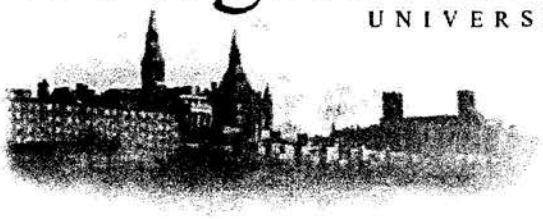
16566

Technical Appendix

Georgetown
UNIVERSITY



00 MAY 30 P4:30
DISTRICT OF

Prepared For

Georgetown University
Washington, D.C.

Prepared by

Gorove/Slade Associates, Inc.
1140 Connecticut Avenue NW
Suite 700
Washington, D.C. 20036
202-296-8625

May 30, 2000

BZA
Case No. 16566
Exhibit No. 45

Board of Zoning Adjustment
District of Columbia
CASE NO.16566
EXHIBIT NO.45A1

TABLE OF CONTENTS

A. AVERAGE DAILY TRAFFIC
B. TRAFFIC VOLUME COUNTS
    AM PEAK HOUR VOLUMES
    PM PEAK HOUR VOLUMES
C. HIGHWAY CAPACITY SOFTWARE
    EXISTING CONDITIONS
    TOTAL FUTURE DEVELOPMENT CONDITIONS
D. 1999/2000 GU CALENDAR OF EVENTS
E. NORTH CAMPUS PARKING OCCUPANCY SURVEY
F. SAMPLE MODE CHOICE SURVEY & SURVEY RESULTS

A. AVERAGE DAILY TRAFFIC

Intersection Traffic Volume Counts and Peak Hour Volume

Weekday
PEAK HOUR

JOB NAME:	**Georgetown University**
PROJECT NO.	**1701-002 BG2**
LOCATION:	**Reservoir Road**
CITY/COUNTY:	**Washington, D.C.**
DATE:	**March 2, 2000 (Thursday)**

COUNTS

Weekday	East of 37th EB	East of 37th WB	TOTAL VEH.	HOURLY TOTAL	West of Ent. 4 EB	West of Ent. 4 WB	TOTAL VEH.	HOURLY TOTAL	PHF
07:00 AM - 07:15 AM	87	50	136	972	158	36	194	1306	0.70
07:15 AM - 07:30 AM	121	70	191	1249	219	53	271	1627	0.79
07:30 AM - 07:45 AM	193	82	275	1444	306	72	378	1917	0.85
07:45 AM - 08:00 AM	265	105	370	1537	371	93	464	2054	0.92
08:00 AM - 08:15 AM	321	92	413	1530	429	86	515	2101	0.94
08:15 AM - 08:30 AM	299	87	386	1455	478	84	561	2024	0.90
08:30 AM - 08:45 AM	288	81	369	1329	433	82	515	1831	0.89
08:45 AM - 09:00 AM	292	71	363	1217	446	65	511	1667	0.82
09:00 AM - 09:15 AM	255	83	338	1089	377	62	438	1454	0.83
09:15 AM - 09:30 AM	187	73	260	968	304	64	368	1262	0.86
09:30 AM - 09:45 AM	176	81	257	916	289	62	350	1165	0.83
09:45 AM - 10:00 AM	172	63	235	856	227	71	298	1042	0.87
10:00 AM - 10:15 AM	127	90	217	807	158	88	246	979	0.90
10:15 AM - 10:30 AM	127	81	208	767	184	88	272	957	0.88
10:30 AM - 10:45 AM	123	74	197	737	142	85	227	909	0.97
10:45 AM - 11:00 AM	114	72	186	718	137	99	235	890	0.95
11:00 AM - 11:15 AM	112	66	177	726	117	107	224	928	0.85
11:15 AM - 11:30 AM	109	69	177	774	119	106	224	968	0.89
11:30 AM - 11:45 AM	102	77	179	808	104	104	208	1024	0.91
11:45 AM - 12:00 PM	124	70	194	871	165	108	273	1087	0.97
12:00 PM - 12:15 PM	135	90	225	905	129	135	264	1065	0.95
12:15 PM - 12:30 PM	130	82	212	929	153	128	281	1065	0.95
12:30 PM - 12:45 PM	141	100	241	954	141	130	271	1017	0.94
12:45 PM - 01:00 PM	139	89	228	947	135	116	251	1007	0.96
01:00 PM - 01:15 PM	135	114	249	930	140	123	263	1018	0.97
01:15 PM - 01:30 PM	143	94	237	891	125	108	233	987	0.95
01:30 PM - 01:45 PM	134	101	235	873	118	143	261	1000	0.96
01:45 PM - 02:00 PM	136	75	211	880	136	126	261	1032	0.88
02:00 PM - 02:15 PM	111	99	209	920	111	122	233	1100	0.84
02:15 PM - 02:30 PM	118	102	219	996	128	118	245	1226	0.85
02:30 PM - 02:45 PM	127	115	242	1063	145	148	293	1363	0.89
02:45 PM - 03:00 PM	157	93	250	1138	149	181	329	1482	0.90
03:00 PM - 03:15 PM	168	118	286	1220	146	213	359	1553	0.94
03:15 PM - 03:30 PM	144	142	286	1261	163	219	382	1599	0.97
03:30 PM - 03:45 PM	191	126	316	1256	205	207	412	1609	0.98
03:45 PM - 04:00 PM	196	137	333	1224	195	206	401	1556	0.96
04:00 PM - 04:15 PM	203	124	326	1160	200	205	405	1522	0.94
04:15 PM - 04:30 PM	169	113	281	1098	175	218	392	1492	0.95
04:30 PM - 04:45 PM	193	92	285	1143	168	191	359	1531	0.89
04:45 PM - 05:00 PM	186	82	268	1200	157	210	366	1598	0.93
05:00 PM - 05:15 PM	166	99	265	1227	145	230	375	1668	0.96
05:15 PM - 05:30 PM	204	122	326	1271	186	245	431	1666	0.95
05:30 PM - 05:45 PM	189	153	342	1252	151	276	426	1634	0.94
05:45 PM - 06:00 PM	163	132	295	1181	182	255	437	1580	0.90
06:00 PM - 06:15 PM	183	126	309	1139	169	204	373	1485	0.93
06:15 PM - 06:30 PM	157	150	307		159	240	399		
06:30 PM - 06:45 PM	152	119	271		169	204	372		
06:45 PM - 07:00 PM	132	121	253		172	170	341		
Weekday TOTAL	**7985**	**4637**	**12622**		**9503**	**6673**	**16175**		

B. TRAFFIC VOLUME COUNTS

AM PEAK HOUR VOLUMES

Intersection Traffic Volume Counts and Peak Hour Volume

AM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Ray Weil
DAY & DATE: March 15, 2000
INTERVAL: 15 min
STATE: D.C. **WEATHER:** Fair

NB. APPROACH: Entrance 4 GU
SB. APPROACH:

EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

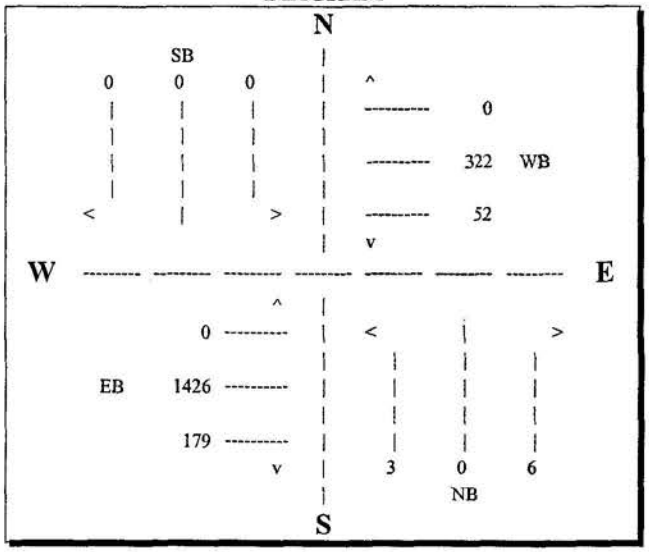
AM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
	MOVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
6:00 AM -	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:15 AM -	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:30 AM -	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:45 AM -	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	374	0.25
7:00 AM -	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	815	0.46
7:15 AM -	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1296	0.67
7:30 AM -	7:45 AM	0	0	0	0	83	8	4	0	0	44	235	0	374	1832	0.85
7:45 AM -	8:00 AM	0	0	0	0	96	8	2	0	0	43	292	0	441	1952	0.91
8:00 AM -	8:15 AM	0	0	0	0	79	18	3	0	0	45	336	0	481	1988	0.93
8:15 AM -	8:30 AM	0	0	0	0	75	14	1	0	0	52	394	0	536	1909	0.89
8:30 AM -	8:45 AM	0	0	0	0	85	12	0	0	1	45	351	0	494	1688	0.85
8:45 AM -	9:00 AM	0	0	0	0	83	8	2	0	2	37	345	0	477	1194	0.63
9:00 AM -	9:15 AM	0	0	0	0	58	7	3	0	2	36	296	0	402	717	0.45
9:15 AM -	9:30 AM	0	0	0	0	54	7	0	0	2	31	221	0	315		
9:30 AM -	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM -	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
AM TOTAL		**0**	**0**	**0**	**0**	**613**	**82**	**15**	**0**	**7**	**333**	**2470**	**0**	**3520**	**1988**	

PEAK HOUR VOLUMES

AM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
OVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
8:00 AM -	8:15 AM	0	0	0	0	79	18	3	0	0	45	336	0	481	---	---
8:15 AM -	8:30 AM	0	0	0	0	75	14	1	0	0	52	394	0	536	---	---
8:30 AM -	8:45 AM	0	0	0	0	85	12	0	0	1	45	351	0	494	---	---
8:45 AM -	9:00 AM	0	0	0	0	83	8	2	0	2	37	345	0	477	---	---
TOTAL		**0**	**0**	**0**	**0**	**322**	**52**	**6**	**0**	**3**	**179**	**1426**	**0**	**1988**	**0**	

AM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	0
	DEPART:	231
WB		
	APPROACH:	374
	DEPART:	325
NB		
	APPROACH:	9
	DEPART:	0
EB		
	APPROACH:	1605
	DEPART:	1432

Intersection Traffic Volume Counts and Peak Hour Volume

AM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Dan Van Pelt
DAY & DATE: April 26, 2000
INTERVAL: 15 min
STATE: D.C. **WEATHER:** Fair

NB. APPROACH: French Embassy
SB. APPROACH: French Embassy
EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

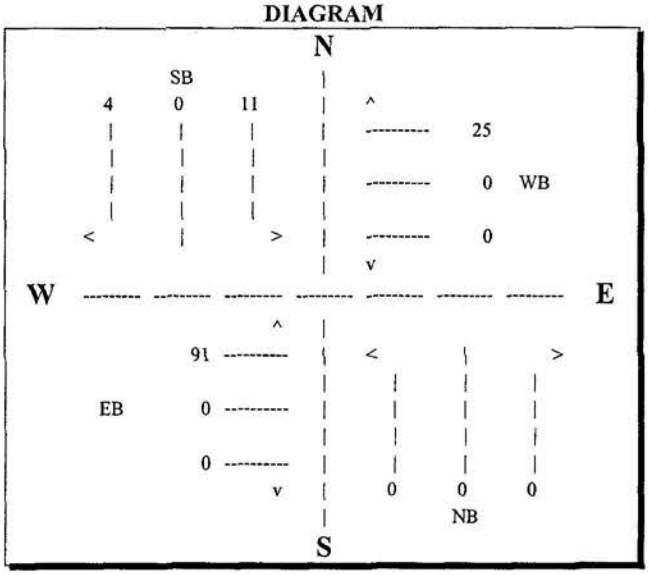
AM	Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
	R	T	L	R	T	L	R	T	L	R	T	L			
MOVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
6:00 AM - 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:15 AM - 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:30 AM - 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:45 AM - 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0.25
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	49	0.41
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	91	0.54
8:00 AM - 8:15 AM	1	0	1	5	0	0	0	0	0	0	0	12	19	131	0.78
8:15 AM - 8:30 AM	1	0	2	6	0	0	0	0	0	0	0	21	30	112	0.67
8:30 AM - 8:45 AM	1	0	3	5	0	0	0	0	0	0	0	33	42	82	0.49
8:45 AM - 9:00 AM	1	0	5	9	0	0	0	0	0	0	0	25	40	40	0.25
9:00 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
9:15 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 AM - 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
AM TOTAL	**4**	**0**	**11**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**91**	**131**	**131**	

PEAK HOUR VOLUMES

AM	Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
	R	T	L	R	T	L	R	T	L	R	T	L			
OVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
8:00 AM - 8:15 AM	1	0	1	5	0	0	0	0	0	0	0	12	19	---	---
8:15 AM - 8:30 AM	1	0	2	6	0	0	0	0	0	0	0	21	30	---	---
8:30 AM - 8:45 AM	1	0	3	5	0	0	0	0	0	0	0	33	42	---	---
8:45 AM - 9:00 AM	1	0	5	9	0	0	0	0	0	0	0	25	40	---	---
TOTAL	**4**	**0**	**11**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**91**	**131**	**0**	

AM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB	
APPROACH:	15
DEPART:	0
WB	
APPROACH:	25
DEPART:	4
NB	
APPROACH:	0
DEPART:	116
EB	
APPROACH:	91
DEPART:	11

Intersection Traffic Volume Counts and Peak Hour Volume

AM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Ray Weil
DAY & DATE: February 10, 2000
INTERVAL: 15 min
STATE: D.C.
WEATHER: Fair

NB. APPROACH: Georgetown University Entrance #3
SB. APPROACH:
EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

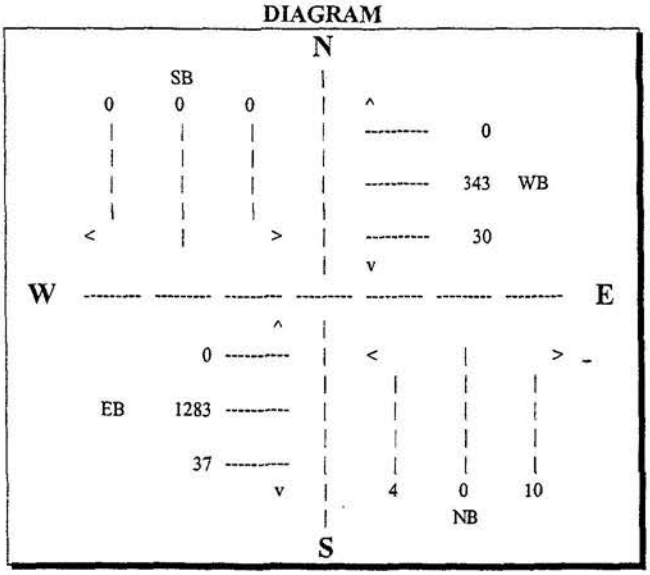
AM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
	MOVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
6:00 AM -	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:15 AM -	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	127	0.25
6:30 AM -	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	303	0.43
6:45 AM -	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	562	0.54
7:00 AM -	7:15 AM	0	0	0	0	40	3	1	0	1	22	60	0	127	896	0.67
7:15 AM -	7:30 AM	0	0	0	0	60	1	0	0	0	10	105	0	176	1219	0.68
7:30 AM -	7:45 AM	0	0	0	0	84	1	2	0	0	11	161	0	259	1451	0.81
7:45 AM -	8:00 AM	0	0	0	0	110	4	0	0	2	14	204	0	334	1634	0.91
8:00 AM -	8:15 AM	0	0	0	0	110	9	1	0	0	8	322	0	450	1707	0.95
8:15 AM -	8:30 AM	0	0	0	0	92	10	4	0	1	4	297	0	408	1257	0.71
8:30 AM -	8:45 AM	0	0	0	0	91	8	1	0	1	11	330	0	442	849	0.48
8:45 AM -	9:00 AM	0	0	0	0	50	3	4	0	2	14	334	0	407	407	0.25
9:00 AM -	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
9:15 AM -	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 AM -	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM -	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
AM TOTAL		0	0	0	0	637	39	13	0	7	94	1813	0	2603	1707	

PEAK HOUR VOLUMES

AM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
OVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
8:00 AM -	8:15 AM	0	0	0	0	110	9	1	0	0	8	322	0	450	---	---
8:15 AM -	8:30 AM	0	0	0	0	92	10	4	0	1	4	297	0	408	---	---
8:30 AM -	8:45 AM	0	0	0	0	91	8	1	0	1	11	330	0	442	---	---
8:45 AM -	9:00 AM	0	0	0	0	50	3	4	0	2	14	334	0	407	---	---
TOTAL		0	0	0	0	343	30	10	0	4	37	1283	0	1707	0	

AM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	0
	DEPART:	67
WB		
	APPROACH:	373
	DEPART:	347
NB		
	APPROACH:	14
	DEPART:	0
EB		
	APPROACH:	1320
	DEPART:	1293

Intersection Traffic Volume Counts and Peak Hour Volume

AM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Cameron McNary
DAY & DATE: March 15, 2000
INTERVAL: 15 min
STATE: D.C.
WEATHER: Fair

NB. APPROACH: Entrance 2 GU
SB. APPROACH: 39th Street
EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

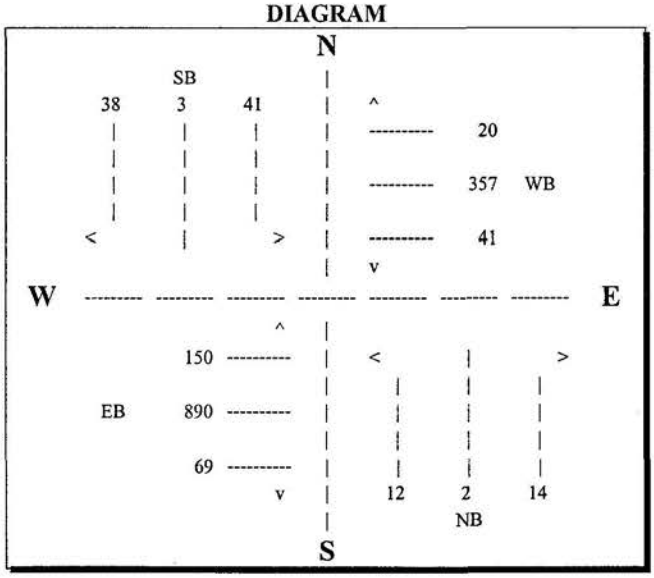
AM	Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
	R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
MOVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
6:00 AM - 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:15 AM - 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:30 AM - 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:45 AM - 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	191	0.25
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	421	0.46
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	795	0.53
7:30 AM - 7:45 AM	11	4	4	5	56	14	2	0	1	21	64	9	191	1195	0.75
7:45 AM - 8:00 AM	15	3	5	2	65	17	3	1	1	13	90	15	230	1470	0.79
8:00 AM - 8:15 AM	13	0	13	6	116	11	4	1	2	15	161	32	374	1637	0.88
8:15 AM - 8:30 AM	10	2	11	6	87	16	3	0	5	23	189	48	400	1707	0.92
8:30 AM - 8:45 AM	7	1	10	5	91	5	4	0	2	14	292	35	466	1750	0.94
8:45 AM - 9:00 AM	8	0	7	3	63	9	3	1	3	17	248	35	397	1284	0.72
9:00 AM - 9:15 AM	7	1	10	5	91	5	4	0	2	14	273	32	444	887	0.50
9:15 AM - 9:30 AM	8	0	7	3	63	9	3	1	3	17	300	29	443		
9:30 AM - 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
AM TOTAL	**79**	**11**	**67**	**35**	**632**	**86**	**26**	**4**	**19**	**134**	**1617**	**235**	**2945**	**1750**	

PEAK HOUR VOLUMES

AM	Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
	R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
OVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
8:00 AM - 8:15 AM	13	0	13	6	116	11	4	1	2	15	161	32	374	---	---
8:15 AM - 8:30 AM	10	2	11	6	87	16	3	0	5	23	189	48	400	---	---
8:30 AM - 8:45 AM	7	1	10	5	91	5	4	0	2	14	292	35	466	---	---
8:45 AM - 9:00 AM	8	0	7	3	63	9	3	1	3	17	248	35	397	---	---
TOTAL	**38**	**3**	**41**	**20**	**357**	**41**	**14**	**2**	**12**	**69**	**890**	**150**	**1637**	**0**	

AM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB	
APPROACH:	82
DEPART:	113
WB	
APPROACH:	418
DEPART:	407
NB	
APPROACH:	28
DEPART:	172
EB	
APPROACH:	1109
DEPART:	945

Intersection Traffic Volume Counts and Peak Hour Volume

AM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Robert Williams
DAY & DATE: March 15, 2000
INTERVAL: 15 min
STATE: D.C. **WEATHER:** Fair

NB. APPROACH: Entrance 1 GU
SB. APPROACH: 38th Street

EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

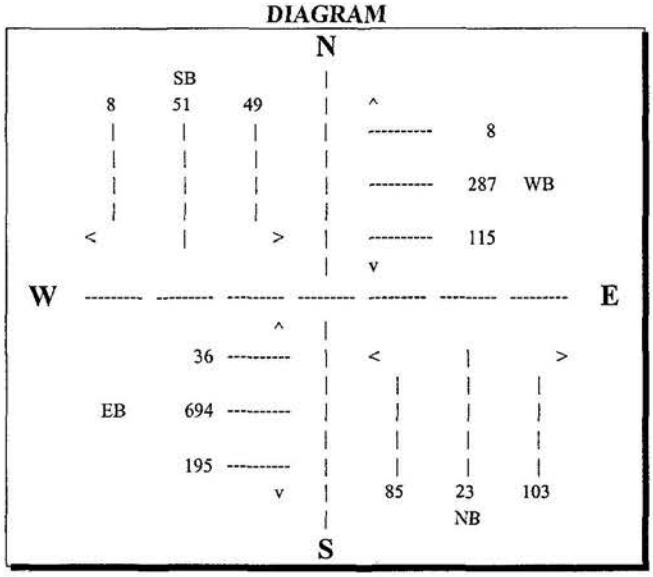
AM	Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
	R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
MOVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
6:00 AM - 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:15 AM - 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:30 AM - 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:45 AM - 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	162	0.25
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	408	0.41
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	770	0.53
7:30 AM - 7:45 AM	0	4	9	0	38	14	15	3	7	10	59	3	162	1163	0.74
7:45 AM - 8:00 AM	0	6	7	1	46	26	25	8	25	29	69	4	246	1465	0.79
8:00 AM - 8:15 AM	2	7	13	3	66	28	27	5	27	40	136	8	362	1654	0.89
8:15 AM - 8:30 AM	2	10	9	2	79	25	20	8	15	46	160	17	393	1775	0.92
8:30 AM - 8:45 AM	4	19	10	1	84	29	34	7	21	53	196	6	464	1828	0.95
8:45 AM - 9:00 AM	0	15	17	2	58	33	22	3	22	56	202	5	435	1364	0.71
9:00 AM - 9:15 AM	1	18	8	1	70	32	29	6	14	54	240	10	483	929	0.48
9:15 AM - 9:30 AM	5	8	8	3	62	31	33	2	12	46	231	5	446		
9:30 AM - 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
AM TOTAL	**14**	**87**	**81**	**13**	**503**	**218**	**205**	**42**	**143**	**334**	**1293**	**58**	**2991**	**1828**	

PEAK HOUR VOLUMES

AM	Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
	R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
OVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
8:00 AM - 8:15 AM	2	7	13	3	66	28	27	5	27	40	136	8	362	---	---
8:15 AM - 8:30 AM	2	10	9	2	79	25	20	8	15	46	160	17	393	---	---
8:30 AM - 8:45 AM	4	19	10	1	84	29	34	7	21	53	196	6	464	---	---
8:45 AM - 9:00 AM	0	15	17	2	58	33	22	3	22	56	202	5	435	---	---
TOTAL	**8**	**51**	**49**	**8**	**287**	**115**	**103**	**23**	**85**	**195**	**694**	**36**	**1654**	**0**	

AM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	108
	DEPART:	361
WB		
	APPROACH:	410
	DEPART:	380
NB		
	APPROACH:	211
	DEPART:	67
EB		
	APPROACH:	925
	DEPART:	846

Intersection Traffic Volume Counts and Peak Hour Volume

AM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Bob Wallis
DAY & DATE: March 15, 2000
INTERVAL: 15 min
STATE: D.C. **WEATHER:** Fair

NB. APPROACH: 37th Street
SB. APPROACH: 37th Street
EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

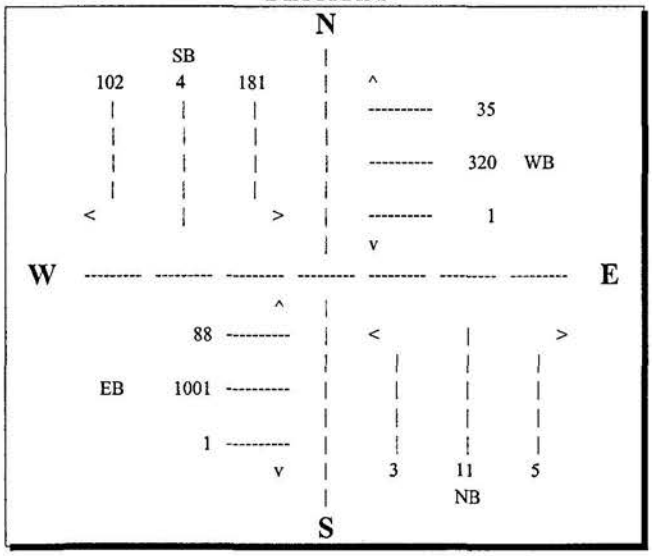
AM		Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
	MOVEMENT #:	R 1	T 2	L 3	R 4	T 5	L 6	R 7	T 8	L 9	R 10	T 11	L 12			
6:00 AM - 6:15 AM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:15 AM - 6:30 AM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:30 AM - 6:45 AM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:45 AM - 7:00 AM		0	0	0	0	0	0	0	0	0	0	0	0	0	229	0.25
7:00 AM - 7:15 AM		0	0	0	0	0	0	0	0	0	0	0	0	0	558	0.42
7:15 AM - 7:30 AM		0	0	0	0	0	0	0	0	0	0	0	0	0	998	0.57
7:30 AM - 7:45 AM		16	1	17	9	61	0	0	0	0	0	118	7	229	1444	0.81
7:45 AM - 8:00 AM		20	3	29	8	77	0	1	0	0	0	174	17	329	1670	0.92
8:00 AM - 8:15 AM		33	1	41	16	79	0	0	3	1	0	245	21	440	1752	0.96
8:15 AM - 8:30 AM		19	0	46	6	74	0	2	3	0	0	269	27	446	1702	0.94
8:30 AM - 8:45 AM		25	2	48	6	84	0	3	4	1	1	259	22	455	1564	0.86
8:45 AM - 9:00 AM		25	1	46	7	83	1	0	1	1	0	228	18	411	1109	0.67
9:00 AM - 9:15 AM		31	2	47	9	60	0	1	1	2	0	220	17	390	698	0.45
9:15 AM - 9:30 AM		27	1	24	2	74	0	0	1	1	0	160	18	308		
9:30 AM - 9:45 AM		0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM - 10:00 AM		0	0	0	0	0	0	0	0	0	0	0	0	0		
AM TOTAL		**196**	**11**	**298**	**63**	**592**	**1**	**7**	**13**	**6**	**1**	**1673**	**147**	**3008**	**1752**	

PEAK HOUR VOLUMES

AM		Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
OVEMENT #:		R 1	T 2	L 3	R 4	T 5	L 6	R 7	T 8	L 9	R 10	T 11	L 12			
8:00 AM - 8:15 AM		33	1	41	16	79	0	0	3	1	0	245	21	440	---	---
8:15 AM - 8:30 AM		19	0	46	6	74	0	2	3	0	0	269	27	446	---	---
8:30 AM - 8:45 AM		25	2	48	6	84	0	3	4	1	1	259	22	455	---	---
8:45 AM - 9:00 AM		25	1	46	7	83	1	0	1	1	0	228	18	411	---	---
TOTAL		**102**	**4**	**181**	**35**	**320**	**1**	**5**	**11**	**3**	**1**	**1001**	**88**	**1752**	**0**	

AM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	287
	DEPART:	6
WB		
	APPROACH:	356
	DEPART:	425
NB		
	APPROACH:	19
	DEPART:	134
EB		
	APPROACH:	1090
	DEPART:	1187

PM PEAK HOUR VOLUMES

Intersection Traffic Volume Counts and Peak Hour Volume

PM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Ray Weil
DAY & DATE: March 15, 2000
INTERVAL: 15 min
STATE: D.C. **WEATHER:** Fair

NB. APPROACH: Entrance 4 GU
SB. APPROACH:

EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

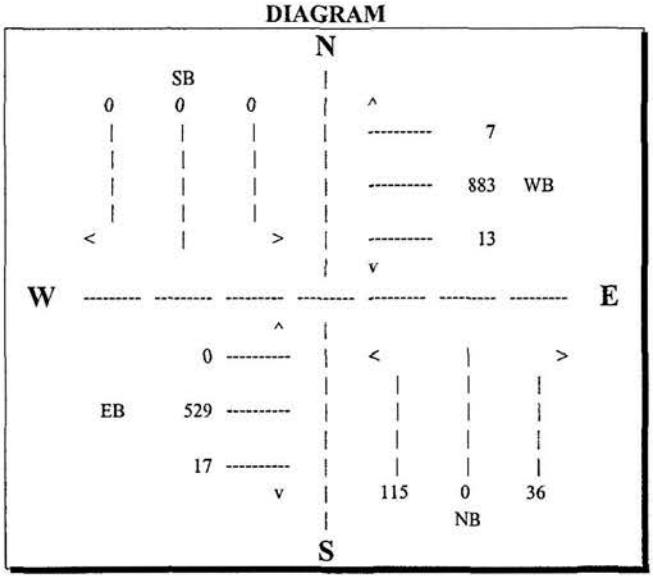
PM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
MOVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
4:00 PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	306	0.25
4:15 PM	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	700	0.44
4:30 PM	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1072	0.68
4:45 PM	5:00 PM	0	0	0	0	157	0	15	0	28	3	103	0	306	1481	0.91
5:00 PM	5:15 PM	0	0	0	0	207	2	17	0	43	4	121	0	394	1567	0.96
5:15 PM	5:30 PM	0	0	0	0	167	2	27	0	47	2	127	0	372	1589	0.95
5:30 PM	5:45 PM	0	0	0	0	215	4	19	0	36	4	131	0	409	1600	0.96
5:45 PM	6:00 PM	0	0	0	0	232	4	8	0	23	1	124	0	392	1528	0.92
6:00 PM	6:15 PM	0	0	0	7	227	3	3	0	32	6	138	0	416	1136	0.68
6:15 PM	6:30 PM	0	0	0	0	209	2	6	0	24	6	136	0	383	720	0.47
6:30 PM	6:45 PM	0	0	0	0	170	4	7	0	26	3	127	0	337	337	0.25
6:45 PM	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:00 PM	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:15 PM	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM TOTAL		**0**	**0**	**0**	**7**	**1584**	**21**	**102**	**0**	**259**	**29**	**1007**	**0**	**3009**	**1600**	

PEAK HOUR VOLUMES

PM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
OVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
5:30 PM	5:45 PM	0	0	0	0	215	4	19	0	36	4	131	0	409	---	---
5:45 PM	6:00 PM	0	0	0	0	232	4	8	0	23	1	124	0	392	---	---
6:00 PM	6:15 PM	0	0	0	7	227	3	3	0	32	6	138	0	416	---	---
6:15 PM	6:30 PM	0	0	0	0	209	2	6	0	24	6	136	0	383	---	---
TOTAL		**0**	**0**	**0**	**7**	**883**	**13**	**36**	**0**	**115**	**17**	**529**	**0**	**1600**	**0**	

PM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	0
	DEPART:	30
WB		
	APPROACH:	903
	DEPART:	998
NB		
	APPROACH:	151
	DEPART:	7
EB		
	APPROACH:	546
	DEPART:	565

Intersection Traffic Volume Counts and Peak Hour Volume

PM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Dan Van Pelt
DAY & DATE: April 26, 2000
INTERVAL: 15 min
STATE: D.C.
WEATHER: Fair

NB. APPROACH: French Embassy
SB. APPROACH: French Embassy
EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

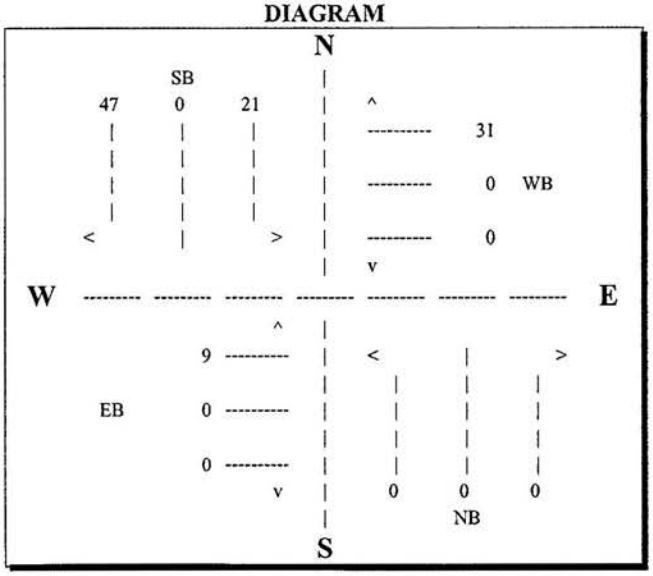
PM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
MOVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
4:00 PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
4:15 PM	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
4:30 PM	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
4:45 PM	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0.25
5:00 PM	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	54	0.45
5:15 PM	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	82	0.68
5:30 PM	5:45 PM	15	0	9	4	0	0	0	0	0	0	0	2	30	108	0.90
5:45 PM	6:00 PM	9	0	2	9	0	0	0	0	0	0	0	4	24	78	0.70
6:00 PM	6:15 PM	10	0	6	9	0	0	0	0	0	0	0	3	28	54	0.48
6:15 PM	6:30 PM	13	0	4	9	0	0	0	0	0	0	0	0	26	26	0.25
6:30 PM	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:45 PM	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:00 PM	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:15 PM	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM TOTAL		**47**	**0**	**21**	**31**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**108**	**108**	

PEAK HOUR VOLUMES

PM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
OVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
5:30 PM	5:45 PM	15	0	9	4	0	0	0	0	0	0	0	2	30	---	---
5:45 PM	6:00 PM	9	0	2	9	0	0	0	0	0	0	0	4	24	---	---
6:00 PM	6:15 PM	10	0	6	9	0	0	0	0	0	0	0	3	28	---	---
6:15 PM	6:30 PM	13	0	4	9	0	0	0	0	0	0	0	0	26	---	---
TOTAL		**47**	**0**	**21**	**31**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**108**	**0**	

PM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	68
	DEPART:	0
WB		
	APPROACH:	31
	DEPART:	47
NB		
	APPROACH:	0
	DEPART:	40
EB		
	APPROACH:	9
	DEPART:	21

Intersection Traffic Volume Counts and Peak Hour Volume

PM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Ray Weil
DAY & DATE: February 10, 2000
INTERVAL: 15 min
STATE: D.C.
WEATHER: Fair

NB. APPROACH: Georgetown University Entrance #3
SB. APPROACH:

EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

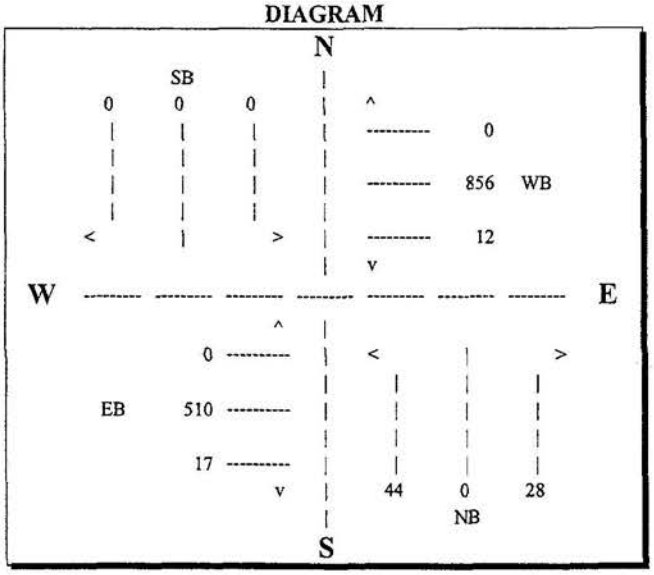
PM	Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
	R	T	L	R	T	L	R	T	L	R	T	L			
MOVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
3:30 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
3:45 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	322	0.25
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	626	0.49
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	983	0.69
4:30 PM - 4:45 PM	0	0	0	0	174	4	5	0	8	4	127	0	322	1295	0.91
4:45 PM - 5:00 PM	0	0	0	0	174	1	7	0	5	2	115	0	304	1334	0.92
5:00 PM - 5:15 PM	0	0	0	0	195	2	7	0	15	6	132	0	357	1467	0.84
5:15 PM - 5:30 PM	0	0	0	0	171	5	8	0	8	4	116	0	312	1384	0.79
5:30 PM - 5:45 PM	0	0	0	0	212	3	6	0	8	5	127	0	361	1402	0.80
5:45 PM - 6:00 PM	0	0	0	0	278	2	7	0	13	2	135	0	437	1041	0.60
6:00 PM - 6:15 PM	0	0	0	0	155	5	2	0	5	4	103	0	274	604	0.46
6:15 PM - 6:30 PM	0	0	0	0	190	5	7	0	7	3	118	0	330	330	0.25
6:30 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6:45 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:00 PM - 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:15 PM - 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM TOTAL	**0**	**0**	**0**	**0**	**1549**	**27**	**49**	**0**	**69**	**30**	**973**	**0**	**2697**	**1467**	

PEAK HOUR VOLUMES

PM	Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
	R	T	L	R	T	L	R	T	L	R	T	L			
OVEMENT #:	1	2	3	4	5	6	7	8	9	10	11	12			
5:00 PM - 5:15 PM	0	0	0	0	195	2	7	0	15	6	132	0	357	---	---
5:15 PM - 5:30 PM	0	0	0	0	171	5	8	0	8	4	116	0	312	---	---
5:30 PM - 5:45 PM	0	0	0	0	212	3	6	0	8	5	127	0	361	---	---
5:45 PM - 6:00 PM	0	0	0	0	278	2	7	0	13	2	135	0	437	---	---
TOTAL	**0**	**0**	**0**	**0**	**856**	**12**	**28**	**0**	**44**	**17**	**510**	**0**	**1467**	**0**	

PM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB	
APPROACH:	0
DEPART:	29
WB	
APPROACH:	868
DEPART:	900
NB	
APPROACH:	72
DEPART:	0
EB	
APPROACH:	527
DEPART:	538

Intersection Traffic Volume Counts and Peak Hour Volume

PM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Cameron McNary
DAY & DATE: March 15, 2000
INTERVAL: 15 min
STATE: D.C. **WEATHER:** Fair

NB. APPROACH: Entrance 2 GU
SB. APPROACH: 39th Street
EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

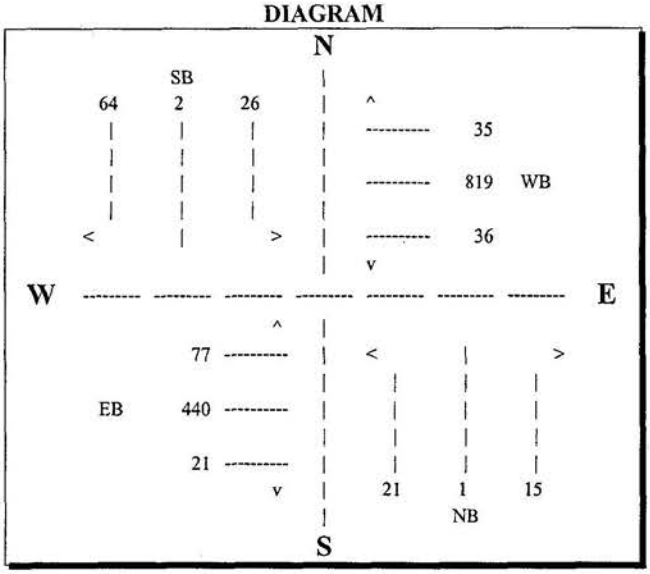
PM		Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
	MOVEMENT #:	R 1	T 2	L 3	R 4	T 5	L 6	R 7	T 8	L 9	R 10	T 11	L 12			
4:00 PM - 4:15 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	328	0.25
4:15 PM - 4:30 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	678	0.48
4:30 PM - 4:45 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	1032	0.73
4:45 PM - 5:00 PM		11	0	5	5	147	2	6	0	7	9	122	14	328	1461	0.85
5:00 PM - 5:15 PM		20	2	5	6	153	9	5	1	9	7	110	23	350	1498	0.87
5:15 PM - 5:30 PM		14	0	7	6	159	4	2	0	5	6	124	27	354	1573	0.92
5:30 PM - 5:45 PM		15	1	9	14	240	7	4	0	5	5	110	19	429	1557	0.91
5:45 PM - 6:00 PM		14	0	5	6	177	13	2	0	5	5	119	19	365	1488	0.88
6:00 PM - 6:15 PM		16	0	7	6	239	9	5	1	4	6	111	21	425	1123	0.66
6:15 PM - 6:30 PM		19	1	5	9	163	7	4	0	7	5	100	18	338	698	0.48
6:30 PM - 6:45 PM		13	0	4	7	180	5	3	0	4	4	124	16	360	360	0.25
6:45 PM - 7:00 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:00 PM - 7:15 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:15 PM - 7:30 PM		0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM - 7:45 PM		0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM - 8:00 PM		0	0	0	0	0	0	0	0	0	0	0	0	0		
PM TOTAL		**122**	**4**	**47**	**59**	**1458**	**56**	**31**	**2**	**46**	**47**	**920**	**157**	**2949**	**1573**	

PEAK HOUR VOLUMES

PM		Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
OVEMENT #:		R 1	T 2	L 3	R 4	T 5	L 6	R 7	T 8	L 9	R 10	T 11	L 12			
5:30 PM - 5:45 PM		15	1	9	14	240	7	4	0	5	5	110	19	429	---	---
5:45 PM - 6:00 PM		14	0	5	6	177	13	2	0	5	5	119	19	365	---	---
6:00 PM - 6:15 PM		16	0	7	6	239	9	5	1	4	6	111	21	425	---	---
6:15 PM - 6:30 PM		19	1	5	9	163	7	4	0	7	5	100	18	338	---	---
TOTAL		**64**	**2**	**26**	**35**	**819**	**36**	**15**	**1**	**21**	**21**	**440**	**77**	**1557**	**0**	

PM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	92
	DEPART:	59
WB		
	APPROACH:	890
	DEPART:	904
NB		
	APPROACH:	37
	DEPART:	113
EB		
	APPROACH:	538
	DEPART:	481

Intersection Traffic Volume Counts and Peak Hour Volume

PM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Robert Williams
DAY & DATE: March 15, 2000
INTERVAL: 15 min
STATE: D.C. **WEATHER:** Fair

NB. APPROACH: Entrance 1 GU
SB. APPROACH: 38th Street
EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

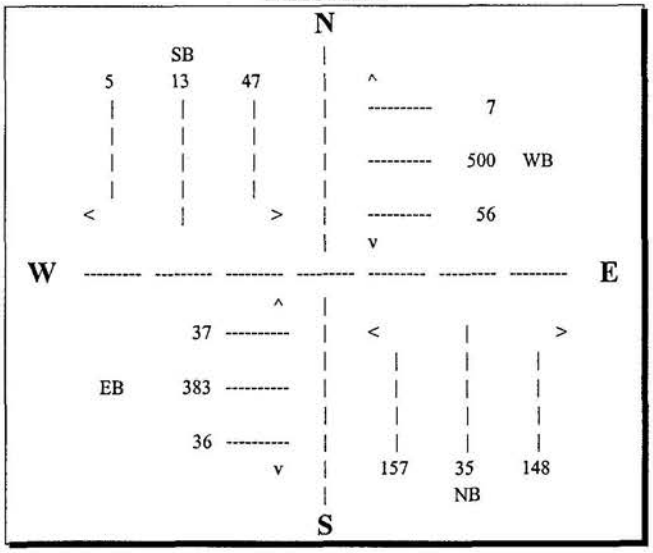
PM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
MOVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
4:00 PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	297	0.25
4:15 PM	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	645	0.46
4:30 PM	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1089	0.61
4:45 PM	5:00 PM	2	3	8	2	72	20	34	10	47	13	79	7	297	1454	0.82
5:00 PM	5:15 PM	1	1	8	1	83	18	43	18	52	10	105	8	348	1537	0.87
5:15 PM	5:30 PM	3	3	9	2	200	21	44	11	53	12	77	9	444	1574	0.89
5:30 PM	5:45 PM	1	3	14	1	123	21	42	14	44	13	78	11	365	1424	0.92
5:45 PM	6:00 PM	2	4	9	3	129	12	41	9	47	9	107	8	380	1404	0.91
6:00 PM	6:15 PM	2	4	8	2	147	10	35	8	41	8	113	7	385	1024	0.66
6:15 PM	6:30 PM	0	2	16	1	101	13	30	4	25	6	85	11	294	639	0.46
6:30 PM	6:45 PM	2	0	14	2	137	17	25	5	21	3	110	9	345	345	0.25
6:45 PM	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:00 PM	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:15 PM	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM TOTAL		**13**	**20**	**86**	**14**	**992**	**132**	**294**	**79**	**330**	**74**	**754**	**70**	**2858**	**1574**	

PEAK HOUR VOLUMES

PM		Southbound			Westbound			Northbound			Eastbound			TOTAL	HOURLY	
		R	T	L	R	T	L	R	T	L	R	T	L	VEH.	TOTAL	PHF
OVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
5:30 PM	5:45 PM	1	3	14	1	123	21	42	14	44	13	78	11	365	---	---
5:45 PM	6:00 PM	2	4	9	3	129	12	41	9	47	9	107	8	380	---	---
6:00 PM	6:15 PM	2	4	8	2	147	10	35	8	41	8	113	7	385	---	---
6:15 PM	6:30 PM	0	2	16	1	101	13	30	4	25	6	85	11	294	---	---
TOTAL		**5**	**13**	**47**	**7**	**500**	**56**	**148**	**35**	**157**	**36**	**383**	**37**	**1424**	**0**	

PM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	65
	DEPART:	105
WB		
	APPROACH:	563
	DEPART:	662
NB		
	APPROACH:	340
	DEPART:	79
EB		
	APPROACH:	456
	DEPART:	578

Intersection Traffic Volume Counts and Peak Hour Volume

PM
PEAK HOUR

JOB NAME: Georgtown Campus Plan - Reservoir Road
PROJECT NO. 1701-002 BG2
LOCATION: Georgetown
CITY/COUNTY Washington

COUNTED BY: Bob Wallis
DAY & DATE: March 15, 2000
INTERVAL: 15 min
STATE: D.C. **WEATHER:** Fair

NB. APPROACH: 37th Street
SB. APPROACH: 37th Street

EB. APPROACH: Reservoir Road
WB. APPROACH: Reservoir Road

COUNTS

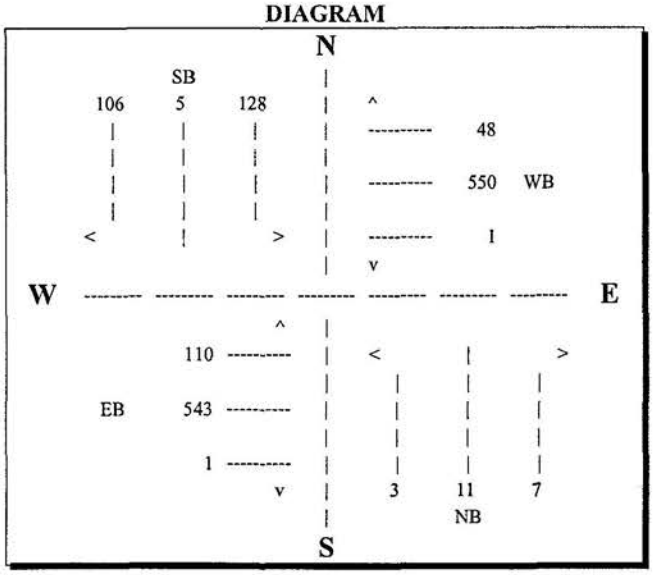
PM		Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
	MOVEMENT #:	R 1	T 2	L 3	R 4	T 5	L 6	R 7	T 8	L 9	R 10	T 11	L 12			
4:00 PM - 4:15 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	263	0.25
4:15 PM - 4:30 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	645	0.42
4:30 PM - 4:45 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	968	0.63
4:45 PM - 5:00 PM		20	0	24	3	76	0	1	1	1	0	107	30	263	1338	0.88
5:00 PM - 5:15 PM		38	2	41	11	114	0	2	2	1	0	138	33	382	1461	0.95
5:15 PM - 5:30 PM		12	1	27	15	90	0	1	4	1	1	150	21	323	1458	0.94
5:30 PM - 5:45 PM		27	1	33	11	115	0	1	5	1	1	152	23	370	1513	0.98
5:45 PM - 6:00 PM		25	0	30	14	157	1	2	3	0	0	122	32	386	1486	0.96
6:00 PM - 6:15 PM		24	1	31	12	144	0	2	1	1	0	134	29	379	1100	0.73
6:15 PM - 6:30 PM		30	3	34	11	134	0	2	2	1	0	135	26	378	721	0.48
6:30 PM - 6:45 PM		24	1	31	18	122	0	1	1	2	0	120	23	343	343	0.25
6:45 PM - 7:00 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:00 PM - 7:15 PM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
7:15 PM - 7:30 PM		0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM - 7:45 PM		0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM - 8:00 PM		0	0	0	0	0	0	0	0	0	0	0	0	0		
PM TOTAL		**200**	**9**	**251**	**95**	**952**	**1**	**12**	**19**	**8**	**2**	**1058**	**217**	**2824**	**1513**	

PEAK HOUR VOLUMES

PM		Southbound			Westbound			Northbound			Eastbound			TOTAL VEH.	HOURLY TOTAL	PHF
OVEMENT #:		1	2	3	4	5	6	7	8	9	10	11	12			
5:30 PM - 5:45 PM		27	1	33	11	115	0	1	5	1	1	152	23	370	---	---
5:45 PM - 6:00 PM		25	0	30	14	157	1	2	3	0	0	122	32	386	---	---
6:00 PM - 6:15 PM		24	1	31	12	144	0	2	1	1	0	134	29	379	---	---
6:15 PM - 6:30 PM		30	3	34	11	134	0	2	2	1	0	135	26	378	---	---
TOTAL		**106**	**5**	**128**	**48**	**550**	**1**	**7**	**11**	**3**	**1**	**543**	**110**	**1513**	**0**	

PM Peak Volumes

DIAGRAM



APPROACH/DEPARTURE VOLUMES

SB		
	APPROACH:	239
	DEPART:	7
WB		
	APPROACH:	599
	DEPART:	659
NB		
	APPROACH:	21
	DEPART:	169
EB		
	APPROACH:	654
	DEPART:	678

C. HIGHWAY CAPACITY SOFTWARE

EXISTING CONDITIONS

HCS: Signalized Intersections Release 3.1c

Inter: Foxhall Road & Reservoir Road City/St: Washington, DC
Analyst: CAB Proj #: 1701-001 BG2
Date: 03/23/2000 Period: AM Existing
E/W St: Reservoir Road N/S St: Foxhall Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	1	1	1	0	2	0	1	1	0
LGConfig		LTR		L	T	R		LTR		L	TR	
Volume	10	837	75	87	192	77	31	642	330	436	336	21
Lane Width		12.0		12.0	12.0	12.0		12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	A				NB	Left	A			
Thru	A					Thru	P			
Right	A					Right	A			
Peds						Peds				
WB Left	A				SB	Left		A		
Thru	A					Thru		A		
Right	A					Right		A		
Peds						Peds				
NB Right					EB	Right				
SB Right					WB	Right				
Green	18.0						20.0	24.0		
Yellow	5.0						5.0	5.0		
All Red	1.0						1.0	1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	620	2755	1.65	0.225	331.4	F	331.4	F
Westbound								
L	95	422	1.02	0.225	129.2	F		
T	427	1900	0.50	0.225	28.0	C	52.3	D
R	363	1615	0.24	0.225	25.7	C		
Northbound								
LTR	857	3426	1.30	0.250	173.5	F	173.5	F
Southbound								
L	542	1805	0.89	0.300	43.8	D		
TR	565	1883	0.70	0.300	28.7	C	37.0	D

Intersection Delay = 171.6 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.1c

Chad A. Baird
Gorove/Slade Associates, Inc.
1140 Connecticut Avenue NW
Suite 700
Washington, DC 20036
Phone: (202)296-8625 Fax: (202)785-8825
E-Mail: CBaird@GSATrans.com

OPERATIONAL ANALYSIS

Intersection:	Foxhall Road & Reservoir Road
City/State:	Washington, DC
Analyst:	CAB
Project No:	1701-001 BG2
Time Period Analyzed:	AM Existing
Date:	03/23/2000
East/West Street Name:	Reservoir Road
North/South Street Name:	Foxhall Road

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	10	837	75	87	192	77	31	642	330	436	336	21
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PK 15 Vol	3	233	21	24	53	21	9	178	92	121	93	6
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat		1900		1900	1900	1900		1900		1900	1900	
ParkExist												
NumPark												
% Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0
No. Lanes	0	2	0	1	1	1	0	2	0	1	1	0
LGConfig		LTR		L	T	R		LTR		L	TR	
Lane Width		12.0		12.0	12.0	12.0		12.0		12.0	12.0	
RTOR Vol			0			0			0			0
Adj Flow		1024		97	213	86		1114		484	396	
%InSharedLn												
Prop Turns	0.01		0.08				0.03		0.33			0.06
NumPeds			0			0			0			0
NumBus		0		0	0	0		0		0	0	

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Arriv. Type		3		3	3	3		3		3	3	
Unit Ext.		3.0		3.0	3.0	3.0		3.0		3.0	3.0	
I Factor		1.000			1.000			1.000			1.000	
Lost Time		2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Ext of g		2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Ped Min g		3.0			3.0			3.0			3.0	

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	P		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left		A	
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	18.0					20.0	24.0	
Yellow	5.0					5.0	5.0	
All Red	1.0					1.0	1.0	

Cycle Length: 80.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	10	0.90	11	0					
Thru	837	0.90	930	2	LTR		1024	0.01	0.08
Right	75	0.90	83	0		0			
Westbound									
Left	87	0.90	97	1	L		97		
Thru	192	0.90	213	1	T		213		
Right	77	0.90	86	1	R	0	86		
Northbound									
Left	31	0.90	34	0					
Thru	642	0.90	713	2	LTR		1114	0.03	0.33
Right	330	0.90	367	0		0			
Southbound									
Left	436	0.90	484	1	L		484		
Thru	336	0.90	373	1	TR		396		0.06
Right	21	0.90	23	0		0			

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

Appr/ Lane Group	Ideal Sat Flow	f W	f HV	f G	f P	f BB	f A	f LU	f RT	f LT	Adj Sat Flow
Eastbound							Sec LT Adj/LT Sat:		----		
LTR	1900	1.000	1.000	1.000	1.000	1.000	1.00	0.95	0.988	0.773	2755

Westbound							Sec LT Adj/LT Sat:				
L	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	----	0.222	422
T	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	1.000	1.000	1900
R	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.850	----	1615
Northbound							Sec LT Adj/LT Sat:		----		
LTR	1900	1.000	1.000	1.000	1.000	1.000	1.00	0.95	0.951	0.998	3426

Southbound							Sec LT Adj/LT Sat:				
L	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	----	0.950	1805
TR	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.991	1.000	1883

CAPACITY ANALYSIS WORKSHEET

Appr/ Mvmt	Lane Group	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	--Lane Group-- Capacity (c)	v/c Ratio
Eastbound							
Pri.							
Sec.							
Left							
Thru	LTR	1024	2755	# 0.37	0.225	620	1.65
Right							
Westbound							
Pri.							
Sec.							
Left	L	97	422	0.23	0.225	95	1.02
Thru	T	213	1900	0.11	0.225	427	0.50
Right	R	86	1615	0.05	0.225	363	0.24
Northbound							
Pri.							
Sec.							
Left							
Thru	LTR	1114	3426	# 0.33	0.250	857	1.30
Right							
Southbound							
Pri.							
Sec.							
Left	L	484	1805	# 0.27	0.300	542	0.89
Thru	TR	396	1883	0.21	0.300	565	0.70
Right							

Sum (v/s) critical = 0.96

Lost Time/Cycle, L = 18.00 sec Critical v/c(X) = 1.25

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
LTR	1.65	0.225	31.0	1.000	620	0.50	300.4	0.0	331.4	F	331.4	F
Westbound												
L	1.02	0.225	31.0	1.000	95	0.50	98.2	0.0	129.2	F		
T	0.50	0.225	27.1	1.000	427	0.11	0.9	0.0	28.0	C	52.3	D
R	0.24	0.225	25.4	1.000	363	0.11	0.3	0.0	25.7	C		
Northbound												
LTR	1.30	0.250	30.0	1.000	857	0.50	143.5	0.0	173.5	F	173.5	F
Southbound												
L	0.89	0.300	26.8	1.000	542	0.42	17.1	0.0	43.8	D		
TR	0.70	0.300	24.8	1.000	565	0.27	3.9	0.0	28.7	C	37.0	D

Intersection Delay = 171.6 (sec/veh) Intersection LOS = F

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 80.0 sec				
Actual Green Time for Lane Group, G		18.0		
Effective Green Time for Lane Group, g		18.0		
Opposing Effective Green Time, go		18.0		
Number of Lanes in Lane Group, N		1		
Number of Opposing Lanes, No		2		
Adjusted Left-Turn Flow Rate, Vlt		97		
Proportion of Left Turns in Opposing Flow, Plto		0.01		
Adjusted Opposing Flow Rate, Vo		1024		
Lost Time for Lane Group, tl		6.00		
Left Turns per Cycle: LTC=VltC/3600		2.16		
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo		11.98		
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)		1.00		
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g		0.0		
Opposing Queue Ratio: qro=1-Rpo(go/C)		0.77		
gq=(4.943Volc**0.762)(qro**1.061)-tl, gq<=g		18.00		
gu =g-gq if gq>=gf, =g-gf if gq<gf		0.00		
n=(gq-gf)/2, n>=0		9.00		
Ptho=1-Plto		0.99		
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24)}]		1.00		
El1 (Figure 9-7)		3.57		
El2=(1-Ptho**n)/Plto, El2>=1.0		8.62		
fmin=2(1+Plt)/g or fmin=2(1+Pl)/g		0.22		
gdiff=max(gq-gf,0)		18.00		
fm=[gf/g]+[gu/g][1/{1+Pl(El1-1)}], (min=fmin;max=1.00)		0.22		
flt=fm=[gf/g]+gdiff[1/{1+Plt(El2-1)}] +[gu/g][1/(1+Plt(El1-1)],(min=fmin;max=1.0) or flt=[fm+0.91(N-1)]/N**				
flt		0.222		

For special case of single-lane approach opposed by multilane approach, see text.

* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto left-turn lane and redo calculations.

** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.

For special case of multilane approach opposed by single-lane approach or when gf>gq, see text.

SUPPLEMENTAL PERMITTED LT WORKSHEET
for shared lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 80.0 sec				
Actual Green Time for Lane Group, G	18.0			
Effective Green Time for Lane Group, g	18.0			
Opposing Effective Green Time, go	18.0			
Number of Lanes in Lane Group, N	2			
Number of Opposing Lanes, No	1			
Adjusted Left-Turn Flow Rate, Vlt	11			
Proportion of Left Turns in Lane Group, Plt	0.01			
Proportion of Left Turns in Opposing Flow, Plto	0.00			
Adjusted Opposing Flow Rate, Vo	213			
Lost Time for Lane Group, tl	6.00			
Left Turns per Cycle: LTC=VltC/3600	0.24			
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo	4.73			
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)	1.00			
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g	0.0			
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.77			
gq=(4.943Volc**0.762)(qro**1.061)-tl, gq<=g	6.33			
gu =g-gq if gq>=gf, =g-gf if gq<gf	11.67			
n=(gq-gf)/2, n>=0	3.17			
Ptho=1-Plto	1.00			
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24)))	0.03			
El1 (Figure 9-7)	1.72			
El2=(1-Ptho**n)/Plto, El2>=1.0	1.00			
fmin=2(1+Plt)/g or fmin=2(1+Pl)/g	0.11			
gdiff=max(gq-gf,0)	0.00			
fm=[gf/g]+[gu/g][1/{1+Pl(El1-1)}], (min=fmin;max=1.00)	0.64			
flt=fm=[gf/g]+gdiff[1/{1+Plt(El2-1)}] +[gu/g][1/(1+Plt(El1-1)],(min=fmin;max=1.0) or flt=[fm+0.91(N-1)]/N**				
flt Primary	0.773			

For special case of single-lane approach opposed by multilane approach, see text.

* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto left-turn lane and redo calculations.

** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.

For special case of multilane approach opposed by single-lane approach or when gf>gq, see text.

SUPPLEMENTAL UNIFORM DELAY WORKSHEET

	EBLT	WBLT	NBLT	SBLT
Adj. LT Vol from Vol Adjustment Worksheet, v				
v/c ratio from Capacity Worksheet, X				
Primary phase effective green, g				
Secondary phase effective green, gq				
(From Supplemental Permitted LT Worksheet), gu				
Cycle length, C 80.0 Red =(C-g-gq-gu), r				
Arrivals: v/(3600(max(X,1.0))), qa				
Primary ph. departures: s/3600, sp				
Secondary ph. departures: s(gq+gu)/(gu*3600), ss				
XPerm				
XProt				
XCase				
Queue at beginning of green arrow, Qa				
Queue at beginning of unsaturated green, Qu				
Residual queue, Qr				
Uniform Delay, d1				

DELAY/LOS WORKSHEET WITH INITIAL QUEUE

Appr/ Lane Group	Initial Unmet Demand Q veh	Dur. Unmet Demand t hrs.	Uniform Delay Unadj. ds	Uniform Delay Adj. d1 sec	Initial Queue Param. u	Final Unmet Demand Q veh	Initial Queue Delay d3 sec	Lane Group Delay d sec
Eastbound								
Westbound								
Northbound								
Southbound								

Intersection Delay 171.6 sec/veh Intersection LOS F

ERROR MESSAGES

No errors to report.

HCS: Signalized Intersections Release 3.1c

Inter: Foxhall Road & Reservoir Road City/St: Washington, DC
Analyst: CAB Proj #: 1701-001 BG2
Date: 03/23/2000 Period: PM Existing
E/W St: Reservoir Road N/S St: Foxhall Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	1	1	1	0	2	0	1	1	0
LGConfig		LTR		L	T	R		LTR		L	TR	
Volume	10	264	41	211	505	190	36	407	149	136	452	30
Lane Width		12.0		12.0	12.0	12.0		12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	A				NB	Left	A			
Thru	A					Thru	P			
Right	A					Right	A			
Peds						Peds				
WB Left	A				SB	Left		A		
Thru	A					Thru		A		
Right	A					Right		A		
Peds						Peds				
NB Right					EB	Right				
SB Right					WB	Right				
Green	18.0						20.0	24.0		
Yellow	5.0						5.0	5.0		
All Red	1.0						1.0	1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	414	1839	0.85	0.225	44.5	D	44.5	D
Westbound								
L	167	741	1.40	0.225	243.5	F		
T	427	1900	1.31	0.225	188.1	F	167.8	F
R	363	1615	0.58	0.225	30.0	C		
Northbound								
LTR	866	3463	0.76	0.250	34.0	C	34.0	C
Southbound								
L	542	1805	0.28	0.300	21.7	C		
TR	565	1882	0.95	0.300	52.7	D	45.9	D

Intersection Delay = 88.2 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.1c

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OPERATIONAL ANALYSIS

Intersection:	Foxhall Road & Reservoir Road
City/State:	Washington, DC
Analyst:	CAB
Project No:	1701-001 BG2
Time Period Analyzed:	PM Existing
Date:	03/23/2000
East/West Street Name:	Reservoir Road
North/South Street Name:	Foxhall Road

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	10	264	41	211	505	190	36	407	149	136	452	30
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PK 15 Vol	3	73	11	59	140	53	10	113	41	38	126	8
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat		1900		1900	1900	1900		1900		1900	1900	
ParkExist												
NumPark												
% Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0
No. Lanes	0	2	0	1	1	1	0	2	0	1	1	0
LGConfig		LTR		L	T	R		LTR		L	TR	
Lane Width		12.0		12.0	12.0	12.0		12.0		12.0	12.0	
RTOR Vol			0			0			0			0
Adj Flow		350		234	561	211		658		151	535	
%InSharedLn												
Prop Turns	0.03		0.13				0.06		0.25			0.06
NumPeds			0			0			0			0
NumBus		0		0	0	0		0		0	0	

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Arriv. Type		3		3	3	3		3		3	3	
Unit Ext.		3.0		3.0	3.0	3.0		3.0		3.0	3.0	
I Factor		1.000			1.000			1.000			1.000	
Lost Time		2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Ext of g		2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Ped Min g		3.0			3.0			3.0			3.0	

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	P		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left		A	
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	18.0					20.0	24.0	
Yellow	5.0					5.0	5.0	
All Red	1.0					1.0	1.0	

Cycle Length: 80.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	10	0.90	11	0					
Thru	264	0.90	293	2	LTR		350	0.03	0.13
Right	41	0.90	46	0		0			
Westbound									
Left	211	0.90	234	1	L		234		
Thru	505	0.90	561	1	T		561		
Right	190	0.90	211	1	R	0	211		
Northbound									
Left	36	0.90	40	0					
Thru	407	0.90	452	2	LTR		658	0.06	0.25
Right	149	0.90	166	0		0			
Southbound									
Left	136	0.90	151	1	L		151		
Thru	452	0.90	502	1	TR		535		0.06
Right	30	0.90	33	0		0			

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

Appr/ Lane Group	Ideal Sat Flow	f W	f HV	f G	f P	f BB	f A	f LU	f RT	f LT	Adj Sat Flow
Eastbound							Sec LT Adj/LT Sat:		----		
LTR	1900	1.000	1.000	1.000	1.000	1.000	1.00	0.95	0.980	0.520	1839

Westbound							Sec LT Adj/LT Sat:				
L	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	----	0.390	741
T	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	1.000	1.000	1900
R	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.850	----	1615
Northbound							Sec LT Adj/LT Sat:		----		
LTR	1900	1.000	1.000	1.000	1.000	1.000	1.00	0.95	0.962	0.997	3463

Southbound							Sec LT Adj/LT Sat:				
L	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	----	0.950	1805
TR	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.991	1.000	1882

CAPACITY ANALYSIS WORKSHEET

Appr/ Mvmt	Lane Group	Adj Flow Rate (v)	Adj Sat Flow Rate (s)		Flow Ratio (v/s)	Green Ratio (g/C)	--Lane Group-- Capacity (c)	v/c Ratio
Eastbound								
Pri.								
Sec.								
Left								
Thru	LTR	350	1839		0.19	0.225	414	0.85
Right								
Westbound								
Pri.								
Sec.								
Left	L	234	741	#	0.32	0.225	167	1.40
Thru	T	561	1900		0.30	0.225	427	1.31
Right	R	211	1615		0.13	0.225	363	0.58
Northbound								
Pri.								
Sec.								
Left								
Thru	LTR	658	3463	#	0.19	0.250	866	0.76
Right								
Southbound								
Pri.								
Sec.								
Left	L	151	1805		0.08	0.300	542	0.28
Thru	TR	535	1882	#	0.28	0.300	565	0.95
Right								

Sum (v/s) critical = 0.79

Lost Time/Cycle, L = 18.00 sec Critical v/c(X) = 1.02

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
LTR	0.85	0.225	29.7	1.000	414	0.38	14.9	0.0	44.5	D	44.5	D
Westbound												
L	1.40	0.225	31.0	1.000	167	0.50	212.5	0.0	243.5	F		
T	1.31	0.225	31.0	1.000	427	0.50	157.1	0.0	188.1	F	167.8	F
R	0.58	0.225	27.6	1.000	363	0.17	2.4	0.0	30.0	C		
Northbound												
LTR	0.76	0.250	27.8	1.000	866	0.50	6.2	0.0	34.0	C	34.0	C
Southbound												
L	0.28	0.300	21.4	1.000	542	0.11	0.3	0.0	21.7	C		
TR	0.95	0.300	27.4	1.000	565	0.46	25.3	0.0	52.7	D	45.9	D

Intersection Delay = 88.2 (sec/veh) Intersection LOS = F

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 80.0 sec				
Actual Green Time for Lane Group, G		18.0		
Effective Green Time for Lane Group, g		18.0		
Opposing Effective Green Time, go		18.0		
Number of Lanes in Lane Group, N		1		
Number of Opposing Lanes, No		2		
Adjusted Left-Turn Flow Rate, Vlt		234		
Proportion of Left Turns in Opposing Flow, Plto		0.03		
Adjusted Opposing Flow Rate, Vo		350		
Lost Time for Lane Group, tl		6.00		
Left Turns per Cycle: LTC=VltC/3600		5.20		
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo		4.09		
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)		1.00		
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g		0.0		
Opposing Queue Ratio: qro=1-Rpo(go/C)		0.77		
gq=(4.943Volc**0.762)(qro**1.061)-tl, gq<=g		5.04		
gu =g-gq if gq>=gf, =g-gf if gq<gf		12.96		
n=(gq-gf)/2, n>=0		2.52		
Ptho=1-Plto		0.97		
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24)}]		1.00		
El1 (Figure 9-7)		1.85		
El2=(1-Ptho**n)/Plto, El2>=1.0		2.46		
fmin=2(1+Plt)/g or fmin=2(1+Pl)/g		0.22		
gdiff=max(gq-gf,0)		5.04		
fm=[gf/g]+[gu/g][1/{1+Pl(El1-1)}], (min=fmin;max=1.00)		0.39		
flt=fm=[gf/g]+gdiff[1/{1+Plt(El2-1)}] +[gu/g][1/(1+Plt(El1-1)],(min=fmin;max=1.0) or flt=[fm+0.91(N-1)]/N**				
flt		0.390		

For special case of single-lane approach opposed by multilane approach, see text.

* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto left-turn lane and redo calculations.

** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm. For special case of multilane approach opposed by single-lane approach or when gf>gq, see text.

SUPPLEMENTAL PERMITTED LT WORKSHEET
for shared lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 80.0 sec				
Actual Green Time for Lane Group, G	18.0			
Effective Green Time for Lane Group, g	18.0			
Opposing Effective Green Time, go	18.0			
Number of Lanes in Lane Group, N	2			
Number of Opposing Lanes, No	1			
Adjusted Left-Turn Flow Rate, Vlt	11			
Proportion of Left Turns in Lane Group, Plt	0.03			
Proportion of Left Turns in Opposing Flow, Plto	0.00			
Adjusted Opposing Flow Rate, Vo	561			
Lost Time for Lane Group, tl	6.00			
Left Turns per Cycle: LTC=VltC/3600	0.24			
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo	12.47			
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)	1.00			
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g	0.0			
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.77			
gq=(4.943Volc**0.762)(qro**1.061)-tl, gq<=g	18.00			
gu =g-gq if gq>=gf, =g-gf if gq<gf	0.00			
n=(gq-gf)/2, n>=0	9.00			
Ptho=1-Plto	1.00			
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24))}	0.16			
El1 (Figure 9-7)	2.44			
El2=(1-Ptho**n)/Plto, El2>=1.0	1.00			
fmin=2(1+Plt)/g or fmin=2(1+Pl)/g	0.13			
gdiff=max(gq-gf,0)	0.00			
fm=[gf/g]+[gu/g][1/{1+Pl(El1-1)}], (min=fmin;max=1.00)	0.13			
flt=fm=[gf/g]+gdiff[1/{1+Plt(El2-1)}] +[gu/g][1/(1+Plt(El1-1)],(min=fmin;max=1.0) or flt=[fm+0.91(N-1)]/N**				
flt Primary	0.520			

For special case of single-lane approach opposed by multilane approach, see text.

* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto left-turn lane and redo calculations.

** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.

For special case of multilane approach opposed by single-lane approach or when gf>gq, see text.

SUPPLEMENTAL UNIFORM DELAY WORKSHEET

	EBLT	WBLT	NBLT	SBLT
Adj. LT Vol from Vol Adjustment Worksheet, v				
v/c ratio from Capacity Worksheet, X				
Primary phase effective green, g				
Secondary phase effective green, gq				
(From Supplemental Permitted LT Worksheet), gu				
Cycle length, C 80.0 Red =(C-g-gq-gu), r				
Arrivals: v/(3600(max(X,1.0))), qa				
Primary ph. departures: s/3600, sp				
Secondary ph. departures: s(gq+gu)/(gu*3600), ss				
XPerm				
XProt				
XCase				
Queue at beginning of green arrow, Qa				
Queue at beginning of unsaturated green, Qu				
Residual queue, Qr				
Uniform Delay, d1				

DELAY/LOS WORKSHEET WITH INITIAL QUEUE

Appr/ Lane Group	Initial Unmet Demand Q veh	Dur. Unmet Demand t hrs.	Uniform Delay Unadj. ds	Uniform Delay Adj. d1 sec	Initial Queue Param. u	Final Unmet Demand Q veh	Initial Queue Delay d3 sec	Lane Group Delay d sec
Eastbound								
Westbound								
Northbound								
Southbound								

Intersection Delay 88.2 sec/veh Intersection LOS F

ERROR MESSAGES

No errors to report.

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: CAB
Intersection: Reservoir Road & Entrance 4
Count Date: CAB
Time Period: AM Existing

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	2	3	4	5	7	9
Volume:	1424	179	52	353	3	6
HFR:	1424	179	52	353	3	6
PHF:	1.00	1.00	1.00	1.00	1.00	1.00
PHV:	0.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
N	Y	N	N	Y	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	Y	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	0	353
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	2	1

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	4	7	9
t c,base	4.1	7.5	6.9
t c,hv	2.0	2.0	2.0
P hv	0.00	0.00	0.00
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.8	6.9

Follow Up Time Calculations:

Movement	4	7	9
t f,base	2.2	3.5	3.3
t f,HV	1.0	1.0	1.0
P hv	0.00	0.00	0.00
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	802	
Potential Capacity	331	
Pedestrian Impedance Factor	1.00	
Movement Capacity	331	
Probability of Queue free St.	0.98	

Step 2: LT from Major St.	4	1
Conflicting Flows	1603	
Potential Capacity	414	
Pedestrian Impedance Factor	1.00	
Movement Capacity	414	
Probability of Queue free St.	0.87	
Maj. L Shared In. Prob. Queue Free St.	0.84	

Step 4: LT from Minor St.	7	10

Conflicting Flows	1971
Potential Capacity	56
Pedestrian Impedance Factor	1.00
Maj. L, Min T Impedance factor	0.84
Maj. L, Min T Adj. Imp Factor.	0.88
Cap. Adj. factor due to Impeding mvmnt	0.88
Movement Capacity	49

Worksheet 8 Shared-Lane Calculations

Shared Lane Calculations

Movement	7	8	9	10	11	12
v(vph)	3	6				
Movement Capacity	49		331			
Shared Lane Capacity	114					

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	52	9						
C m(vph)	414	114						
v/c	0.13	0.08						
95% queue length								
Control Delay	15.0	39.4						
LOS	B	E						
Approach Delay				39.4				
Approach LOS				E				

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	1.00	0.87
V i1	0	353
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	1.00	0.84
D maj left	0.0	15.0
N number major st lanes	2	1
Delay, rank 1 mvmts	-1.$	2.4

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: CAB
Intersection: Reservoir Road & Entrance 4
Count Date: CAB
Time Period: PM Existing

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	2	3	4	5	7	9
Volume:	532	17	13	791	115	36
HFR:	532	17	13	791	115	36
PHF:	1.00	1.00	1.00	1.00	1.00	1.00
PHV:	0.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
N	Y	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	Y	N	N	Y	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R		T	R	L	T	
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect-of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	0	395
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	2

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	4	7	9
t c,base	4.1	7.5	6.9
t c,hv	2.0	2.0	2.0
P hv	0.00	0.00	0.00
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.8	6.9

Follow Up Time Calculations:

Movement	4	7	9
t f,base	2.2	3.5	3.3
t f,HV	1.0	1.0	1.0
P hv	0.00	0.00	0.00
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	541	
Potential Capacity	491	
Pedestrian Impedance Factor	1.00	
Movement Capacity	491	
Probability of Queue free St.	0.93	

Step 2: LT from Major St.	4	1
Conflicting Flows	549	
Potential Capacity	1031	
Pedestrian Impedance Factor	1.00	
Movement Capacity	1031	
Probability of Queue free St.	0.99	
Maj. L Shared In. Prob. Queue Free St.	0.98	

Step 4: LT from Minor St.	7	10

Conflicting Flows	962
Potential Capacity	257
Pedestrian Impedance Factor	1.00
Maj. L, Min T Impedance factor	0.98
Maj. L, Min T Adj. Imp Factor.	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99
Movement Capacity	254

Worksheet 8 Shared Lane Calculations

Shared Lane Calculations

Movement	7	8	9	10	11	12
v(vph)	115	36				
Movement Capacity	254		491			
Shared Lane Capacity	287					

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	13	151						
C m(vph)	1031	287						
v/c	0.01	0.53						
95% queue length								
Control Delay	8.5	30.6						
LOS	A	D						
Approach Delay				30.6				
Approach LOS				D				

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	1.00	0.99
V i1	0	395
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	1.00	0.98
D maj left	0.0	8.5
N number major st lanes	1	2
Delay, rank 1 mvmts	0.0	0.1

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: CAB
Intersection: Reservoir Road & French Embassy
Count Date: CAB
Time Period: AM Existing

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	1	2	5	6	10	12
Volume:	90	1340	401	25	11	4
HFR:	90	1340	401	25	11	4
PHF:	1.00	1.00	1.00	1.00	1.00	1.00
PHV:	0.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
Y	N	N	N	Y	N	N	Y	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	Y	N	N	N	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	
Y	N	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	0	443
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	2	1

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	1	10	12
t c,base	4.1	7.5	6.9
t c,hv	2.0	2.0	2.0
P hv	0.00	0.00	0.00
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.8	6.9

Follow Up Time Calculations:

Movement	1	10	12
t f,base	2.2	3.5	3.3
t f,HV	1.0	1.0	1.0
P hv	0.00	0.00	0.00
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows		401
Potential Capacity		604
Pedestrian Impedance Factor		1.00
Movement Capacity		604
Probability of Queue free St.		0.99

Step 2: LT from Major St.	4	1
Conflicting Flows		426
Potential Capacity		1144
Pedestrian Impedance Factor		1.00
Movement Capacity		1144
Probability of Queue free St.		0.92

Step 4: LT from Minor St.	7	10
Conflicting Flows		1251

Potential Capacity	167
Pedestrian Impedance Factor	1.00
Maj. L, Min T Impedance factor	0.92
Maj. L, Min T Adj. Imp Factor.	0.94
Cap. Adj. factor due to Impeding mvmnt	0.94
Movement Capacity	157

Worksheet 8 Shared Lane Calculations

Shared Lane Calculations

Movement	7	8	9	10	11	12
v(vph)			11		4	
Movement Capacity				157		604
Shared Lane Capacity				196		

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	90				15			
C m(vph)	1144					196		
v/c	0.08				0.08			
95% queue length								
Control Delay	8.4					24.9		
LOS	A					C		
Approach Delay							24.9	
Approach LOS							C	

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: CAB
Intersection: Reservoir Road & French Embassy
Count Date: CAB
Time Period: PM Existing

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	1	2	5	6	10	12
Volume:	9	559	757	31	21	47
HFR:	9	559	757	31	21	47
PHF:	1.00	1.00	1.00	1.00	1.00	1.00
PHV:	0.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
N	Y	N	Y	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
N	Y	N	N	Y	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	
Y	N	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	0	443
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	2

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	1	10	12
t c,base	4.1	7.5	6.9
t c,hv	2.0	2.0	2.0
P hv	0.00	0.00	0.00
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.8	6.9

Follow Up Time Calculations:

Movement	1	10	12
t f,base	2.2	3.5	3.3
t f,HV	1.0	1.0	1.0
P hv	0.00	0.00	0.00
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows		394
Potential Capacity		611
Pedestrian Impedance Factor		1.00
Movement Capacity		611
Probability of Queue free St.		0.92

Step 2: LT from Major St.	4	1
Conflicting Flows		788
Potential Capacity		840
Pedestrian Impedance Factor		1.00
Movement Capacity		840
Probability of Queue free St.		0.99

Step 4: LT from Minor St.	7	10
Conflicting Flows		1350

Potential Capacity	144
Pedestrian Impedance Factor	1.00
Maj. L, Min T Impedance factor	0.99
Maj. L, Min T Adj. Imp Factor.	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99
Movement Capacity	143

Worksheet 8 Shared Lane Calculations

Shared Lane Calculations

Movement	7	8	9	10	11	12
	|	||-----		------|	
	|	||		|	
	|	||		|	
v(vph)			21		47	
Movement Capacity				143		611
Shared Lane Capacity				304		

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
	|			||-----		------|	
	|			||		|	
	|			||		|	
v(vph)	9				68			
C m(vph)	840				304			
v/c	0.01				0.22			
95% queue length								
Control Delay	9.3				20.2			
LOS	A				C			
Approach Delay						20.2		
Approach LOS						C		

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: CAB
Intersection: Reservoir Road & Entrance 3
Count Date: CAB
Time Period: AM Existing

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	2	3	4	5	7	9
Volume:	1314	37	30	422	4	10
HFR:	1314	37	30	422	4	10
PHF:	1.00	1.00	1.00	1.00	1.00	1.00
PHV:	0.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
N	Y	N	N	Y	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	Y	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	N	N	N	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R		T	R	L	T	
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	0	422
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	2	1

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	4	7	9
t c,base	4.1	7.5	6.9
t c,hv	2.0	2.0	2.0
P hv	0.00	0.00	0.00
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.8	6.9

Follow Up Time Calculations:

Movement	4	7	9
t f,base	2.2	3.5	3.3
t f,HV	1.0	1.0	1.0
P hv	0.00	0.00	0.00
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	676	
Potential Capacity	401	
Pedestrian Impedance Factor	1.00	
Movement Capacity	401	
Probability of Queue free St.	0.98	

Step 2: LT from Major St.	4	1
Conflicting Flows	1351	
Potential Capacity	516	
Pedestrian Impedance Factor	1.00	
Movement Capacity	516	
Probability of Queue free St.	0.94	
Maj. L Shared In. Prob. Queue Free St.	0.92	

Step 4: LT from Minor St.	7	10

Conflicting Flows	1815
Potential Capacity	71
Pedestrian Impedance Factor	1.00
Maj. L, Min T Impedance factor	0.92
Maj. L, Min T Adj. Imp Factor.	0.94
Cap. Adj. factor due to Impeding mvmnt	0.94
Movement Capacity	67

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
	|------			||		|	
	|		------	||		|	
	|			||		|	
v(vph)	30	4			10			
C m(vph)	516	67			401			
v/c	0.06	0.06			0.02			
95% queue length								
Control Delay	12.4	62.2			14.2			
LOS	B	F			B			
Approach Delay				27.9				
Approach LOS				D				

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	1.00	0.94
V i1	0	422
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	1.00	0.92
D maj left	0.0	12.4
N number major st lanes	2	1
Delay, rank 1 mvmts	-1.$	1.0

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: CAB
Intersection: Reservoir Road & Entrance 3
Count Date: CAB
Time Period: PM Existing

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	2	3	4	5	7	9
Volume:	565	15	15	754	34	23
HFR:	565	15	15	754	34	23
PHF:	1.00	1.00	1.00	1.00	1.00	1.00
PHV:	0.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
N	Y	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
Y	Y	N	N	Y	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

Lane 1			Lane 2			Lane 3		
L	T	R	L	T	R	L	T	R
Y	N	N	N	N	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	0	377
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	2

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	4	7	9
t c,base	4.1	7.5	6.9
t c,hv	2.0	2.0	2.0
P hv	0.00	0.00	0.00
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.8	6.9

Follow Up Time Calculations:

Movement	4	7	9
t f,base	2.2	3.5	3.3
t f,HV	1.0	1.0	1.0
P hv	0.00	0.00	0.00
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	573	
Potential Capacity	468	
Pedestrian Impedance Factor	1.00	
Movement Capacity	468	
Probability of Queue free St.	0.95	

Step 2: LT from Major St.	4	1
Conflicting Flows	580	
Potential Capacity	1004	
Pedestrian Impedance Factor	1.00	
Movement Capacity	1004	
Probability of Queue free St.	0.99	
Maj. L Shared In. Prob. Queue Free St.	0.98	

Step 4: LT from Minor St.	7	10

Conflicting Flows	980
Potential Capacity	25[redacted]
Pedestrian Impedance Factor	1.00
Maj. L, Min T Impedance factor	0.98
Maj. L, Min T Adj. Imp Factor.	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99
Movement Capacity	247

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
	|-----			||		|	
	|		-----	||		|	
	|			||		|	
v(vph)	15	34		23				
C m(vph)	1004	247		468				
v/c	0.01	0.14		0.05				
95% queue length								
Control Delay	8.6	21.9		13.1				
LOS	A	C		B				
Approach Delay				18.3				
Approach LOS				C				

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	1.00	0.99
V i1	0	377
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	1.00	0.98
D maj left	0.0	8.6
N number major st lanes	1	2
Delay, rank 1 mvmts	0.0	0.1

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: CAB
Intersection: Reservoir Road & Entrance 2
Count Date: CAB
Time Period: AM Existing

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	2	3	4	5	7	9
Volume:	1248	76	53	443	9	15
HFR:	1248	76	53	443	9	15
PHF:	1.00	1.00	1.00	1.00	1.00	1.00
PHV:	0.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
N	Y	N	N	Y	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	Y	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	N	N	N	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R		T	R	L	T	
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	0	443
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	2	1

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	4	7	9
t c,base	4.1	7.5	6.9
t c,hv	2.0	2.0	2.0
P hv	0.00	0.00	0.00
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.8	6.9

Follow Up Time Calculations:

Movement	4	7	9
t f,base	2.2	3.5	3.3
t f,HV	1.0	1.0	1.0
P hv	0.00	0.00	0.00
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	662	
Potential Capacity	409	
Pedestrian Impedance Factor	1.00	
Movement Capacity	409	
Probability of Queue free St.	0.96	

Step 2: LT from Major St.	4	1
Conflicting Flows	1324	
Potential Capacity	528	
Pedestrian Impedance Factor	1.00	
Movement Capacity	528	
Probability of Queue free St.	0.90	
Maj. L Shared In. Prob. Queue Free St.	0.86	

Step 4: LT from Minor St.	7	10

Conflicting Flows	183
Potential Capacity	65
Pedestrian Impedance Factor	1.00
Maj. L, Min T Impedance factor	0.86
Maj. L, Min T Adj. Imp Factor.	0.90
Cap. Adj. factor due to Impeding mvmnt	0.90
Movement Capacity	62

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	53	9		15				
C m(vph)	528	62		409				
v/c	0.10	0.15		0.04				
95% queue length								
Control Delay	12.6	73.0		14.1				
LOS	B	F		B				
Approach Delay				36.2				
Approach LOS				E				

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	1.00	0.90
V i1	0	443
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	1.00	0.86
D maj left	0.0	12.6
N number major st lanes	2	1
Delay, rank 1 mvmts	-1.$	1.7

HCS: Unsignalized Intersections Release 3.1c

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: CAB
Intersection: Reservoir Road & Entrance 2
Count Date: CAB
Time Period: PM Existing

Intersection Orientation: East-West Major St.

Vehicle Volume Data:

Movements:	2	3	4	5	7	9
Volume:	567	21	38	748	21	16
HFR:	567	21	38	748	21	16
PHF:	1.00	1.00	1.00	1.00	1.00	1.00
PHV:	0.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Volume Data:

Movements:

Flow:
Lane width:
Walk speed:
% Blockage:

Median Type: None
# of vehicles: 0

Flared approach Movements:

# of vehicles: Northbound 0
# of vehicles: Southbound 0

Lane usage for movements 1,2&3 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
N	Y	Y	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 4,5&6 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	Y	N	N	Y	N	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 7,8&9 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R	L	T	R	L	T	R
Y	N	N	N	N	Y	N	N	N

Channelized: N
Grade: 0.00

Lane usage for movements 10,11&12 approach:

	Lane 1			Lane 2			Lane 3	
L	T	R		T	R	L	T	
N	N	N	N	N	N	N	N	N

Channelized: N
Grade: 0.00

Data for Computing Effect of Delay to Major Street Vehicles:

	Eastbound	Westbound
Shared ln volume, major th vehicles:	0	374
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	2

Length of study period, hrs: 0.25

Worksheet 4 Critical Gap and Follow-up time calculation.

Critical Gap Calculations:

Movement	4	7	9
t c,base	4.1	7.5	6.9
t c,hv	2.0	2.0	2.0
P hv	0.00	0.00	0.00
t c,g		0.2	0.1
G	0.00	0.00	0.00
t 3,lt	0.0	0.7	0.0
t c,T:			
1 stage	0.00	0.00	0.00
t c			
1 stage	4.1	6.8	6.9

Follow Up Time Calculations:

Movement	4	7	9
t f,base	2.2	3.5	3.3
t f,HV	1.0	1.0	1.0
P hv	0.00	0.00	0.00
t f	2.2	3.5	3.3

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	578	
Potential Capacity	464	
Pedestrian Impedance Factor	1.00	
Movement Capacity	464	
Probability of Queue free St.	0.97	

Step 2: LT from Major St.	4	1
Conflicting Flows	588	
Potential Capacity	997	
Pedestrian Impedance Factor	1.00	
Movement Capacity	997	
Probability of Queue free St.	0.96	
Maj. L Shared In. Prob. Queue Free St.	0.95	

Step 4: LT from Minor St.	7	10

Conflicting Flows	1028
Potential Capacity	234
Pedestrian Impedance Factor	1.00
Maj. L, Min T Impedance factor	0.95
Maj. L, Min T Adj. Imp Factor.	0.96
Cap. Adj. factor due to Impeding mvmnt	0.96
Movement Capacity	225

Worksheet 10 delay,queue length, and LOS

Movement	1	4	7	8	9	10	11	12
v(vph)	38	21		16				
C m(vph)	997	225		464				
v/c	0.04	0.09		0.03				
95% queue length								
Control Delay	8.8	22.7		13.0				
LOS	A	C		B				
Approach Delay			18.5					
Approach LOS			C					

Worksheet 11 Shared Major LT Impedance and Delay

Rank 1 Delay Calculations

Movement	2	5
P oj	1.00	0.96
V i1	0	374
V i2	0	0
S i1	1700	1700
S i2	1700	1700
P* 0j	1.00	0.95
D maj left	0.0	8.8
N number major st lanes	1	2
Delay, rank 1 mvmts	0.0	0.2

HCS: Signalized Intersections Release 3.1c

Inter: Reservoir Road & 39th Street
Analyst: CAB
Date: 03/23/2000
E/W St: Reservoir Road

City/St: Washington, DC
Proj #: 1701-001 BG2
Period: AM Existing
N/S St: 39th Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	1	1	0	0	0	0	0	0
LGConfig		LT			T	R					LR	
Volume	152	1111			442	16				57		54
Lane Width		12.0			12.0	12.0					12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left				
Thru	A				Thru				
Right					Right				
Peds					Peds				
WB Left					SB Left	A			
Thru	A				Thru				
Right	A				Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	45.0					17.0			
Yellow	4.0					4.0			
All Red	1.0								

Cycle Length: 71.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1740	2745	0.81	0.634	12.6	B	12.6	B
Westbound								
T	1204	1900	0.41	0.634	6.6	A	6.6	A
R	1024	1615	0.02	0.634	4.8	A		
Northbound								
Southbound								
LR	370	1545	0.33	0.239	22.8	C	22.8	C

Intersection Delay = 11.7 (sec/veh) Intersection LOS = B

HCS: Signalized Intersections Release 3.1c

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OPERATIONAL ANALYSIS

Intersection:	Reservoir Road & 39th Street
City/State:	Washington, DC
Analyst:	CAB
Project No:	1701-001 BG2
Time Period Analyzed:	AM Existing
Date:	03/23/2000
East/West Street Name:	Reservoir Road
North/South Street Name:	39th Street

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	152	1111			442	16				57		54
PHF	0.90	0.90			0.90	0.90				0.90		0.90
PK 15 Vol	42	309			123	4				16		15
Hi Ln Vol												
% Grade		0			0						0	
Ideal Sat		1900			1900	1900					1900	
ParkExist												
NumPark												
% Heavy Veh	0	0			0	0				0		0
No. Lanes	0	2	0	0	1	1	0	0	0	0	0	0
LGConfig		LT			T	R					LR	
Lane Width		12.0			12.0	12.0					12.0	
RTOR Vol						0						0
Adj Flow		1403			491	18					123	
%InSharedLn												
Prop Turns	0.12									0.51		0.49
NumPeds						0			0			0
NumBus		0			0	0					0	

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0			0.0	0.0					0.0	
Arriv. Type		3			3	3					3	
Unit Ext.		3.0			3.0	3.0					3.0	
I Factor		1.000			1.000						1.000	
Lost Time		2.0			2.0	2.0					2.0	
Ext of g		2.0			2.0	2.0					2.0	
Ped Min g		3.0			3.0						3.0	

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left			
Thru	A				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	A		
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0					17.0		
Yellow	4.0					4.0		
All Red	1.0							

Cycle Length: 71.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	152	0.90	169	0					
Thru	1111	0.90	1234	2	LT		1403	0.12	
Right				0					
Westbound									
Left				0					
Thru	442	0.90	491	1	T		491		
Right	16	0.90	18	1	R	0	18		
Northbound									
Left				0					
Thru				0					
Right				0					
Southbound									
Left	57	0.90	63	0					
Thru				0	LR		123	0.51	0.49
Right	54	0.90	60	0		0			

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

Appr/ Lane Group	Ideal Sat Flow	f W	f HV	f G	f P	f BB	f A	f LU	f RT	f LT	Adj Sat Flow
Eastbound							Sec LT Adj/LT Sat:		----		
LT	1900	1.000	1.000	1.000	1.000	1.000	1.00	0.95	1.000	0.760	2745

Westbound							Sec LT Adj/LT Sat:		----		
T	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	1.000	1.000	1900
R	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.850	----	1615
Northbound							Sec LT Adj/LT Sat:		----		

Southbound							Sec LT Adj/LT Sat:		----		
LR	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.834	0.975	1545

CAPACITY ANALYSIS WORKSHEET

Appr/ Mvmt	Lane Group	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	--Lane Group-- Capacity (c)	v/c Ratio
Eastbound							
Pri.							
Sec.							
Left							
Thru	LT	1403	2745	0.51	0.634	1740	0.81
Right							
Westbound							
Pri.							
Sec.							
Left							
Thru	T	491	1900	0.26	0.634	1204	0.41
Right	R	18	1615	0.01	0.634	1024	0.02
Northbound							
Pri.							
Sec.							
Left							
Thru							
Right							
Southbound							
Pri.							
Sec.							
Left							
Thru	LR	123	1545	0.08	0.239	370	0.33
Right							

Sum (v/s) critical = 0.00

Lost Time/Cycle, L = 0.00 sec Critical v/c(X) = 0.00

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
LT	0.81	0.634	9.7	1.000	1740	0.35	2.9	0.0	12.6	B	12.6	B
Westbound												
T	0.41	0.634	6.4	1.000	1204	0.11	0.2	0.0	6.6	A	6.6	A
R	0.02	0.634	4.8	1.000	1024	0.11	0.0	0.0	4.8	A		
Northbound												
Southbound												
LR	0.33	0.239	22.3	1.000	370	0.11	0.5	0.0	22.8	C	22.8	C

Intersection Delay = 11.7 (sec/veh) Intersection LOS = B

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 71.0 sec				
Actual Green Time for Lane Group, G				
Effective Green Time for Lane Group, g				
Opposing Effective Green Time, go				
Number of Lanes in Lane Group, N				
Number of Opposing Lanes, No				
Adjusted Left-Turn Flow Rate, Vlt				
Proportion of Left Turns in Opposing Flow, Plto				
Adjusted Opposing Flow Rate, Vo				
Lost Time for Lane Group, tl				
Left Turns per Cycle: LTC=VltC/3600				
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
Opposing Queue Ratio: qro=1-Rpo(go/C)				
gq=(4.943Volc**0.762)(qro**1.061)-tl, gq<=g				
gu =g-gq if gq>=gf, =g-gf if gq<gf				
n=(gq-gf)/2, n>=0				
Ptho=1-Plto				
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24)}]				
El1 (Figure 9-7)				
El2=(1-Ptho**n)/Plto, El2>=1.0				
fmin=2(1+Plt)/g or fmin=2(1+Pl)/g				
gdiff=max(gq-gf,0)				
fm=[gf/g]+[gu/g][1/{1+Pl(El1-1)}], (min=fmin;max=1.00)				
flt=fm=[gf/g]+gdiff[1/{1+Plt(El2-1)}] +[gu/g][1/(1+Plt(El1-1)],(min=fmin;max=1.0) or flt=[fm+0.91(N-1)]/N** flt				

For special case of single-lane approach opposed by multilane approach, see text.

* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto left-turn lane and redo calculations.

** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.

For special case of multilane approach opposed by single-lane approach or when gf>gq, see text.

SUPPLEMENTAL PERMITTED LT WORKSHEET
for shared lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 71.0 sec				
Actual Green Time for Lane Group, G	45.0			
Effective Green Time for Lane Group, g	45.0			
Opposing Effective Green Time, go	45.0			
Number of Lanes in Lane Group, N	2			
Number of Opposing Lanes, No	1			
Adjusted Left-Turn Flow Rate, Vlt	169			
Proportion of Left Turns in Lane Group, Plt	0.12			
Proportion of Left Turns in Opposing Flow, Plto	0.00			
Adjusted Opposing Flow Rate, Vo	491			
Lost Time for Lane Group, tl	5.00			
Left Turns per Cycle: LTC=VltC/3600	3.33			
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo	9.68			
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)	1.00			
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g	0.0			
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.37			
gq=(4.943Volc**0.762)(qro**1.061)-tl, gq<=g	4.60			
gu =g-gq if gq>=gf, =g-gf if gq<gf	40.40			
n=(gq-gf)/2, n>=0	2.30			
Ptho=1-Plto	1.00			
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24))}	0.37			
El1 (Figure 9-7)	2.28			
El2=(1-Ptho**n)/Plto, El2>=1.0	1.00			
fmin=2(1+Plt)/g or fmin=2(1+Pl)/g	0.06			
gdiff=max(gq-gf,0)	0.00			
fm=[gf/g]+[gu/g][1/{1+Pl(El1-1)}], (min=fmin;max=1.00)	0.61			
flt=fm=[gf/g]+gdiff[1/{1+Plt(El2-1)}] +[gu/g][1/(1+Plt(El1-1)],(min=fmin;max=1.0) or flt=[fm+0.91(N-1)]/N**				
flt Primary	0.760			

For special case of single-lane approach opposed by multilane approach, see text.

* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto left-turn lane and redo calculations.

** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.

For special case of multilane approach opposed by single-lane approach or when gf>gq, see text.

SUPPLEMENTAL UNIFORM DELAY WORKSHEET

	EBLT	WBLT	NBLT	SBLT
Adj. LT Vol from Vol Adjustment Worksheet, v				
v/c ratio from Capacity Worksheet, X				
Primary phase effective green, g				
Secondary phase effective green, gq				
(From Supplemental Permitted LT Worksheet), gu				
Cycle length, C 71.0 Red =(C-g-gq-gu), r				
Arrivals: v/(3600(max(X,1.0))), qa				
Primary ph. departures: s/3600, sp				
Secondary ph. departures: s(gq+gu)/(gu*3600), ss				
XPerm				
XProt				
XCase				
Queue at beginning of green arrow, Qa				
Queue at beginning of unsaturated green, Qu				
Residual queue, Qr				
Uniform Delay, d1				

DELAY/LOS WORKSHEET WITH INITIAL QUEUE

Appr/ Lane Group	Initial Unmet Demand Q veh	Dur. Unmet Demand t hrs.	Uniform Delay Unadj. ds	Uniform Delay Adj. d1 sec	Initial Queue Param. u	Final Unmet Demand Q veh	Initial Queue Delay d3 sec	Lane Group Delay d sec
Eastbound								
Westbound								
Northbound								
Southbound								

Intersection Delay 11.7 sec/veh Intersection LOS B

ERROR MESSAGES

No errors to report.

HCS: Signalized Intersections Release 3.1c

Inter: Reservoir Road & 39th Street
Analyst: CAB
Date: 03/23/2000
E/W St: Reservoir Road

City/St: Washington, DC
Proj #: 1701-001 BG2
Period: PM Existing
N/S St: 39th Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	2	0	0	0	0	0	0	0
LGConfig		LT			TR						LR	
Volume	78	505			720	35				26		66
Lane Width		12.0			12.0						12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left			
Thru	A				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	A		
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0					17.0		
Yellow	4.0					4.0		
All Red	0.0					0.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	984	1531	0.66	0.643	9.4	A	9.4	A
Westbound								
TR	2305	3585	0.36	0.643	5.9	A	5.9	A
Northbound								
Southbound								
LR	366	1505	0.28	0.243	21.9	C	21.9	C

Intersection Delay = 8.4 (sec/veh) Intersection LOS = A

HCS: Signalized Intersections Release 3.1c

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OPERATIONAL ANALYSIS

Intersection:	Reservoir Road & 39th Street
City/State:	Washington, DC
Analyst:	CAB
Project No:	1701-001 BG2
Time Period Analyzed:	PM Existing
Date:	03/23/2000
East/West Street Name:	Reservoir Road
North/South Street Name:	39th Street

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	78	505			720	35				26		66
PHF	0.90	0.90			0.90	0.90				0.90		0.90
PK 15 Vol	22	140			200	10				7		18
Hi Ln Vol												
% Grade		0			0						0	
Ideal Sat		1900			1900						1900	
ParkExist												
NumPark												
% Heavy Veh	0	0			0	0				0		0
No. Lanes	0	1	0	0	2	0	0	0	0	0	0	0
LGConfig		LT			TR						LR	
Lane Width		12.0			12.0						12.0	
RTOR Vol						0						0
Adj Flow		648			839						102	
%InSharedLn												
Prop Turns	0.13					0.05				0.28		0.72
NumPeds						0			0			0
NumBus		0			0						0	

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0			0.0						0.0	
Arriv. Type		3			3						3	
Unit Ext.		3.0			3.0						3.0	
I Factor		1.000			1.000						1.000	
Lost Time		2.0			2.0						2.0	
Ext of g		2.0			2.0						2.0	
Ped Min g		3.0			3.0						3.0	

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left			
Thru	A				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	A		
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				17.0			
Yellow	4.0				4.0			
All Red	0.0				0.0			

Cycle Length: 70.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	78	0.90	87	0					
Thru	505	0.90	561	1	LT		648	0.13	
Right				0					
Westbound									
Left				0					
Thru	720	0.90	800	2	TR		839		0.05
Right	35	0.90	39	0		0			
Northbound									
Left				0					
Thru				0					
Right				0					
Southbound									
Left	26	0.90	29	0					
Thru				0	LR		102	0.28	0.72
Right	66	0.90	73	0		0			

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

Appr/ Lane Group	Ideal Sat Flow	f W	f HV	f G	f P	f BB	f A	f LU	f RT	f LT	Adj Sat Flow
Eastbound							Sec LT Adj/LT Sat:		----		
LT	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	1.000	0.806	1531

Westbound							Sec LT Adj/LT Sat:		----		
TR	1900	1.000	1.000	1.000	1.000	1.000	1.00	0.95	0.993	1.000	3585

Northbound							Sec LT Adj/LT Sat:		----		

Southbound							Sec LT Adj/LT Sat:		----		
LR	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.803	0.986	1505

CAPACITY ANALYSIS WORKSHEET

Appr/ Mvmt	Lane Group	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	--Lane Group-- Capacity (c)	v/c Ratio
Eastbound							
Pri.							
Sec.							
Left							
Thru	LT	648	1531	0.42	0.643	984	0.66
Right							
Westbound							
Pri.							
Sec.							
Left							
Thru	TR	839	3585	0.23	0.643	2305	0.36
Right							
Northbound							
Pri.							
Sec.							
Left							
Thru							
Right							
Southbound							
Pri.							
Sec.							
Left							
Thru	LR	102	1505	0.07	0.243	366	0.28
Right							

Sum (v/s) critical = 0.00

Lost Time/Cycle, L = 0.00 sec Critical v/c(X) = 0.00

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
LT	0.66	0.643	7.7	1.000	984	0.23	1.6	0.0	9.4	A	9.4	A
Westbound												
TR	0.36	0.643	5.8	1.000	2305	0.11	0.1	0.0	5.9	A	5.9	A
Northbound												
Southbound												
LR	0.28	0.243	21.5	1.000	366	0.11	0.4	0.0	21.9	C	21.9	C

Intersection Delay = 8.4 (sec/veh) Intersection LOS = A

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 70.0 sec				
Actual Green Time for Lane Group, G				
Effective Green Time for Lane Group, g				
Opposing Effective Green Time, go				
Number of Lanes in Lane Group, N				
Number of Opposing Lanes, No				
Adjusted Left-Turn Flow Rate, Vlt				
Proportion of Left Turns in Opposing Flow, Plto				
Adjusted Opposing Flow Rate, Vo				
Lost Time for Lane Group, tl				
Left Turns per Cycle: LTC=VltC/3600				
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
Opposing Queue Ratio: qro=1-Rpo(go/C)				
gq=(4.943Volc**0.762)(qro**1.061)-tl, gq<=g				
gu =g-gq if gq>=gf, =g-gf if gq<gf				
n=(gq-gf)/2, n>=0				
Ptho=1-Plto				
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24)}]				
El1 (Figure 9-7)				
El2=(1-Ptho**n)/Plto, El2>=1.0				
fmin=2(1+Plt)/g or fmin=2(1+Pl)/g				
gdiff=max(gq-gf,0)				
fm=[gf/g]+[gu/g][1/{1+Pl(El1-1)}], (min=fmin;max=1.00)				
flt=fm=[gf/g]+gdiff[1/{1+Plt(El2-1)}] +[gu/g][1/(1+Plt(El1-1)],(min=fmin;max=1.0) or flt=[fm+0.91(N-1)]/N** flt				

For special case of single-lane approach opposed by multilane approach, see text.

* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto left-turn lane and redo calculations.

** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.

For special case of multilane approach opposed by single-lane approach or when gf>gq, see text.

SUPPLEMENTAL PERMITTED LT WORKSHEET
for shared lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 70.0 sec				
Actual Green Time for Lane Group, G	45.0			
Effective Green Time for Lane Group, g	45.0			
Opposing Effective Green Time, go	45.0			
Number of Lanes in Lane Group, N	1			
Number of Opposing Lanes, No	2			
Adjusted Left-Turn Flow Rate, Vlt	87			
Proportion of Left Turns in Lane Group, Plt	0.13			
Proportion of Left Turns in Opposing Flow, Plto	0.00			
Adjusted Opposing Flow Rate, Vo	839			
Lost Time for Lane Group, tl	4.00			
Left Turns per Cycle: LTC=VltC/3600	1.69			
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo	8.59			
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)	1.00			
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g	8.4			
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.36			
gq=(4.943Volc**0.762)(qro**1.061)-tl, gq<=g	4.53			
gu =g-gq if gq>=gf, =g-gf if gq<gf	36.56			
n=(gq-gf)/2, n>=0	0.00			
Ptho=1-Plto	1.00			
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24))}	0.13			
El1 (Figure 9-7)	3.34			
El2=(1-Ptho**n)/Plto, El2>=1.0	1.00			
fmin=2(1+Plt)/g or fmin=2(1+Pl)/g	0.05			
gdiff=max(gq-gf,0)	0.00			
fm=[gf/g]+[gu/g][1/{1+Pl(El1-1)}], (min=fmin;max=1.00)	0.81			
flt=fm=[gf/g]+gdiff[1/{1+Plt(El2-1)}] +[gu/g][1/(1+Plt(El1-1)],(min=fmin;max=1.0) or flt=[fm+0.91(N-1)]/N**				
flt Primary	0.806			

For special case of single-lane approach opposed by multilane approach, see text.

* If Pl>=1 for shared left-turn lanes with N>1, then assume de-facto left-turn lane and redo calculations.

** For permitted left-turns with multiple exclusive left-turn lanes, flt=fm.

For special case of multilane approach opposed by single-lane approach or when gf>gq, see text.

SUPPLEMENTAL UNIFORM DELAY WORKSHEET

	EBLT	WBLT	NBLT	SBLT
Adj. LT Vol from Vol Adjustment Worksheet, v				
v/c ratio from Capacity Worksheet, X				
Primary phase effective green, g				
Secondary phase effective green, gq				
(From Supplemental Permitted LT Worksheet), gu				
Cycle length, C 70.0 Red =(C-g-gq-gu), r				
Arrivals: v/(3600(max(X,1.0))), qa				
Primary ph. departures: s/3600, sp				
Secondary ph. departures: s(gq+gu)/(gu*3600), ss				
XPerm				
XProt				
XCase				
Queue at beginning of green arrow, Qa				
Queue at beginning of unsaturated green, Qu				
Residual queue, Qr				
Uniform Delay, d1				

DELAY/LOS WORKSHEET WITH INITIAL QUEUE

Appr/ Lane Group	Initial Unmet Demand Q veh	Dur. Unmet Demand t hrs.	Uniform Delay		Initial Queue Param. u	Final Unmet Demand Q veh	Initial Queue Delay d3 sec	Lane Group Delay d sec
			Unadj. ds	Adj. d1 sec				
Eastbound								
Westbound								
Northbound								
Southbound								

Intersection Delay 8.4 sec/veh Intersection LOS A

ERROR MESSAGES

No errors to report.

HCS: Signalized Intersections Release 3.1c

Inter: Reservoir Road & 38th Street
Analyst: CAB
Date: 03/23/2000
E/W St: Reservoir Road

City/St: Washington, DC
Proj #: 1701-001 BG2
Period: AM Existing
N/S St: 38th Street / Entrance 1 GU

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	1	1	1	1	0	0	1	1
LGConfig		LTR			LT	R	L	TR			LT	R
Volume	36	937	195	115	365	8	85	23	103	49	51	8
Lane Width		12.0			12.0	12.0	12.0	12.0			12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	A				NB	Left	A			
Thru	A					Thru	A			
Right	A					Right	A			
Peds						Peds				
WB Left	A				SB	Left	A			
Thru	A					Thru	A			
Right	A					Right	A			
Peds						Peds				
NB Right					EB	Right				
SB Right					WB	Right				
Green	45.0						17.0			
Yellow	4.0						4.0			
All Red	0.0						0.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	1896	2950	0.68	0.643	9.0	A	9.0	A
Westbound								
LT	613	953	0.87	0.643	23.1	C	22.8	C
R	1038	1615	0.01	0.643	4.5	A		
Northbound								
L	268	1102	0.35	0.243	22.7	C		
TR	405	1668	0.35	0.243	22.4	C	22.5	C
Southbound								
LT	376	1549	0.30	0.243	22.1	C	21.9	C
R	392	1615	0.02	0.243	20.2	C		

Intersection Delay = 14.6 (sec/veh) Intersection LOS = B

HCS: Signalized Intersections Release 3.1c

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OPERATIONAL ANALYSIS

Intersection:	Reservoir Road & 38th Street
City/State:	Washington, DC
Analyst:	CAB
Project No:	1701-001 BG2
Time Period Analyzed:	AM Existing
Date:	03/23/2000
East/West Street Name:	Reservoir Road
North/South Street Name:	38th Street / Entrance 1 GU

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	36	937	195	115	365	8	85	23	103	49	51	8
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PK 15 Vol	10	260	54	32	101	2	24	6	29	14	14	2
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat		1900			1900	1900	1900	1900			1900	1900
ParkExist												
NumPark												
% Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0
No. Lanes	0	2	0	0	1	1	1	1	0	0	1	1
LGConfig		LTR			LT	R	L	TR			LT	R
Lane Width		12.0			12.0	12.0	12.0	12.0			12.0	12.0
RTOR Vol			0			0			0			0
Adj Flow		1298			534	9	94	140			111	9
%InSharedLn												
Prop Turns	0.03		0.17	0.24					0.81	0.49		
NumPeds			0			0			0			0
NumBus		0			0	0	0	0			0	0

Duration 0.25 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0			0.0	0.0	0.0	0.0			0.0	0.0
Arriv. Type		3			3	3	3	3			3	3
Unit Ext.		3.0			3.0	3.0	3.0	3.0			3.0	3.0
I Factor		1.000			1.000			1.000			1.000	
Lost Time		2.0			2.0	2.0	2.0	2.0			2.0	2.0
Ext of g		2.0			2.0	2.0	2.0	2.0			2.0	2.0
Ped Min g		3.0			3.0			3.0			3.0	

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0					17.0		
Yellow	4.0					4.0		
All Red	0.0					0.0		

Cycle Length: 70.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	36	0.90	40	0					
Thru	937	0.90	1041	2	LTR		1298	0.03	0.17
Right	195	0.90	217	0		0			
Westbound									
Left	115	0.90	128	0					
Thru	365	0.90	406	1	LT		534	0.24	
Right	8	0.90	9	1	R	0	9		
Northbound									
Left	85	0.90	94	1	L		94		
Thru	23	0.90	26	1	TR		140		0.81
Right	103	0.90	114	0		0			
Southbound									
Left	49	0.90	54	0					
Thru	51	0.90	57	1	LT		111	0.49	
Right	8	0.90	9	1	R	0	9		

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

Appr/ Lane Group	Ideal Sat Flow	f W	f HV	f G	f P	f BB	f A	f LU	f RT	f LT	Adj Sat Flow
Eastbound							Sec LT Adj/LT Sat:		----		
LTR	1900	1.000	1.000	1.000	1.000	1.000	1.00	0.95	0.975	0.838	2950

Westbound							Sec LT Adj/LT Sat:		----		
LT	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	1.000	0.501	953
R	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.850	----	1615
Northbound							Sec LT Adj/LT Sat:				
L	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	----	0.580	1102
TR	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.878	1.000	1668

Southbound							Sec LT Adj/LT Sat:		----		
LT	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	1.000	0.815	1549
R	1900	1.000	1.000	1.000	1.000	1.000	1.00	1.00	0.850	----	1615

CAPACITY ANALYSIS WORKSHEET

Appr/ Mvmt	Lane Group	Adj Flow Rate (v)	Adj Sat Flow Rate (s)		Flow Ratio (v/s)	Green Ratio (g/C)	--Lane Group-- Capacity (c)	v/c Ratio
Eastbound								
Pri.								
Sec.								
Left								
Thru	LTR	1298	2950		0.44	0.643	1896	0.68
Right								
Westbound								
Pri.								
Sec.								
Left								
Thru	LT	534	953	#	0.56	0.643	613	0.87
Right	R	9	1615		0.01	0.643	1038	0.01
Northbound								
Pri.								
Sec.								
Left	L	94	1102	#	0.09	0.243	268	0.35
Thru	TR	140	1668		0.08	0.243	405	0.35
Right								
Southbound								
Pri.								
Sec.								
Left								
Thru	LT	111	1549		0.07	0.243	376	0.30
Right	R	9	1615		0.01	0.243	392	0.02

Sum (v/s) critical = 0.65

Lost Time/Cycle, L = 8.00 sec Critical v/c(X) = 0.73