WELLS + ASSOCIATES

MEMORANDUM

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To: Kate Lindsey, Sidwell Friends School

From: Jami L. Milanovich, P.E.
Amelia R. Martin

Date: September 11, 2015

Re: Preliminary Transportation Assessment
Sidwell Friend School
Washington, DC

OVERVIEW

Wells + Associates has conducted a preliminary assessment of Sidwell Friends School's potential plans to relocate its Lower School to property adjacent to its Upper/Middle School Campus (the current site of the Washington Home). As part of the preliminary transportation assessment, Wells + Associates has evaluated the following:

- The ability to accommodate the Lower Schools' drop-off/pick-up operations on-site,
- The ability to accommodate the Lower School parking demand,
- The ability of the Lower School traffic operations to be accommodated without interference from the Upper/Middle School traffic operations and vice versa, and
- Improvements necessary to accommodate traffic associated with the relocation.

SCHOOL CHARACTERISTICS

Overview

Currently, 300 students are enrolled at the Lower School and 860 students are enrolled at the Upper and Middle Schools, for a total enrollment of 1,160 students.

Classes at the Lower School begin at 8:30 AM. With the exception of Tuesdays, classes at the Lower School dismiss at 3:15 PM. Children who have not been picked up by 3:30 PM are sent to Aftercare. On Tuesdays, classes at the Lower School are dismissed at 2:00 PM.

At the Middle School, classes begin at 8:00 AM. With the exception of Tuesdays, Middle School classes dismiss at 3:30 PM. On Tuesdays, classes dismiss at 2:00 PM. Classes at the Upper School also begin at 8:00 AM and dismiss at 3:30 PM.

Trip Generation

To determine the number of trips generated by the Lower, Middle, and Upper Schools, Wells + Associates conducted counts at the Lower School on May 21, 2015 from 7:00 AM to 9:00 AM and from 2:30 PM to 6:30 PM. Counts for the Middle and Upper Schools were conducted on May 27, 2015 from 7:00 AM to 9:00 AM and from 3:00 PM to 6:30 PM. The number of vehicles entering and exiting campus were recorded during each count period. For the Lower School, the AM peak hour occurred from 7:45 AM to 8:45 AM and the PM peak hour occurred from 3:00 PM to 4:00 PM. For the Middle and Upper Schools, the AM peak hour occurred from 7:15 AM to 8:15 AM and the PM peak hour occurred from 3:15 PM to 4:15 PM. Since the schools' afternoon peak hours occur well before the afternoon commuter peak hour, the number of trips generated during the PM commuter peak hour also was determined. The commuter peak hour was assumed to occur from 5:15 PM to 6:15 PM based on traffic counts conducted along Wisconsin Avenue. The trip generation for each of the schools during the peak hours is summarized in Table 1.

Table 1
Trip Generation Summary
Lower/Middle/Upper Schools

School	Trip Type	AM Peak Hour			PM School Peak Hour			PM Commuter Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Lower School	Number of Trips	157	178	335	103	148	251	42	21	63
	Rate (per student)	0.52	0.59	1.12	0.34	0.49	0.84	0.14	0.07	0.21
Middle/ Upper School	Number of Trips	682	436	1,118	218	272	490	153	259	412
	Rate (per student)	0.79	0.51	1.3	0.25	0.32	0.57	0.18	0.30	0.48

It is important to note that on the day traffic counts were conducted at the Upper School, absenteeism was higher than normal due to reading days. Therefore, data collected by Wells + Associates in conjunction with the Middle School renovation a number of years ago was used to supplement the data.

The trip generation rates for the Lower and Upper Schools is on the higher end compared to other private schools in the District, as shown in Figures 1 and 2.

Figure 1
Private School Trip Generation Rates
AM Peak Hour

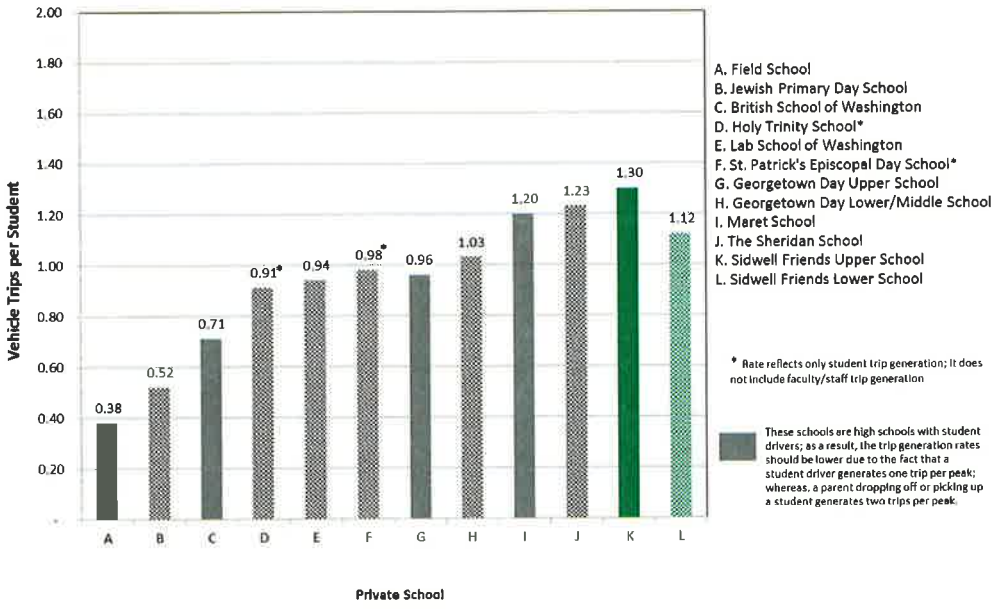
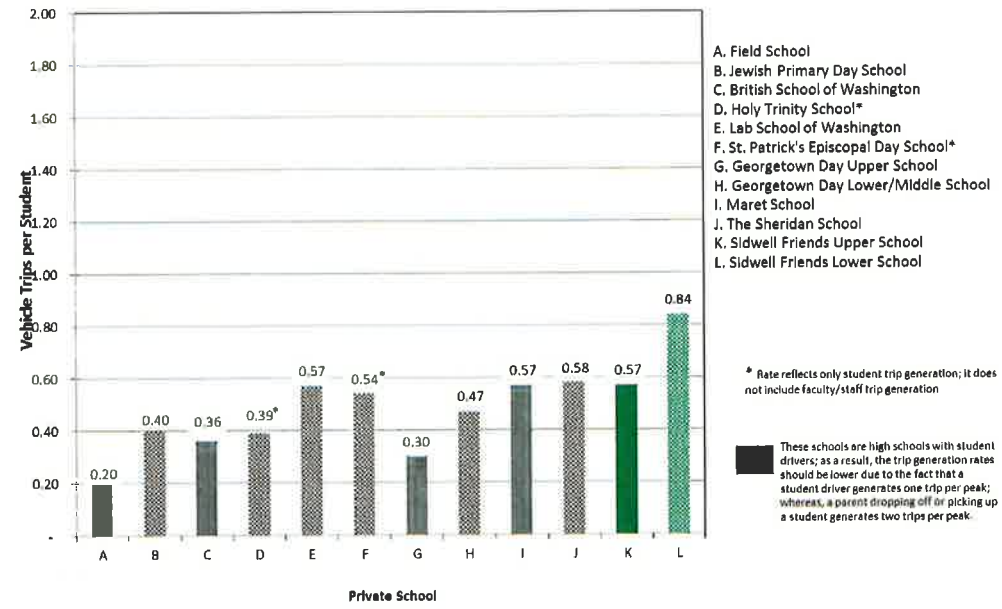


Figure 2
Private School Trip Generation Rates
PM Peak Hour



Queuing Requirements

To determine the amount of space required to accommodate the Lower, Middle, and Upper Schools' pick-up and drop-off operations, Wells + Associates also conducted a queuing study at the Lower School campus on May 21, 2015 and at the Middle/Upper School campus on May 27, 2015. The number of vehicles queued in the Middle and Upper School's respective drop-off/pick-up lanes was recorded every 30 seconds from 7:00 AM to 9:00 AM and from 3:00 PM to 6:30 PM. The number of vehicles queued in the Lower School's drop-off/pick-up area was recorded every 30 seconds from 7:00 AM to 9:00 AM and from 2:30 PM to 6:30 PM. The number of vehicles queued during the morning and afternoon periods at each of the schools is shown on Figures 3 through 8.

As shown in Figure 3, the maximum queue at the Lower School during the morning peak period was 14 vehicles, just after 8:15 AM. During the PM peak period, the maximum Lower School queue was 105 vehicles at approximately 3:00 PM[1]. Accommodation of the pick-up queue will be the biggest transportation challenge associated with the relocation of the Lower School. A number of potential solutions are presented in the subsequent section.

The queuing observed at the Middle and Upper Schools can be accommodated within their respective pick-up/drop-off lanes. Based on the queuing observed on the Lower School campus, the proposed facility would need to accommodate approximately 2,100 feet of queuing for pick-up/drop-off operations at the Lower School, assuming operations continue in the same manner as they do today.

Based on our understanding, approximately 68 families currently have students at both the Lower School Campus and at the Upper/Middle School Campus. Presumably, the majority of these families currently are making separate trips to the Lower School Campus and the Upper/Middle School Campus to drop off and pick up their children (though some may be carpooling with other families, using the inter-school shuttle, or another mode of transportation). With a consolidated campus, these trips would be combined, thus reducing the queue during morning drop-off and afternoon pick-up. However, typically when campuses are consolidated, the Lower School children are favored. For example, parents would drop off both younger and older children at the Lower School so that the youngest children do not have to walk the further distance. Therefore, for purposes of this preliminary assessment, we have not assumed any reduction in the Lower School Queue associated with the consolidation of the campuses.

[1] Note that for purposes of this discussion and throughout the document, the Lower School "queue" includes vehicles queued or parked on campus, vehicles parked on the street to pick-up children and vehicles parked in the adjacent library parking lot to pick-up children.

Figure 3
Lower School Queues
AM Peak Hour

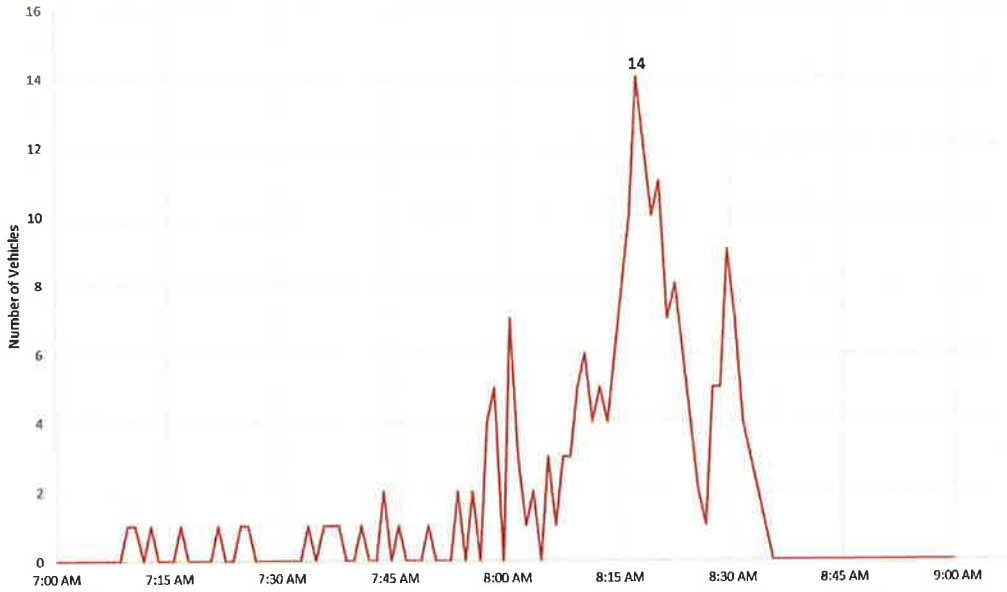
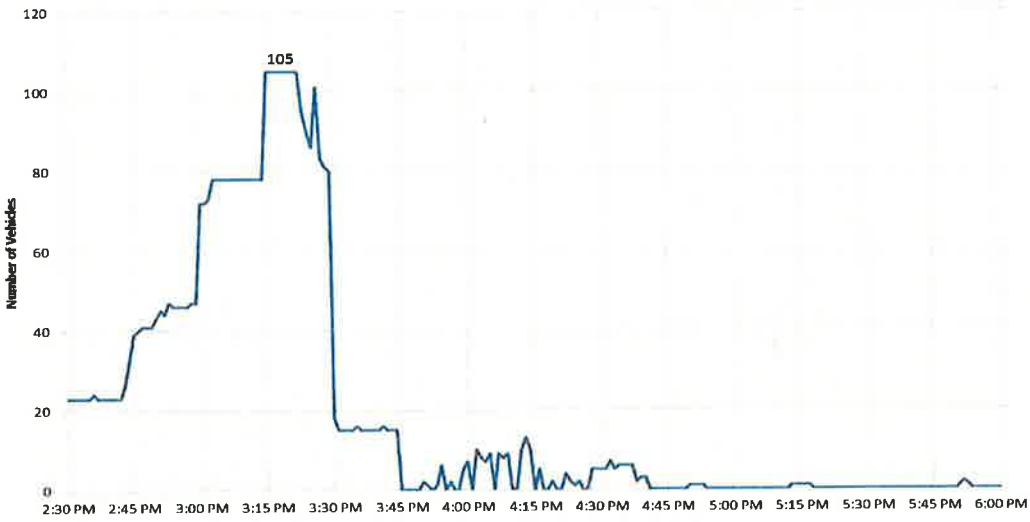


Figure 4
Lower School Queues
PM Peak Hour



*Total queues include vehicles in school parking lot, on Edgemoor Lane, and in Bethesda Library Parking Lot.

Figure 5
Middle School Queues
AM Peak Hour

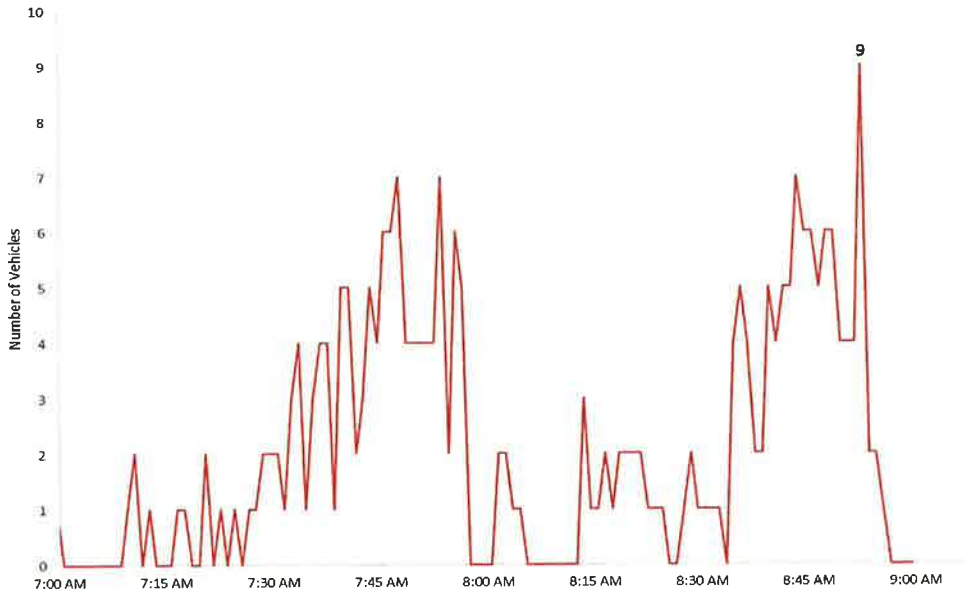


Figure 6
Middle School Queues
PM Peak Hour

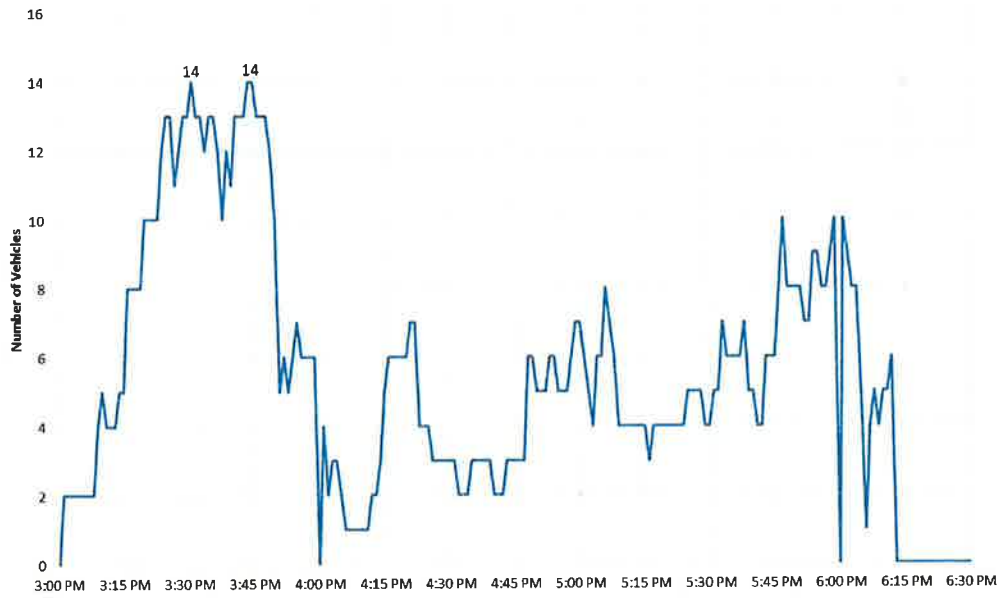
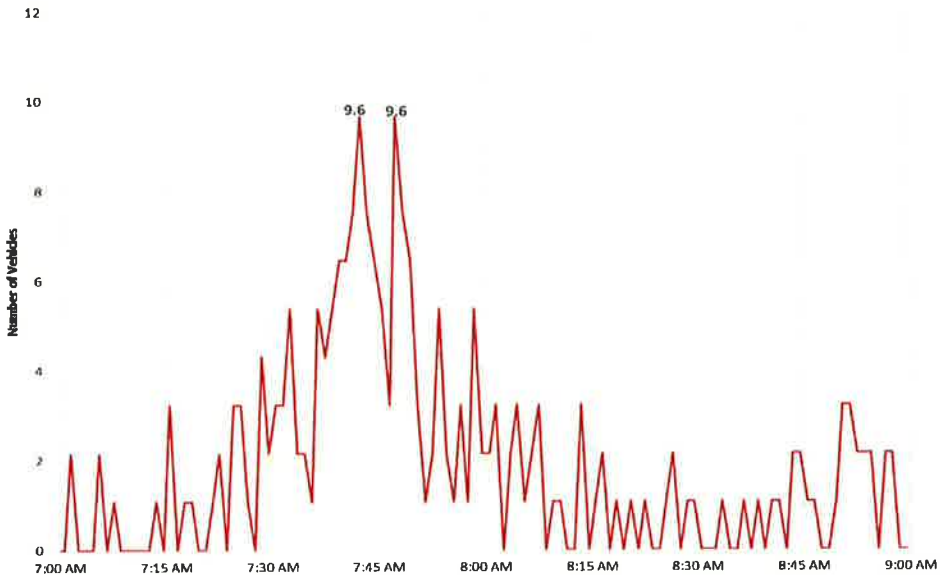
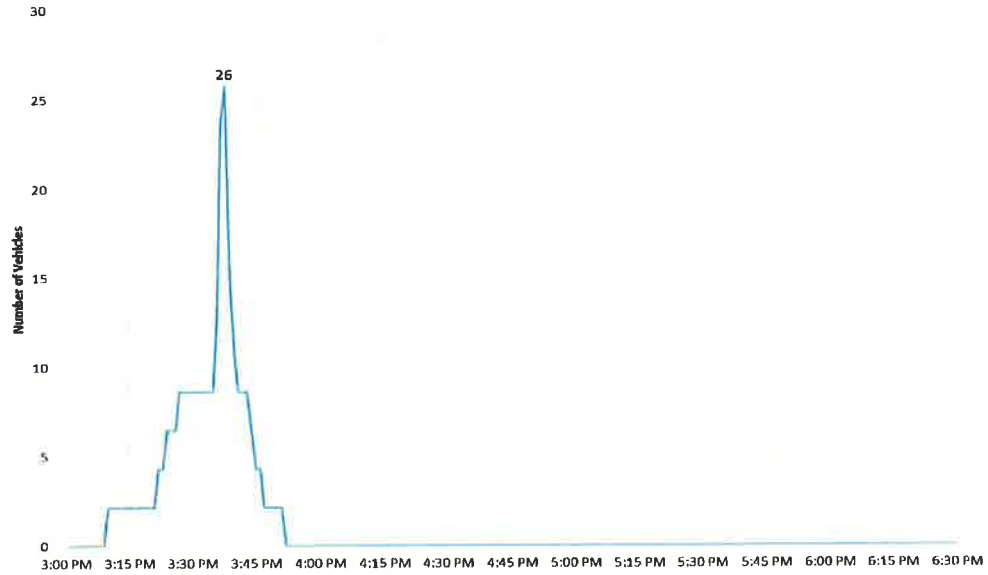


Figure 7
Upper School Queues
AM Peak Hour



* Queues were factored up to account for higher than normal absenteeism.

Figure 8
Upper School Queues
PM Peak Hour



* Queues were factored up to account for higher than normal absenteeism.

Current Carpooling Characteristics

To determine the number of students participating in carpools at Sidwell Friends, Wells + Associates conducted average vehicle occupancy (AVO) counts at the Lower School on May 21, 2015. During the AM peak hour, the AVO was 1.19 students per vehicle. During the PM peak hour, the AVO was 1.17 students per vehicle. As shown in Figures 9 and 10, the AVO for Sidwell Friends is in line with a number of other private schools in the District. However, of note, St. Patrick's Episcopal Day School implemented a Carpool Initiative in 2002 to increase the school's AVO to 1.6 students per vehicle. Since the implementation of the Carpool Initiative 13 years ago, St. Patrick's has routinely met or exceed its AVO goal.

Figure 9
Private School AVO Rates
AM Peak Hour

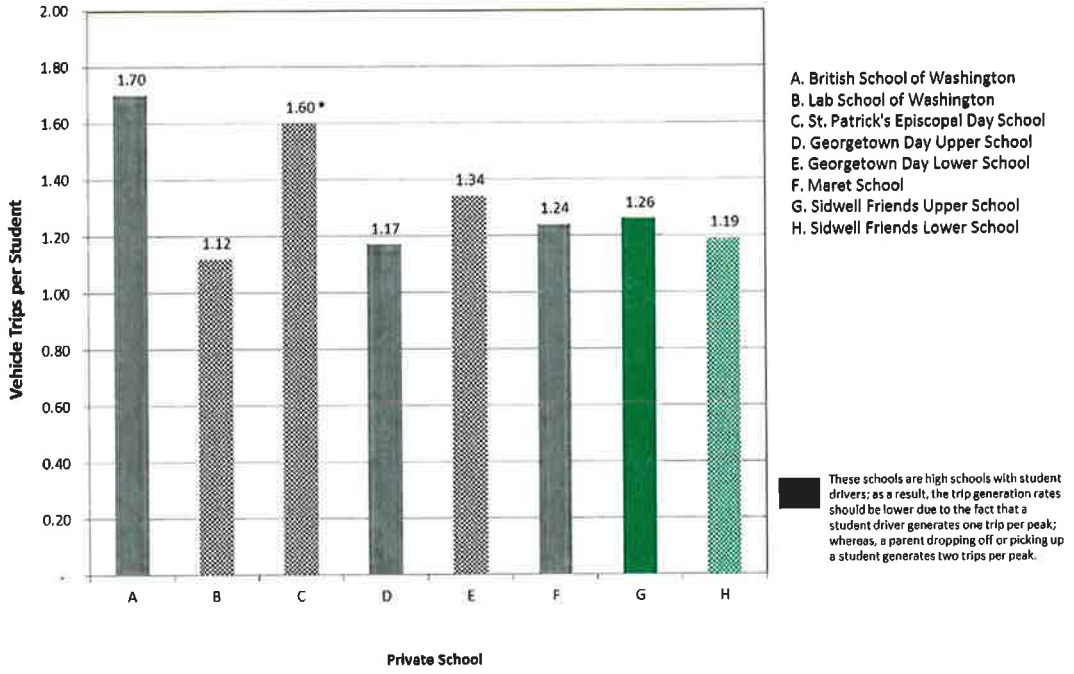
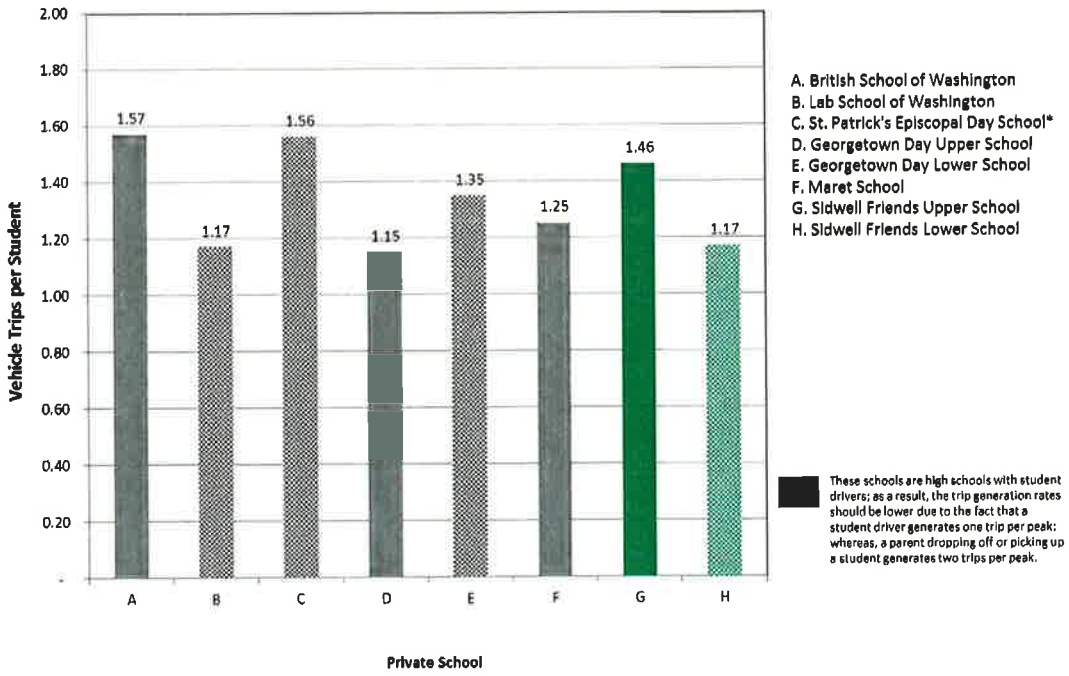


Figure 10
Private School AVO Rates
PM Peak Hour



Parking

The existing below-grade garage at the Upper/Middle School has a capacity of 307 parking spaces. The existing parking lot and garage at the Lower School have capacities of 41 and 17 parking spaces, respectively, for a total parking capacity of 58 parking spaces. To determine the utilization of on-site parking at each of the campuses, Wells + Associates conducted parking occupancy counts on May 27, 2015. At the Upper/Middle School counts were conducted every half hour from 7:00 AM to 9:00 AM and from 3:00 PM to 6:30 PM. At the Lower School counts were conducted every fifteen minutes from 7:00 AM to 10:00 AM and from 2:30 PM to 6:30 PM. The parking occupancies for the Upper/Middle and Lower Schools are shown on Figures 11 and 12, respectively.

As shown on Figure 11, the peak occupancy at the Upper/Middle School occurs at 3:30 PM with 176 spaces (57 percent) occupied. The peak occupancy at the Lower School, shown on Figure 12, occurs at 9:00 AM with 56 total spaces (97 percent) occupied. With 131 parking spaces available at the Upper/Middle School garage during the peak occupancy, adequate capacity currently exists in the garage to accommodate the additional demand generated by the Lower School. Given the significant available capacity in the existing garage, the proposed 30-space parking lot at the Lower School may be met with resistance by DDOT.

Figure 11
Parking Occupancy
Upper/Middle School

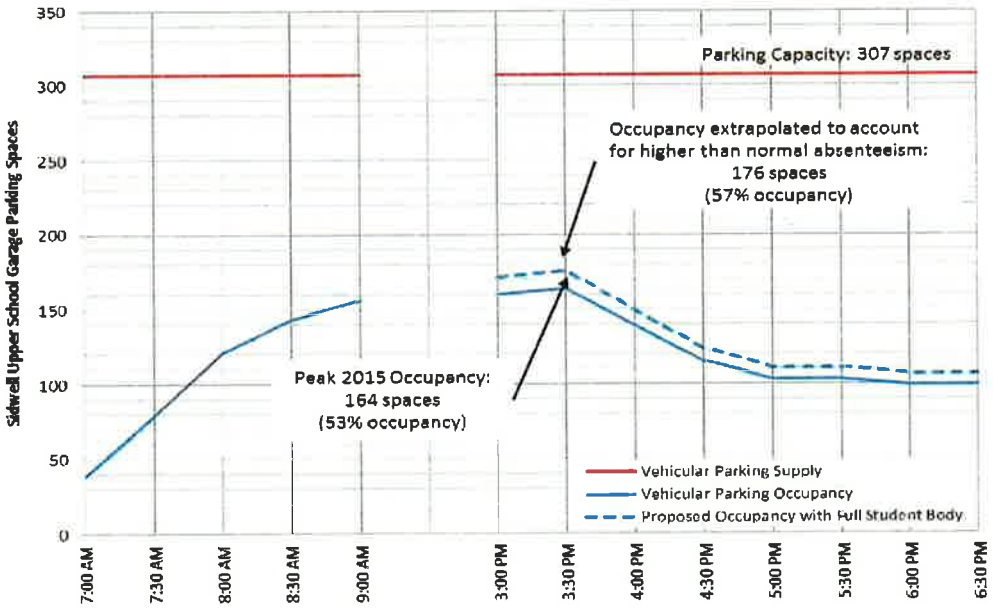


Figure 12
Parking Occupancy
Lower School