



TECHNICAL MEMORANDUM

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Date: June 13, 2011

Subject: Z.C. Case #10-32 – Georgetown University Campus Plan 2011-2020
Supplemental Transportation Analysis

Introduction

This memorandum serves as a supplemental transportation report for the Georgetown University Campus Plan 2011-2020. This supplement was prepared to 1) address comments received from the District Department of Transportation (DDOT) Staff Report dated May 5, 2011, 2) address additional follow up interaction with DDOT via meetings and teleconferences, 3) address comments from ANC/community organizations, and 4) present a revised analysis that is consistent with the current proposed Campus Plan. The analysis provided into the record to date has not been adjusted to reflect the University's change in removing the request for more parking spaces and the changes in projected campus populations.

This supplement includes the following sections:

- Revised traffic capacity analysis for 2020 and 2030 future horizons
- Comparison of 2000 Campus Plan projections to existing conditions
- Discussion of traffic impacts related to potential GU Hospital new development and the related adjustments to the 38th Street/Reservoir Road intersection
- Review of GUTS bus activity on neighborhood streets, and the impact of the potential left turn during the AM peak period from the Canal Road gate
- Response and improvements to the GU Transportation Demand Management plan
- Discussion of other issues raised by DDOT

Printouts of all Synchro analysis and all electronic files will be emailed under separate cover. This supplemental report addresses concerns raised by DDOT and community organizations. With the issuance of this supplement, Gorove/Slade expects additional interaction with DDOT and the analysis contained within may be further revised to address other comments.

Revised Traffic Capacity Analysis

- Gorove/Slade has revised its traffic capacity analysis to examine conditions for both the year 2020 (the “Plan Year”) and the year 2030 (the “+10 Horizon Year”). The results of the revised traffic capacity analysis continue to show that approval of the Campus Plan will not have an adverse impact to roadway capacity. The Campus Plan will result in minimal changes in the number of trips into and out of the campus, thus minimizing its potential impacts.
- Future horizons were analyzed for 2020 (plan year) and a “+10 years” 2030 horizon.
- To determine the appropriate rate of background growth for the Plan Year and the +10 Horizon Year, Gorove/Slade utilized DDOT data and field data collected through turning movement counts. Gorove/Slade also considered the impact of changes to the GUTS system and student enrollment set forth in the 2010 Campus Plan.
- DDOT’s historical Average Annual Weekday Volumes (AAWV) show that volumes on Canal Road and Reservoir Road are generally flat.
 - Between 2001 and 2009, the AAWV along Canal Road have declined slightly (from 44.4 thousand vehicles in 2001 to 44.2 thousand vehicles in 2009).
 - Between 2001 and 2009, the AAWV along Reservoir Road has increased slightly (from 17.1 thousand vehicles in 2001 to 17.9 thousand vehicles in 2009).
 - This is not atypical of patterns observed for other commuting corridors in the District. As users find other modes or change commuting patterns, the system “fills up” to the capacity of the corridor. The capacity is often limited by upstream chokepoints which explain the slight reductions in volume. The volume of traffic once processed at the sites immediately adjacent to campus is going down because the capacity of the corridor is limited further upstream. As regional growth patterns change, this could be pushing capacity constraints further out, thereby metering traffic volumes.
 - Although data shows limited or no growth on Canal Road or Reservoir Road, a 0.5% per year growth was added to be conservative.
- Gorove/Slade’s own data shows additional decline along both corridors since 2009. Gorove/Slade conducted turning movement counts at University gates during 2009 and 2011. Comparing these two sets of counts shows that through traffic along Reservoir and Canal Roads is decreasing in the peak hours. Between the 2009 and 2011 counts, through traffic at Reservoir Road at Gate 1 decreased 10% in the AM peak hour and 8% in the PM peak hour. Between the 2009 and 2011 counts, through traffic at Canal Road at the GU gate decreased 20% in the AM peak hour and 13% in the PM peak hour. Again, notwithstanding the actual observed decline in trips, Gorove/Slade assumed 0.5% per year growth to be conservative.
- 2010 Campus Plan Impacts
 - In response to concern about the lack of specificity regarding the proposed 500,000 square-foot addition to the Georgetown University Hospital (designated as MHC-5 on the proposed Campus Plan), the University has agreed to remove this item from the proposed Campus Plan. Any future addition to or replacement of the Main Hospital will require an amendment to the Campus Plan as well as further processing approval of the specific height, density, location, and design of the improvements. The University has also agreed to remove the proposed realignment of the intersection of 38th Street and Reservoir Road from the proposed Campus

Plan. The design of any future modifications to this intersection will be addressed, if necessary, in future zoning proceedings related to the Main Hospital.

- GUTS changes
 - The 2010 Campus Plan proposes changes to GUTS routing, which will result in some trips moved from the north side of the campus to the south side during peak hours. A later section of this memo on GUTS activity details the changes in trips were made to account for the impact of the campus plan.
- Student Enrollment Changes
 - GU's 2010 Campus plan proposes the following changes in enrollment, which collectively will result in fewer vehicular trips to GU during peak periods:
 - No increase in traditional undergraduate or medical students;
 - To locate 1,000 School of Continuing Studies (SCS) students to one or more satellite locations by December 31, 2013; and
 - Limited and targeted growth of 967 graduate and non-traditional students over the ten-year Campus Plan period.
 - ***Shifting SCS students off-campus will reduce vehicular trips to Main Campus, particularly during the PM peak period.*** Most SCS students come to campus for class after work in the late afternoon and evening, and many of these students drive. According to a survey conducted by GU, 86% of SCS students tend to arrive after 4 PM, and 62% of SCS students drive to campus. Therefore, moving SCS to an off-campus location will reduce vehicular trips overall around the campus, especially during the PM peak period.
 - ***Restricting growth to graduate students and non-traditional students with similar demographics will limit growth to student populations less likely to drive to campus and whose travel is not concentrated during peak periods.*** As confirmed by both the mode split survey and a separate survey conducted by GU, These students are likely to come to campus by transit, walking or biking. Only 24% drive to campus. And unlike SCS students, graduate student arrivals and departures are scattered throughout the day, which reduces their impact during peak travel periods.
 - Therefore, any additional trips generated by the increase in graduate and non-traditional enrollment will be more than offset by the reduction in trips resulting from moving SCS students off campus. Moreover, any new trips generated by the additional students will be dispersed throughout the day, rather than concentrated during the PM peak hour as they are with SCS.
 - To be conservative, however, this analysis assumes a growth in traffic heading to the University during the PM peak hour, equal to the 6.9% increase in student population contemplated by the Campus Plan. This growth represents the potential for new students to drive to classes at night, since there is available parking on campus at that time.
- CAG/BCA's Traffic Consultant review of Campus Plan Transportation Report
 - The testimony of Joseph Mehra as submitted to the Zoning Commission in the letter dated May 24, 2011 was reviewed.

- There are several instances where Mr. Mehra's testimony makes incorrect statements as to the assumptions in the Gorove/Slade report. One instance is where Mr. Mehra refutes the analysis for Reservoir Road. Reservoir Road is a four lane facility and we concur that there are only three through-travel lanes during peak periods due street parking being prohibited on one side. However, had Mr. Mehra observed operation in the field as Gorove/Slade did, he would have seen that there is no parking on the immediate intersection approaches and the intersections process turning and through volumes with two lanes on each approach as a four-lane facility would.
- We have reviewed our data and believe it to be accurate. In response to some of the comments in Mr. Mehra's letter, some assumptions were adjusted, such as the percentage of large vehicles. Detailed responses to Mr. Mehra's comments will be provided under separate cover.
- The revised analysis does not assume the AM period left turn restriction is lifted at Canal Road.
- The revised analysis results are contained in Table 1.
 - Printouts of all Synchro analysis and all electronic files will be emailed.
- In general, the revised analysis reaches very similar conclusions to the analysis presented in the March Transportation Report. The addition of trips generated by the Campus Plan has a minimal impact on capacity.
 - The LOS grades on side-streets along Reservoir Road could be improved through changes in signal timing. The operation of these signals is prioritized to accommodate through traffic per DDOT's discretion. Changes to signal timing to alleviate side-street delays would have to be agreed to by DDOT, and are not necessary to alleviate any adverse impacts from the Campus Plan.
 - One study intersection degrades from LOS E to LOS F in the Total Future 2020 scenario (Reservoir Road and Foxhall Road during the PM peak hour). This is due to two additional trips generated by the Campus Plan.
 - Conversely, there are slight decreases in delay at Reservoir Road and Gate1/38th Street due to slight changes in vehicular volumes following the re-routing of GUTS vehicles to use other gates.
 - In every scenario, all east and westbound traffic along Reservoir Road operates at a LOS A or B.
 - The delays at side-street traffic along Reservoir Road show that if and when the Hospital submits for further zoning review, a careful analysis will be necessary to identify impacts and recommend mitigation measures, if needed. The intersection of Reservoir Road and Foxhall Road may need to be examined for mitigation measures depending on the transportation plan submitted by the Hospital at the time of application for further zoning review. The next section of this memo reviews the potential impacts of the GU Hospital.
 - Under the revised analysis, the AM peak westbound left turn volume at Reservoir Road into Gate 1 is 153 vehicles per hour (for years 2020 and 2030). This level of vehicular volume combined with the capacity analysis does not lead to the conclusion that a left turn lane is necessary. Therefore, Gorove/Slade does not recommend the westbound left turn lane from Reservoir Road or the proposed alignment of Gate 1 and 38th Street. It is likely that these recommendations may be made once the Hospital plans have progressed and a full traffic study performed at the time of further zoning review, as is discussed in greater detail below.

- **Conclusion:** The results of the revised traffic capacity analysis continue to show that approval of the Campus Plan will not have an adverse impact to roadway capacity in either the Plan Year (2020) or the +10 Horizon Year (2030). The Campus Plan will result in minimal changes in the number of trips into and out of the campus, thus minimizing its potential impacts.

Table 1: Revised Roadway Capacity Analysis Results

Intersection	Approach	Vehicular Level of Service															
		Existing (2011)				Future Background (2020)				Total Future (2020)				Total Future Horizon (2030)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 Reservoir Rd & Foxhall Rd	Overall	105.8	F	72.6	E	116.2	F	79.5	E	116.2	F	80.6	F	129.4	F	89.0	F
	Eastbound	200.9	F	44.2	D	225.4	F	45.6	D	225.4	F	45.6	D	254.4	F	47.5	D
	Westbound	40.9	D	46.4	D	40.9	D	50.0	D	40.9	D	50.3	D	40.9	D	55.2	E
	Northbound	93.2	F	26.4	C	104.8	F	26.3	C	104.8	F	26.3	C	119.9	F	26.1	C
	Southbound	83.4	F	179.9	F	85.6	F	202.0	F	85.6	F	205.4	F	88.9	F	231.7	F
2 Reservoir Rd & Gate 4	Westbound Left	2.2	A	2.3	A	2.3	A	2.3	A	2.7	A	2.5	A	2.8	A	2.5	A
	Northbound	29.9	D	26.1	D	32.7	D	27.9	D	30.9	D	28.6	C	34.4	D	31.2	D
3 Reservoir Rd & Gate 3	Westbound Left	5.3	A	0.4	A	5.6	A	0.4	A	5.6	A	0.4	A	6.0	A	0.4	A
	Northbound	31.9	D	18.1	C	35.8	E	18.9	C	36.6	E	19.7	C	42.9	E	20.2	C
4 Reservoir Rd & Gate 2	Westbound Left	0.9	A	0.2	A	2.0	A	0.2	A	1.0	A	0.2	A	1.1	A	0.2	A
	Northbound	44.0	E	20.2	C	49.7	E	21.1	C	51.0	F	21.3	C	59.6	F	22.5	C
5 Reservoir Rd & 39th St	Overall	11.0	B	7.1	A	11.2	B	7.0	A	11.0	B	7.0	A	11.4	B	6.9	A
	Eastbound	9.5	A	5.4	A	9.7	A	4.5	A	9.7	A	5.4	A	10.1	B	5.4	A
	Westbound	7.4	A	3.9	A	7.6	A	4.0	A	7.2	A	4.0	A	8.2	A	4.0	A
	Southbound	34.7	C	41.3	D	34.7	C	41.3	D	34.7	C	41.3	D	34.7	C	41.3	D
6 Reservoir Rd & 38th St/Gate 1	Overall	9.8	A	110.5	F	10.0	B	107.8	F	8.9	A	106.2	F	8.4	A	103.3	F
	Eastbound	0.8	A	1.0	A	0.8	A	1.1	A	0.8	A	1.1	A	0.8	A	1.1	A
	Westbound	13.2	B	2.2	A	14.5	B	2.2	A	11.4	B	2.1	A	10.6	B	2.1	A
	Northbound	38.0	D	320.4	F	38.0	D	320.4	F	38.1	D	331.3	F	38.1	D	331.3	F
	Southbound	39.7	D	129.8	F	39.7	D	129.8	F	39.7	D	76.9	E	39.7	D	76.9	E
7 Reservoir Rd & 37th St/Winfield Ln	Overall	26.5	C	20.5	C	25.8	C	20.1	C	26.1	C	20.3	B	25.4	C	19.8	B
	Eastbound	3.3	A	4.6	A	3.4	A	4.9	A	3.3	A	4.7	A	3.3	A	4.9	A
	Westbound	3.9	A	3.2	A	4.0	A	3.2	A	3.9	A	3.2	A	4.0	A	3.2	A
	Northbound	40.5	D	39.3	D	40.5	D	39.3	D	40.5	D	39.3	D	40.5	D	39.3	D
	Southbound	207.3	F	130.2	F	207.3	F	130.2	F	207.3	F	130.2	F	207.3	F	130.2	F
8 Foxhall Rd & Canal Rd	Overall	28.3	C	57.3	E	34.3	C	65.6	E	34.3	C	66.0	E	42.6	D	76.1	E
	Eastbound	30.1	C	169.7	F	32.2	C	194.6	F	32.2	C	195.6	F	35.5	D	224.8	F
	Westbound	0.4	A	7.9	A	0.4	A	9.0	A	0.4	A	9.0	A	0.4	A	10.7	B
	Northbound	57.0	E	--	--	73.1	E	--	--	73.1	E	--	--	94.9	F	--	--
9 Canal Rd & Unsignalized Canal Rd Gate	Southbound Right	12.4	B	21.6	C	12.6	B	22.4	C	12.6	B	22.4	C	12.8	B	22.4	C
10 Canal Rd & Signalized Canal Rd Gate	Overall	1.2	A	18.4	B	1.8	A	25.0	C	1.8	A	25.4	B	2.1	A	36.1	D
	Eastbound	1.6	A	3.9	A	1.9	A	4.0	A	1.9	A	4.1	A	2.5	A	4.2	A
	Westbound	1.4	A	23.2	C	1.5	A	33.0	C	1.5	A	33.1	C	1.5	A	49.0	D
	Southbound	--	--	55.7	E	--	--	55.7	E	--	--	61.6	E	--	--	61.3	E
11 Canal Rd & 36th St/Whitehurst Fwy	Overall	71.6	E	54.2	D	77.7	E	55.9	E	77.6	E	57.4	E	85.1	F	61.5	E
	Eastbound	101.4	F	38.2	D	111.9	F	39.3	D	111.9	F	40.0	D	124.9	F	43.9	D
	Westbound	22.6	C	50.6	D	23.4	C	56.5	E	23.6	C	59.4	E	24.6	C	71.2	E
	Northbound	37.7	D	65.8	E	38.0	D	65.8	E	38.0	D	67.2	E	38.4	D	67.2	E
	Southbound	50.6	D	57.7	E	50.6	D	57.8	E	50.6	D	57.8	E	50.6	D	57.8	E
12 Prospect St & 37th St	Overall	7.5	A	7.9	A	7.5	A	7.9	A	7.5	A	7.9	A	7.5	A	7.9	A
	Eastbound	7.7	A	8.2	A	7.7	A	8.2	A	7.7	A	8.2	A	7.7	A	8.2	A
	Westbound	7.4	A	7.2	A	7.4	A	7.2	A	7.5	A	7.2	A	7.5	A	7.2	A
	Northbound	0.0	A	7.3	A	0.0	A	7.3	A	0.0	A	7.3	A	0.0	A	7.3	A
	Southbound	7.2	A	7.8	A	7.2	A	7.8	A	7.2	A	7.8	A	7.2	A	7.8	A

Comparison of 2000 Campus Plan Projections to Existing Counts

- DDOT requested a comparison of the projection from the Campus Plan report filed with the prior campus plan. The report filed for the 2000-2010 Campus Plan projected future traffic on Reservoir Road only; the EIS performed for the approval of the Canal Road gate was used for future analysis of the Canal Road corridor.
- Actual traffic conditions along Reservoir Road are significantly less than what was projected in the 2000 Campus Plan. The actual counts collected in 2011 show that through traffic on Reservoir Road at Gate 1 is 27% less in the AM peak hour and 31% less in the PM peak hour than what was projected in the 2000 Campus Plan transportation report. This is due to conservative assumptions that were made regarding projections of future traffic growth. As is discussed in greater detail below, background traffic growth continues to remain flat on Reservoir Road.
- Actual traffic conditions along Canal Road are consistent with or less than what was projected in the 1998 EIS for the Canal Road gate. The actual counts collected in 2011 show that through traffic on Canal Road at the University entrance is 26% less in the PM peak hour than what was projected in the 1998 EIS. Again, this is due to conservative assumptions regarding future traffic growth. The counts also show that through traffic on Canal Road is only 3% more than what was projected in the AM peak hour.

GU Hospital Impacts

- The campus plan transportation analysis submitted previously assumed an additional 750 parking spaces that would be accessed from Gate 1 on Reservoir Road.
- The analysis showed that additional traffic impact could be mitigated through aligning Gate 1 & 38th Street and adding a westbound left turn lane from Reservoir Road.
- In the March 31, 2011 pre-hearing statement, the request for additional parking for the Hospital was removed.
- As discussed above, without the additional parking, approval of the Campus Plan, as it stands, would not have an adverse impact on local roadways.
- Any Hospital development would require further zoning review and approval and thus, a new stand-alone traffic report would be needed at that time to evaluate the impacts of the development.
- The DDOT staff report found the transportation analysis to be “insufficient” to assess changes to traffic patterns resulting from redevelopment of the Hospital.
- At this time plans for the Hospital with regards to timing, program and location on the GU campus are under study and have not yet been determined.
 - In response to concern about the lack of specificity regarding the proposed 500,000 square-foot addition to the Georgetown University Hospital (designated as MHC-5 on the proposed Campus Plan), the University has agreed to remove this item from the proposed Campus Plan. Any future addition to or replacement of the Main Hospital will require an amendment to the Campus Plan as well as further processing approval of the specific height, density, location, and design of the improvements.

- The University has also agreed to remove the proposed realignment of the intersection of 38th Street and Reservoir Road from the proposed Campus Plan. The design of any future modifications to this intersection will be addressed, if necessary, in future zoning proceedings related to the Main Hospital.
- Any Hospital development to include parking would likely necessitate similar mitigation measures to those identified in the March study, depending on the exact number of spaces and their access point(s). A suggested scope for any transportation study conducted as a part of a further zoning application related to the Hospital would include:
 - Existing and projected mode split of patients, visitors, doctors, nurses, and staff
 - Trip distribution and assignment by mode (ped, bike, transit, car)
 - Update on TDM programs, including usage statistics
 - Suggestions on changes to TDM programs; and
 - Vehicular and pedestrian LOS along Reservoir Road. Exact intersection scope TBD based on potential trip generation determined.
- The current recommendations, based on the analysis contained in this supplement, do not contain the alignment of Gate 1 and 38th Street, or the westbound left turn lane from Reservoir Road.
 - Under the revised analysis presented above, the AM peak westbound left turn volume at Reservoir Road into Gate 1 is 153 vehicles per hour (for years 2020 and 2030). This level of vehicular volume combined with the capacity analysis does not lead to the conclusion that a left turn lane is necessary.
 - It is likely that these recommendations may be made once the Hospital plans have progressed and a full traffic study performed at the time of further zoning review.

Although the potential development of the GU Hospital is part of the campus plan, details on transportation aspects of the plan, such as a request for more parking and plans to handle patient, visitor and staff traffic are undetermined so no transportation assumptions can be made with any level of confidence. Any significant changes to parking or access would require further zoning review and approval, which would require a stand-alone traffic study. Again, as indicated above, approval of the Campus Plan, as it currently stands, will not have an adverse impact on local roadways. At the time the Hospital submits an application for further zoning review, a thorough transportation study should be performed to identify any potentially adverse impacts and recommend mitigation measures, if necessary.

GUTS Activity and the Canal Road Left Turn

- The purpose of this section is to provide more information on the recommendations made in the Transportation Report and address comments made by DDOT.
- One of the goals of the campus plan was to reduce the impact GUTS routing has on neighborhood streets. This includes the impact of the Dupont Route on residential streets such as Q Street, and the Rosslyn and other Canal Road based routes on Prospect Street. The current impact is shown on Table 2:

Table 2: Existing Outbound and Inbound GUTS Daily Volumes

	Outbound Volume	Inbound Volume
Reservoir Road to 35 th Street	112	112
Reservoir Road to Q Street	46	46
Canal Road	0	127
Prospect Street	127	0
Total	285	285

- The development of the 'Loop Road' recommendation in the 2010 Campus Plan allows for a reduction in the impact on neighborhood streets without significant impacts to GUTS service. The 'Loop Road' allows all routes except the Wisconsin Avenue shuttle to use Canal Road, thus eliminating the impact to Q Street and other neighborhood streets the Dupont route currently uses. In addition, it reduces the number of buses on Prospect Street because it allows buses to enter and exit at Canal Road, except during the AM peak period when left turns are restricted. During these times, the bus routes will use Prospect Street as they do today. This positive impact is demonstrated on Table 3-1:

Table 3-1: Proposed GUTS Daily Volumes (No A.M. Left Turn; No Q Street)

	Outbound Volume	Inbound Volume
Reservoir Road to 35 th Street	57	57
Reservoir Road to Q Street	0	0
Canal Road	153	228
Prospect Street	75	0
Total	285	285

- A possible alternative to the plan presented in the Campus Plan would be to maintain use of Reservoir Road for the Dupont Route during the AM peak period when Canal Road left turns are restricted, even if for just a portion of the AM peak. This would spread the remaining impact on multiple streets instead of having an impact only on Prospect Street. This positive impact is demonstrated on Table 3-2:

Table 3-2: Proposed GUTS Daily Volumes (No A.M. Left Turn)

	Outbound Volume	Inbound Volume
Reservoir Road to 35 th Street	57	57
Reservoir Road to Q Street	35	0
Canal Road	153	228
Prospect Street	40	0
Total	285	285

- Thus, approval of the Campus Plan would not have an adverse impact on neighborhood streets. In fact, it would have a net positive impact through the reduction of GUTS vehicles on neighborhood streets.
- The number of GUTS buses on neighborhood streets could be eliminated and the overall impact made even more beneficial, through the lifting of the restriction for left hand turns during the AM peak hour at Canal Road. This positive impact is shown on Table 4:

Table 4: Proposed GUTS Daily Volumes (With A.M. Left Turn)

	Outbound Volume	Inbound Volume
Reservoir Road to 35 th Street	57	57
Reservoir Road to Q Street	0	0
Canal Road	228	228
Prospect Street	0	0
Total	285	285

- Lifting this restriction could have an impact on commuting Canal Road traffic though, and require additional study as recommended in the Transportation Report. We understand DDOT requires a detailed corridor study and we hope DDOT will allow us to explore this alternative further.
- Because the potential study scope would include many intersections upstream of campus, the study scope and analyses performed for the Campus Plan capacity analyses are not sufficient for such a study.
- Thus, this report recommends scoping out a study in the fall with DDOT and the community associations, allowing the results of the study to influence whether a change would be recommended. The study would investigate a general lifting of the restriction, and a limited one for GUTS vehicles only. A buses-only left turn in the AM peak hour could be set to allow for left turns every few minutes, thus minimizing the impact to commuter traffic.
- Regardless of the outcome of the study, the overall impact of approving the 2010 Campus Plan and the proposed on-campus loop road would still be positive, as far fewer GUTS vehicles would use neighborhood streets.

Transportation Demand Management Enhancement

As DDOT observed regarding Georgetown's Transportation Demand Management ("TDM") programs in their report: "Georgetown does more than other DC-based universities." To further improve its TDM programs, Georgetown agrees to the following enhancements as recommended by DDOT, as discussed below:

- "DDOT requests that the University provide DDOT with annual performance reports for the TMP including but not limited to annual employee or student (traditional, non-traditional, and continuing education students) commute survey to be provided to DDOT, OP, the ANC and be made available to the public."
- GU agrees to this proposed TDM enhancement and suggests that the annual performance reports include the following information:
 - Mode split surveys of the campus population, broken down by students (including traditional, non-traditional, and continuing education students) and employees
 - Current parking inventory and occupancy on a typical weekday
 - Number of monthly parking permits sold per year
 - Parking availability on surrounding neighborhood streets
 - Number of registered carpools
 - Zipcar and Capital Bikeshare usage data (to the extent available)

- Number of people signed up for SmartBenefits
 - GUTS ridership by route; and
 - Inventory and occupancy of bike racks on campus.
- “Regional Guaranteed Ride Home is eligible to any employee taking any alternative transportation option, not just carpooling. This free option needs to be marketed to all employees to increase biking, walking and transit as well as carpooling.”
 - GU agrees to this proposed TDM enhancement
 - “The marketing of all special events (concerts, lectures, sporting events, etc.) being held on campus should include transportation information to attendees and encourage them to use alternative transportation. The University should explore transit subsidies to be included in any event ticket sales.”
 - GU currently discourages driving and parking for events, and agrees to continue to provide transportation information in the marketing of special events. The University will also explore transit subsidies for event ticket sales, but notes that few events include such ticket sales.
 - “Incorporate information in transportation options into new employee orientation and new hire information packets on an ongoing basis. The University and Hospital should hold semi-annual transportation fairs to increase awareness of available transportation options”
 - GU agrees to this proposed TDM enhancement.
 - “The University and Hospital should set a goal to increase the percentage of employees using transit to at least the regional transit mode split.”
 - GU agrees to DDOT’s request that GU set of goal of having its employees meet the regional transit mode split, although it should be noted that the goal is already met. Indeed, the transit use by GU employees is 6% higher than the regional average, as defined by the 2010 State of the Commute Report (for the “Inner Ring” of the DC area). The current 2010 State of the Commute Report – “Inner Ring” mode split for ‘Drive Alone’ is 46%, and for ‘Transit’, 34%. GU Employees currently have a drive alone mode split of 46%, and transit mode split of 40%.
 - “The University should purchase Capital Bikeshare stations and have them placed on campus and/or within the neighborhood”.
 - GU agrees to continue to work with DDOT to determine potential station locations and assist in their installation. GU is currently working with DDOT on the temporary relocation of a Bikeshare station to an on-campus location. If additional stations are located on campus, GU agrees to purchase them.
 - “The University should become Corporate Members of Capital Bikeshare to provide memberships to employees at discounted rates.”
 - GU has recently provided discounted memberships for employees through its Benefits office.
 - “The University should explore incorporating Capital Bikeshare membership fees into student fees at discounted rates”

- As stated above, the University agrees to work with DDOT to determine additional station locations on campus and purchase them, as well as assist in their installation, in order to encourage Capital Bikeshare membership and use by Georgetown students. The existing TDM also includes other marketing efforts to promote Capital Bikeshare use by students, faculty and staff.

Other Comments

- Safety analysis
 - Gorove/Slade is unclear as to what intersections DDOT would like studied. That said there was not enough time to request, receive and process crash data before this supplement was due to DDOT.
 - We will work with DDOT to identify the appropriate intersections and work to perform a safety analysis as quickly as possible.
- Service vehicles.
 - DDOT requested more information on deliveries to campus and possible changes with the Campus Plan.
 - Deliveries to the University enter at Canal Road and deliveries to the Hospital and Medical Center enter from Reservoir Road. All deliveries take place within the current campus boundaries, on private streets. All trucks enter and exit the campus through the campus gates, requiring no stopping, quieting or reverse maneuvers on public streets. Figure 18 on page 40 of the Transportation Report shows general loading and service areas on campus.
 - During the Campus Plan process, major changes to campus loading and services were discussed and examined, including the addition of a central shipping and receiving facility. Over the course of the process, this idea was deemed infeasible and no major changes to campus deliveries and servicing are included in the Campus Plan.
- Trip Distribution for New Medical Trips
 - DDOT questioned the trip distribution graphic from the March traffic study that showed a large percentage of medical trips approaching from the south, when Hospital access is located on Reservoir Road.
 - Although the revised analysis does not distribute and assign medical trips, Gorove/Slade would like to clarify that this graphic showed the regional approach distribution for medical trips. Many trips will travel to and from the hospital from the south, using M Street and the Whitehurst Freeway from downtown, and the Key Bridge from Virginia. This is the information relayed in the graphic in question. The actual assignment of medical trips from the March traffic reports was in and out of gates on Reservoir Road, the regional traffic approaching from the south used local roadways to reach Reservoir Road.
- Loop Road
 - In response to DDOT's comments regarding the Loop Road, in addition to other concerns expressed by the Commission, the University is preparing a separate analysis regarding the Loop Road. DDOT's concern regarding the status of conversations with the National Park Service has been addressed by the letter provided by NPS dated May 11, 2011.

- **Parking Management**

- In response to DDOT's concerns regarding the impact of students who park in the neighborhood, the University will propose a series of conditions that will address any parking impacts related to students who live on or near campus.
- Students who reside in University house shall be prohibited from bringing cars to campus or the surrounding neighborhood. Violations of this policy will be grounds for discipline under the code of conduct, and violators shall be sanctioned.
- Students who reside off-campus shall be required to adhere to University policy and District regulations regarding car ownership and registration. Again, violations of this policy will be grounds for discipline under the code of conduct, and violators shall be sanctioned. Furthermore, the University shall keep license plate and vehicle information for cars of undergraduate students.
- Notices of these restrictions will be provided to students and to the parents of traditional undergraduate students.
- In addition to the above restrictions related to students, the University also agrees to continue to promote public transit, taxi, and GUTS shuttle use by visitors, and discourage visitors from driving to campus.

- **M Street Shuttle Service**

- In response to DDOT's comments regarding shuttle service, GU will add M Street shuttle service on weekend nights.



MEMORANDUM

To: Karen Frank
Andrea Salley
David Avitabile
Maureen Dwyer

Georgetown University
Georgetown University
Goulston & Storrs
Goulston & Storrs

From: Robert B. Schiesel, P.E.
Daniel B. VanPelt, P.E., PTOE

Date: June 13, 2011

Subject: Z.C. Case No. 10-32 – Georgetown University Campus Plan
Responses to CAG – BCA Traffic Expert Testimony

Gorove/Slade has reviewed the written testimony of CAG's traffic consultant, Joseph Mehra as submitted to the Zoning Commission by letter dated May 24, 2011 regarding the Gorove/Slade Transportation Report dated March 14, 2011 and Transportation Technical Analysis dated March 15, 2011.. This memorandum contains responses to Mr. Mehra's testimony that refute these assertions and cure any errors or omissions. The original testimony is presented in red text with responses from Gorove/Slade immediately following in ***bold italics***.

1. Gorove/Slade collected traffic and parking data to conduct the traffic analysis, however some critical data elements were not presented in their Reports and may have not been observed or collected in the field. These data items include truck and bus trips, their travel patterns and their percentage of total travel on Reservoir Road and Canal Road. Truck trips to GU include deliveries as well as trash pick-up. Further, Metrobus and GUTS travel on these roadways and their presence impacts the traffic flow. The higher the truck/bus proportion, the lower the levels of service. The GUH conducted its own traffic study in May 2010. The GUH Transportation Management Report prepared by O. R. George and Associates (GU Pre-Hearing Submission dated March 31, 2011, Ex L) shows that the truck/bus percentages are 6-7 percent on Reservoir Road near 38th Street. The higher the percentage of trucks and buses in the traffic stream, the lower the level of service.

Mr. Mehra's assumptions above are incorrect, as Gorove/Slade counts capture all vehicles, including trucks and buses. Gorove/Slade did not break out its counts by vehicle classification as the presence of buses and trucks was observed to be "typical" in the study area. The data from the O.R. George report is typical in an urban environment, and after review was shown to vary from 1-7%, not 6-7% as cited above.

To be conservative, the peak hour analysis was updated in the Supplemental Transportation Analysis dated June 2, 2011 using a consistent 5% heavy vehicle adjustment. This had minimal impact on the analysis results and did not change the overall conclusions of the analysis. Note that the 5% adjustment is conservative; a default of 2% is standard practice in the District of Columbia.

2. Another missing data item in the Gorove Slade Report is the existing queues at congested intersections and the spill back on to adjacent intersections. This is critical to the analysis and impacts the levels of service.

The data referenced by Mr. Mehra is not used in the standard methodology requested and accepted by DDOT. The Gorove/Slade analysis documents results in the form of capacity and delay using HCM methodology, because that is the standard requested and accepted by DDOT. Queuing and spillback are not factors in the HCM methodology for calculating levels of service. Although results using HCM methodology are what is documented in the report, queuing calculations are performed by the Synchro software package used in the analysis. These files were submitted to DDOT, thus allowing for a thorough review of queuing and spillback if desired. Note, however, a detailed queuing analysis is not typically conducted until further processing review, when plans for traffic circulation are finalized and specific issues can be appropriately addressed.

3. Peak Hour Determination - Gorove/Slade report states that the "system" street peak hours are 7:45 to 8:45 AM and 6:00 to 7:00 PM. Further, Mr VanPelt testified in the cross that the peak hour is 6-7 PM. However, the data does not support this. The afternoon peak hours for most of the intersections are between 4:45 PM to 6:15 PM and not 6-7 PM. Use of system peak hours, masks the true volumes and the intersection level of service. For example, the intersection of GU Access Road and Canal Road peaks earlier than the analyzed system peak hour. The system peak hour volumes are 3,769 versus the actual peak hour volume which is 4,237 (12 percent higher). Further, Gorove/Slade states that they conducted field observations on March 7 and March 8 between the hours of 4:40 to 6:00 PM. This would suggest that they missed the observations during the peak hour and also, it seems, conducted their observations when GU was at Spring Break (March 5 through March 13) when traffic would obviously be lighter than normal.

Gorove/Slade's analysis was conducted when GU was in session and the analysis reflected the correct peak hour in accordance with accepted transportation engineering practices. All traffic counts used in the analysis were conducted on Thursday, February 10, 2011 while GU was in session during typical semester conditions. The March 7 and March 8 observation period was used to confirm signal timings in the field and check lane configuration assumptions. The signal timing plans are the same whether or not the University is on Spring Break.

Peak "hour" refers to one hour of the three-hour peak period in the morning and afternoon in which the volumes are the highest. The peak hour is calculated as the cumulative hour in which the system volumes of the entire study area are highest. According to the Institute of Transportation Engineers' Manual of Transportation Engineering Studies and Transportation Impact Analyses for Site Development, the time period with the highest cumulative traffic demands should be used. In this case the adjacent street volumes are higher than the site generated traffic and therefore the use of the system peak as identified by Gorove/Slade is in keeping with standard industry practice.

The correct PM peak hour is 4:45-5:45 PM, not 6-7 PM. While the analysis in the initial Technical Analysis was based on the correct PM peak hour (as is explained in the response to Question 5 below), the analysis incorrectly identified the peak hour as 6-7 PM due to a typographical error. The correct PM peak hour (4:45 PM-5:45 PM) is also used in the June 2 Supplemental Transportation Analysis.

Furthermore, the overall campus peak hour was investigated to determine if the campus driveways peak at a different time period than the overall system peak hour. Analysis of the existing data collected confirmed that the campus driveways peak within the system peak hour.

4. GUH Campus Trip Generation - Table 1 (page 10) of Gorove/Slade Transportation technical Analysis shows that the GUH generates 208 inbound vehicles trips during the afternoon peak hour, based on their survey in February 2011. GUH conducted their own traffic study in May 2010. Their study showed that GUH generates about 425 vehicle trips during the afternoon peak hour. This is a significant difference (over a 100 percent difference) and needs to be explained. The morning peak hour data and the PM peak hour outbound trips are more or less consistent.

We cannot speak to the data provided by the GUH report prepared by O.R. George, but we are confident in the counts conducted by Gorove/Slade in February 2011. We took two sets of data during the process, in 2009 and 2011. The counts conducted in 2009 shows a PM peak GUH trip generation of 190 in and 617 out, similar to the 2011 data of 208 in and 671 out. The ins and outs both grew a similar amount in two years, as was discussed in the March traffic study. Thus, the counts from 2009 confirm the validity of the 2011 counts.

5. The GU Report shows that GUH trips during the 6:00 to 7:00 PM peak hour are 208 IN and 671 Out. We have looked at the traffic data included in the Gorove/Slade Technical Attachments and do not come up with these same totals.

This issue has been clarified. As stated above, the correct PM peak hour is 4:45-5:45 PM and not 6-7 PM, and the initial Technical Analysis was based on the correct PM peak hour. The existing trips entering and exiting GUH are shown on Figure 7 on page 13 of the Technical Analysis. The volumes entering and exiting GUH match the volumes shown for the 4:45-5:45 pm system peak period in the Technical Attachments. Adding together the PM peak hour traffic volumes entering and exiting the numbered gates (Gates #1-4), yields a total of 208 vehicles inbound and 671 vehicles outbound for the 4:45-5:45 pm hour.

6. GU Trip Generation - The Gorove/Slade report utilized parking lot observation data to come up with existing GU trip generation and trips. They made a major assumption that "no GU related vehicles park outside the campus". This assumption was not substantiated with any survey. As a matter of fact, Gorove/Slade conducted a travel survey of the faculty, employees and students to determine their mode of travel to and from the GU. However, it seems that they did not ask where the vehicle was parked if they drove. Gorove/Slade computed the existing GU trips to be 259 and 415 during the AM and PM peak hours based on the driveway counts and parking lot data. It is interesting to note that George Washington University, located nearby, also used parking lot data to develop GWU's trip generation but adjusted the data based on their travel survey to account for vehicles that did not park at GWU facilities. The differences were substantial - 804 GWU trips using parking lot data versus 1522 using the travel survey data during the AM peak hour. This is a very significant difference and Gorove/Slade should have analyzed it.

Similarly, Gorove/Slade did not consider visitors and GUH related staff/employees that may not park in the Campus. As a matter of fact, The GUH Report states that the GUH has a current shortage of 450 parking spaces. How is this demand being met? Presumably, this demand is being met by parking outside the Campus.

Gorove/Slade's assumptions regarding trip generation are sound engineering judgments based on the specific conditions surrounding the Georgetown University campus and components of the 2010 Campus Plan. The initial Gorove/Slade study assumed that additional vehicular traffic on the network would be generated by the additional 1,000 parking spaces that were originally proposed as a part of the plan, and trips were generated accordingly. Subsequent to the initial Gorove/Slade study, the University agreed to remove the request for additional parking spaces to address concerns that had been raised by OP and DDOT. Therefore, in the Supplemental Transportation Analysis, Gorove/Slade removed the additional trips associated with these parking spaces, because the parking was removed from the plan.

The revised traffic capacity analysis, as set forth in the June 2 Supplemental Transportation Analysis, further accounted for the trip generation impacts associated with student enrollment changes over the life of the Plan. Subsequent to the initial Gorove/Slade study, the University also agreed to locate 1,000 students in its School of Continuing Studies at an off-campus satellite location. This will reduce trips to GU during the PM peak. The revised enrollment increase of 967 students (6.9%) will be largely from traditional graduate students, who are likely to come to campus by transit, walking, or biking, as supported by the mode split survey. On balance, the student enrollment changes are likely to decrease the overall number of trips to campus, particularly during the PM peak hour. To be conservative, however, the revised Supplemental Transportation Analysis assumed growth in traffic heading to the University during the PM peak hour. This growth represents the potential of new students to drive to classes at night since there is available parking on campus at that time. The growth is equal to the overall increase in student population, which is 6.9%.

Overall, the revised June analysis came to very similar conclusions as the March report. GU-related traffic is very small compared to the volume of commuter traffic along Canal Road (6.7% of traffic entering the area in the AM peak, 6.3% of entering traffic during the PM peak, and 5.3% of exiting traffic during the PM peak). As a result, the modest changes proposed in the Campus Plan have no discernible impact in the roadway capacity analyses of Canal Road traffic.

Contrary to Mr. Mehra's suggestion, the conditions that apply to the Georgetown University campus differ significantly from conditions at the GW-Foggy Bottom campus, and there was no need to adjust trip generation to account for vehicles that do not park at GU facilities.

- *GWU is located in a denser urban neighborhood with many nearby opportunities for off-street parking in commercial garages that are privately operated and outside GWU control. By contrast, there are no nearby parking garages at GU, which means that GU and GUH employees are not likely to drive to campus unless they can park on campus.*
- *There are also hundreds of on-street metered parking spaces within the GW Foggy Bottom campus, directly adjacent to campus buildings.¹ Beyond this number, there are hundreds of on-street spaces also available on the surrounding nearby streets in both the residential neighborhoods and commercial areas. This is not the case at GU, where there is more limited on-street parking within the campus or on nearby streets.*

¹ The GW-Foggy Bottom traffic study counted 635 spaces on the streets within the Foggy Bottom campus.

Street parking is generally limited to some meters immediately adjacent to campus and in Residential Permit Parking zones.

- ***While Gorove/Slade does not deny that parking off campus by people affiliated with GU or GUH takes place, the limited meters and RPP spaces near campus are not viable options for employees who work at GU or GUH, full-time students, or anyone else who needs to be on campus for more than 2 hours.² Furthermore, during the evening (after 5 PM) GU permits students to park on-campus at a discounted rate of \$3 and has facilitated easier access to the Southwest Quad garage so that students who drive park on campus rather than on residential streets.***

Even if such an adjustment were applicable at GU, Mr. Mehra significantly overstates the adjustment that was made by GW to account for on-street parking. GW's trip generation number was not doubled, as Mr. Mehra erroneously suggests; rather, it was adjusted by a factor of 25%, which roughly approximates the proportion of on-street parking spaces within the Foggy Bottom campus to the number of off-street parking spaces within the Foggy Bottom campus. (Source: GW Foggy Bottom Campus Plan: 2006-2025 Transportation Impact Study, p7, 15-16)

Finally, contrary to Mr. Mehra's assertion, the transportation studies clearly demonstrate that GUH accommodates its demand for parking. GUH is allocated 2,700 spaces of the 4,080 total on-campus parking spaces and according to Exhibit 11 on page 21 of the GUH Transportation Management Plan report, the total number of vehicles parked does not exceed 2,700. The parking "shortage" of 448 spaces identified is theoretical; it is an evaluation of what the practical capacity would be for a self-parked facility based on the total number of striped parking spaces controlled by GUH. In practice, GUH uses parking attendants to maximize the utilization of its parking supply.³ Therefore, GUH is able to meet its full demand – including the 450 spaces that exceed its theoretical self-parked capacity – through the use of attendant-assisted parking.

7. The number of travel lanes and their usage is critical in determining roadway capacity and levels of service. Gorove/Slade has used four travel lanes on Reservoir Road in front of the GUH to compute capacity and levels of service. However, there are only three travel lanes during the peak period and two travel lanes during the rest of the day. At no time, does Reservoir Road operate as a four lane roadway. This is a significant error and for all practical purposes negates the Gorove/Slade traffic analysis conducted along Reservoir Road at the GUH access roads. To highlight the significance of this error, I analysed the levels of service for the intersection of Reservoir Road and 38th Street and gate No. 1 during the AM peak hour. I used the same traffic data as Gorove Slade but used the correct number of lanes. The Gorove/Slade computed level of service grade A drops to a grade D, or from a delay of 7.3 seconds per vehicle to 48.5 seconds per vehicle.

² In general, the meters adjacent to campus on 37th Street and Prospect Street permit up to 2 hours of parking, and the surrounding residential neighborhoods contain Residential Permit Parking restrictions that limit parking for non-permit holders to 2 hours. The meters adjacent to campus along Reservoir Road permit up to 4 hours of parking.

³ Attendant-assisted parking physically increases the available number of spaces and also permits space management that increases the practical parking capacity of a facility to near 100%.

Even utilizing erroneous data, Gorove/Slade showed that six of the twelve intersections analyzed have some approaches operating at grade F (unacceptable levels of service). In addition, four of the remaining six intersections have approaches operating at D or E. Correcting for the number of lanes could potentially drop these four intersections to F also.

Mr. Mehra's analysis and conclusions are incorrect because they ignore the totality of existing conditions, including what is observed in the field. Reservoir Road is a four lane facility, though we concur that there are only three through-travel lanes available on portions of the street during the peak periods due to on-street parking being prohibited on one side of the street. However, the capacity analysis included in the report models existing conditions, as observed in the field. There is no parking on the immediate intersection approaches and the intersections process turning and through volumes with two lanes on each approach as a four-lane facility would. The roadway configurations for the morning and afternoon peak period were confirmed and included in the revised analysis presented to DDOT on June 2.

Mr. Mehra is also incorrect regarding the number of intersections with approaches at a level of service F. Only four of the intersections located along Reservoir Road have approaches which operate under unacceptable conditions during one or more peak hours, and for the majority of these intersections, the unacceptable conditions general affect only GU-related traffic. One of the four intersections is the intersection of Reservoir Road and Foxhall Road (which has the correct lane configurations as confirmed by a site visit). For the remaining three intersections, the primary approaches (the east and westbound approaches) operated under acceptable conditions (LOS A for all six intersections between Gate #4 and 37th Street/Winfield Lane). This is shown in Table 1 on page 5 of the Supplemental Report.

8. Gorove/Slade compares the levels of service results from their 2000 study to the current (2011) study and state that the levels of service have improved. However, in the 2000 analysis, Gorove/Slade used three travel lanes on Reservoir Road in 2000 and not four lanes as in 2011. This is probably the main reason why the levels of service appeared to have improved between 2000 and 2011.

This is incorrect. As addressed in response to item 7, Gorove/Slade correctly analyzed the roadway configuration along Reservoir Road in its 2011 analyses. Furthermore, Mr. Mehra mischaracterizes the comparative analysis of conditions along Reservoir Road. The March 2011 Transportation Report observed that two intersections improved; three intersections had no significant changes, one intersection degraded, and one intersection degraded in the PM but improved in the AM. The improvements in level of service are primarily shown on the driveway approaches for GUH, not along the Reservoir Road approaches. The significant improvements shown at the intersection of Reservoir Road and Foxhall Road are due to lane configuration changes at the intersection between the two Campus Plan periods.

9. The future conditions are for the year 2020. The future traffic consists of existing traffic, normal growth in through traffic, traffic generated by other developments nearby and traffic generated by the GU expansion. Gorove/Slade stated that there are no approved developments nearby and "inherent growth on the adjacent roadways is assumed to be minimal due to existing capacity constraints." (page 26). However, on page 27 Gorove/Slade states that no background growth was assumed. DDOT data shows that Reservoir Road has been growing at the rate of

1.1 percent per year compounded between 1968 and 2008 and 0.75 percent between 2002 and 2008. Canal Road has been growing at the rate of 0.5 percent (compounded) per year through 2008. Gorove/Slade study assumed no growth for background conditions. Due to the differences in growth rates (0% versus 0.5% or 0.75%), the total trips forecasted for some movements by Gorove/Slade are as much as 130 vehicles per hour less.

Mr. Mehra's evaluation of background conditions is not accurate. As stated in the Supplemental Transportation report, growth on Reservoir Road and Canal Road has been minimal during the past decade. Furthermore, using data from as far back as 1968 can skew percent growth calculations, as a linear growth pattern in traffic cannot be expected to be stable for that long of a period of time. More recent data indicates that instead of growing, traffic on commuting streets within the District has met its ceiling and is stable at current rates. That said, the revised traffic analyses contained in the June 2 Supplemental Report assume a 0.5% per year growth in order to provide a conservative analysis.

10. The GU growth in vehicle trips was based on GU driveway counts and does not include vehicular travel that does not park inside the Campus. If the GWU experience is applied to GU, the actual vehicle trip generation could be almost double the Gorove/Slade projections. The total trips in 2020 with the GU expansion are therefore significantly less than the projections based on DDOT growth rate and corrected GU trips.

In relation to the GUH future trip generation, Gorove/Slade has underestimated the hospital related trips by using driveway counts. As noted above, the GUH Report states that the GUH has a current shortage of 450 parking spaces.

These comments should be disregarded for the reasons set forth above. As previously stated in Item #6, the conditions surrounding the GW campus are unique; GW has a large number of on-street parking spaces physically available within its campus, which is mapped on the existing urban street grid, and there are opportunities for other public parking in the nearby vicinity. By contrast, off campus parking around GU is limited to meters and RPP zones that are not practical options for those that commute via automobile with any significant length of stay. Therefore, the comparison is illogical. We do not dispute that some people associated with GU or GUH park on street in the neighborhoods, but such behavior is limited by the metered parking and RPP restrictions in place. And, as stated in Item #6, GW only increased the number of trips by 25% to account for on-street parking.

Regarding GUH, as previously stated in Item #4, we are confident in the counts conducted by Gorove/Slade in February 2011 for the GUH driveway. And, as stated in response to Item #6, the "shortage" of 450 parking spaces was theoretical and based on the hospital's self-parked capacity. GUH is able to meet its full demand – including the 450 spaces that exceed its theoretical self-parked capacity – through the use of attendant-assisted parking.

11. LEVELS OF SERVICE - The future Campus Plan traffic does impact the traffic operations in the area. For example, the Gorove/Slade report shows that the intersection delay increases from 96.8 seconds per vehicle to 111.1 seconds per vehicle at the intersection of Reservoir Road and 38th Street due to the GU future traffic only. This level of service analysis for the future conditions have the same errors and omissions as in the existing conditions, including utilizing Reservoir Road as a four lane roadway rather than a three lane roadway. Further, the traffic

projections used to compute levels of service are based on erroneous methodology and incorrect assumptions. If the DDOT growth rates are used and the GU/GUH trips are corrected, it is likely that several more intersections that are projected to operate at D levels may fail.

The mitigation, proposed by Gorove/Slade, consists of traffic signal retiming. Gorove/Slade does not state if they have discussed these changes with DDOT. The traffic signals are synchronized and changes cannot be made to individual intersections without analyzing their impacts on the entire corridor.

Mr. Mehra's analysis is out of date. As stated previously, the original March analysis included an analysis of the impact of the additional 1,000 parking space request. The University withdrew this request on March 31, 2011. We have revised our analysis in our Supplemental Transportation Report. By removing the request for additional parking, we no longer predict an increase in delay at the intersection of Reservoir Road and 38th Street.

Gorove/Slade has a long history working in the District and is very familiar with the methodologies and parameters DDOT uses to time its traffic signals. The conclusions reached regarding traffic signal timings and their impact to levels of service was made with these parameters in mind. The timing change recommendations were developed and analyzed in the Synchro software package, which takes into account the impacts along the entire corridor.

Furthermore, Gorove/Slade does not recommend retiming the signals. The discussion in the report notes that the large delays associated with side street traffic on Reservoir Road are due to signal timing strategies that give priority to Reservoir Road, instead of other factors such as not enough roadway capacity on side streets or heavy volumes on side streets. Thus, mitigation measures other than changing timings, such as widening roadways, would be inappropriate. The decision whether to change signal timings to alleviate delays on side streets is one that should be made by DDOT. The discussion in the report is intended to provide the information to help reduce these delays through timing changes, and the changes would not negatively impact through traffic along Reservoir Road adjacent to the GU campus.