

TESTIMONY OF JOE MEHRA, P.E.
TRAFFIC CONSULTANT, MCV ASSOCIATES, INC.
IN OPPOSITION
TO 5401 Western Avenue APPLICATION

I am Joe Mehra, President of MCV Associates, Inc. I have over 30 years of experience in traffic engineering and transportation planning. I was the co-author of the first ever handbook on Site Impact Traffic Evaluation that was prepared for the U.S. Department of Transportation. I will present a review and critique of the Traffic Reports prepared for the applicant's submittal by O. R. George & Associates, Inc. (ORG). The review focuses on the errors in methodology and assumptions as documented in the various traffic reports and their impacts on the levels of service.

Data Collection

The traffic analysis utilized traffic data collected in August when the schools are not in session, many of the employees/families are on vacation and the traffic volumes are generally lower than the other times of the year. The capacity and levels of service analysis using data collected in August may not be representative of the actual traffic conditions.

The weekend analysis excluded the intersection of Wisconsin Avenue and Jenifer Street. This intersection should be included for weekend analysis since the retail activities have a significant impact on this intersection and retail activities are greater on weekends than weekdays.

Vehicle Trip Generation Rates

ORG has used a much lower trip generation rate for retail use on the WMATA site than the other retail uses in the area. Use of a consistent trip rate will result in doubling of the traffic volumes for the WMATA site during the PM peak hour.

The apartment trip rates for the site trips have been reduced by 65% from the ITE rates. This is a significant reduction in rates without a justification or substantiation of this reduction. In the latest report (October 21), this reduction was reduced to 50% with a trip rate of 0.25 per unit. This rate is low in comparison to the rates used in the Friendship Heights study area of 0.30 per unit.

ORG has reduced the Day care Trip rates from the ITE trip generation report by 65%, assuming that 65% of the trips to the daycare center will be walk and pass-by trips. We conducted a traffic survey on Wednesday, November 6, 2002 between the hours of 7:00 AM to 9:00 AM at the day care center on 43rd Street

and Jennifer Street. During the 8:00 to 9:00 peak hour, 8 vehicles dropped off 8 children at the day care center. No walk trips were observed. Assuming that the proposed day care center has similar travel patterns, then all children will be driven to the center and with one child per vehicle, resulting in as many vehicle trips as the total number of students enrolled. There will be pass-by trips, however, all trips have to access the site driveway, regardless of their origin. ITE Recommended Practice for Traffic Access and Impact Studies for Site Development recommends that pass-by trips be allocated to site driveways and adjacent intersections.

The use of these trip rates for the retail use on the WMATA site, the residential and day care uses on the Washington Clinic site will result in a much higher vehicle travel through the Friendship Heights area and all the intersections analyzed. Consequently, the levels of service will be worse than estimated by ORG.

Levels of Service

The levels of service analysis was conducted assuming that each intersection operates independently of the adjacent intersections. Due to the close proximity of the intersections analyzed and the definite impact of the intersections on each other, the Highway Capacity Manual (HCM) or the Highway Capacity Software (HCS) is not the correct technique to estimate delays and levels of service. Further, the traffic backs up from one intersection to the other in the peak direction. For example, traffic on Western Avenue backs up from Wisconsin Avenue all the way to 41st Street in the morning peak period. The SYNCHRO Model or the CORSIM model is the technique to use for such a road network analysis. The results based on the HCS analysis will not reflect real world conditions. These are simulation models that more correctly address roadway network assessment than the HCM. It should be noted that DDOT in their study of Palisades Traffic also utilized Synchro to conduct their analysis.

Assuming for a moment that the HCS is the correct technique for estimating levels of service, ORG conducted the analysis assuming that the study area is NOT in a CBD or similar area. The analysis is based on an urban or suburban area. The study area is in the Friendship Heights CBD as stated in the report on page 3 (March 21) and therefore the analysis should be based on CBD area. The CBD area analysis will result in worse levels of service than what has been shown in the traffic reports.

Future Traffic Volumes

The future traffic volumes consist of the existing volumes, normal growth in through traffic, traffic from other planned/approved developments and the site traffic.

A growth rate of 2% per year was assumed for all roadways analyzed. Data for Wisconsin Avenue shows that the volumes have increased at an average annual rate of 3.2 percent between 1990 and 1999. Therefore the future traffic has been underestimated by ORG. Using the correct growth rate and the CBD area type at the intersection of Wisconsin Avenue and Western Avenue during the AM and PM peak hours, the LOS is determined to be LOS F in the background conditions (worksheets included in this report). This LOS F is substantiated by the Friendship Heights Sector Plan prepared by Montgomery County which also shows a LOS F in the PM peak hour (AM peak hour analysis was not conducted by the County).

Table 3, Page 15 shows the background development included in the analysis. Some key developments have not been included in the analysis and these include the Chase Tower located in the northwest quadrant of Wisconsin Avenue and Wisconsin Circle. This property is estimated to generate an additional 328 vehicle trips during each of the AM and PM peak hours. These are approximately 10 to 13 percent of the background trips estimated by ORG. The addition of these trips to the intersections analyzed by ORG will result in worse conditions than estimated by ORG.

The traffic assignment numbers do not add up to the total numbers shown in Table 3, page 15. Approximately 25 to 30 percent of all trips will be arriving/departing to the south on Wisconsin Avenue. The Appendix Exhibit F-2 shows no traffic arriving/departing from the south on Wisconsin Avenue going to the Hecht's or the GEICO sites.

Future Levels of Service

On page 22 (March 21), the report notes, "Based on the above, it can be concluded the year 2006 total traffic situation, including the proposed development, would be the same as the background traffic situation shown in Exhibit 6. As such, this study has not identified the need to analyze the projected year 2006 total traffic situation, including the proposed development." This statement would be valid if the current use and the proposed uses had similar travel characteristics. This is certainly not the case. The current use is a clinic whose peaks are inbound in the AM peak period and outbound during the PM peak period. The proposed use is residential whose peaks are just the opposite of the clinic, i.e. the peak direction of travel is outbound during the AM peak period and inbound during the PM peak period. This is a critical difference, since the levels of service are based on conflicting movements. A right turn movement in to the site during the AM peak may not add to the intersection delay, but a left turn out of the site during the AM peak will certainly add to the intersection delay. Therefore, the total traffic impact and levels of service should be evaluated at each intersection. This is true for the original development proposal and for the current development proposal.

The August 12, 2002 Report states that the Ward 3 Plan recommends a LOS C as the minimum planning standard for the area intersections. Two intersections are projected to exceed the standards. The report adjusts the signal timing and cycle lengths to bring the overall LOS to C, but at the expense of individual movements (some movements drop to LOS E or F). It should be noted that these traffic signals are on a system and cycle lengths or individual timings or phases may not be changed without a study of the impacts on other intersections in the system.

Parking

The latest proposal calls for 137 parking spaces for the residential units and 4 parking spaces for the day care center. The plan requests approval for up to 25% tandem parking spaces or approximately 33 spaces, resulting in an availability of 108 accessible parking spaces. Therefore, the proposed parking ratio is 0.8 spaces per unit. ORG report presents vehicle availability ratios for occupied housing units in the census tracts in the Friendship Heights area. The vehicle availability ratio varied from a low of 1.1 to 1.4 with an average of 1.3. The census tract in Friendship Heights area of Montgomery County, which is primarily apartments, is 1.1. Based on this ratio, the proposed development will have 138 owned vehicles. Therefore, there will be a shortfall of 30 accessible parking spaces.

Safety Issues (Access/Circulation)

The proposed entranceway/exit to the parking garage on site is off-set by approximately 50 feet from the intersection of Wisconsin Circle and the traffic signal. Traffic exiting from the parking garage on to Wisconsin Circle will end up on the eastbound lane of Wisconsin Circle due to the offset. This condition can lead to safety problems and potential for head-on collisions.

The entranceway to the loading dock, the day care center and the visitor parking lot all occur on one driveway. Further, this driveway also crosses the pedestrian walkway. Day care children will be crossing this driveway with trucks and other vehicles. This is a safety problem due to truck/children conflicts.

Conclusions

As noted above, ORG has significantly under estimated the vehicle trip generation as shown in a comparison of trips by ORG and MCV:

	ORG	MCV	ORG	MCV
	<u>AM Peak Hr</u>	<u>AM Peak Hr</u>	<u>PM Peak Hr</u>	<u>PM Peak Hr</u>
WMATA	143	220	252	396
Wisconsin Place	887	887	1328	1328
Friendship Commons	1052	1052	1034	1034
Chevy Chase Center	372	372	630	630
Chase Tower	0	328	0	328
Residential-Site	31	38	31	38
Day Care-Site	13	38	14	40
Total	2498	2935	3289	3794

This shows that ORG has underestimated the AM and PM peak hour trips by as much as 14 to 15 percent.

ORG has used an incorrect methodology and assumptions to estimate capacity and levels of service at the critical intersections for the existing conditions and for the future conditions. Our analysis, using a growth rate of 3.2 percent per year and other traffic data from ORG report at the intersection of Wisconsin Avenue and Western Avenue shows that the levels of service is LOS F during the AM and PM peak hours. If all background development trips were included in the analysis, several other intersections will drop to a LOS F. DDOT's report is primarily based on the ORG reports and therefore the comments noted in this report are generally applicable to DDOT's report also.

The ingress and egress and on-site circulation plan shows that it leads to unsafe conditions for the motorists using the garage and the children walking to and from the day care center.

In conclusion, the traffic study conducted for the subject site is not complete, has used an incorrect methodology and has not provided mitigation measures for several intersections that would be operating at LOS F. The access plan has major safety problems associated with it and should be rejected.

HCS2000: Signal and Intersections Release 4.1

Analyst: Joe Mehra
 Agency: MCV Associates, Inc
 Date: 11/1/2002
 Period: AM Peak
 Project ID:
 E/W St: Western Avenue

Inter.:
 Area Type: CBD or Similar
 Jurisd:
 Year :
 N/S St: MD355 Wisconsin Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	3	0	0	3	0
LGConfig	L	TR		T	R		TR			LTR		
Volume	114	704	52	1169	522		1032	127		357	1389	164
Lane Width	11.0	11.0		11.0	11.0		11.0			11.0		
RTOR Vol		0		0			24			25		

Duration	Area Type: CBD or Similar Signal Operations							
Phase Combination	1	2	3	4	5	6	7	8
EB Left	P	P			NB	Left		
Thru	P	P			Thru	P		
Right	P	P			Right	P		
Peds		X			Peds	X		
WB Left				SB	Left		P	
Thru		P			Thru	P	P	
Right		P			Right	P	P	
Peds		X			Peds	X		
NB Right				EB	Right			
SB Right				WB	Right		P	
Green	6.0	35.0			32.0	19.0		
Yellow	4.0	4.0			4.0	4.0		
All Red	0.0	1.0			0.0	1.0		
Cycle Length: 110.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group	Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
				v/c	g/C	Delay	LOS	Delay	LOS
Eastbound									
L		162	1532	0.77	0.41	60.2	E		
TR		1241	3033	0.66	0.41	29.2	C	33.2	C
Westbound									
T		980	3079	1.22	0.32	438.8	F	315.0	F
R		638	1300	0.84	0.49	37.9	D		
Northbound									
TR		1263	4343	0.98	0.29	72.1	E	72.1	E
Southbound									
LTR		2159	4318	0.92	0.50	34.3	C	34.3	C

Intersection Delay = 124.3 (sec/veh) Intersection LOS = F

Analyst: Joe Mehra
 Agency: MCV Associates, Inc
 Date: 11/1/2002
 Period: PM Peak
 Project ID:
 E/W St: Western Avenue

Inter.:
 Area Type: CBD or Similar
 Jurisd:
 Year :
 N/S St: MD355 Wisconsin Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	3	0	0	3	0
LGConfig	L	TR		T	R		TR			LTR		
Volume	1215	1036	140	894	396		1157	168		397	944	246
Lane Width	11.0	11.0		11.0	11.0		11.0			11.0		
RTOR Vol		0		0			34			38		

Duration	Area Type: CBD or Similar Signal Operations							
Phase Combination	1	2	3	4	5	6	7	8
EB Left	P	P			NB Left			
Thru	P	P			Thru P			
Right	P	P			Right P			
Peds		X			Peds X			
WB Left					SB Left	P		
Thru		P			Thru P	P		
Right		P			Right P	P		
Peds		X			Peds X			
NB Right					EB Right			
SB Right					WB Right	P		
Green	6.0	35.0			32.0	19.0		
Yellow	4.0	4.0			4.0	4.0		
All Red	0.0	1.0			0.0	1.0		
Cycle Length: 110.0 secs								

Intersection Performance Summary

Appr/ Lane	Lane Group	Adj Sat	Ratios	Lane Group	Approach
Lane	Group	Flow Rate	v/c	Delay LOS	Delay LOS
Grp	Capacity	(s)	g/C		
Eastbound					
L	162	1525	1.44	0.41	875.0 F
TR	1227	3000	1.04	0.41	134.3 F 249.0 F
Westbound					
T	980	3079	0.93	0.32	57.4 E 47.6 D
R	638	1300	0.63	0.49	25.5 C
Northbound					
TR	1260	4331	1.11	0.29	257.8 F 257.8 F
Southbound					
LTR	2125	4250	0.77	0.50	25.1 C 25.1 C

Intersection Delay = 143.6 (sec/veh) Intersection LOS = F