AVE

Inter.:
 Area Type: All other areas
 Jurisd:
 Year :
 N/S St: CONEY ISLAND AVE

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	0	0	0	2	0	1	2	0
LGConfig	LTR						TR			L	T	
Volume	17	136	37				576	51		87	626	
Lane Width	12.0						12.0			12.0	12.0	
RTOR Vol	0						0					

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left	P		
Thru					Thru	P		
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	34.0				76.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 120.0 sec

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	522	1842	0.40	0.28	37.1	D	37.1	D
Westbound								
Northbound								
TR	2258	3566	0.31	0.63	10.4	B	10.4	B
Southbound								
L	427	674	0.23	0.63	10.7	B		
T	2286	3610	0.30	0.63	10.3	B	10.4	B

HCS2000: Signalized Intersections Release 4.1b

Analyst: The RBA Group
 Agency: NYC-DOT
 Date: 5/25/2005
 Period: AM
 Project ID: EXISTING CONDITIONS - WITH LPI
 E/W St: NEWKIRK AVE

Inter.:
 Area Type: All other areas
 Jurisd:
 Year :
 N/S St: CONEY ISLAND AVE

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	0	0	0	2	0	1	2	0
LGConfig	LTR						TR			L T		
Volume	17	136	37				576	51		87	626	
Lane Width	12.0						12.0			12.0 12.0		
RTOR Vol	0						0					

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru		P	
Right		P			Right		P	
Peds		X			Peds	X	X	
WB Left					SB Left		P	
Thru					Thru		P	
Right					Right			
Peds		X			Peds	X	X	
NB Right					EB Right			
SB Right					WB Right			
Green	29.0				5.0	76.0		
Yellow	3.0				0.0	3.0		
All Red	2.0				0.0	2.0		

Cycle Length: 120.0 sec

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	445	1842	0.47	0.24	42.6	D	42.6	D
Westbound								
Northbound								
TR	2258	3566	0.31	0.63	10.4	B	10.4	B
Southbound								
L	424	670	0.23	0.63	10.7	B		
T	2286	3610	0.30	0.63	10.3	B	10.4	B

Analyst: The RBA Group

Agency: NYC-DOT

Date: 5/25/2005

Period: AM

Project ID: EXISTING CONDITIONS - NO LPI

E/W St: FOSTER AVE

Inter.:

Area Type: All other areas

Jurisd:

Year :

N/S St: CONEY ISLAND AVE

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	1	2	0	1	2	0
LGConfig	LTR			LTR			L	TR		L	TR	
Volume	40	206	61	30	255	98	58	615	70	121	643	61
Lane Width	12.0			12.0			12.0	12.0		12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left		P			SB Left	P		
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	34.0				76.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 120.0 sec

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	816	2880	0.42	0.28	36.5	D	36.5	D
Westbound								
LTR	882	3113	0.48	0.28	37.6	D	37.6	D
Northbound								
L	383	604	0.17	0.63	10.0-	A		
TR	2251	3554	0.34	0.63	10.7	B	10.6	B
Southbound								
L	393	621	0.34	0.63	12.6	B		
TR	2257	3563	0.35	0.63	10.8	B	11.0	B

Analyst: The RBA Group
 Agency: NYC-DOT
 Date: 5/25/2005
 Period: AM
 Project ID: EXISTING CONDITIONS - WITH LPI
 E/W St: FOSTER AVE

Inter.:
 Area Type: All other areas
 Jurisd:
 Year :
 N/S St: CONEY ISLAND AVE

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	1	2	0	1	2	0
LGConfig	LTR			LTR			L	TR		L	TR	
Volume	40	206	61	30	255	98	58	615	70	121	643	61
Lane Width	12.0			12.0			12.0	12.0		12.0	12.0	
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left		P	
Thru		P			Thru		P	
Right		P			Right		P	
Peds		X			Peds	X	X	
WB Left		P			SB Left		P	
Thru		P			Thru		P	
Right		P			Right		P	
Peds		X			Peds	X	X	
NB Right					EB Right			
SB Right					WB Right			
Green	29.0				5.0	76.0		
Yellow	3.0				0.0	3.0		
All Red	2.0				0.0	2.0		

Cycle Length: 120.0 sec

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	665	2750	0.51	0.24	42.2	D	42.2	D
Westbound								
LTR	751	3107	0.57	0.24	43.0	D	43.0	D
Northbound								
L	379	599	0.17	0.63	10.0-	A		
TR	2251	3554	0.34	0.63	10.7	B	10.6	B
Southbound								
L	390	616	0.34	0.63	12.7	B		
TR	2257	3563	0.35	0.63	10.8	B	11.0	B

ANALYSIS OF INTERSECTION TIMING

INTERSECTION
TYPE OF SYSTEM
TYPE OF CONTROL
TIME OF OPERATION
CYCLE LENGTH
INT. OFFSET
MOVEMENT

Coney Island Avenue @ Newkirk Avenue
Semi - Actuated
Computer
Mon-Fri 05:30AM - 10:15AM

120Sec
105

Coney Island Avenue
Newkirk Avenue

<u>GREEN</u>	<u>AMBER</u>	<u>RED</u>
76	3	2
34	3	2

TIME OF OPERATION

Mon-Thur 10:15AM - 03:00PM, 07:30PM - 10:00PM,
Fri 10:15AM - 03:00PM, 07:30PM - 12:00Midnight
Weekend - AAT

CYCLE LENGTH
INT. OFFSET
MOVEMENT

90 Sec
45

Coney Island Avenue
Newkirk Avenue

<u>GREEN</u>	<u>AMBER</u>	<u>RED</u>
49	3	2
31	3	2

TIME OF OPERATION

Mon-Fri 03:00PM - 07:30PM

CYCLE LENGTH
INT. OFFSET
MOVEMENT

120Sec
22

Coney Island Avenue
Newkirk Avenue

<u>GREEN</u>	<u>AMBER</u>	<u>RED</u>
76	3	2
34	3	2

TIME OF OPERATION

Mon-Thur 10:00PM - 05:30AM
Fri 12:00Midnight - 05:30AM

CYCLE LENGTH
INT. OFFSET
MOVEMENT

90Sec
45

Coney Island Avenue
Newkirk Avenue

<u>GREEN</u>	<u>AMBER</u>	<u>RED</u>
49	3	2
31	3	2

ANALYSIS OF INTERSECTION TIMING

INTERSECTION

TYPE OF SYSTEM

TYPE OF CONTROL

TIME OF OPERATION

CYCLE LENGTH

INT. OFFSET

MOVEMENT

Coney Island Avenue @ Foster Avenue

Semi - Actuated

Computer

Mon-Fri 05:30AM - 10:15AM

120Sec

94

Coney Island Avenue

Foster Avenue

GREEN AMBER RED

76 3 2

34 3 2

TIME OF OPERATION

Mon-thur 10:15AM - 03:00PM, 07:30PM - 10:00PM,

Fri 10:15AM - 03:00PM, 07:30PM - 12:00Midnight

Weekend - AAT

90 Sec

45

CYCLE LENGTH

INT. OFFSET

MOVEMENT

Coney Island Avenue

Foster Avenue

GREEN AMBER RED

49 3 2

31 3 2

TIME OF OPERATION

Mon-Fri 03:00PM - 07:30PM

CYCLE LENGTH

120Sec

INT. OFFSET

33

MOVEMENT

Coney Island Avenue

Foster Avenue

GREEN AMBER RED

76 3 2

34 3 2

TIME OF OPERATION

Mon-Thur 10:00PM - 05:30AM

Fri 12:00Midnight - 05:30AM

CYCLE LENGTH

90Sec

INT. OFFSET

45

MOVEMENT

Coney Island Avenue

Foster Avenue

GREEN AMBER RED

49 3 2

31 3 2

ANALYSIS OF INTERSECTION TIMING

INTERSECTION Foster Avenue @ Westminster Rd

TYPE OF SYSTEM Non - Actuated

TYPE OF CONTROL Mechanical

TIME OF OPERATION At All Times

CYCLE LENGTH 60 Sec

INT. OFFSET 58.8

<u>MOVEMENT</u>	<u>GREEN</u>	<u>AMBER</u>	<u>RED</u>
Foster Avenue	31.8	3	1.2
Westminster Road	19.8	3	1.2

NI