(20)

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May 12, 2005

RECEIVED
D.C. OFFICE OF ZONING
2005 MAY 13 PM 2:05

Carol J. Mitten, Chair
D.C. Zoning Commission
441 4th Street, N.W.
Suite 210
Washington, D.C. 20001

RE: Zoning Commission Case No. 04-24
Transportation Consultant's Report

Dear Ms. Mitten and Members of the Commission:

Transmitted herewith are twenty (20) copies of the Transportation Consultant's report on the Rhode Island Avenue Metro PUD. The Applicant has also provided copies to the D.C. Department of Transportation, the Office of Planning and Advisory Neighborhood Commission 5B.

Sincerely,
ARNOLD & PORTER

Cynthia A. Giordano

Nathan W. Gross, AICP

Enclosure

ZONING COMMISSION
District of Columbia
CASE NO. 04-24
EXHIBIT NO. 20

ZONING COMMISSION
District of Columbia
CASE NO.04-24
EXHIBIT NO.20

TECHNICAL MEMORANDUM:

RHODE ISLAND AVENUE METRO PHASE I PUD & MAP AMENDMENT, DISTRICT OF COLUMBIA ZONING COMMISSION, WASHINGTON D. C.

(Case No. 04-24)

Prepared for:

A & R Development Corporation
514 10th Street, NW, Suite 600
Washington DC 20004
- Cheryl Parker Hamilton, Director

Correspondents:

ARNOLD & PORTER
555 Twelfth Street, NW
Washington, DC 20004
- Cynthia A. Giordano, Esquire

RECEIVED
D.C. OFFICE OF ZONING
2005 MAY 13 PM 2:05

Prepared by:

O. R. GEORGE & ASSOCIATES, INC.
Transportation Planning & Engineering Consultants
10210 Greenbelt Road, Suite 310
Lanham, MD 20706
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May 11, 2005

O. R. GEORGE & ASSOCIATES, INC.

Traffic Engineers – Transportation Planners

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TECHNICAL MEMORANDUM

DATE: May 11, 2005

TO: Mr. Abdoulaye Bah, Sr. Transportation Engineer
DDOT Transportation Policy and Planning Administration

FROM: Cullen E. Elias

Re: Rhode Island Avenue Metro Phase I Planned Unit Development (PUD) and Map Amendment (Case No. 04-24)

1.0 INTRODUCTION AND BACKGROUND

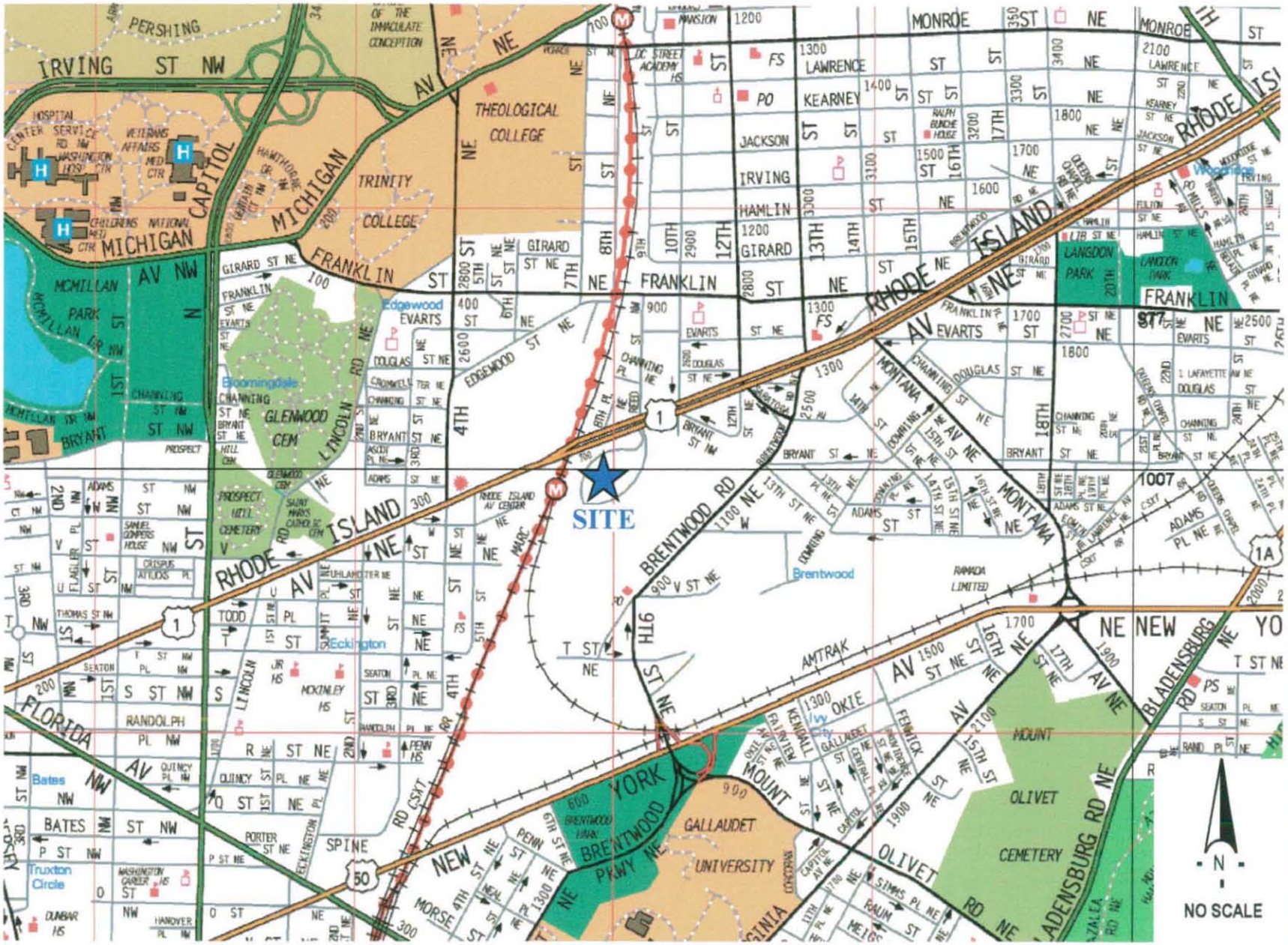
Per the request of the Applicant, the Mid-City Urban LLC – A & R Development Corporation Joint Venture, we have undertaken a transportation impact assessment in support of the referenced application. This assessment includes site trip generation and related impacts, as well as the proposed access, parking and loading provisions.

As background, it is noted that the proposed development site will replace the existing parking area for the Washington Metropolitan Area Transit Authority (WMATA) Rhode Island Avenue Metrorail Station. This area is situated immediately east of the station and along the south side of Rhode Island Avenue, N. E. Exhibit 1 shows the location of the site.

The proposed development would consist of two hundred seventy-one (271) apartments and 70,000± Gross Square Feet (GSF) of primarily quality retail space. The development would be provided with two (2) garages carrying a total capacity of four hundred fifty-one (451) spaces, and forty-one (41) on-street spaces along a "Main Street." The PUD application also includes fifteen (15) kiss & ride spaces and five (5) taxi drop spaces for Metro users. This computes to a total parking of five hundred twelve (512) spaces. [*A third garage would be developed by the City to provide two hundred (200) long-term parking spaces and bus bays. This garage is not included in the subject PUD application.*]

2.0 EXISTING STUDY AREA CONDITIONS

The proposed development will be accessed primarily off Rhode Island Avenue at the Reed Street/Metro Station Entranceway intersection. The Metro Station Entranceway also provides access to the Brentwood Shopping Center, which is situated between the subject site and Brentwood Road, N. E. This roadway and land use situation therefore makes it possible for the proposed development to be accessed also from Brentwood Road, via the two (2) entrances serving the Brentwood Shopping Center. However, due to the indirect nature of this access and the potential for significant parking lot conflicts within the shopping center, the volume of the PUD trips utilizing the Brentwood Road access points would likely be quite low.



O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

EXHIBIT 1
SITE LOCATION MAP
Rhode Island Metro Station Development PUD/Map Amendment Application

As noted earlier, the proposed development would be located adjacent to the Rhode Island Avenue Metrorail Station, which provides both rail and bus transit services. Based on *WMATA's "Development - Related Ridership Survey Report,"* December 1989, it is projected that a significant percentage of the site trips would be made via transit. The proposed development would comprise a mix of residential, retail and community uses; and would be situated in proximity to the well-established Brentwood residential communities, the Brentwood Shopping Center, as well as the Rhode Island Center and Greater Mount Calvary Holy Church complex (along Rhode Island Avenue), among other significant land uses. It is therefore expected that some of the site trips would be part of multi-purpose trips, and involve walk, bike, and other alternative travel modes. Based on the above considerations, the study area roadway network would be defined by the primary access point (Rhode Island Avenue @ Reed Street/Metro Station Entranceway) and two (2) secondary access points off Brentwood Road (which serve the Brentwood Shopping Center). The study area roadway lane configuration and traffic control devices are shown in Exhibit 2.

Field observations and peak period traffic turning movement counts were undertaken at the study intersections to assess the existing traffic situation. The existing peak hour volumes are shown in Exhibit 3. The count summaries are presented in Appendix A.

The existing peak hour volumes were evaluated using the appropriate Highway Capacity Manual (HCM) procedures. The analyses for the Rhode Island Avenue/Metro Station Entranceway intersection included significant bus traffic (i.e., 73-AM total & 84-PM total) and pedestrian crossing activity. The analysis results show that the study area intersections currently operate at acceptable Levels of Service[1] during both the morning and afternoon peak hours. The results are shown in Table 1. The analysis worksheets are included as Appendix B.

TABLE 1

SUMMARY CAPACITY ANALYSIS RESULTS – EXISTING TRAFFIC SITUATION

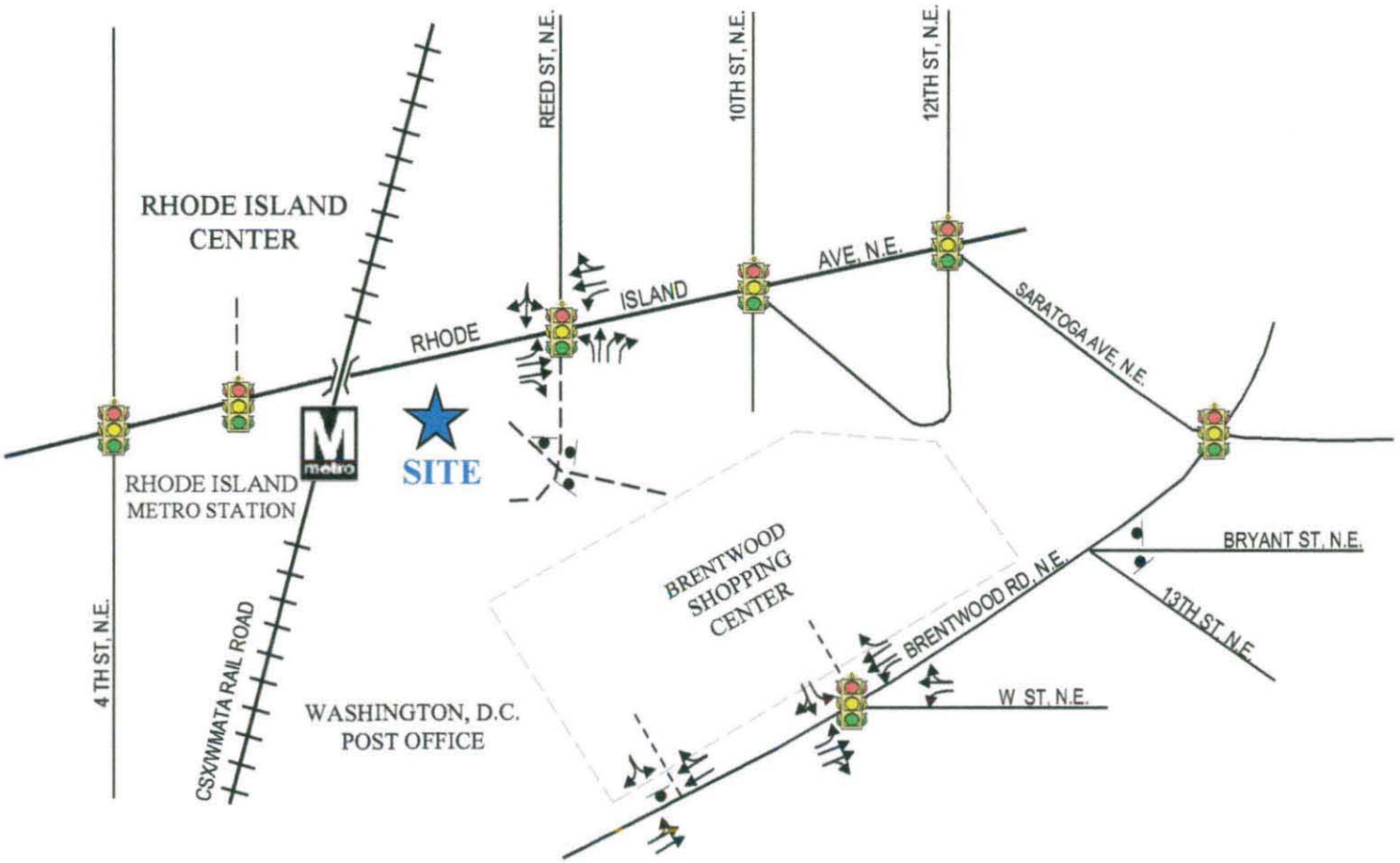
Intersection	AM Peak Hour		PM Peak Hour	
	Level of Service	Average Control Delay (Sec./Veh.)	Level of Service	Average Control Delay (Sec./Veh.)
1) Rhode Island Avenue @ Reed Street/Metro Entrance, N. E. *	C	36.3	D	30.1
2) Brentwood Road @ W Street/ Shopping Ctr. Entrance, N.E. *	C	33.6	C	26.9
3) Brentwood Road @ Shopping Ctr. Secondary Entrance, N.E.**	C	24.7	C	24.1

* Signalized intersection. Highway Capacity Manual (HCM) procedures applied.

** Unsignalized intersection. Highway Capacity Manual (HCM) procedures applied. Indicates Average Control Delay for the worst intersection approach.

Source: O. R. George & Associates.

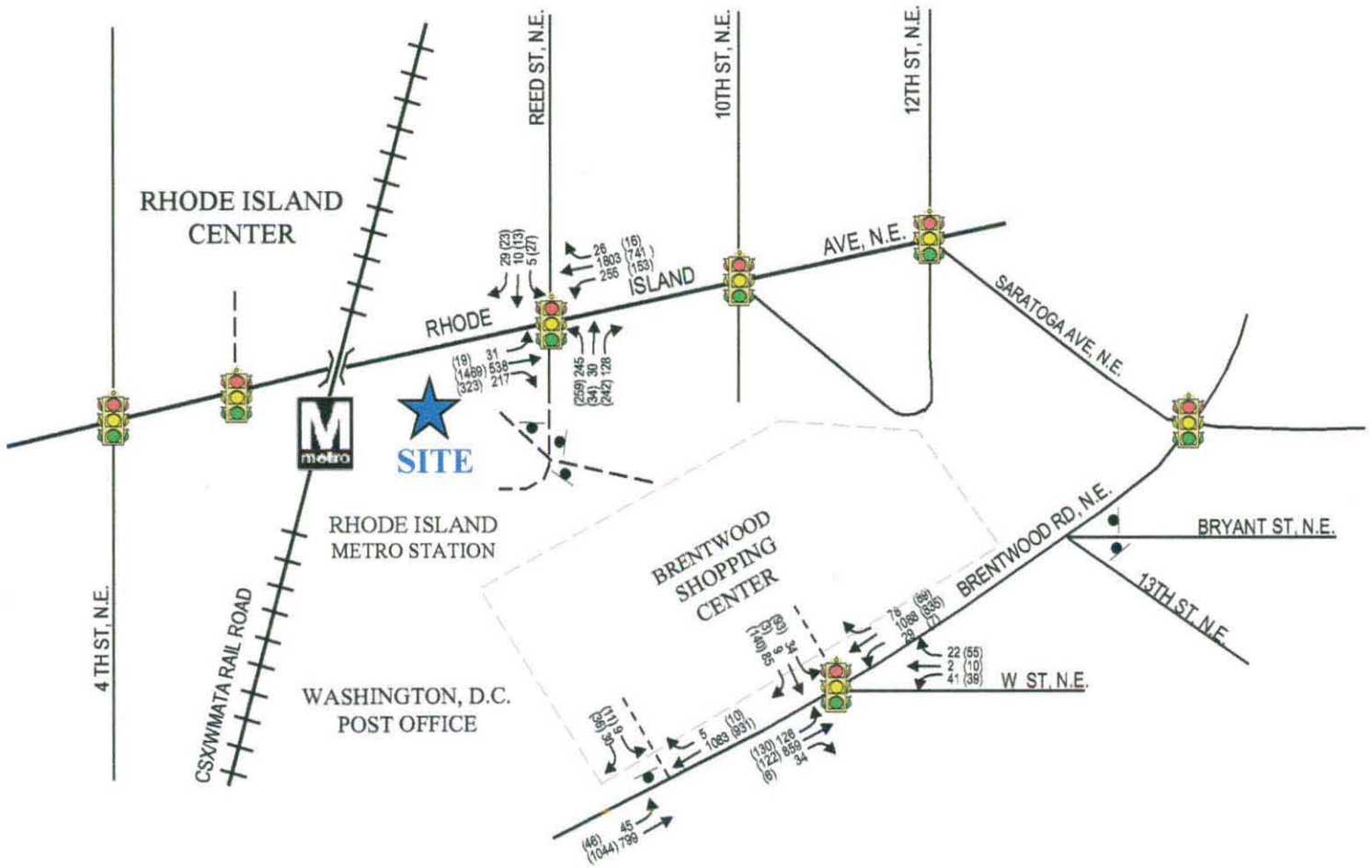
[1] *Level of Service* is a qualitative measure that describes operational conditions within a traffic stream or at an intersection, and reflects their perception by drivers and other roadway users. Principal considerations are factors such as speed and travel time, delay, and freedom of maneuver, traffic interruptions, comfort, convenience and safety. Current engineering practice defines six (6) Levels of Service (A-F), with "A" representing best operating conditions, and Level of Service "F" representing the worst conditions. Level of Service D is generally considered by the District of Columbia as the minimum acceptable standard for planning and design purposes.



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EXHIBIT 2

STUDY AREA ROADWAY LANE CONFIGURATION AND TRAFFIC CONTROL DEVICES
Rhode Island Metro Station Development PUD/Map Amendment Application



Legend

TRAFFIC SIGNAL

STOP SIGN

00 (00) AM (PM) PEAK HOUR VOLUMES

N

SCHEMATIC
NOT TO SCALE

O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

EXHIBIT 3

EXISTING PEAK HOUR INTERSECTION TRAFFIC VOLUMES
Rhode Island Metro Station Development PUD/Map Amendment Application

3.0 TRAFFIC ANALYSIS – SUBJECT PUD

3.1 Proposed Development Plan

As noted earlier, the proposed development would replace the existing surface parking area for the Rhode Island Avenue Metro Station. The site is currently zoned M (General Industry). Current plans call for the site to be rezoned to C-2-B (Community Business Center - Medium High Density); and be redeveloped with two hundred seventy-one (271) apartments and 82,300 Gross Square Feet of mixed retail, office and community space. The proposed development will be provided with two (2) garages [totaling four hundred fifty-one (451) spaces] and forty-one (41) spaces along the project's "Main Street;" as well as fifteen (15) kiss & ride spaces and five (5) taxi drop-off spaces for the Metro station. [*A third garage will be constructed adjacent to the site, to provide two hundred (200) long-term spaces for Metro users. However, this garage is not included in the subject PUD application.*] Primary access to the proposed development would be provided via the existing entranceway off Rhode Island Avenue. This access point is signalized. The internal access and circulation situation is discussed in Section 3.2 following.

3.2 On-site Access and Circulation

The PUD Conceptual Plan was submitted to the DDOT Transportation Policy and Planning Administration under a separate cover. The Plan includes the following vehicular access and circulation patterns:

a) Primary access to the site would continue to be off Rhode Island Avenue via the existing entranceway. This entranceway would culminate at and form the northern leg of a major internal intersection. The other legs of this intersection would be the proposed development's "Main Street" (western leg), a loop/perimeter road (southern leg) and the entranceway to the Brentwood Shopping Center (eastern leg).

b) The "Main Street" would primarily serve vehicles destined for the two (2) PUD garages, the on-street parking spaces and the Metro kiss & ride spaces. This street will be provided with traffic calming measures to ensure that it is pedestrian friendly. These measures would include bulb-outs at entrances and intersections, paved pedestrian crosswalks, as well as median and curbside parallel parking.

c) Metrobus and automobile traffic destined for the Metro garage would utilize the loop/perimeter road. This would prevent the occurrence of bus and other vehicle/pedestrian conflicts within the shopping plaza/"Main Street."

d) Vehicular movements at garage entrances and intersections would be controlled by stop signs. The likely exception would be the Metro Entranceway/Main Street/Shopping Center Entranceway intersection noted earlier. This intersection currently serves significant vehicle and pedestrian volumes. The traffic demand at this intersection would increase with the proposed development and the further build-out of the Brentwood Shopping Center. This study therefore recommends that a full intersection study (including a signal warrant analysis) be conducted to determine the need for supplemental or new capacity/operational and safety enhancement measures.

3.3 Trip Generation and Total Traffic Situation

The D. C. Department of Transportation typically requires that the trip rates recommended by the Institute of Transportation Engineers (ITE) be utilized in conducting traffic impact assessments. Based on the ITE trip rates, the projected trip generation is shown in Table 2 following. The trip generation was adjusted to reflect the proximity of the site to the Metro station, the Brentwood Shopping Center and the other significant land uses noted earlier.

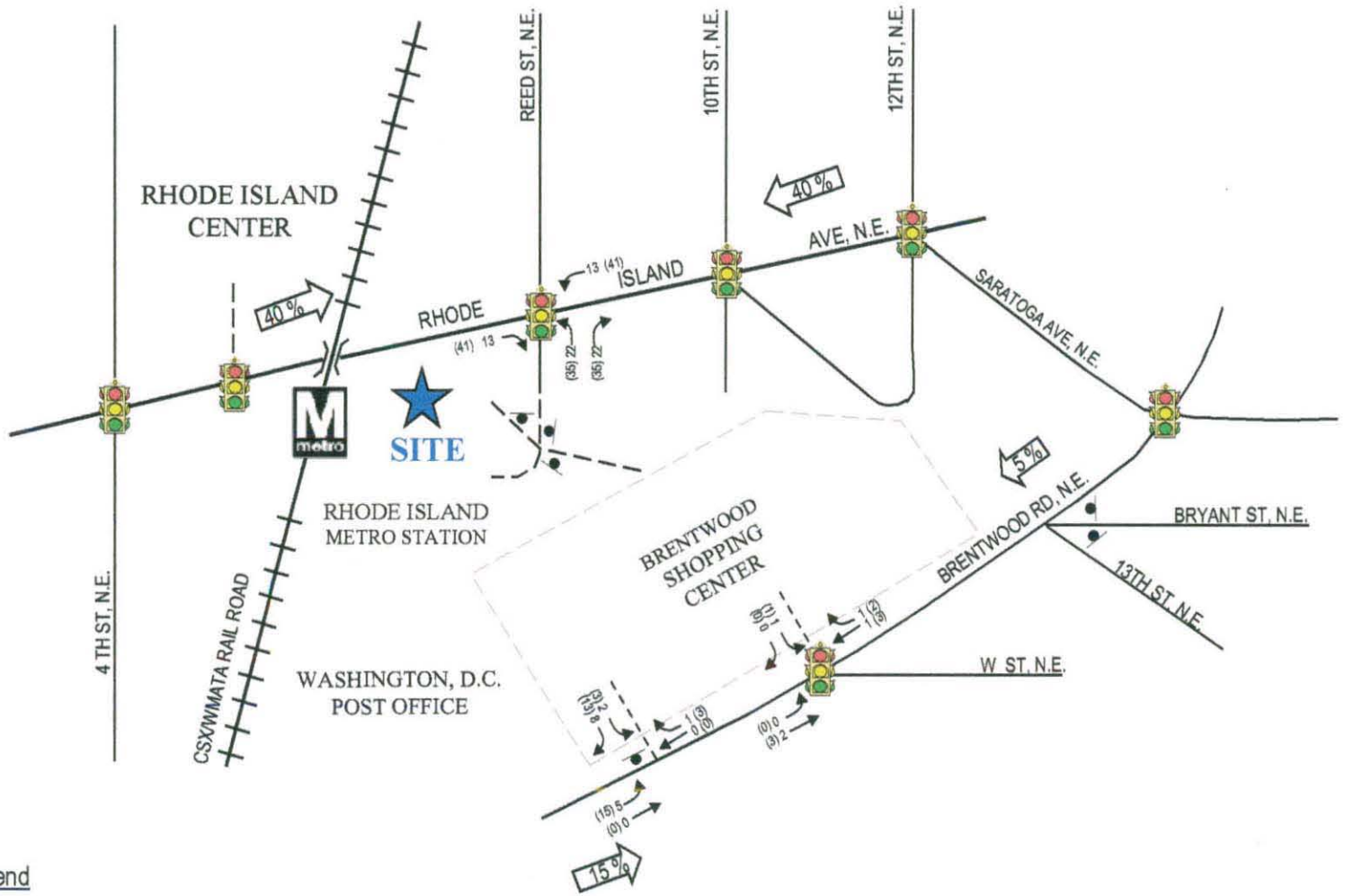
TABLE 2

PROJECTED PEAK HOUR TRIP GENERATION – RHODE ISLAND AVENUE METRO STAGE I PUD

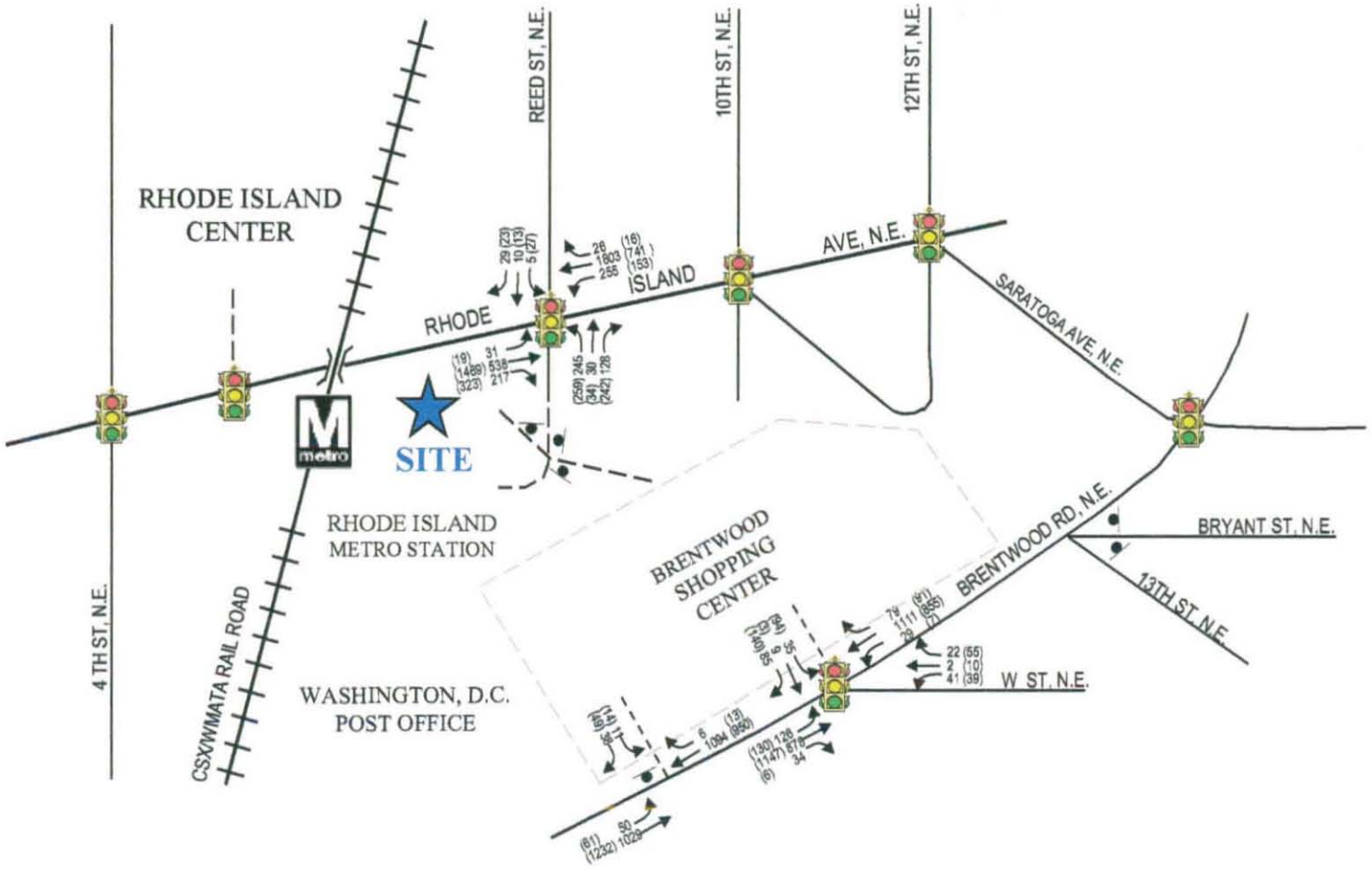
Trip Rates	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
• Trips/Apartment Unit	0.10	0.41	0.51	0.40	0.22	0.62
- With 60% Assumed Transit Trips	0.04	0.16	0.20	0.16	0.09	0.25
• Trips/1,000 GSF Retail/Shopping Center Space	0.63	0.04	1.03	1.80	1.95	3.75
- With 60% Transit, Walk & Other Alternative Modal Trips	0.25	0.16	0.41	0.72	0.78	1.50
Trip Generation						
• Trips/271 Apartment Units	11	43	54	43	24	67
• Trips/82,300 GSF Retail/Shopping Center Space	21	13	34	59	64	123
TOTAL	**32**	**56**	**88**	**102**	**88**	**190**

Source: ITE Trip Generation Manual (7th Ed., 2003), and O. R. George & Associates.

The projected peak hour vehicular trips were assigned to the study area roadway network (as shown in Exhibit 4). The projected year 2007 total traffic situation (Exhibit 5) was derived by combining the site trip assignment (Exhibit 4) with the year 2007 base year traffic situation (reflecting an annual growth of 2.0% to account for regional growth and projected traffic from other approved area developments). Analysis of the year 2007 total traffic situation shows that the study area intersections would continue to operate acceptably upon build out of the subject PUD. The results are summarized in Table 3. The analysis results are shown in Appendix D.



O. R. GEORGE & ASSOCIATES, INC. Traffic Engineers - Transportation Planners	EXHIBIT 4 PEAK HOUR SITE TRIP DISTRIBUTION & TRAFFIC ASSIGNMENT Rhode Island Metro Station Development PUD/Map Amendment Application



O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

EXHIBIT 5

PROJECTED TOTAL PEAK HOUR INTERSECTION TRAFFIC VOLUMES
Rhode Island Metro Station Development PUD/Map Amendment Application

TABLE 3

SUMMARY CAPACITY ANALYSIS RESULTS – PROJECTED YEAR 2007 TRAFFIC SITUATION

Intersection	AM Peak Hour		PM Peak Hour	
	Level of Service	Average Control Delay (Sec./Veh.)	Level of Service	Average Control Delay (Sec./Veh.)
1) Rhode Island Avenue @ Reed Street/Metro Entrance, N. E. *	C	24.2	D	47.2
2) Brentwood Road @ W Street/Shopping Ctr. Entrance, N.E.*	D	35.1	C	27.2
3) Brentwood Road @ Shopping Ctr. Secondary Entrance **	D	27.1	D	27.6

* Signalized intersection. Highway Capacity Manual (HCM) procedures applied.

** Unsignalized intersection. Highway Capacity Manual (HCM) procedures applied. Indicates Average Control Delay for the worst intersection approach.

Source: O. R. George & Associates.

3.4 Parking and Loading

3.4.1 Parking

The proposed PUD would include a total of 512 parking spaces. Fifteen (15) of those spaces would serve Metro kiss & ride patrons and five (5) would be used for taxi drop-offs. The breakdown of the remaining four hundred ninety-two (492) spaces, by proposed land use designation, is presented in Table 4. This table also presents the requirements of the District of Columbia Municipal Regulations (DCMR) Title 11 – Zoning, to facilitate comparison.

TABLE 4

REQUIRED VS. PROPOSED PARKING - RHODE ISLAND AVENUE METRO STAGE I PUD

Category	Required Parking*	Proposed Parking
• 271 Apartments	90	271**
• 70,000 GSF Retail Space	89	221***
TOTAL	**179**	**492**

* As per DCMR - Title 11 (Zoning), with respect to the C-2-B Zoning District.

** Based on a 1 : 1 ratio.

*** Consists of 180 retail garage spaces and 41 on-street spaces.

Source: DCMR - Title 11 (Zoning), Lessard Group and O. R. George & Associates.

Forty-one (41) of the four hundred ninety-two (492) spaces would be provided on-street. The remaining spaces would be distributed between two (2) garages. It is envisaged that the on-street spaces would be metered to produce high turnover rates by patrons of the proposed retail uses, and minimize usage by Metro commuters. In addition, the following should be noted:

a) The proposed development would be situated immediately adjacent to the Rhode Island Avenue Station rail and bus transit services. This proximity would significantly reduce the demand for the proposed on-street/retail parking. It is noted that Section 2104 of the DCMR - Title 11 (Zoning) provides for a parking reduction of up to 25%, for non-residential uses located within an 800-foot radius of a Metrorail station.

b) The proximity of the adjacent shopping centers and other significant uses would generate considerable multi-purpose trips, which could have a positive effect on the demand for the proposed retail parking.

c) The City has recently conducted a Traffic and Parking Study for the Eckington North – Rhode Island Avenue sub-area. This study included the segment of Rhode Island Avenue situated between the Metro Station Entranceway/Reed Street, N. E. and 4th Street, N. E. A key recommendation of the study is the provision of metered off-peak on-street parking along that roadway segment to serve the abutting land uses.

Based on the above, it can be concluded that the parking, proposed for the planned residential and retail uses, would be quite adequate. It is noted that the number of Metro long-term and kiss & ride parking spaces would be reduced from three hundred forty (340) to two hundred (200), and from forty-seven (47) to fifteen (15), respectively. This is based on the requirements of the Transit Oriented Development (TOD) policies of the City, which require that parking spaces at Metrorail Stations be minimized to encourage/increase transit usage.

The provision of reduced long-term and kiss-and-ride/short-term parking, as described above, appears to have considerable merit based on the following:

a) WMATA has a total of forty-one (41) Metrorail Stations within the City. Only nine (9) or 22% of those stations provide commuter long-term and/or kiss-and-ride/short-term parking of parking. (See Appendix C.)

b) The Rhode Island Avenue Station is provided with 340 commuter/long-term and 40 kiss-and-ride/short-term parking spaces. This is based on the fact that the station was initially the eastern terminus of a five-station Red Line System within the City's core. The Red Line has now been extended northward to include seven (7) additional stations. One of these stations (Fort Totten) is also on the Metro Green Line, for which the Greenbelt Station is the eastern terminus.

c) Parking usage surveys, conducted as part of this study, indicate that the short-term and long-term parking areas operate at capacity generally between 7:00 AM and 4:00 PM on weekdays. It was also determined that only 170± (or 51.0%) of the parked vehicles are registered in the District of Columbia.

d) It is also noted that there is excess capacity at several stations within the general catchment area of the Rhode Island Avenue Station. These include Fort Totten, Forest Glen and Glenmont (on the Red line), and West Hyattsville, Prince George's Plaza and Greenbelt (on the Green Line). This excess capacity would be available to reduce potential overflow parking impacts on the adjacent roadways and land uses.

Regardless of item (d), the reduced Metro parking would have some adverse vehicular circulation and parking impacts within the immediate area of the station. These effects could be mitigated through shared parking arrangements with the Metro PUD, the Brentwood Shopping Center and the Rhode Island Avenue Shopping Center. In addition, on-street parking on the neighboring streets would need to be regulated appropriately and enforced rigidly to minimize usage by commuters accessing the Metro station.

The above considerations are consistent with the "*Rhode Island Avenue Parking Analysis Report*" (March 2003)[2] prepared by Nelson-Nygaard Consulting Associates for the US EPA and D.C. Office of Planning. This document also notes that the full replacement of parking is not necessarily required, or does it need to be at the same station, based on WMATA's Joint Development Policies and Guidelines[3]. This is in keeping with the City's Transit Oriented Development (TOD) policies

3.4.2 *Loading Considerations*

With regard to loading, the PUD Conceptual Plan calls for the provision of the following:

1) A 15' x 55' loading berth along the south side of Building No. 1. This facility would accommodate a single truck-trailer, and would be accessed off the loop/perimeter road.

2) A 25' x 55' loading berth within Building No. 2. This facility would accommodate two (2) tractor-trailers and would be accessed off the Main Street.

These loading facilities would be in accordance with the requirements of the DCMR. It is projected that major deliveries utilizing tractor-trailers would be extremely rare; and would be scheduled during off-peak daytime and nighttime periods, as well as on weekends. The physical and operational provisions for the loading facilities should be quite adequate, and should not adversely impact the users of the proposed development and the Metro Station.

4.0 CONCLUSION

This study has demonstrated that the Rhode Island Avenue Metro Stage I Planned Unit Development and Map Amendment would have no appreciable adverse traffic impacts on the adjacent study area roadway network and land uses. However, the main internal intersection formed by the Metro Entrance, "Main Street" and Brentwood Shopping Center Entrance, should be further evaluated. This study should include a signal warrant analysis, determine operational,

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[2] "Rhode Island Avenue Parking Analysis, Draft Technical memorandum #2, Revised Parking Analysis," US EPA and D.C. Office of Planning, March 2003.

[3] "WMATA Joint Development Policies and Guidelines," WMATA, Revised February 21, 2002.

capacity and safety issues; and recommend appropriate remedial measures. These measures should be based on the consideration that the subject intersection would serve as a "Gateway" to a major mixed land use complex comprising the Metro station, the Brentwood Shopping Center and the proposed Rhode Island Avenue Metro Development.

The proposed site access, parking and loading provisions would also be adequate, from an operational and safety perspective. Based on the above considerations, it is concluded that the proposed application would satisfy the City's requirements for adequate public facilities and would not be "objectionable" either from the perspective of potential traffic and parking impacts, or the health, safety and general welfare of the users of the existing and proposed land uses.

<<<<<<:::::>>>>>

APPENDIX

A

EXISTING TURNING MOVEMENT COUNT VOLUMES - STUDY AREA INTERSECTIONS

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted By:ORGA-JA
Board :D1-0933
City/County:Washington, D.C.
Weather :Warm/Clear/Dry

File Name : WST@B
Site Code : 1122334
Start Date : 9/22/200
Page No : 1

Groups Printed- Passenger Vehicles - Trucks - Buses

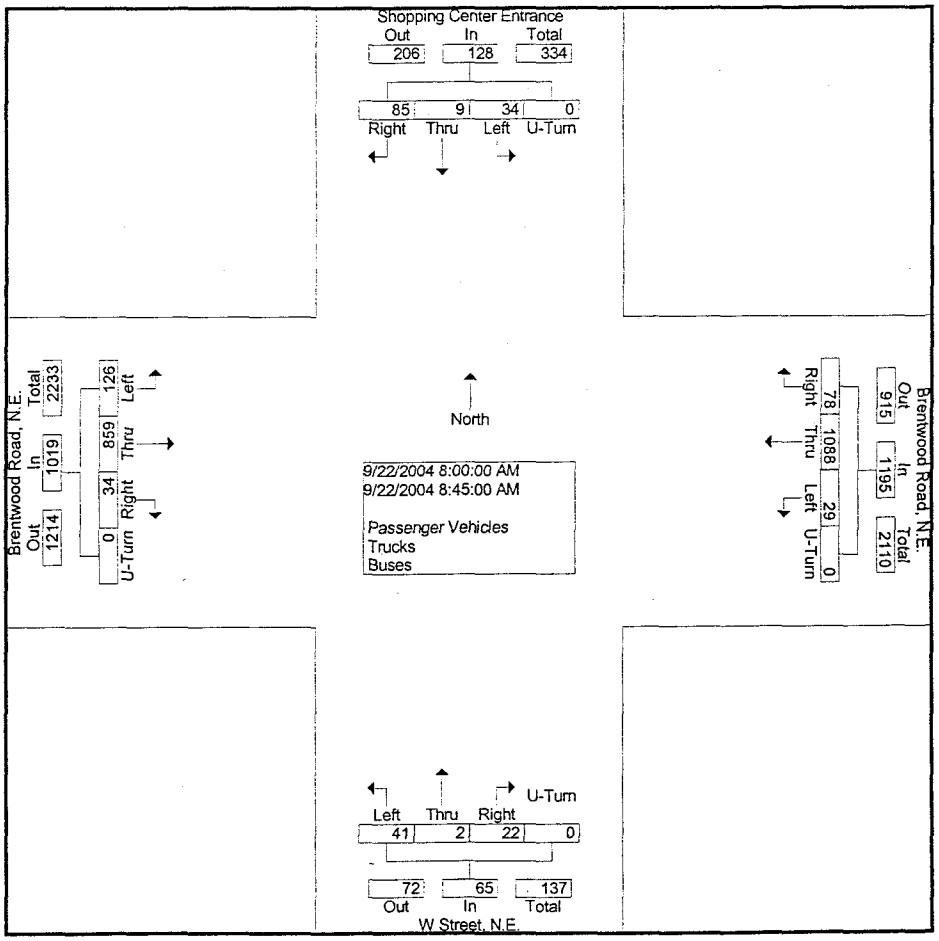
	Shopping Center Entrance From North					W Street, N.E. From South					Brentwood Road, N.E. From East					Brentwood Road, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int Total
07:15 AM	6	2	16	0	24	14	0	6	0	20	7	147	12	0	166	14	151	15	0	180	390
07:30 AM	3	0	15	0	18	11	1	7	0	19	8	183	11	0	202	26	178	17	0	221	460
07:45 AM	10	1	25	0	36	14	0	9	0	23	8	218	20	0	246	12	198	19	0	229	534
08:00 AM	5	0	15	0	20	12	1	7	0	20	6	291	18	0	315	34	233	10	0	277	632
Total	24	3	71	0	98	51	2	29	0	82	29	839	61	0	929	86	760	61	0	907	2016
08:15 AM	11	0	21	0	32	10	0	6	0	16	6	268	20	0	294	29	198	10	0	237	579
08:30 AM	10	4	23	0	37	11	1	4	0	16	7	289	13	0	309	29	230	9	0	268	630
08:45 AM	8	5	26	0	39	8	0	5	0	13	10	240	27	0	277	34	198	5	0	237	566
09:00 AM	8	4	22	0	34	7	0	5	0	12	8	229	19	0	256	31	187	6	0	224	526
Total	37	13	92	0	142	36	1	20	0	57	31	1026	79	0	1136	123	813	30	0	966	2301
04:15 PM	23	1	32	0	56	12	1	7	0	20	5	204	22	0	231	23	281	8	0	312	619
04:30 PM	19	1	31	0	51	1	1	5	0	7	1	202	17	0	220	24	263	2	0	289	567
04:45 PM	20	0	35	0	55	8	2	6	0	16	2	220	13	0	235	45	255	5	0	305	611
05:00 PM	17	1	28	0	46	4	1	12	0	17	3	200	16	0	219	36	253	1	0	290	572
Total	79	3	126	0	208	25	5	30	0	60	11	826	68	0	905	128	1052	16	0	1196	2369
05:15 PM	24	0	26	0	50	8	1	8	0	17	4	219	24	0	247	30	281	2	0	313	627
05:30 PM	19	0	39	0	58	6	3	16	0	25	1	222	21	0	244	27	288	1	0	316	643
05:45 PM	17	0	28	0	45	17	3	20	0	40	2	206	18	0	226	35	294	2	0	331	642
06:00 PM	33	3	47	0	83	8	3	11	0	22	0	188	26	0	214	38	259	1	0	298	617
Total	93	3	140	0	236	39	10	55	0	104	7	835	89	0	931	130	1122	6	0	1258	2529
Grand Total	233	22	429	0	684	151	18	134	0	303	78	3526	297	0	3901	467	3747	113	0	4327	9215
Apprch %	34.1	3.2	62.7	0.0		49.8	5.9	44.2	0.0		2.0	90.4	7.6	0.0		10.8	86.6	2.6	0.0		
Total %	2.5	0.2	4.7	0.0	7.4	1.6	0.2	1.5	0.0	3.3	0.8	38.3	3.2	0.0	42.3	5.1	40.7	1.2	0.0	47.0	

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted By:ORGA-JA
Board :D1-0933
City/County:Washington, D.C.
Weather :Warm/Clear/Dry

File Name : WST@BR
Site Code : 11223344
Start Date : 9/22/2004

	Shopping Center Entrance From North					W Street, N.E. From South					Brentwood Road, N.E. From East					Brentwood Road, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 07:15 AM to 12:45 PM - Peak 1 of 1																					
Intersection 08:00 AM																					
Volume	34	9	85	0	128	41	2	22	0	65	29	1088	78	0	1195	126	859	34	0	1019	2407
Percent	26.6	7.0	66.4	0.0		63.1	3.1	33.8	0.0		2.4	91.0	6.5	0.0		12.4	84.3	3.3	0.0		
08:00 Volume	5	0	15	0	20	12	1	7	0	20	6	291	18	0	315	34	233	10	0	277	632
Peak Factor																					0.952
High Int.	08:45 AM					08:00 AM					08:00 AM					08:00 AM					
Volume	8	5	26	0	39	12	1	7	0	20	6	291	18	0	315	34	233	10	0	277	
Peak Factor					0.821					0.813					0.948					0.920	



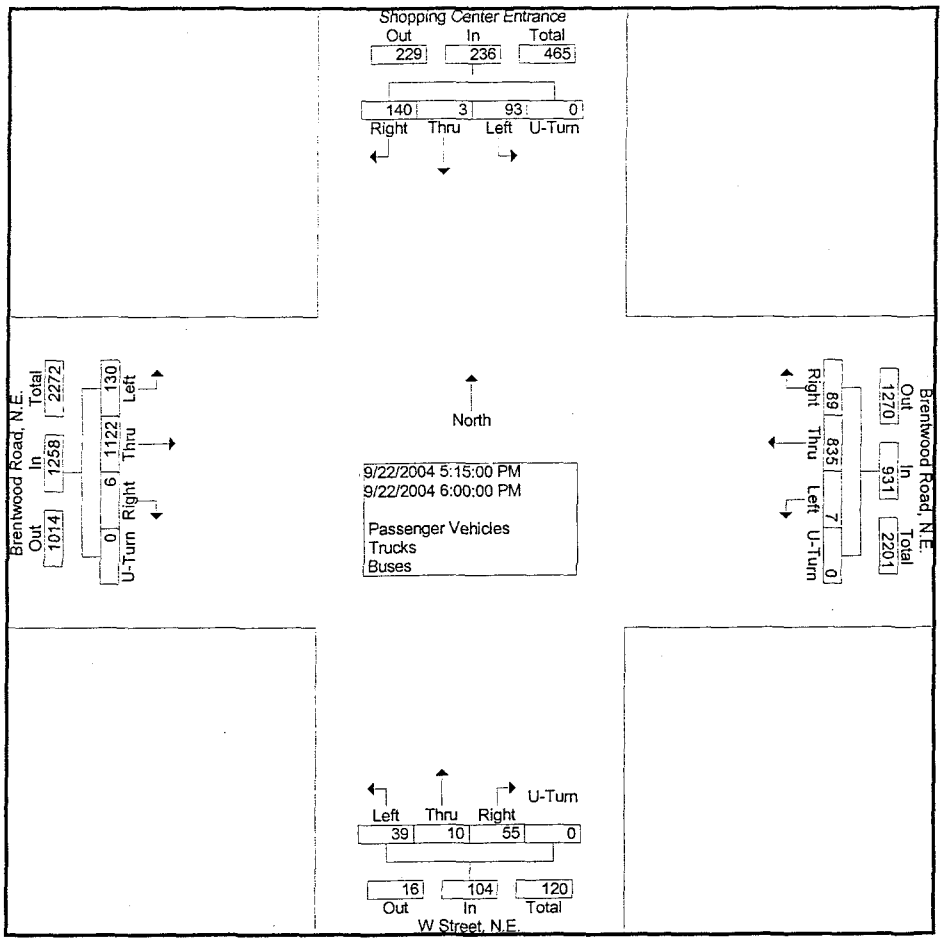
A-2

O. R. George & Associates, Inc.
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Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted By:ORGA-JA
Board :D1-0933
City/County:Washington, D.C.
Weather :Warm/Clear/Dry

File Name : WST@BR
Site Code : 11223344
Start Date : 9/22/2004

	Shopping Center Entrance From North					W Street, N.E. From South					Brentwood Road, N.E. From East					Brentwood Road, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 01:00 PM to 06:00 PM - Peak 1 of 1																					
Intersection 05:15 PM																					
Volume	93	3	140	0	236	39	10	55	0	104	7	835	89	0	931	130	1122	6	0	1258	2529
Percent	39.4	1.3	59.3	0.0		37.5	9.6	52.9	0.0		0.8	89.7	9.6	0.0		10.3	89.2	0.5	0.0		
05:30 Volume	19	0	39	0	58	6	3	16	0	25	1	222	21	0	244	27	288	1	0	316	643
Peak Factor																					0.983
High Int. 06:00 PM						05:45 PM					05:15 PM					05:45 PM					
Volume	33	3	47	0	83	17	3	20	0	40	4	219	24	0	247	35	294	2	0	331	
Peak Factor					0.711					0.650					0.942					0.950	



A-3

O.R. George & Associates
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Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted By:ORGA-NL
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

File Name : RD@RI
Site Code : 42162236
Start Date : 09/22/200
Page No : 1

Groups Printed- Passenger Vehicles - Trucks - Buses

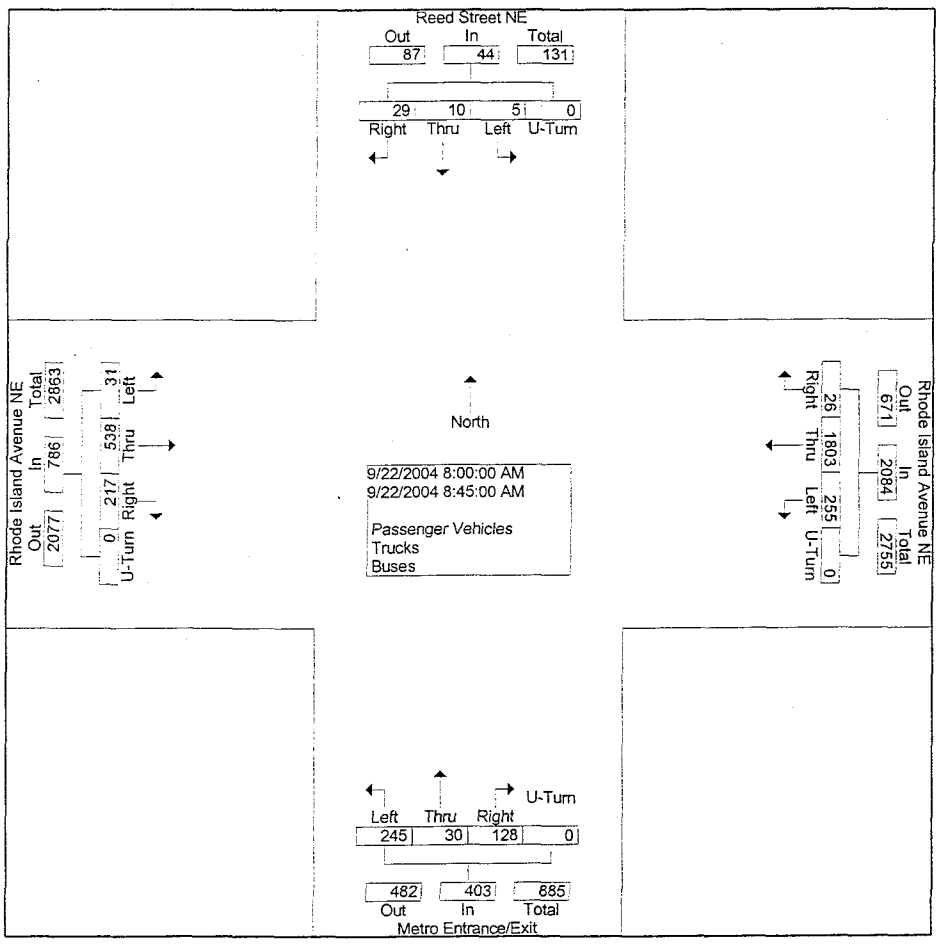
	Reed Street NE From North					Metro Entrance/Exit From South					Rhode Island Avenue NE From East					Rhode Island Avenue NE From West					
End Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
06:45	0	3	0	0	3	11	0	23	0	34	1	341	62	0	404	35	70	2	0	107	548
07:00	1	2	0	0	3	2	1	21	0	24	7	358	82	0	447	47	74	8	0	129	603
Total	1	5	0	0	6	13	1	44	0	58	8	699	144	0	851	82	144	10	0	236	1151
07:15	3	2	1	0	6	16	2	44	0	62	7	412	75	0	494	31	105	3	0	139	701
07:30	3	1	1	0	5	25	4	58	0	87	2	456	51	0	509	51	108	4	0	163	764
07:45	4	2	0	0	6	40	14	67	0	121	5	473	63	0	541	46	111	3	0	160	828
08:00	5	4	1	0	10	26	9	65	0	100	5	447	63	0	515	51	110	6	0	167	792
Total	15	9	3	0	27	107	29	234	0	370	19	1788	252	0	2059	179	434	16	0	629	3085
08:15	6	1	0	0	7	42	5	52	0	99	6	428	67	0	501	44	145	13	0	202	809
08:30	7	1	3	0	11	27	9	58	0	94	11	465	65	0	541	62	146	1	0	209	855
08:45	11	4	1	0	16	33	7	70	0	110	4	463	60	0	527	60	137	11	0	208	861
09:00	4	2	3	0	9	19	15	49	0	83	8	396	55	0	459	69	137	7	0	213	764
Total	28	8	7	0	43	121	36	229	0	386	29	1752	247	0	2028	235	565	32	0	832	3289
09:15	7	3	2	0	12	16	12	62	0	90	10	394	41	0	445	57	168	4	0	229	776
09:30	15	4	3	0	22	28	8	50	0	86	7	400	37	0	444	55	155	0	0	210	762
Total	22	7	5	0	34	44	20	112	0	176	17	794	78	0	889	112	323	4	0	439	1538
15:15	10	3	3	0	16	40	7	53	0	100	5	207	27	0	239	69	295	5	0	369	724
15:30	4	3	4	0	11	49	8	87	0	144	8	202	33	0	243	59	277	5	0	341	739
15:45	6	3	15	0	24	53	3	67	0	123	3	213	33	0	249	54	303	4	0	361	757
16:00	5	6	1	0	12	42	8	56	0	106	4	189	38	0	231	63	352	3	0	418	767
Total	25	15	23	0	63	184	26	263	0	473	20	811	131	0	962	245	1227	17	0	1489	2987
16:15	10	2	7	0	19	51	8	58	0	117	7	196	42	0	245	88	363	5	0	456	837
16:30	6	6	4	0	16	67	14	73	0	154	1	178	25	0	204	74	363	4	0	441	815
16:45	3	2	8	0	13	49	6	67	0	122	3	163	47	0	213	74	366	4	0	444	792
17:00	4	3	8	0	15	75	6	61	0	142	5	204	39	0	248	87	377	6	0	470	875
Total	23	13	27	0	63	242	34	259	0	535	16	741	153	0	910	323	1469	19	0	1811	3319
17:15	8	6	2	0	16	60	5	66	0	131	4	154	51	0	209	53	303	12	0	368	724
17:30	9	0	3	0	12	75	6	65	0	146	3	114	37	0	154	58	298	23	0	379	691
17:45	5	4	8	0	17	79	7	59	0	145	2	209	54	0	265	62	387	3	0	452	879
18:00	3	6	7	0	16	66	7	52	0	125	2	183	36	0	221	54	388	3	0	445	807
Total	25	16	20	0	61	280	25	242	0	547	11	660	178	0	849	227	1376	41	0	1644	3101
18:15	1	1	7	0	9	53	2	64	0	119	3	167	42	0	212	58	365	4	0	427	767
Grand Total	140	74	92	0	306	1044	173	1447	0	2664	123	7412	1225	0	8760	1461	5903	143	0	7507	19237
Apprch %	45.8	24.2	30.1	0.0		39.2	6.5	54.3	0.0		1.4	84.6	14.0	0.0		19.5	78.6	1.9	0.0		
Total %	0.7	0.4	0.5	0.0	1.6	5.4	0.9	7.5	0.0	13.8	0.6	38.5	6.4	0.0	45.5	7.6	30.7	0.7	0.0	39.0	

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Counted By:ORGA-NL
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

File Name : RD@RI
Site Code : 4216223
Start Date : 09/22/200
Page No : 2

	Reed Street NE From North					Metro Entrance/Exit From South					Rhode Island Avenue NE From East					Rhode Island Avenue NE From West					
End Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour From 06:45 to 11:45 - Peak 1 of 1																					
Intersection	08:00																				
Volume	29	10	5	0	44	128	30	245	0	403	26	1803	255	0	2084	217	538	31	0	786	3317
Percent	65.9	22.7	11.4	0.0		31.8	7.4	60.8	0.0		1.2	86.5	12.2	0.0		27.6	68.4	3.9	0.0		
Volume	29	10	5	0	44	128	30	245	0	403	26	1803	255	0	2084	217	538	31	0	786	3317
Volume	11	4	1	0	16	33	7	70	0	110	4	463	60	0	527	60	137	11	0	208	861
Peak Factor																					0.963
High Int.	08:45					08:45					08:30					08:30					
Volume	11	4	1	0	16	33	7	70	0	110	11	465	65	0	541	62	146	1	0	209	
Peak Factor					0.688					0.916					0.963					0.940	



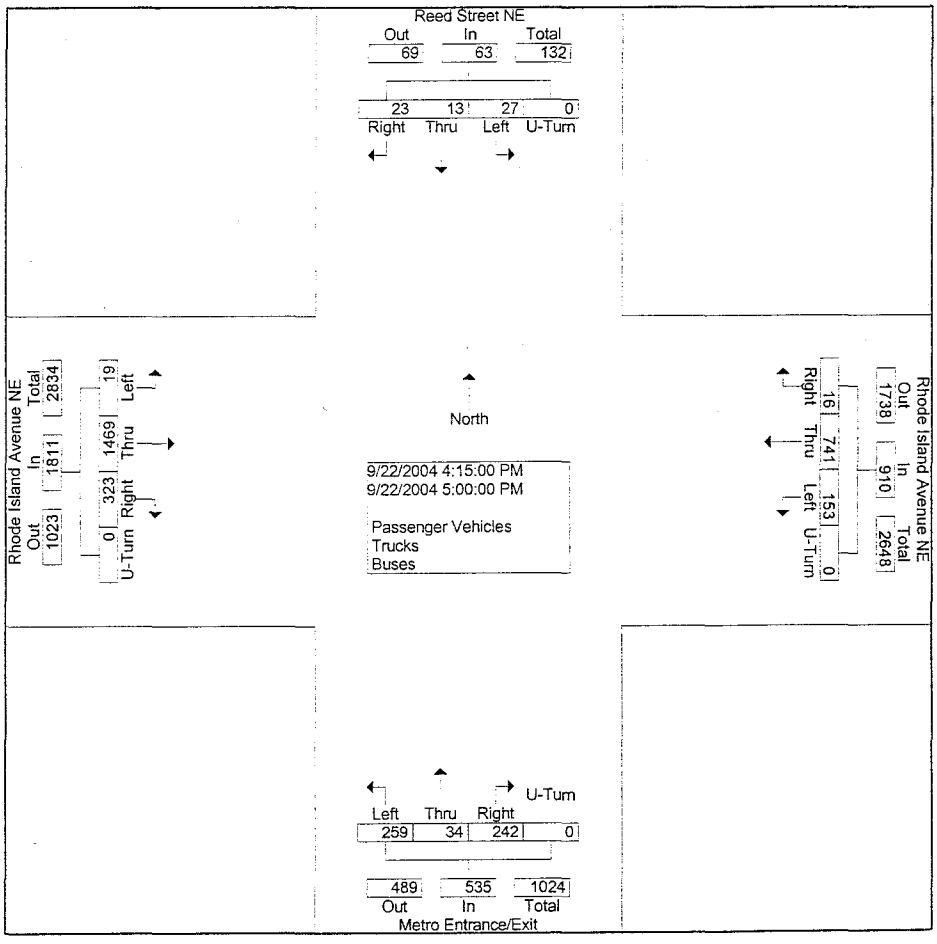
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Counted By:ORGA-NL
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

File Name : RD@RI
Site Code : 42162236
Start Date : 09/22/200
Page No : 3

	Reed Street NE From North					Metro Entrance/Exit From South					Rhode Island Avenue NE From East					Rhode Island Avenue NE From West					
End Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour From 12:00 to 18:30 - Peak 1 of 1																					
Intersection	16:15																				
Volume	23	13	27	0	63	242	34	259	0	535	16	741	153	0	910	323	1469	19	0	1811	3319
Percent	36.5	20.6	42.9	0.0		45.2	6.4	48.4	0.0		1.8	81.4	16.8	0.0		17.8	81.1	1.0	0.0		
Volume	23	13	27	0	63	242	34	259	0	535	16	741	153	0	910	323	1469	19	0	1811	3319
Volume	4	3	8	0	15	75	6	61	0	142	5	204	39	0	248	87	377	6	0	470	875
Peak Factor																					0.948
High Int.	16:15					16:30					17:00					17:00					
Volume	10	2	7	0	19	67	14	73	0	154	5	204	39	0	248	87	377	6	0	470	
Peak Factor					0.829					0.869					0.917					0.963	



A-6

APPENDIX

B

CAPACITY ANALYSIS WORKSHEETS
EXISTING TRAFFIC SITUATION

SHORT REPORT

General Information		Site Information	
Analyst	JP	Intersection	Rhode Island Ave @ Reed St
Agency or Co.	ORGA	Area Type	All other areas
Date Performed	8/17/2004	Jurisdiction	
Time Period	AM Peak	Analysis Year	2005

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	3	0	1	3	0	1	1	2	0	1	0
Lane group		LTR		L	TR		L	T	R		LTR	
Volume (vph)	31	538	217	255	1803	26	245	30	128	5	10	29
% Heavy veh	0	1	0	0	1	0	0	0	0	0	0	0
PHF	0.94	0.94	0.94	0.96	0.96	0.96	0.92	0.92	0.92	0.69	0.69	0.69
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	WB Only	EW Perm	03	04	NB Only	SB Only	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 20.0	G = 10.0	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 100.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		836		266	1905		266	33	139		63	
Lane group cap.		1554		383	2813		361	380	858		172	
v/c ratio		0.54		0.69	0.68		0.74	0.09	0.16		0.37	
Green ratio		0.40		0.55	0.55		0.20	0.20	0.30		0.10	
Unif. delay d1		22.9		13.2	16.1		37.5	32.6	25.8		42.0	
Delay factor k		0.50		0.50	0.50		0.50	0.50	0.50		0.50	
Increm. delay d2		1.3		10.0	1.3		12.6	0.4	0.4		5.9	
PF factor		1.000		1.000	1.000		1.000	1.000	1.000		1.000	
Control delay		24.3		23.2	17.5		50.1	33.0	26.2		48.0	
Lane group LOS		C		C	B		D	C	C		D	
Apprch. delay	24.3			18.2			41.2			48.0		
Approach LOS	C			B			D			D		
Intersec. delay	23.0			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	JOA	Intersection	Rhode Island Ave @ Reed St
Agency or Co.	ORGA	Area Type	All other areas
Date Performed	5/6/2005	Jurisdiction	
Time Period	PM Peak	Analysis Year	2007

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	3	0	1	3	0	1	1	2	0	1	0
Lane group		LTR		L	TR		L	T	R		LTR	
Volume (vph)	19	1469	323	153	741	16	259	34	242	27	13	23
% Heavy veh	0	1	0	0	1	0	0	0	0	0	0	0
PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.87	0.87	0.87	0.83	0.83	0.83
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	WB Only	EW Perm	03	04	NB Only	SB Only	07	08
Timing	G = 8.0	G = 42.0	G =	G =	G = 20.0	G = 10.0	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y = 5	Y =	Y =

Duration of Analysis (hrs) = 0.25 — Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		1886		166	822		298	39	278		77	
Lane group cap.		1938		220	2811		361	380	801		177	
v/c ratio		0.97		0.75	0.29		0.83	0.10	0.35		0.44	
Green ratio		0.42		0.55	0.55		0.20	0.20	0.28		0.10	
Unif. delay d1		28.4		20.3	12.1		38.3	32.7	28.7		42.3	
Delay factor k		0.50		0.50	0.50		0.50	0.50	0.50		0.50	
Increm. delay d2		15.0		21.1	0.3		19.0	0.5	1.2		7.6	
PF factor		1.000		1.000	1.000		1.000	1.000	1.000		1.000	
Control delay		43.5		41.4	12.3		57.3	33.2	29.9		49.9	
Lane group LOS		D		D	B		E	C	C		D	
Apprch. delay	43.5			17.2			43.4			49.9		
Approach LOS	D			B			D			D		
Intersec. delay	36.3			Intersection LOS						D		

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B-2

SHORT REPORT

General Information		Site Information	
Analyst	JOA	Intersection	Brentwood Rd @ W St
Agency or Co.	ORGA	Area Type	All other areas
Date Performed	5/6/2005	Jurisdiction	DC
Time Period	AM	Analysis Year	2005

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	126	859	34	29	1088	78	41	2	22	34	9	85
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.81	0.81	0.81	0.82	0.82	0.82
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	WB Only	EW Perm	EB Only	04	SB Only	NB Only	07	08
Timing	G = 5.0	G = 23.0	G = 5.0	G =	G = 10.0	G = 10.0	G =	G =
	Y = 4	Y = 6	Y = 5	Y =	Y = 6	Y = 6	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	137	971		31	1145	82	51	29		41	115	
Lane group cap.	343	1034		208	1447	646	226	204		226	205	
v/c ratio	0.40	0.94		0.15	0.79	0.13	0.23	0.14		0.18	0.56	
Green ratio	0.43	0.29		0.40	0.40	0.40	0.13	0.13		0.13	0.13	
Unif. delay d1	25.4	27.8		17.9	21.1	15.2	31.5	31.2		31.3	32.9	
Delay factor k	0.50	0.50		0.50	0.50	0.50	0.50	0.50		0.50	0.50	
Increm. delay d2	3.4	16.7		1.5	4.5	0.4	2.3	1.5		1.8	10.6	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	28.8	44.5		19.4	25.6	15.6	33.8	32.6		33.1	43.6	
Lane group LOS	C	D		B	C	B	C	C		C	D	
Apprch. delay	42.6			24.8			33.4			40.8		
Approach LOS	D			C			C			D		
Intersec. delay	33.6			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	JOA	Intersection	Brentwood Rd @ W St
Agency or Co.	ORGA	Area Type	All other areas
Date Performed	5/6/2005	Jurisdiction	DC
Time Period	PM	Analysis Year	2005

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	130	1122	6	7	835	89	39	10	55	93	3	140
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.65	0.65	0.65	0.71	0.71	0.71
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	EB Only	EW Perm	03	04	SB Only	NB Only	07	08
Timing	G = 10.0	G = 25.0	G =	G =	G = 12.0	G = 11.0	G =	G =
	Y = 4	Y = 6	Y =	Y =	Y = 6	Y = 6	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	137	1187		7	888	95	60	100		131	201	
Lane group cap.	321	1762		132	1131	505	248	228		271	243	
v/c ratio	0.43	0.67		0.05	0.79	0.19	0.24	0.44		0.48	0.83	
Green ratio	0.49	0.49		0.31	0.31	0.31	0.14	0.14		0.15	0.15	
Unif. delay d1	14.2	15.6		19.2	25.1	20.1	30.8	31.7		31.2	33.0	
Delay factor k	0.50	0.50		0.50	0.50	0.50	0.50	0.50		0.50	0.50	
Increm. delay d2	4.1	2.1		0.8	5.5	0.8	2.3	6.0		6.1	26.5	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	18.3	17.7		20.0	30.6	20.9	33.1	37.7		37.2	59.4	
Lane group LOS	B	B		B	C	C	C	D		D	E	
Apprch. delay	17.8			29.6			36.0			50.7		
Approach LOS	B			C			D			D		
Intersec. delay	26.9			Intersection LOS						C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JOA
Agency/Co.	ORGA
Date Performed	5/6/2005
Analysis Time Period	AM

Site Information

Intersection	Brentwood Rd @ Shopping Ent
Jurisdiction	DC
Analysis Year	2005

Project Description: *Rhode Island Metro Station Development - EXISTING*

East/West Street: *Brentwood Road* | North/South Street: *Shopping Center Entrance*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	45	1009	0	0	1073	5
Peak-hour factor, PHF	0.92	0.92	1.00	1.00	0.95	0.95
Hourly Flow Rate (veh/h)	48	1096	0	0	1129	5
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	9	0	30
Peak-hour factor, PHF	1.00	1.00	1.00	0.82	1.00	0.82
Hourly Flow Rate (veh/h)	0	0	0	10	0	36
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	48					10		36
Capacity, c_m (vph)	623					69		472
v/c ratio	0.08					0.14		0.08
Queue length (95%)	0.25					0.48		0.25

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Control Delay (s/veh)	11.3					65.8		13.3
LOS	B					F		B
Approach delay (s/veh)	--	--				24.7		
Approach LOS	--	--				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JOA
Agency/Co.	ORGA
Date Performed	5/6/2005
Analysis Time Period	PM

Site Information

Intersection	Brentwood Rd @ Shopping Ent
Jurisdiction	DC
Analysis Year	2005

Project Description: *Rhode Island Metro Station Development - EXISITNG*

East/West Street: *Brentwood Road* | North/South Street: *Shopping Center Entrance*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	45	1208	0	0	921	10
Peak-hour factor, PHF	0.95	0.95	1.00	1.00	0.94	0.94
Hourly Flow Rate (veh/h)	47	1271	0	0	979	10
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	11	0	36
Peak-hour factor, PHF	1.00	1.00	1.00	0.71	1.00	0.71
Hourly Flow Rate (veh/h)	0	0	0	15	0	50
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	47					15		50
Capacity, c_m (vph)	707					77		526
v/c ratio	0.07					0.19		0.10
Queue length (95%)	0.21					0.67		0.31

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Control Delay (s/veh)	10.5					62.7		12.6
LOS	B					F		B
Approach delay (s/veh)	--	--				24.1		
Approach LOS	--	--				C		

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APPENDIX

C

WMATA METRORAIL STATION
PARKING INVENTORY

APPENDIX C

WMATA METRORAIL STATION PARKING INVENTORY – DISTRICT OF COLUMBIA

Station	Line	Short-term Parking	Long-term Parking	Total
• Deanwood	Orange	-	194	194
• Minnesota Avenue	Orange	20	333	353
• Rhode Island Avenue	Red	40	340	380
• Tenleytown	Red	17	-	17
• Takoma	Red	146	-	146
• Brookland	Red	27	-	27
• Fort Totten	Red/Green	37	408	445
• Anacostia (Garage)	Green	340	808	1148
• Congress Heights	Green	67	-	67

Source: WMATA Office of Parking & O. R. George & Associates.

PARKING FACILITIES

Stations/Lots/Collection Points and Rates
as of April 5, 2005

WMATA OWNED & OPERATED PARK & RIDE

	FAC. #	STATION/LOT REGION	CAPACITY	FEE
		MONTGOMERY COUNTY		
PM	1	Grosvenor	1,894	$4.00
PM	2	White Flint	1,158	$4.00
PM	3	Twinbrook East Lot	847	$4.00
PM	4	Twinbrook West Lot #3	250	$4.00
PM	5	Rockville	524	$4.00
PM	6	Shady Grove E. Lot North Garage	2,720	$4.00
PM	7	Shady Grove E. Lot #2	515	$4.00
PM	8	Shady Grove E. Lot South Garage	1,310	$4.00
PM	9	Shady Grove West Lot	922	$4.00
PM	10	Glenmont Garage	1,781	$4.00
AM	11	Wheaton Plaza Garage	977	$3.25
PM	12	Forest Glen	596	$4.00
		TOTAL	13,494	
		PRINCE GEORGE'S COUNTY		
		New Carrollton Lot #1 (Future Garage)		
PM	13	New Carrollton Lot #2	357	$3.50
PM	14	New Carrollton Lot #3	590	$3.50
PM	15	New Carrollton Lot #4	825	$3.50
PM	16	Landover South Lot #1	1,185	$3.50
PM	17	Landover North Lot #3	581	$3.50
PM	18	Cheverly	500	$3.50
PM	19	Largo Town Center	2,200	$3.50
PM	20	Morgan Blvd.	508	$3.50
PM	21	Addison Rd. Garage	1,268	$3.50
AM	22	Capitol Heights	372	$3.50
PM	23	Greenbelt	3,399	$3.50
PM	24	College Park	530	$3.50
PM	25	Prince George's Plaza	1,068	$3.50
PM	26	West Hyattsville	453	$3.50
PM	27	Southern Avenue	1,980	$3.50
PM	28	Naylor Road	368	$3.50
PM	29	Suitland	1,890	$3.50
PM	30	Branch Avenue North Lot	1,100	$3.50
PM	31	Branch Avenue East Lot	731	$3.50
PM	32	Branch Avenue South Lot	1,241	$3.50
		TOTAL	21,346	
		DISTRICT OF COLUMBIA		
AM	33	Deanwood	194	$3.50
AM	34	Minnesota Ave	333	$2.50
AM	35	Rhode Island Ave.	340	$3.50
AM	36	Fort Totten	408	$3.50
PM	37	Anacostia Garage	808	$3.50
		TOTAL	2,083	
		FAIRFAX COUNTY		
PM	38	Huntington North Garage	1,281	$3.75
PM	39	Huntington South Lot	924	$3.75
PM	40	Huntington South Garage	885	$3.75
PM	41	West Falls Church	2,009	$3.75
PM	42	Dunn Loring	1,326	$3.75
PM	43	Vienna Lot #1 (North)	515	$3.75
PM	44	Vienna North Garage	1,865	$3.75
PM	45	Vienna Lot #3 (South)	615	$3.75
PM	46	Vienna South Garage	2,174	$3.75
PM	47	Vienna Temporary Lot	680	$3.75
PM	48	Franconia-Springfield Garage	5,069	$3.75
		TOTAL	17,343	
		CITY OF ALEXANDRIA/FAIRFAX COUI		
PM	47	Van Dorn Street	361	$3.75
		ARLINGTON COUNTY		
PM	48	East Falls Church	422	$3.75
		GRAND TOTAL	55,049	

Note:
AM = Pay-on-Entry: 5:00 a.m. - 2:00 p.m.
PM = Pay-on-Exit: 9:00 a.m. - Rail closing

WMATA OWNED AND COUNTY OPERATED PARK & RIDE

FAC. #	STATION/LOT REGION	GARAGE	LOT CAPACITY	FEE
	MONTGOMERY COUNTY			
49	Wheaton/Amherst Gar.	1	250	$65/Month
	TOTAL	1	250	
	PRINCE GEORGE'S COUNTY			
50	New Carrollton Gar.	1	400	$65/Month
	TOTAL	1	400	
	GRAND TOTAL	2	650	

TOTAL NUMBER OF PARKING SPACES IN SYSTEM:

Metro Park & Ride	55,049
Metro Metered Facilities	3,606
WMATA Owned & County Operated	650
TOTAL	59,305

Kiss & Ride Lot Metered Parking Hours:
8:30 a.m. - 3:30 p.m.
7:00 p.m. - 2:00 a.m.

Exceptions to Kiss & Ride Available Hours:
Vienna South Long Term, West Falls Church Long Term, Rockville Auxilary, Forest Glen Long Term, Greenbelt, Annacostia Long Term, Suitland and Branch Avenue
Parking Available 5:00 a.m. - 2:00 a.m.
Time Limit 12 hours

Grosvenor, Vienna South, P.G. Plaza and West Hyattsville Short Term
Parking Available 8:30 a.m. - 2:00 a.m.
Time Limit 7 hours
West Falls Church Greentops— 4hrs maximum
Takoma
Sec. B: Regular Kiss & Ride Hours
Sec. D: Parking Avail. 10:00 a.m. - 2:00 a.m.

METERED FACILITIES

FAC #	K&R STATION/LOT REGION	4 to 7 HR METERED CAPACITY	12 HR METERED CAPACITY	FACILITY METERED CAPACITY	STATION CAPACITY	FEE PER 45 mins
	MONTGOMERY COUNTY					
1	Grosvenor	57		57		$0.25
	Grosvenor Short Term	18		18	75	0.25
2	White Flint	40		40	40	0.25
3	Twinbrook	38		38	38	0.25
4	Rockville	22		22		0.25
5	Rockville Auxiliary		121	121	143	0.25
6	Shady Grove East	40		40		0.25
7	Shady Grove West	14		14		0.25
8	Shady Grove W. Access Rd.		22	22	76	0.25
9	Medical Center	6		6	6	0.25
10	Silver Spring	44		44	44	0.25
11	Wheaton	35		35	35	0.25
12	Forest Glen	49		49		0.25
	Forest Glen Long Term		13	13	62	0.25
13	Glenmont	69		69	69	0.25
	TOTAL	432	156	588	588	
	PRINCE GEORGE'S COUNTY					
14	New Carrollton West	20		20		0.25
15	New Carrollton East	76		76		0.25
	New Carr Long Term		20	20	116	0.25
16	Landover	14		14	14	0.25
17	Cheverly	27		27	27	0.25
18	Largo Town Center	141		141	141	0.25
19	Morgan Blvd.	78		78	78	0.25
20	Addison Road	50		50	50	0.25
21	Capitol Heights	14		14	14	0.25
22	Greenbelt Regional (West)	26		26		0.25
23	Long Term (West)		104	104		0.25
24	Oversize Vehicle Lot		60	60		0.25
25	Greenbelt Local (East) S.T.	38		38		0.25
26	Long Term (East)		33	33	261	0.25
27	College Park East	69		69		0.25
28	College Park West	21		21	90	0.25
29	Prince George' Plaza	56		56		0.25
30	P.G. Plaza Short Term		112	112	168	0.25
31	West Hyattsville	41		41		0.25
32	W. Hyattsville S. Term	39		39		0.25
33	W. Hyattsville L. Term		71	71	151	0.25
34	Southern Avenue	200		200	200	0.25
35	Naylor Road	46		46	46	0.25
36	Suitland	61	114	175	175	0.25
37	Branch Avenue S. Term	38		38		0.25
38	Branch Avenue L Term		132	132	170	0.25
	TOTAL	1,055	646	1,701	1,701	
	DISTRICT OF COLUMBIA					
39	Tenleytown	17		17	17	0.25
40	Minnesota Avenue.	20		20	20	0.25
41	Rhode Island Ave.	40		40	40	0.25
42	Fort Totten	37		37	37	0.25
43	Takoma	88		88		0.25
44	Takoma Short Term	58		58	146	0.25
45	Brookland	27		27	27	0.25
46	Anacostia	15		15	15	0.25
47	Anacostia Long Term		325	325	325	0.25
48	Congress Heights	67		67	67	0.25
	TOTAL	369	325	694	694	
	FAIRFAX COUNTY					
49	Huntington North	18		18		0.25
50	Huntington South	14		14	32	0.25
51	West Falls Church	45		45		0.25
52	West Falls Church 4hrs.	8		8		0.25
53	W.F.C. Long Term		68	68	121	0.25
54	Dunn Loring	30		30	30	0.25
55	Vienna North K & R	45		45		0.25
56	Vienna South K & R	26		26		0.25
57	Vienna S. Short Term	17		17		0.25
58	Vienna S. Long Term		101	101	189	0.25
59	Franconia- Springfield	48		48		0.25
60	Franconia- Springfield		97	97	145	0.25
	TOTAL	251	266	517	517	
	CITY OF ALEXANDRIA/FAIRFA					
61	Braddock Road	10		10	10	0.25
62	King Street	30		30	30	0.25
63	Van Dorn Street	46		46	46	0.25
	TOTAL	86	0	86	86	
	ARLINGTON COUNTY					
64	East Falls Church	20	0	20	20	0.25
	GRAND TOTAL	2,213	1,393	3,606	3,606	
65	Benning Road					
66	Eisenhower					

SOURCE: WMATA OFFICE OF PARKING.

APPENDIX

D

CAPACITY ANALYSIS WORKSHEETS
PROJECTED 2007 TOTAL
TRAFFIC SITUATION

SHORT REPORT

General Information		Site Information	
Analyst	JP	Intersection	Rhode Island Ave @ Reed St
Agency or Co.	ORGA	Area Type	All other areas
Date Performed	8/17/2004	Jurisdiction	
Time Period	AM Peak	Analysis Year	2007

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	3	0	1	3	0	1	1	2	0	1	0
Lane group		LTR		L	TR		L	T	R		LTR	
Volume (vph)	31	560	230	268	1875	26	267	30	150	5	10	29
% Heavy veh	0	1	0	0	1	0	0	0	0	0	0	0
PHF	0.94	0.94	0.94	0.96	0.96	0.96	0.92	0.92	0.92	0.69	0.69	0.69
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	WB Only	EW Perm	03	04	NB Only	SB Only	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 20.0	G = 10.0	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y = 5	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		874		279	1980		290	33	163		63	
Lane group cap.		1548		370	2813		361	380	858		172	
v/c ratio		0.56		0.75	0.70		0.80	0.09	0.19		0.37	
Green ratio		0.40		0.55	0.55		0.20	0.20	0.30		0.10	
Unif. delay d1		23.3		13.6	16.5		38.1	32.6	26.0		42.0	
Delay factor k		0.50		0.50	0.50		0.50	0.50	0.50		0.50	
Increm. delay d2		1.5		13.3	1.5		17.1	0.4	0.5		5.9	
PF factor		1.000		1.000	1.000		1.000	1.000	1.000		1.000	
Control delay		24.7		26.9	18.0		55.2	33.0	26.5		48.0	
Lane group LOS		C		C	B		E	C	C		D	
Apprch. delay	24.7			19.1			44.1			48.0		
Approach LOS	C			B			D			D		
Intersec. delay	24.2			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	JOA	Intersection	Rhode Island Ave @ Reed St
Agency or Co.	ORGA	Area Type	All other areas
Date Performed	5/6/2005	Jurisdiction	
Time Period	PM Peak	Analysis Year	2007

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	3	0	1	3	0	1	1	2	0	1	0
Lane group		LTR		L	TR		L	T	R		LTR	
Volume (vph)	19	1528	364	194	771	16	294	34	277	27	13	23
% Heavy veh	0	1	0	0	1	0	0	0	0	0	0	0
PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.87	0.87	0.87	0.83	0.83	0.83
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	WB Only	EW Perm	03	04	NB Only	SB Only	07	08
Timing	G = 8.0	G = 42.0	G =	G =	G = 20.0	G = 10.0	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y = 5	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		1991		211	855		338	39	318		77	
Lane group cap.		1935		220	2811		361	380	801		177	
v/c ratio		1.03		0.96	0.30		0.94	0.10	0.40		0.44	
Green ratio		0.42		0.55	0.55		0.20	0.20	0.28		0.10	
Unif. delay d1		29.0		26.8	12.2		39.4	32.7	29.2		42.3	
Delay factor k		0.50		0.50	0.50		0.50	0.50	0.50		0.50	
Increm. delay d2		28.3		50.9	0.3		33.7	0.5	1.5		7.6	
PF factor		1.000		1.000	1.000		1.000	1.000	1.000		1.000	
Control delay		57.3		77.8	12.4		73.1	33.2	30.6		49.9	
Lane group LOS		E		E	B		E	C	C		D	
Apprch. delay	57.3			25.4			51.4			49.9		
Approach LOS	E			C			D			D		
Intersec. delay	47.2			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	JOA	Intersection	Brentwood Rd @ W St
Agency or Co.	ORGA	Area Type	All other areas
Date Performed	5/6/2005	Jurisdiction	DC
Time Period	AM	Analysis Year	2007

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	126	878	34	29	1111	79	41	2	22	35	9	85
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.81	0.81	0.81	0.82	0.82	0.82
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	WB Only	EW Perm	EB Only	04	SB Only	NB Only	07	08
Timing	G = 5.0	G = 23.0	G = 5.0	G =	G = 10.0	G = 10.0	G =	G =
	Y = 4	Y = 6	Y = 5	Y =	Y = 6	Y = 6	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	137	991		31	1169	83	51	29		43	115	
Lane group cap.	343	1034		208	1447	646	226	204		226	205	
v/c ratio	0.40	0.96		0.15	0.81	0.13	0.23	0.14		0.19	0.56	
Green ratio	0.43	0.29		0.40	0.40	0.40	0.13	0.13		0.13	0.13	
Unif. delay d1	25.6	28.0		18.0	21.3	15.2	31.5	31.2		31.4	32.9	
Delay factor k	0.50	0.50		0.50	0.50	0.50	0.50	0.50		0.50	0.50	
Increm. delay d2	3.4	19.6		1.5	4.9	0.4	2.3	1.5		1.9	10.6	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	29.1	47.6		19.5	26.2	15.6	33.8	32.6		33.2	43.6	
Lane group LOS	C	D		B	C	B	C	C		C	D	
Apprch. delay	45.4			25.4			33.4			40.8		
Approach LOS	D			C			C			D		
Intersec. delay	35.1			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	JOA	Intersection	Brentwood Rd @ W St
Agency or Co.	ORGA	Area Type	All other areas
Date Performed	5/6/2005	Jurisdiction	DC
Time Period	PM	Analysis Year	2007

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	130	1147	6	7	855	91	39	10	55	94	3	140
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.65	0.65	0.65	0.71	0.71	0.71
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	EB Only	EW Perm	03	04	SB Only	NB Only	07	08
Timing	G = 10.0	G = 25.0	G =	G =	G = 12.0	G = 11.0	G =	G =
	Y = 4	Y = 6	Y =	Y =	Y = 6	Y = 6	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	137	1213		7	910	97	60	100		132	201	
Lane group cap.	321	1762		124	1131	505	248	228		271	243	
v/c ratio	0.43	0.69		0.06	0.80	0.19	0.24	0.44		0.49	0.83	
Green ratio	0.49	0.49		0.31	0.31	0.31	0.14	0.14		0.15	0.15	
Unif. delay d1	14.3	15.8		19.2	25.3	20.1	30.8	31.7		31.2	33.0	
Delay factor k	0.50	0.50		0.50	0.50	0.50	0.50	0.50		0.50	0.50	
Increm. delay d2	4.1	2.2		0.9	6.1	0.8	2.3	6.0		6.1	26.5	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	18.4	18.0		20.1	31.4	21.0	33.1	37.7		37.3	59.4	
Lane group LOS	B	B		C	C	C	C	D		D	E	
Apprch. delay	18.1			30.3			36.0			50.7		
Approach LOS	B			C			D			D		
Intersec. delay	27.2			Intersection LOS						C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JOA
Agency/Co.	ORGA
Date Performed	5/6/2005
Analysis Time Period	AM

Site Information

Intersection	Brentwood Rd @ Shopping Ent
Jurisdiction	DC
Analysis Year	2007

Project Description: *Rhode Island Metro Station Development - TOTAL*

East/West Street: *Brentwood Road* | North/South Street: *Shopping Center Entrance*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	50	1029	0	0	1094	6
Peak-hour factor, PHF	0.92	0.92	1.00	1.00	0.95	0.95
Hourly Flow Rate (veh/h)	54	1118	0	0	1151	6
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	11	0	38
Peak-hour factor, PHF	1.00	1.00	1.00	0.82	1.00	0.82
Hourly Flow Rate (veh/h)	0	0	0	13	0	46
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	54					13		46
Capacity, c_m (vph)	611					64		464
v/c ratio	0.09					0.20		0.10
Queue length (95%)	0.29					0.69		0.33

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Control Delay (s/veh)	11.5					75.1		13.6
LOS	B					F		B
Approach delay (s/veh)	--	--				27.1		
Approach LOS	--	--				D		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JOA
Agency/Co.	ORGA
Date Performed	5/6/2005
Analysis Time Period	PM

Site Information

Intersection	Brentwood Rd @ Shopping Ent
Jurisdiction	DC
Analysis Year	2007

Project Description: *Rhode Island Metro Station Development - TOTAL*

East/West Street: *Brentwood Road* | North/South Street: *Shopping Center Entrance*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	61	1232	0	0	950	13
Peak-hour factor, PHF	0.95	0.95	1.00	1.00	0.94	0.90
Hourly Flow Rate (veh/h)	64	1296	0	0	1010	14
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	14	0	49
Peak-hour factor, PHF	1.00	1.00	1.00	0.71	1.00	0.71
Hourly Flow Rate (veh/h)	0	0	0	19	0	69
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	64					19		69
Capacity, c_m (vph)	686					66		512
v/c ratio	0.09					0.29		0.13
Queue length (95%)	0.31					1.03		0.46

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Control Delay (s/veh)	10.8					80.3		13.1
LOS	B					F		B
Approach delay (s/veh)	--	--				27.6		
Approach LOS	--	--				D		

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