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July 12, 2000

BY HAND

Ms. Sheila Cross Reid
Chairperson
Board of Zoning Adjustment
441 Fourth Street, N.W., Room 201
Washington, D.C. 20001

Re: BZA Application No. 16566

Dear Ms. Reid and members of the Board of Zoning Adjustment:

I have enclosed for consideration by the Board of Zoning Adjustment, the enclosed Supplement to Evaluation of Traffic Impact Studies for the Georgetown University Campus Plan. This supplement is being submitted on behalf of the Hillandale Homeowners Association, which has previously sought to appear as a party in the above-referenced matter.

I appreciate your consideration.

Sincerely,

ROBINS, KAPLAN, MILLER & CIRESI L.L.P.

Richard B. Nettler

enclosure
cc: Scott Anderson, Hillandale Homeowners Association
Andrew Altman, Office of Planning (By Hand)

BZA
Case No. 16566
Exhibit No. 76

Board of Zoning Adjustment
District of Columbia
CASE NO.16566
EXHIBIT NO.76

July 12, 2000

TO: Hillandale Homeowners Association

FROM: Joseph Cutro, P.E., Traffic Consultant

SUBJECT: Supplement to "Evaluation of Traffic Impact Studies for Georgetown University Campus Plan," BZA Application 16566.

This memorandum replies to your request for an update of my analysis of the proposed Georgetown University ("GU") Campus Plan 2000-2010 in the light of new information that has become available since I prepared my report of May 24, 2000, entitled "Evaluation of Traffic Impact Studies for GU Campus Plan." I understand that your attorney has submitted my report into the record of the public hearings on that plan being conducted by the District of Columbia (D.C.) Board of Zoning Adjustment ("BZA"), in Application No. 16566.

My May 24 report focussed on proposed new MedStar Health Inc. operations and construction on Georgetown University's north campus, which are most likely to affect the Hillandale community's interest in the free flow of traffic on area streets, most particularly Reservoir Road.

Chief among the new materials you have asked me to examine are:

- a June 7 memorandum, prepared by GU's traffic consultants, Gorove/Slade Associates ("G/S"), addressed to both the D.C. Department of Public Works ("DPW") and the Office of Planning ("OP"), that responds to my May 24 report. You have advised that this memo may not have submitted into the BZA record, although it may well have affected the DPW report concerning traffic (a copy of this memorandum is attached); and

- a DPW report dated June 8 concerning the transportation elements of the Georgetown proposal. You have advised that this report become a part of the BZA hearing record as an appendix to a written OP report.

I have also been able to make a cursory review of other more voluminous post-May 24 items, including:

- the G/S Traffic and Parking Analysis dated May 30, which updated earlier such reports of March 23 and May 18;

- a G/S Technical Appendix dated May 30 which updated earlier drafts dated March 23 and May 18;

- the OP staff report dated June 12, and

- a transcript of the BZA's public hearing of June 13, 2000, on the proposed GU plan.

In summary, the new materials do not significantly affect or alter my May 24 report's most important traffic-related conclusions, which are:

- that G/S supporting data is insufficient to support the level of pre-existing traffic used by G/S in its further analyses for Reservoir Road;

- that if Reservoir Road background traffic volumes have been so understated, that new traffic generated by the substantial new north campus development may very well result in unacceptable levels of service at Reservoir Road intersections;

- that the G/S report therefore fails to provide convincing evidence that the GU plan will not adversely affect neighboring properties by increasing traffic congestion on Reservoir Road, Hillandale's principal connector to the outside world.

The June 7 G/S memorandum has done a reasonably good job in explaining certain previously unexplained features in the G/S draft reports that my May 24 report had questioned, and has also tied up a few, but not all, of those draft reports' "loose ends." Unfortunately, the June 7 memorandum mischaracterized several statements contained in my report. I have responded to each of the June 7 G/S memorandum's chief points below.

Although page 1 of the G/S memorandum asserts that my May 24 report incorrectly located its March 15 automatic traffic count, that reflects the fact that G/S itself changed the reported location (and in very small type) between the March 23 and May 18 drafts of its Technical Appendix. That change is not noted in either G/S' memorandum of its changes made between March 23 and March 18, or in the revised Technical Appendix itself. I have revised my comparative traffic volume tables (copy attached) to reflect the corrected location of G/S' automatic traffic counting equipment.

While the modification described above reduces the discrepancy between G/S' manual and automatic counts, it neither eliminates this discrepancy nor that between the G/S counts and DPW's 1997 manual counts. This change certainly does not justify G/S's decision to reconcile the discrepancy by using the lowest (manual) count numbers, rather than by the more prudent use (in view of the lack of an adequate sample) of the higher figures. There are several reasons why. Firstly, the remaining 11% difference between the G/S manual count and automatic counts for the key eastbound AM peak hour movement may very well be statistically significant. That difference, if real, represents an entire level of service. Secondly, DPW's even higher 1997 counts remain as independent and contrary evidence, indicating that G/S' manual and automatic counts may both be too low. Also to the contrary are observations by many, echoed by the June 8 DPW report, of Reservoir Road congestion in the morning peak hours. That substantial contrary evidence, whether newer or older, should have been countered by statistically strong traffic information if G/S's use of the lower manual counts is to be regarded as credible. To date, however, the data in hand is insufficient to demonstrate that Reservoir Road traffic volumes are as low as G/S says.

On page 2, G/S answers my May 24 report's (mild) criticism of its intersection-to-intersection traffic balancing by saying that although the resulting traffic volumes may not be realistic, the method was used only "to check internal inconsistencies." Such balancing is an appropriate check to make, but I would argue that presenting the balanced condition as "reality" can have the appearance of excessive tampering. G/S did take the internally conservative approach of using the greater traffic volume for each pair of adjacent intersections, but the underlying problem remains that the method was applied only to the lower manual traffic counts. The resulting figures cannot be credibly described as a reasonable worst case.

Continuing on page 2, G/S defends its automatic count duration for Reservoir Road by attributing its brevity to "time constraints placed on us by the community," and "mechanical errors resulting in a bad count." The practical difficulties encountered in collecting reliable traffic data should be recognized, but that does not alter the fact this particular sample duration is inadequate. Not only does this paragraph in the G/S June 7 memorandum seemingly concede the point, but it goes on to cite further evidence, of which I was unaware, of still higher traffic volumes on Reservoir Road. Thusly, G/S has provided yet more evidence to refute it own conclusion that its manual count data accurately reflects typical traffic conditions on Reservoir Road. It also bears repeating that, despite the explanation cited above, G/S did not use this automatic count data in its further traffic impact analyses for Reservoir Road.

The G/S June 7 memorandum then devotes considerable space (also on page 2) to opposing the unqualified use of Institute of Transportation Engineers ("ITE") trip generation rates. Since my report did not advocate the use of ITE rates, this section appears to advance a "straw man" argument, knocking down a point that my report never made. The same paragraph goes on to discuss the respective merits of square footage versus population/activity in projecting generated traffic. G/S contends that population is the better method, but I continue to disagree, at least given the relevant facts of this case. The application before the BZA seeks the BZA's plan-level approval of the construction of additional space (measured in square feet). Since additional square feet is exactly what the BZA is asked to approve or disapprove, there is nothing in the campus plan application that would control the population or the amount of activity within that given space. From my reading of the June 13 hearing transcript, I understand that MedStar witnesses are reluctant to agree to limits on their use of the proposed new space. The population projections made for this space, while probably legitimate from a normal planning perspective, give me reason to pause, especially when those advancing them make it clear that they need "flexibility' to use the space more intensively than they themselves "project.". G/S's trip generation analysis assumes the accuracy of these projections. Without some kind of "cap" to insure that the new construction is used only as "projected," I feel that it would be appropriate to use plainly more accurate projections of space (square footage) in estimating newly generated traffic demand.

At the top of page 3, G/S' June 7 memorandum asserts that the traffic generated by MedStar clinical uses will increase traffic to and from the north campus by 26 percent, but argues that an offsetting reduction of 16 percent should be allowed due to the projected elimination of 400 (north campus) parking spaces formerly used by the south campus. As a result, the net increase in north campus traffic, the G/S memorandum contends, should be considered to be limited to 10 percent. These points are quite crucial, and should have been clearly conveyed in the G/S Traffic and Parking Analysis. That original report seemed to indicate that newly generated traffic was solely dependent on available parking supply, a concept that would have been just as objectionable as using inappropriate ITE rates. As it turns out, G/S's "gross" north campus traffic growth factor of 26 percent agrees quite well with my estimates of 21 and 30 percent for the AM and PM peak hours respectively. Nevertheless, we should seek further assurances that the displaced south campus parkers will be provided with effective and timely alternatives (such as convenient satellite parking, more GUTS service, on-campus housing).

Toward the bottom of page 3, the G/S June 7 memorandum responds to my report's criticism that new traffic had not been assigned to 38th and 39th Streets. G/S contends that new traffic on these streets can be ignored because existing GU-generated traffic is relatively inconsequential -- 9 and 2 percent on 38th and 39th Streets respectively. Granted that these percentages are small, but they should nevertheless be carried through in some version of a distribution and assignment analysis for newly generated traffic. To show no new traffic on these streets would hardly seem realistic, even with the understanding that computed figures would be small. Of particular concern, however, is the fact that increasingly higher percentages of campus traffic may "escape" to these side streets as Reservoir Road becomes more congested as a result of MedStar's intensified use of north campus facilities.

Page 3 finishes up by stating that my report accuses G/S of regarding the proposed new Canal Road entrance to the campus as a "bottomless pit." This misinterprets my May 24 report. The admonition in my report was addressed to the reader, who might be tempted by the idea of overusing the Canal Road entrance. We should strongly support the proposed entrance modification, with the understanding that its use will be "optimized" and not "maximized."

On Page 4, G/S conveys GU responses to the various mitigation measures that my May 24 report suggested, in the form of assurances that "GU and MedStar will work with the community . . . " toward improving area traffic conditions in various ways. Even assuming these assurances are sincere, traffic management on Reservoir Road and most nearby streets is a D.C. government function, now exercised through DPW. Neither MedStar nor GU can guarantee what DPW may actually do or be able to do. Concern that DPW might fail to take reasonable measures, due to lack of funding, could be addressed in part (as would be normal in many jurisdictions), by the developer placing some funding in escrow in a specified amount, which DPW could draw upon, to deal with particular local traffic and parking problems as they may arise. If specific schedules and performance thresholds were set forth in such an offer (or requirement), their reasonableness could be evaluated. But in this case, there is no specific offer by the developer to fund any effort

in particular. Vague GU and MedStar promises to work with the community and DPW, however commendable they might be, do not ensure that the any adverse effects of the proposed north campus modifications will be mitigated.

The DPW staff report of June 8 contains a section that specifically addresses the concerns expressed by the Hillandale HOA. Using the enumeration of that section, I can offer the following comments on the conclusions drawn therein.

1. Discrepancies in data for Reservoir Road.

DPW agrees that there are discrepancies in the data, and its conclusion that different collection periods could account for some of them is probably correct. I fully agree with DPW that, because of these discrepancies, that reasonable worst case data should be used. It is not the case, however, as DPW believes, that G/S used a worst case analysis in defining through traffic on Reservoir Road. On the contrary, of the three data sets available (G/S automatic traffic counts, G/S manual counts, 1997 DPW manual counts), G/S used the **lowest** values for the eastbound AM peak hour -- i.e. the "best" case scenario. While the discrepancies in data vary by the location of the traffic count, the differences between Reservoir Road traffic volumes in the three sets range from 11 to 31 percent for the critical eastbound movement in the AM peak hour. Those differences could mean up to three levels of service, and hence, could mean the difference between free flowing traffic and gridlock, and with newly generated traffic added, the difference between traffic impact and no traffic impact.

2. Understated increases in generated traffic.

While I cannot examine the pertinent analysis in detail at this late stage, G/S' belated explanation (June 7 memorandum, page 3) should go at least some way toward assuaging our concerns in this matter.

3. Transition to management by MedStar.

The DPW report glosses over the transfer of management from GU to MedStar in two quick sentences. The previous page of the DPW report states that population and activity projections should be the best means of predicting generated traffic. That is true, however, only if the "density" or intensity of the new activity replicates that of the old activity. If the proposed square footage for the clinical center is approved as proposed, there is nothing to prevent the expanded facility from (for example) being subdivided into office cubicles at a density much higher than that of the present facility. In the absence of a MedStar commitment to limit its projected activity levels (i.e., 80 doctors, 240 support staff, etc.), it would be preferable to use a projection based on a firm square footage figure in estimating generated traffic. Such a projection would better reflect the experience of how proposed space can actually be used.

4. Traffic impacts on local streets.

With regard to local streets, it would not really be fair to call the G/S analysis inadequate, particularly since many jurisdictions do not require a quantitative review of local streets in their traffic impact studies. In this case, potential impacts on local streets would be difficult to predict anyway, with current GU usage of these streets acceptably low (although perhaps not for parking) at the present time. The great danger here is what may happen if congestion on Reservoir Road gets much worse. It is not known to what extent normally responsible motorists will "bail out" onto local streets, nor at what point that this behavior becomes unacceptable. Because of that uncertainty, some firm(er) commitments from both the developer and DPW to mitigate adverse traffic effects, even if not rigidly definable as "impacts", would be highly desirable.

Reservoir Road
Comparison of Traffic Data from various sources

AM Peak Hour Eastbound

	Foxhall	Driveway #4		Driveway #3		Driveway #2 39th Street		Driveway #1 38th Street	
G/S Analysis [03/23/2000]	1524	1524	1351	1351	1324	1324	1168	1168	1089
G/S Analysis [05/18/2000]	1603	1603	1430	1351	1324	1324	1168	1168	1089
G/S TM Counts 02/10/00	1085	1605	1432	1320	1293	1109	945	925	846
G/S Automatic Count 03/02/00					1786				
DCDPW TM Count at French Embassy 04/29/97			1807	1750					
DCDPW TM Count at GU Entrance #3 04/29/97				1765	1723				

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Reservoir Road
Comparison of Traffic Data from various sources

AM Peak Hour Westbound

	Foxhall	Driveway #4		Driveway #3		Driveway #2 39th Street		Driveway #1 38th Street	
G/S Analysis [03/23/2000]	311	311	360	360	386	386	392	392	422
G/S Analysis [05/18/2000]	356	356	405	426	452	452	458	458	488
G/S TM Counts 02/10/00	267	325	374	347	373	407	418	380	410
G/S Automatic Count 03/02/00					317				
DCDPW TM Count at French Embassy 04/29/97			257	283					
DCDPW TM Count at GU Entrance #3 04/29/97				281	296				

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Reservoir Road
Comparison of Traffic Data from various sources

PM Peak Hour Eastbound

	Foxhall	Driveway #4		Driveway #3		Driveway #2 39th Street		Driveway #1 38th Street	
G/S Analysis [03/23/2000]	561	561	580	580	588	588	531	531	651
G/S Analysis [05/18/2000]	549	549	568	580	588	588	531	531	651
G/S TM Counts 02/10/00	339	546	565	496	504	538	481	456	578
G/S Automatic Count 03/02/00					661				
DCDPW TM Count at French Embassy 04/29/97			613	616					
DCDPW TM Count at GU Entrance #3 04/29/97				601	609				

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Reservoir Road
Comparison of Traffic Data from various sources

PM Peak Hour Westbound

	Foxhall	Driveway #4		Driveway #3		Driveway #2 39th Street		Driveway #1 38th Street	
G/S Analysis [03/23/2000]	890	890	788	788	769	769	755	755	656
G/S Analysis [05/18/2000]	890	906	804	788	769	769	755	755	656
G/S TM Counts 02/10/00	623	998	903	850	831	904	890	662	563
G/S Automatic Count 03/02/00					975				
DCDPW TM Count at French Embassy 04/29/97			769	718					
DCDPW TM Count at GU Entrance #3 04/29/97				759	727				

MEMORANDUM

TO: Abdoulaye Bah — DPW
John Fondersmith — Office of Planning

FROM: Nicole White
Chad Baird
Louis Slade, P.E.

COPY

DATE: June 7, 2000

SUBJECT: **Response to Joseph Cutro's "Evaluation of Traffic Impact Studies for Georgetown University Campus Plan"**

Mr. Joseph Cutro has been retained by the Hillandale Homeowners Association to evaluate the various traffic assessments submitted by Georgetown University in support of its proposed Campus Plan 2000. This memorandum addresses the primary issues that were raised in his evaluation.

Background and Existing Traffic

The Cutro evaluation questions the validity of our March 15, 2000 traffic volumes and consequently implies that our analysis is inaccurate. The following is a response to Mr. Cutro's analysis that our existing volumes are inconsistent.

- The Cutro evaluation reports that the volumes used for our existing analysis "compare poorly with independently collected data, including G/S' own ADT count". Mr. Cutro presents a table as a comparison of traffic data from various sources. He compares our March 15, 2000 existing traffic counts (they are labeled in his table as February 10, 2000), and our balanced volumes used in our March 23, 2000 and May 18, 2000 reports to our March 2, 2000 automatic counts volumes and to DC DPW April 29, 1997 volumes. Mr. Cutro has stated that our March 15, 2000 Turning Movement (TM) counts differ from our March 2, 2000 automatic counts by 38% (during the AM peak hour). However, Mr. Cutro has incorrectly compared our March 15, 2000 traffic volumes counted at Driveway #3 to our automatic counts at Driveway #4. There is only an 11% difference when our automatic counts at Driveway #4 are correctly compared to our March 15 counts at Driveway #4. This 11% difference is most likely due to daily variances.
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- Mr. Cutro also compares our traffic volumes to DC DPW traffic volumes counted at the French Embassy that are more than three years old. We have a May 18, 2000 video recording of traffic at the French Embassy and on Reservoir Road that is consistent with our March 2, 2000 automatic counts, and our March 15, 2000 turning movement counts. DC DPW 1997 counts may be greater than our counts because commuter traffic or hospital related traffic was higher that year (patient admissions in 1997 were higher than current patient admissions).
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Mr. Cutro has recommended five measures to "mitigate the adverse effects of the GUMC campus expansion on nearby streets." The following is the GU response to each of these measures:

- ***Define, and provide evidence for the effectiveness of, new TMP initiatives to further reduce single-vehicle travel and parking demand on the north campus.***

- The University and MedStar will endeavor to enhance existing TMP initiatives and create new initiatives to reduce single-vehicle travel and parking on the north and south campus.

- ***Consider and investigate restricted use of the new Canal Road entry for regular users of north campus parking garages, through revisions to the gating system between the north and main campuses. Under no circumstances, however, should through movement between the Canal Road and Reservoir Road be permitted.***

- The gating system that separates north campus from south campus can not be removed as part of a Board of Zoning Adjustment (BZA) order. Consequently, through movement between Canal Road and Reservoir Road will not be permitted. However, certain clinical center employees will be allocated to use south campus parking spaces depending on that employee's direction of approach to campus.

- ***Regulate parking on the east side of 39th Street north of Reservoir Road. Identify and provide appropriate parking controls for other as-yet-unregulated segments on public streets north of the campus.***

- The University and MedStar will continue working with the community and DPW to make areawide improvements on Reservoir Road.

- ***Adjust crosswalk location and install ADA-compliant curb ramp on SE quadrant of Reservoir Road/39th Street intersection.***

- The University and MedStar will work with DPW to acquire a public space permit to make this area wide improvement.

- ***Consider and investigate further neighborhood traffic management strategies, including time-of-day restrictions and traffic calming measures, to deter traffic growth on 38th Street, 39th Street, and similar residential streets.***

- The University and MedStar will continue working with the community and DPW to make area wide improvements such as traffic calming measures.

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Existing traffic volumes counted at the four driveways on Reservoir Road include vehicles associated with the clinical center and the academic campus (i.e. University's Medical School). In the future, parking spaces will be reallocated on campus so that the 400 north campus spaces that are currently being used by academic campus users will be used by clinical center users in the future. Therefore, traffic volumes on Reservoir Road associated with the academic campus will decrease by about 16% (400/2494 existing north campus spaces). These academic campus related traffic volumes will be replaced by clinical center traffic volumes. Therefore, clinical center traffic volumes will be able to increase by 16% without increasing north campus traffic (net increase of 0%). In addition, we have projected that clinical center related traffic will increase by 10%. Thus, the total clinical center growth rate on north campus is projected to be 26%. If you also include clinical center traffic volumes that will be reallocated to south campus (255 south campus spaces will be reallocated to clinical center users) then you will get an overall total clinical center traffic growth rate above 26% (employee and visitor population growth rates are projected to increase by 28% [an unweighted average] - see Table 6 in the May 30, 2000 report). The traffic volumes associated with the academic campus that were deleted from the network, will shift to satellite parking locations, or be reduced through carpool and public transportation initiative programs.

Instead of subtracting and then re-adding traffic volumes onto the network based on each University sub-group, our analysis was based on a simplified approach that looked at the net increase to the entire campus system. The 10% net system growth rate was a conservatively high factor that was used under this simplified method, keeping in mind the parking cap limitations.

Distribution and Assignment

The Cutro evaluation suggests that we should distribute future traffic volumes to 38th Street and 39th Street. We agree with Mr. Cutro's report that "motorists on their way to work or medical appointments will find the shortest-time path to their destination". Our existing traffic volumes show no more than 2% of GU traffic use 39th Street, and 9% of existing GU traffic use 38th Street. Although a portion of this traffic may be cut-through traffic, some of the traffic may be Burleith residents who are employees or visitors of the clinical center. It should be noted that the University, MedStar, and the GU community are working together with DPW to address area wide issues such as cut-through traffic.

The Cutro evaluation suggested that our analysis used the Canal Road entrance as a "bottomless pit" to absorb MedStar traffic. However, we have not assumed that vehicles will cross the main campus to get to the medical center in our analysis. Although some clinical center users will be reallocated to the south campus entrances, they will not need to pass through the campus gates to get to north campus. They will be able to park in the Leavey Center which currently provides parking spaces for north campus as well as south campus (444 north campus Leavey Center spaces are separated by a fence from the remaining south campus Leavey Center spaces). It is important to note that new traffic growth is not projected on south campus.

Recommendations for Mitigation

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- The Cutro report questions the Gorove/Slade methodology for balancing traffic volumes from one intersection to the next. Although traffic volumes may not realistically balance from one intersection to the next, this balancing method was used as a method to check internal consistencies. However, in the vast majority of cases (28 out of 36) our link volumes were balanced to represent volumes that are greater than the traffic volumes that were actually counted on March 15, 2000, as is shown in Mr. Cutro's comparison tables. This means that our May 18, 2000 Existing Conditions analysis (analysis uses balanced volumes) represents a worse case scenario than if our March 15, 2000 counts were used in an unbalanced format.
-
- Mr. Cutro states that our ADT volumes were not counted over a long enough period of time. ADT volumes may be measured for six months, a season, a month, a week, or as little as two days.[1] Due to time constraints placed on us by the community, we attempted to collect data for a two day period. However, mechanical errors resulted in a bad count on the first count day. Therefore, we only used the 24 hour count from the second day (March 2, 2000). The total daily traffic volume counted for this day was 16,175 vehicles west of Entrance 4. This compares to 18,300 vehicles that were counted in 1996 by DC DPW on Reservoir Road east of Foxhall Road. The ADT volumes only vary by 13% over a four year period (some of this variance is likely due to the fact that the hospital had higher patient admissions in 1996). This comparison goes to further prove the validity of our existing traffic volumes.

Traffic Generation/Future Traffic Issues

Cutro's evaluation reports that our trip generation rates represent a lower limit to a range of traffic growth, and that an upper limit of that range would be best taken from Institute of Transportation Engineers (ITE) trip generation rates. Mr. Cutro reports that a best estimate of traffic growth would fall somewhere between these two extremes and would be most reliably based on an extrapolation of current trip rates per (existing) 1000 square feet. However, ITE trip generation rates are based on sites that were surveyed from the 1960's to the 1990's. Patient care and hospital trip generation characteristics have changed drastically over the past 40 years. In addition, ITE's trip generation rates for "hospitals" do not "refer to medical clinics (facilities that provide diagnoses and outpatient care only)". ITE rates do not account for the specialized care that GU provides and will provide with the new Physicians Office Building (POB). Furthermore, ITE rates do not account for travel mode choice differences that are apparent with an urban hospital such as GU. ITE rates for hospitals should be used with caution and only when existing travel data for a hospital is not available. Since existing trip generation rates are known for the existing GU hospital, the best indicator of future trip generation rates can be projected using existing volumes, as was done in our report. Furthermore, trip generation rates should not be based on square footage for a campus such as GU when population figures are available. Very often additional square footage is developed in order to provide more adequate or improved state-of-the-art facilities for a population of employees or patients that will not increase. Thus, an increase in square footage very often does not equate to an increase in trip generation.