

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



School Safety Engineering Project

FINAL REPORT: Yeshiva Shaare Torah, Brooklyn



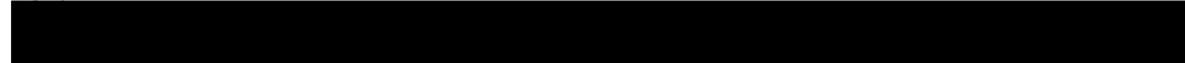
**Prepared by
The RBA Group/Urbitrans Associates**



March 22, 2006

**School Safety Engineering Project
Draft Report: Yeshiva Shaare Torah, Brooklyn**

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1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The objective of the School Safety Engineering Project is to identify existing conditions in the vicinity of New York City elementary and intermediate schools and to identify potential improvements that will improve the safety of student pedestrians.

The New York City Department of Transportation (NYCDOT) Office of School Safety Engineering (SSE) currently designates official school crosswalks, identified by warning signs and roadway markings at approximately 1471 schools throughout the city. Schools eligible for inclusion in this program are elementary and middle schools with enrollment greater than 250 students. NYCDOT also designates curbside locations for school buses and provides other parking restrictions.

Under the School Safety Engineering Project, accident data in the vicinity of all program schools was reviewed, schools were ranked in terms of pedestrian safety, and 135 priority schools were identified for which specific accident countermeasures will be identified.

Priority schools were identified as such because of the frequency and severity of reported accidents in the vicinity of the school over a three-year period (1998-2000.) Following the analysis of accident-related data, each of the schools in the study was ranked, by borough. Yeshiva Shaare Torah in Brooklyn is one of 135 such “priority” schools identified by the NYCDOT.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS



2.2 NEIGHBORHOOD DESCRIPTION

Yeshiva Shaare Torah is located on the southwest corner of Ocean Parkway (West Service Road) and Church Avenue (see Aerial Photograph, Exhibit 1). On the north side of Church Avenue is an entrance to the Prospect Expressway, a direct route to the Brooklyn-Queens Expressway (I-278). Ocean Parkway is a main thoroughfare through Brooklyn, connecting the Prospect Expressway to the Belt Parkway and Coney Island. In the vicinity of the school, Ocean Parkway has high-rise apartment buildings on either side. Church Avenue is predominately commercial.



Figure 1: looking south on Ocean Parkway, Yeshiva Shaare Torah on the right

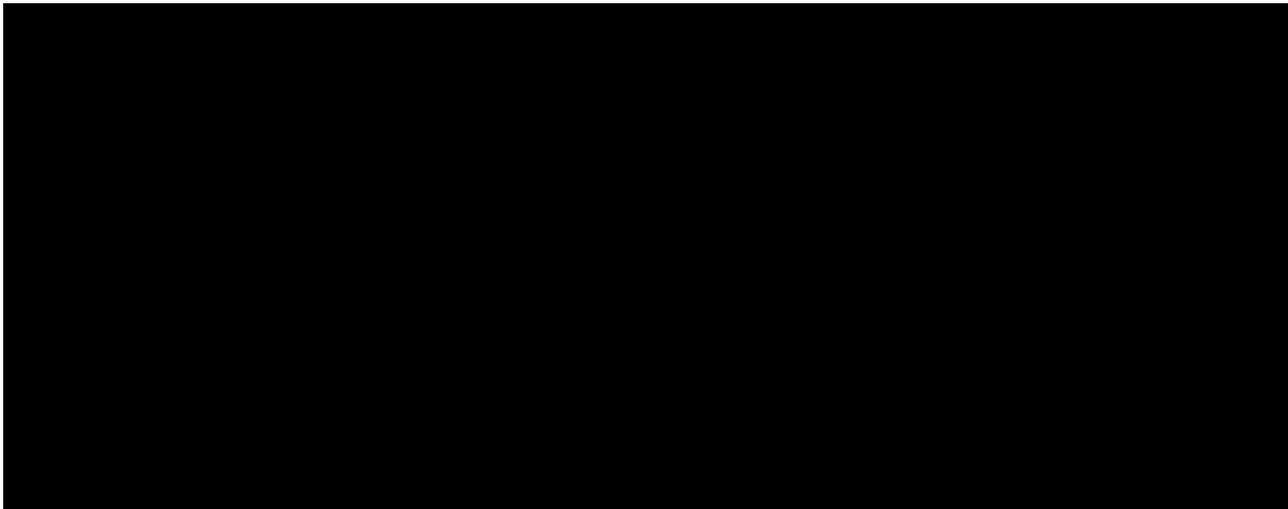
2.3 MEETING WITH SCHOOL REPRESENTATIVES

Representatives from NYCDOT, the consultant team, and Yeshiva Shaare Torah met at the school on the afternoon of June 7, 2004. (see Appendix for a list of attendees).

According to the principal, students do not walk to school. However, many students travel by public bus and walk to and from the local bus stops. Problems noted by the principal are as follows:

- Lack of signage or markings indicating presence of the school to motorists exiting the Prospect Expressway;

- Vehicles speeding on Ocean Parkway West Service Road;
- Lack of locations for pedestrian refuge on Ocean Parkway;
- Inadequate crossing times at the intersection of Church Avenue and East Fifth Street
- Vehicles standing in the no standing zone utilized by Yeshiva Shaare Torah buses.



2.6 PRIMARY MODE OF TRANSPORT TO AND FROM SCHOOL

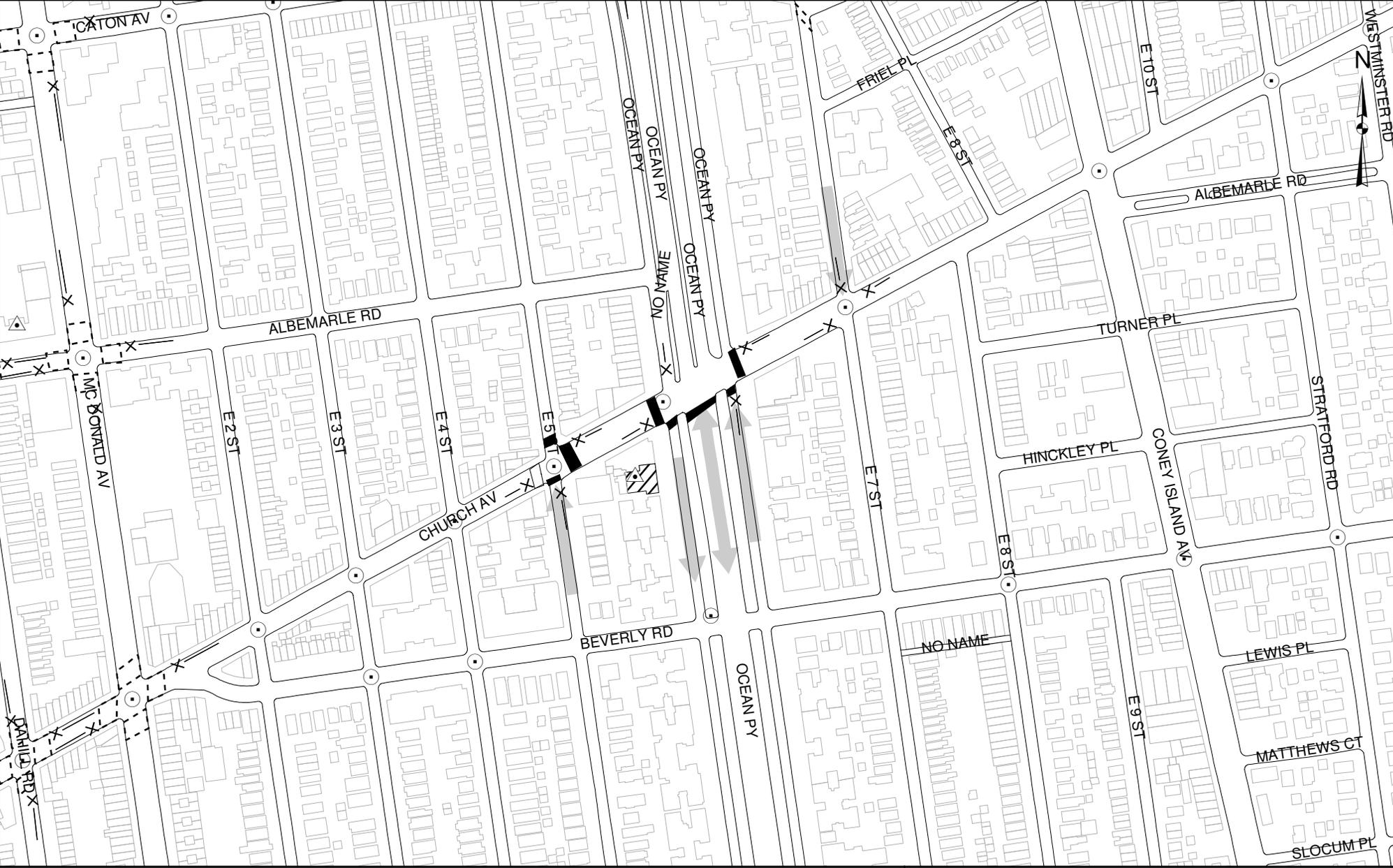
There is no catchment area for Yeshiva Shaare Torah. Based upon information gathered from the principal, very few students live near the school. The school provides transportation for all students up to sixth grade. After sixth grade, carpools, private buses or public buses are the principal modes of transportation.

Mode	Percentage
Walk	0%
Driven by car or carpools	10%
School bus (private)	80%
Bus/Subway	10%
Bicycle	0%
TOTAL	100%



**EXHIBIT 1
YESHIVA SHAARE TORAH
BROOKLYN**

AERIAL PHOTOGRAPH



LEGEND:

- | | | | | | |
|------------------------|--|---------------------------------------|--|----------------|--|
| TRAFFIC FLOW | | SCHOOL X-WALK | | TRAFFIC SIGNAL | |
| ROUTE TO SCHOOL | | PED. X-WALK | | ALL - WAY STOP | |
| ADV. WARNING SIGN | | STOP LINE | | | |
| SCHOOL LOCATION | | X-WALKS ASSOCIATED WITH OTHER SCHOOLS | | | |
| MAIN SCHOOL ENTRANCE | | SPEED HUMP | | | |
| OTHER SCHOOL ENTRANCES | | | | | |

EXHIBIT 2

**YESHIVA SHAARE TORAH
BROOKLYN**

EXISTING TRAFFIC SAFETY MAP

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

Church Avenue is commercial with many shops lining the street. The principal indicated that before and after school, the students often walk across Church Avenue at East Fifth Street to shop in the various stores.



Figure 2: Shops on the North side of Church Avenue west of East Fifth Street.

2.8 CROSSING GUARD LOCATIONS

According to field observations and as confirmed by the principal, there are no crossing guards assigned to Yeshiva Shaare Torah.



Figure 3: Looking northeast at school cross-walk at Ocean Parkway and Church Avenue

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

The school bus operations consist of nine private buses (three large school buses and six mini-buses). The buses load and unload the students from the no parking zone on the south side of Church Avenue at the intersection with Ocean Parkway. The mini-buses utilize a circular driveway in front of the school for arrival and dismissal.

3.2 PARENT DROP-OFF OPERATIONS

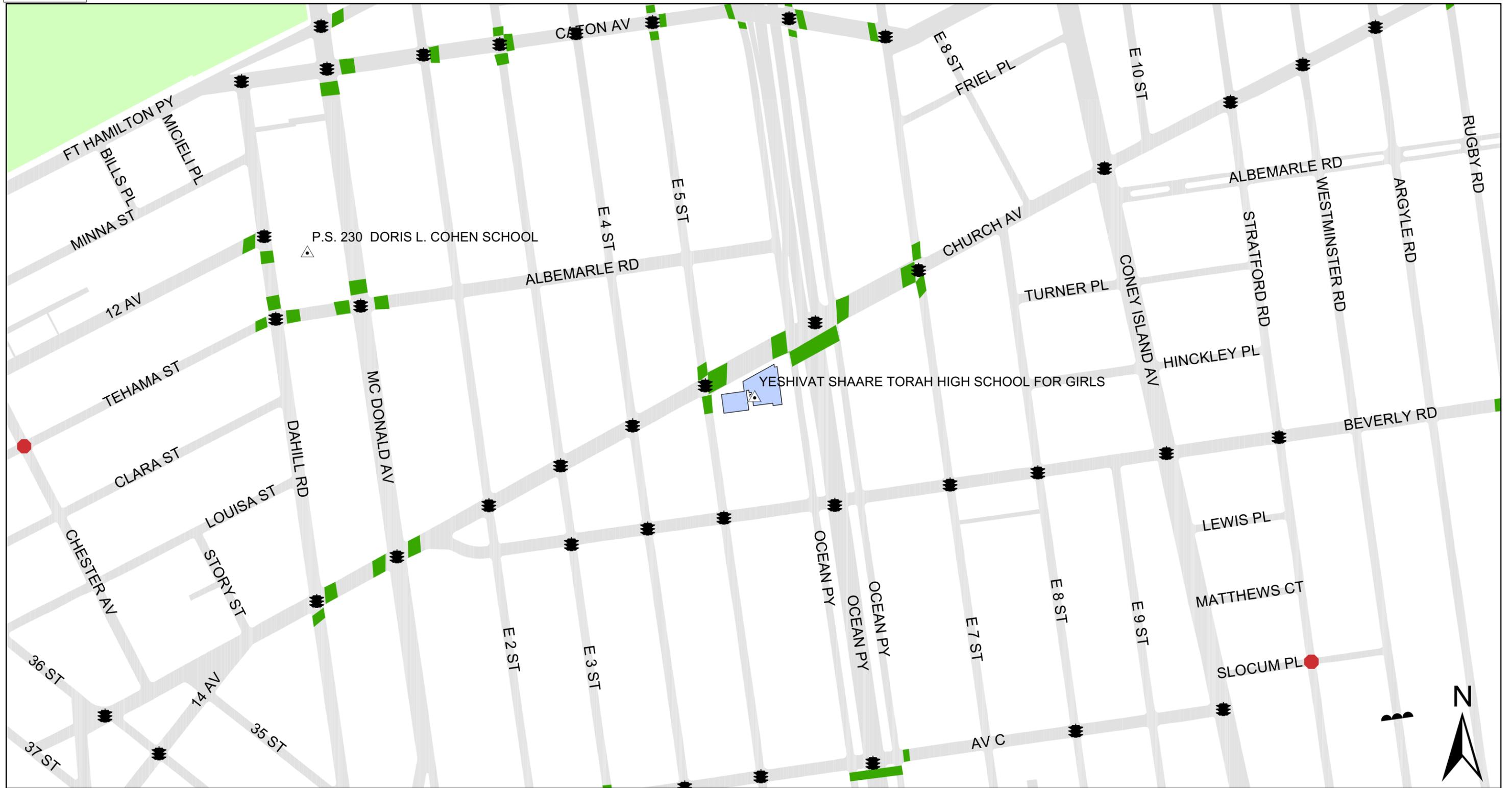
The school indicated that, approximately 10% of Yeshiva Shaare Torah students are driven to and from school by parents or carpools. Field observations taken on June 7, 2004 indicated that parents primarily park and double-park in the no parking areas along the west side of the Ocean Parkway West Service Road while waiting for the students to be dismissed.

3.3 PARKING REGULATIONS

The south side of Church Avenue is posted as “NO PARKING ANYTIME” and “NO PARKING 7 AM - 7 PM, EXCEPT SUNDAYS”. A bus stop for the NYCTA B35 bus is located on the west end of the block. The west curb line of the Ocean Parkway West Service Road is posted as “NO PARKING, 8 AM - 6 PM” on Tuesday, Wednesday and Friday. The east side is posted as “NO PARKING ANYTIME” or “NO PARKING, 8 AM - 6 PM, MONDAY AND THURSDAY”. All the parking regulations are shown on Exhibit 3.



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

Brooklyn
YESHIVAT SHAARE TORAH SCHOOL FOR GIRLS

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

Map created on 11/21/2006

COMM. BOARD: 312
 PRECINCT: 66

EXHIBIT 3

1.6.0

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Map, Exhibit 2, indicates existing signs, signals and pavement markings as of April 2004. 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 6.



Figure 4: Advance Warning Signs on Ocean parkway Service Road (north of Church Avenue)

3.5 ACCIDENT SUMMARY

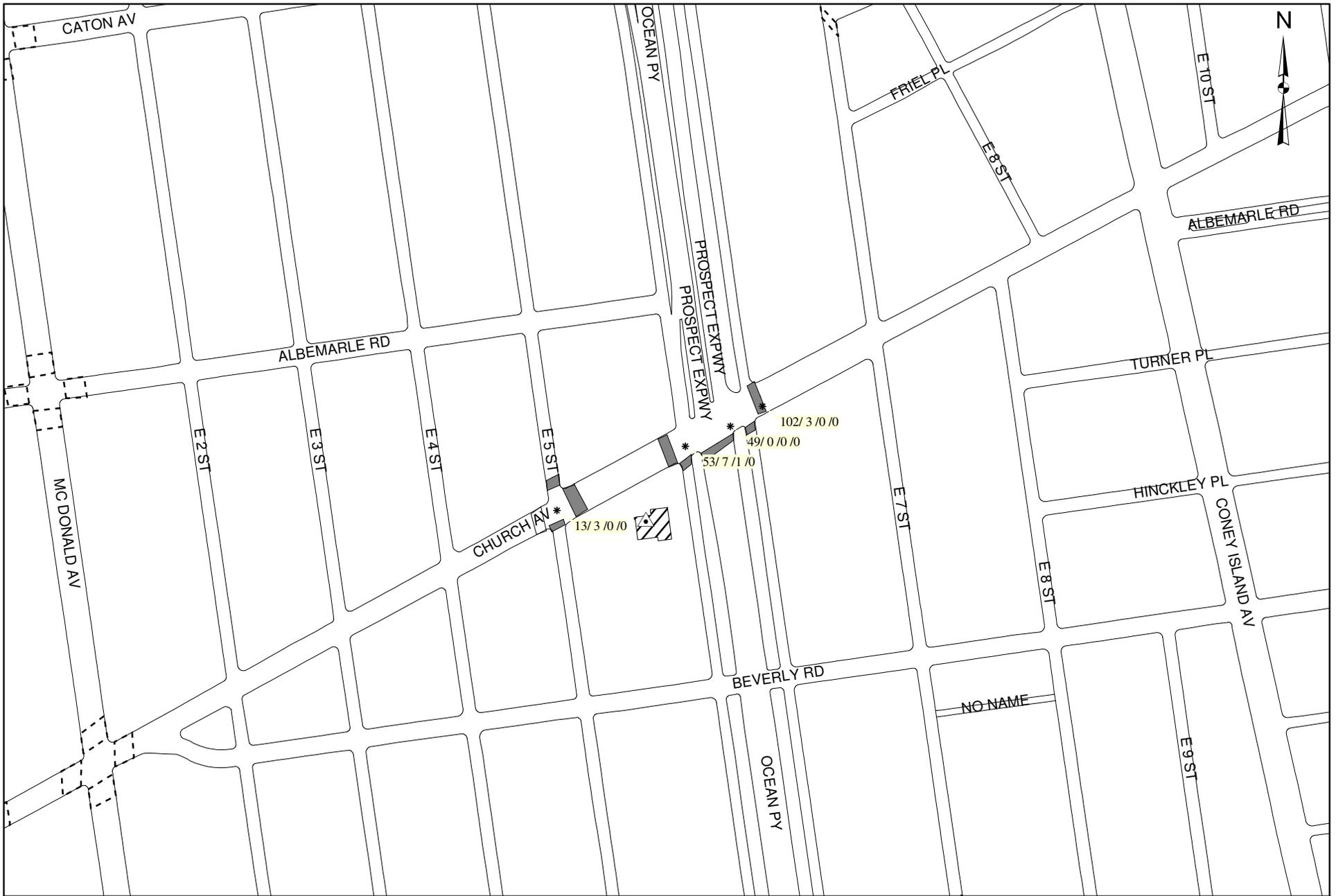
Exhibit 4 and Table 2 show a summary of accidents as obtained from New York State Department of Motor Vehicles (DMV) in the vicinity of Yeshiva Shaare Torah for the three-year period from January 1, 1998 through December 1, 2000. The DMV data provides some detail relating to the cause of the accident. Accidents are 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
Church Ave. and East 5 th Street	13	3	0	0
Ocean Pkwy. West Service Road and Church Avenue	53	7	1	0
Ocean Pkwy Mainline and Church Ave.	49	0	0	0
Ocean Pkwy East Service Road and Church Avenue	102	3	0	0
Church Ave. and East 7 TH St.	21	3	0	1
TOTAL	238	16	1	1

TABLE 3: NYPD FOUR-YEAR ACCIDENT SUMMARY (1998-2000)*				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Church Ave. and East 5 TH Street	26	3	0	0
Ocean Pkwy / Prospect Expressway and Church Ave ¹	225	9	0	0
Church Ave. and East 7 TH St.	32	2	0	2
TOTAL	283	14	0	2

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

¹ Accident data represents all accidents at this intersection, including mainline and both service roads



13/3/0/0

53/7/1/0

49/0/0/0

102/3/0/0

3.6 TRAFFIC OPERATIONS AND ISSUES

The following outlines the traffic accidents and operations issues at intersections in the vicinity of Yeshiva Shaare Torah:

3.6.1 Church Avenue and East Fifth Street

This intersection was identified as an area of concern by the school. Review of the existing signal timing indicates that the pedestrian phase does not provide adequate time for the pedestrians to cross Church Avenue at a walking speed of three feet per second. Church Avenue narrows through the intersection from east to west (75 feet for the east crosswalk which has been designated as the school crosswalks and 55 feet for the west crosswalk).

Thirteen accidents occurred during the three-year period, 1998-2000. Three accidents involved pedestrians and none involved school children. The accident records indicate these three pedestrian accidents were left turn accidents that resulted from drivers' inattention or speeding.

There is an apex pedestrian ramp in the northeast corner, with all other corners having standard (2 per corner) pedestrian ramps. In addition, east of the intersection, there is a bus stop for the B35 bus line.



Figure 5: Church Avenue and East Fifth Street looking west

3.6.2 Church Avenue at Ocean Parkway Mainline

Forty-nine accidents occurred at this intersection during the three-year period, 1998-2000. No accidents involved pedestrians. Many of the accidents at this intersection are either rear end accidents or overtaking accidents.

There are pedestrian ramps for crossing between the east raised medians that are utilized by pedestrians. However this is not a striped crosswalk and there are no existing pedestrian signal heads for this movement (see Figure 6).



Figure 6: Ocean Parkway and Church Avenue, east side, unmarked crosswalk between raised medians

Pedestrians often cross Ocean Parkway in two cycles (see detailed discussion in Section 3.7, Signal Timing), but currently, a raised pedestrian refuge does not exist for a pedestrian to wait between cycles (see Figure 7).



Figure 7: Ocean Parkway and Church Avenue looking west (north side)

3.6.3 Ocean Parkway, West Service Road and Church Avenue

The school officials indicated that speeding was a concern on the Ocean Parkway West Service Road. School officials stated that vehicles exit the Prospect Expressway at a high rate of speed and depending on the signal progression, maintain their high speed when crossing Church Avenue.

This intersection had fifty-three accidents, including seven accidents that involved pedestrians, one of which was fatal. No school related accidents were reported. The reported fatality was a sixty-nine year old woman, who was crossing Ocean Parkway with the traffic signal at the time of the accident. On the north side of the intersection, a sign directs senior citizens to use the opposite crosswalk (south side of the intersection) to cross Ocean Parkway where there are fewer potential vehicle conflicts (see Figure 8). During dismissal, vehicles park on both sides of the west service road, which narrows the service road to one moving lane causing moderate vehicular congestion at dismissal time.

A spot speed study was conducted on May 2, 2005. The study indicates the median speed on the West Service Road near the school was approximately 26.4 mph and the 85th percentile was 30 mph. Since the 85th percentile speed does not indicate vehicles are exceeding the legal speed limit of 30 mph, speed reducers are not recommended. See the Appendix for the complete spot speed study results.

TABLE 4: SPOT SPEED STUDIES		
LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Ocean Parkway West Service Road between Church Avenue and Beverly Road	26.4	30



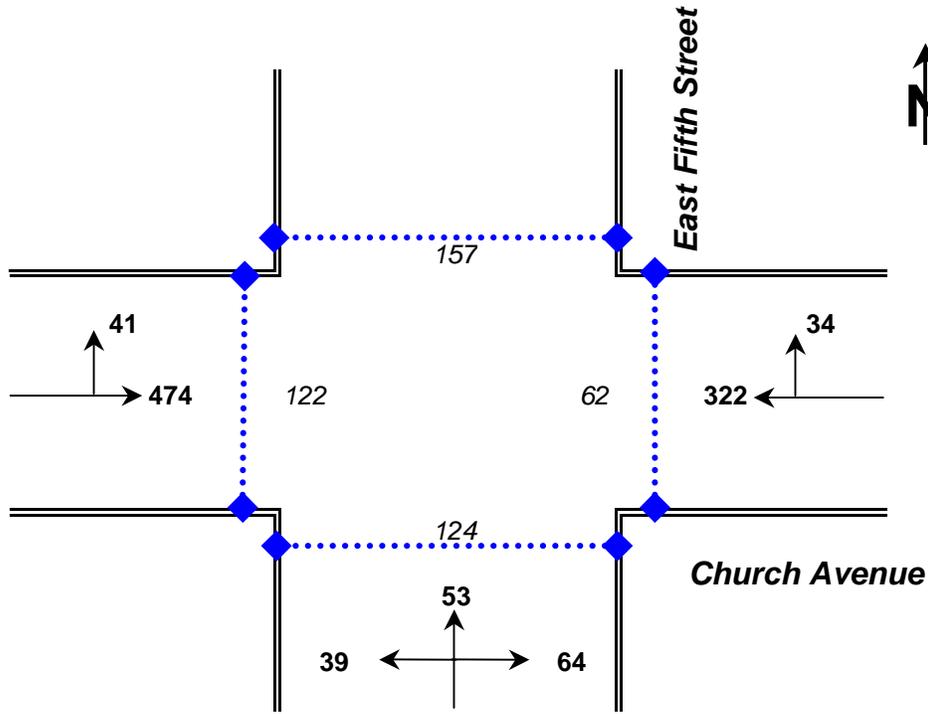
Figure 8: Ocean Parkway West Service Road at Church Avenue, north side (looking south)



Figure 9: Vehicles exiting the Prospect Expressway onto Ocean Parkway.

One Hour Traffic Count Volumes

(2:30 PM - 3:30 PM April 28, 2005)



Church Avenue and East Fifth Street

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

EXHIBIT 5
YESHIVA SHAARE TORAH BROOKLYN
TURNING MOVEMENT COUNTS

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of Yeshiva Shaare Torah on June 7, 2004. The optimal amount of time for a pedestrian to cross a specific street was determined based on the width of the street and an assumed child pedestrian walking rate of three feet per second plus reaction time. The optimal time was then compared to the actual pedestrian walk phase, as determined from the signal timing plates provided by the DOT or field measurements. Table 4 is the summary of this data.

TABLE 5: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS (June 7, 2004)				
Intersection Name	Crosswalk Width (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)	Timing Adjustment? (Yes/No)
Church Avenue and 5 th Street				
Crossing Church Avenue	70	24	27	Yes
Crossing East Fifth Street	30	29	13	No
Church Avenue and Ocean Parkway				
Crossing Church Avenue	70	70	27	No
Crossing Ocean Parkway*	180 (90)	38	63 (33)	No

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

** A pedestrian needs two signal cycles to cross Ocean Parkway at a rate of three feet per second while stopping at the center raised medians separating eastbound and westbound traffic.*



Figure 10: Ocean Parkway with pedestrian islands for crossing street.

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 SCHOOL PEDESTRIAN SAFETY

This section describes potential countermeasures. These countermeasures are divided into short-term and long-term measures. Short-term measures are those that potentially can be performed in-house, long-term measures are proposed capital improvements (See Exhibit 6).

4.1 SHORT-TERM OPTIONS

- *No-Standing Zone on Church Avenue*

“NO STANDING, 7 AM – 4 PM, SCHOOL DAYS, EXCEPT SCHOOL BUSES” parking regulations should be considered on Church Avenue to provide sufficient clear frontage for school buses to drop-off and pick-up students.

- *No-Standing Zone on Ocean Parkway West Service Road*

“No Standing 7am – 4 pm, School Days” parking regulation should be considered on Ocean Parkway West Service Road in front of School’s main entrance for a length of 30 feet.

- *No-Standing Zone on Ocean Parkway West Service Road in front of school’s entrance*

“No Standing” parking regulations should be considered for 20 feet beginning at the northwest corner of Ocean Parkway West Service Road and Church Avenue to provide proper sight distance for pedestrians. This is commonly referred to as Daylighting.

- *Install/upgrade “Yield to Pedestrian” sign*

Consideration should be given for the installation of “Yield to Pedestrians in Crosswalk” signs at the intersection of Church Avenue and Ocean Parkway Service Roads and replace the existing red triangle “Yield to Pedestrian” signs with “Yield to Pedestrians in Crosswalk” signs. Missing signage on Prospect Expressway will be replaced.

- *Install stop bars at all signalized intersection approaches*

Stop bars should be installed at all signalized intersection approaches as shown in Exhibit 6.

- *Administer student pedestrian safety education program*

It is recommended that the NYCDOT, Safety City 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 school dedicate a

staff member to act as valet or greeter to expedite the time required for students to disembark from or enter vehicles.

4.2 LONG-TERM OPTIONS

- *Install a raised concrete median on the south side of the intersection of Ocean Parkway and Church Avenue*

Consideration should be given to the installation of a raised concrete median instead of the striped median on the south side of this intersection. This raised median will provide protected refuge for pedestrians crossing Ocean Parkway in two signal cycles.



Figure 11: Ocean Parkway and Church Street, south side (looking east) at striped median

- *Extend raised concrete median on the north side of the intersection of Ocean Parkway and Church Avenue*

Consideration should be given to extending the raised concrete median through the existing pedestrian crosswalk to provide refuge for pedestrians. The median should have an ADA compliant at-grade cut-through.



Figure 12: Ocean Parkway and Church Street, north side (looking west) at existing median

- *Install raised concrete medians at the following locations:*
 - East side of the intersection of East 5th Street and Church Avenue
 - West side of the intersection of East 7th Street and Church Avenue

The proposed raised medians will replace existing striped medians and extend through the crosswalk to provide refuge for pedestrians (See Exhibit 6). The median should have an ADA compliant at-grade cut-through.

- *Re-alignment of Church Avenue through the intersection at East Fifth Street*

As noted in Table 5, the existing signal timing is not adequate for a child to cross Church Avenue at 3 feet/second using the existing striped school crosswalk. It is therefore recommended to align Church Avenue (as shown in Exhibit 6) to minimize the crossing distance for student pedestrians. This would align curb lines along Church Avenue through the intersection at East Fifth Street.

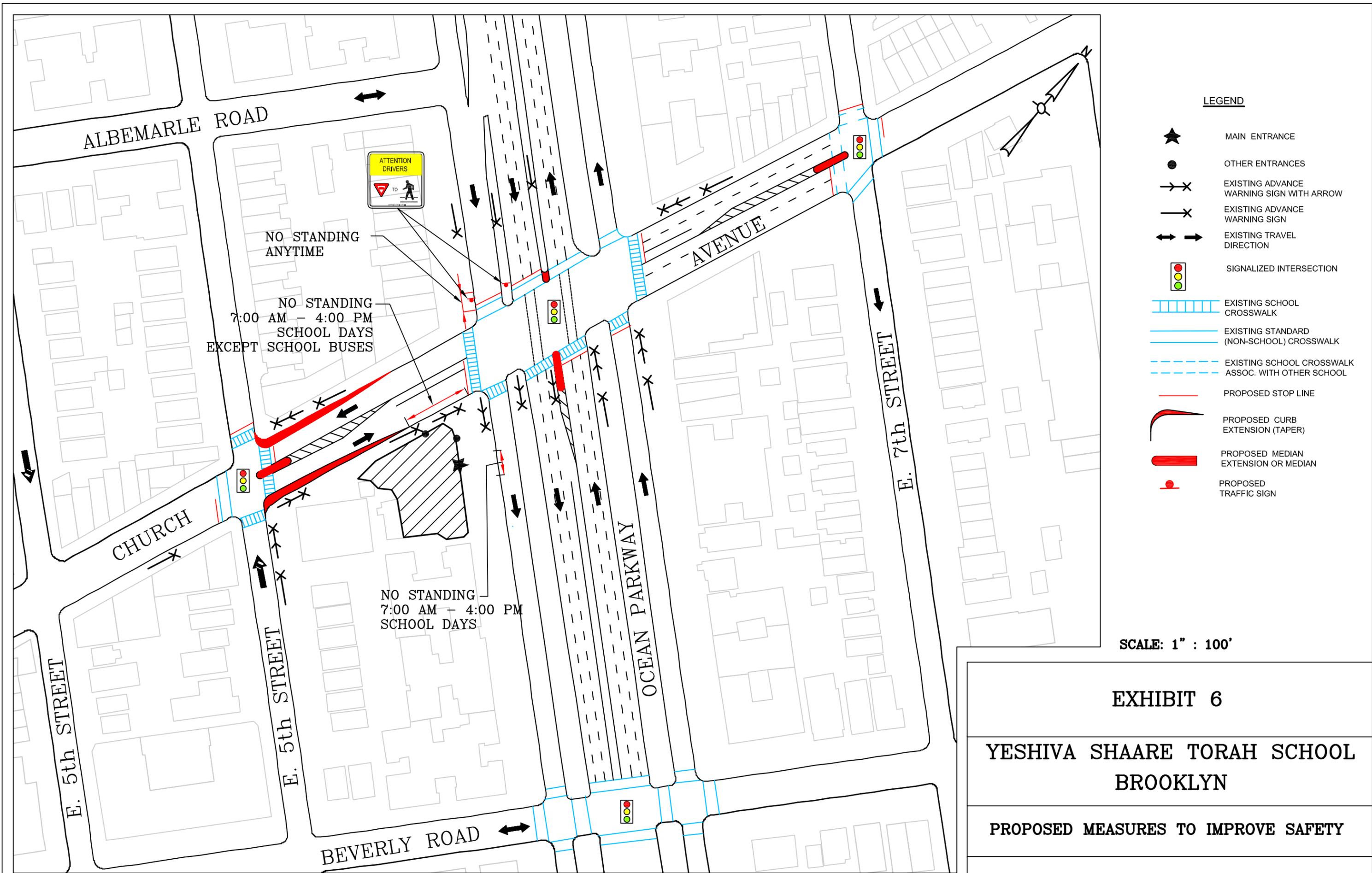


EXHIBIT 6

YESHIVA SHAARE TORAH SCHOOL

BROOKLYN

PROPOSED MEASURES TO IMPROVE SAFETY

APPENDIX

SPOT SPEED STUDY

Date: **May 2, 2005** Time: **2:00 PM to 3:00 PM**
 Location: **Ocean Avenue West Service Road Between Church Avenue and Beverly Road**
 Surveyor:

School: **Yeshiva Shaare Torah**
 Direction: **Northbound Traffic**
 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	7	8.1%	8.1%	147	3087
22	0	0.0%	8.1%	0	0
23	20	23.3%	31.4%	460	10580
24	0	0.0%	31.4%	0	0
25	17	19.8%	51.2%	425	10625
26	0	0.0%	51.2%	0	0
27	14	16.3%	67.4%	378	10206
28	0	0.0%	67.4%	0	0
29	11	12.8%	80.2%	319	9251
30	0	0.0%	80.2%	0	0
31	10	11.6%	91.9%	310	9610
32	0	0.0%	91.9%	0	0
33	6	7.0%	98.8%	198	6534
34	0	0.0%	98.8%	0	0
35	1	1.2%	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
	86	100.0%		2272	61118

Mean Speed = 26.4 mph Median Speed = 26.4 mph
 Standard Deviation = 3.6 mph 15th Percentile Speed = 22.7 mph
 Margin of Error (95% Confidence) = ± 0.8 mph 85th Percentile Speed = 30.1 mph

