(405)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/6/2004*
Analysis Time Period	*Friday PM*

Site Information

Intersection	*Elliott Rd & Whole Foods #1*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 1 Analysis (Driveway F)*

East/West Street: *Elliott Rd* | North/South Street: *Whole Foods #1*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*212*	*373*	*84*	*17*	*424*	*96*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*223*	*392*	*88*	*17*	*446*	*101*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*1*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*1*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*71*	*7*	*54*	*60*	*3*	*206*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*74*	*7*	*56*	*63*	*3*	*216*
Proportion of heavy vehicles, P_{HV}	*1*	*1*	*1*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*LT*		*R*
Volume, v (vph)	*223*	*17*		*137*		*66*		*216*
Capacity, c_m (vph)	*1027*	*1096*		*84*		*81*		*576*
v/c ratio	*0.22*	*0.02*		*1.63*		*0.81*		*0.38*
Queue length (95%)	*0.83*	*0.05*		*11.21*		*4.13*		*1.73*

406

Control Delay (s/veh)	9.5	8.3		417.0		142.1		15.0
LOS	A	A		F		F		B
Approach delay (s/veh)	–	–	417.0			44.7		
Approach LOS	–	–	F			E		

(407)

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	Erin Harrington	Intersection	Franklin St & Elliott Rd
Agency or Co.	PBS&J	Area Type	All other areas
Date Performed	5/6/2004	Jurisdiction	Town of Chapel Hill
Time Period	Friday PM	Analysis Year	2006
		Project ID	Village Plaza Option 1 Analysis Optimized

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	1	1	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume, V (vph)	73	61	58	320	190	191	115	1031	405	203	830	134
% Heavy vehicles, %HV	1	1	1	1	1	1	1	1	1	1	1	1
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT	3	3		3	3		3	3		3	3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0		0	0		0	0		0	0		0
Lane width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0		0	0		0	0		0	0	
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 8.4	G = 19.8	G =	G =	G = 6.3	G = 51.5	G =	G =
	Y = 6	Y = 6.5	Y =	Y =	Y = 6	Y = 5.5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 110.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	77	125		337	401		121	1511		214	1015	
Lane group capacity, c	187	281		343	280		92	1434		157	1466	
v/c ratio, X	0.41	0.44		0.98	1.43		1.32	1.05		1.36	0.69	

408

Total green ratio, g/C	0.31	0.18		0.31	0.18		0.06	0.47		0.58	0.47	
Uniform delay, d_1	29.7	40.2		39.6	45.1		51.8	29.3		30.5	23.0	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k	0.11	0.11		0.49	0.50		0.50	0.50		0.50	0.26	
Incremental delay, d_2	1.5	1.1		43.7	213.8		199.8	39.3		198.8	1.4	
Initial queue delay, d_3												
Control delay	31.2	41.3		83.3	258.9		251.7	68.6		229.3	24.4	
Lane group LOS	C	D		F	F		F	E		F	C	
Approach delay	37.5			178.8			82.1			60.1		
Approach LOS	D			F			F			E		
Intersection delay	91.4			X_c = 1.61			Intersection LOS			F		

(409)

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	Erin Harrington	Intersection	US 15-501 & Elliott Rd
Agency or Co.	PBS&J	Area Type	All other areas
Date Performed	5/6/2004	Jurisdiction	Town of Chapel Hill
Time Period	Saturday Noon	Analysis Year	2006
		Project ID	Village Plaza Option 1 Analysis

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	0	1	0	0	0	1	2	0	1	2	1
Lane group	L		R				L	T		L	T	R
Volume, V (vph)	160		358				352	1492		21	1290	258
% Heavy vehicles, %HV	1		1				1	1		1	1	1
Peak-hour factor, PHF	0.95		0.95				0.95	0.95		0.95	0.95	0.95
Pretimed (P) or actuated (A)	A		A				A	A		A	A	A
Start-up lost time, l_1	2.0		2.0				2.0	2.0		2.0	2.0	2.0
Extension of effective green, e	2.0		2.0				2.0	2.0		2.0	2.0	2.0
Arrival type, AT	3		3				3	3		3	3	3
Unit extension, UE	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000				1.000	1.000		1.000	1.000	1.000
Initial unmet demand, Q_b	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Ped / Bike / RTOR volumes	0		34	0			0			0		24
Lane width	12.0		12.0				12.0	12.0		12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N		N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0		0				0	0		0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EB Only	02	03	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = 28.0	G =	G =	G =	G = 9.0	G = 24.0	G = 71.0	G =
	Y = 6	Y =	Y =	Y =	Y = 6	Y =	Y = 6	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	168		341				371	1571		22	1358	246
Lane group capacity, c	298		696				416	2025		96	1514	677
v/c ratio, X	0.56		0.49				0.89	0.78		0.23	0.90	0.36
Total green ratio, g/C	0.19		0.49				0.26	0.63		0.06	0.47	0.47

(410)

Uniform delay, d_1	55.4		26.0				53.5	19.8		67.2	36.2	25.1
Progression factor, PF	1.000		1.000				1.000	1.000		1.000	1.000	1.000
Delay calibration, k	0.16		0.11				0.42	0.33		0.11	0.42	0.11
Incremental delay, d_2	2.5		0.5				20.8	2.0		1.2	7.5	0.3
Initial queue delay, d_3												
Control delay	57.9		26.5				74.2	21.8		68.4	43.6	25.5
Lane group LOS	E		C				E	C		E	D	C
Approach delay	36.9						31.8			41.2		
Approach LOS	D						C			D		
Intersection delay	36.2			X_c = 0.83			Intersection LOS			D		

(411)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Erin Harrington	Intersection	Elliott Rd & Burger King
Agency/Co.	PBS&J	Jurisdiction	Town of Chapel Hill
Date Performed	5/6/2004	Analysis Year	2006
Analysis Time Period	Saturday Noon		

Project Description: Village Plaza Option 1 Analysis (Driveway A)

East/West Street: Elliott Rd | North/South Street: Burger King

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	25	377	19	51	466	93
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	26	396	20	53	490	97
Proportion of heavy vehicles, P_{HV}	1	–	–	1	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			1	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	19	2	57	84	5	30
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	20	2	60	88	5	31
Proportion of heavy vehicles, P_{HV}	1	1	1	1	1	1
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	26	53		82			124	
Capacity, c_m (vph)	998	1148		361			191	
v/c ratio	0.03	0.05		0.23			0.65	
Queue length (95%)	0.08	0.15		0.86			3.81	
Control Delay (s/veh)	8.7	8.3		17.9			53.3	

412

LOS	A	A	C	F
Approach delay (s/veh)	–	–	17.9	53.3
Approach LOS	–	–	C	F

(413)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/6/2004*
Analysis Time Period	*Saturday Noon*

Site Information

Intersection	*Elliott Rd & Plaza*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 1 Analysis (Driveway B)*

East/West Street: *Elliott Rd* | North/South Street: *Plaza*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*44*	*347*	*0*	*0*	*400*	*109*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*46*	*365*	*0*	*0*	*421*	*114*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*0*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*85*	*0*	*64*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*0*	*0*	*0*	*89*	*0*	*67*
Proportion of heavy vehicles, P_{HV}	*0*	*0*	*0*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
Volume, v (vph)	*46*					*89*		*67*
Capacity, c_m (vph)	*1038*					*283*		*589*
v/c ratio	*0.04*					*0.31*		*0.11*
Queue length (95%)	*0.14*					*1.31*		*0.38*
Control Delay (s/veh)	*8.6*					*23.5*		*11.9*

(414)

LOS	A					C		B
Approach delay (s/veh)	--	--				18.5		
Approach LOS	--	--				C		

(415)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	Erin Harrington
Agency/Co.	PBS&J
Date Performed	5/6/2004
Analysis Time Period	Saturday Noon

Site Information

Intersection	Elliott Rd & Theater
Jurisdiction	Town of Chapel Hill
Analysis Year	2006

Project Description: Village Plaza Option 1 Analysis (Driveway C)

East/West Street: Elliott Rd | North/South Street: Theater

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	128	363	0	0	420	43
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	134	382	0	0	442	45
Proportion of heavy vehicles, P_{HV}	1	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	26	0	71
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	27	0	74
Proportion of heavy vehicles, P_{HV}	0	0	0	1	0	1
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	134					27		74
Capacity, c_m (vph)	1081					202		600
v/c ratio	0.12					0.13		0.12
Queue length (95%)	0.42					0.45		0.42
Control Delay (s/veh)	8.8					25.6		11.8

(416)

LOS	A					D		B
Approach delay (s/veh)	–	–				15.5		
Approach LOS	–	–				C		

(417)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/6/2004*
Analysis Time Period	*Saturday Noon*

Site Information

Intersection	*Elliott Rd & Red Hot Blue 2*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 1 Analysis (Driveway D)*

East/West Street: *Elliott Rd* | North/South Street: *Red Hot Blue 2*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*29*	*406*	*3*	*15*	*450*	*27*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*30*	*427*	*3*	*15*	*473*	*28*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*1*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*5*	*0*	*10*	*74*	*0*	*49*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*5*	*0*	*10*	*77*	*0*	*51*
Proportion of heavy vehicles, P_{HV}	*1*	*1*	*1*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*30*	*15*		*15*			*128*	
Capacity, c_m (vph)	*1068*	*1135*		*353*			*281*	
v/c ratio	*0.03*	*0.01*		*0.04*			*0.46*	
Queue length (95%)	*0.09*	*0.04*		*0.13*			*2.25*	

(418)

Control Delay (s/veh)	8.5	8.2		15.7			28.1	
LOS	A	A		C			D	
Approach delay (s/veh)	--	--	15.7			28.1		
Approach LOS	--	--	C			D		

(419)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	Erin Harrington
Agency/Co.	PBS&J
Date Performed	5/6/2004
Analysis Time Period	Saturday Noon

Site Information

Intersection	Elliott Rd & Red Hot Blue 1
Jurisdiction	Town of Chapel Hill
Analysis Year	2006

Project Description: Village Plaza Option 1 Analysis (Driveway E)

East/West Street: Elliott Rd | North/South Street: Red Hot Blue 1

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	52	347	0	0	405	99
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	54	365	0	0	426	104
Proportion of heavy vehicles, P_{HV}	1	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	92	0	56
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	96	0	58
Proportion of heavy vehicles, P_{HV}	0	0	0	1	1	1
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LTR	
Volume, v (vph)	54						154	
Capacity, c_m (vph)	1042						343	
v/c ratio	0.05						0.45	
Queue length (95%)	0.16						2.23	

420

Control Delay (s/veh)	8.6						23.8	
LOS	A						C	
Approach delay (s/veh)	–	–				23.8		
Approach LOS	–	–				C		

(421)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/6/2004*
Analysis Time Period	*Saturday Noon*

Site Information

Intersection	*Elliott Rd & Whole Foods #1*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 1 Analysis (Driveway F)*

East/West Street: *Elliott Rd* | North/South Street: *Whole Foods #1*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*272*	*313*	*24*	*3*	*319*	*139*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*286*	*329*	*25*	*3*	*335*	*146*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*1*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*1*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*14*	*3*	*18*	*68*	*0*	*199*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*14*	*3*	*18*	*71*	*0*	*209*
Proportion of heavy vehicles, P_{HV}	*1*	*1*	*1*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*1*
Configuration		*LTR*		*LT*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*LT*		*R*
Volume, v (vph)	*286*	*3*		*35*		*71*		*209*
Capacity, c_m (vph)	*1087*	*1213*		*125*		*101*		*645*
v/c ratio	*0.26*	*0.00*		*0.28*		*0.70*		*0.32*
Queue length (95%)	*1.06*	*0.01*		*1.07*		*3.62*		*1.40*

422

Control Delay (s/veh)	9.5	8.0		44.6		99.3		13.2
LOS	A	A		E		F		B
Approach delay (s/veh)	--	--	44.6			35.1		
Approach LOS	--	--	E			E		

(423)

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	Erin Harrington	Intersection	Franklin St & Elliott Rd
Agency or Co.	PBS&J	Area Type	All other areas
Date Performed	5/6/2004	Jurisdiction	Town of Chapel Hill
Time Period	Saturday Noon	Analysis Year	2006
		Project ID	Village Plaza Option 1 Analysis Optimized

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	1	1	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume, V (vph)	106	92	27	247	106	178	38	812	369	148	763	61
% Heavy vehicles, %HV	1	1	1	1	1	1	1	1	1	1	1	1
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT	3	3		3	3		3	3		3	3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0		0	0		0	0		0	0		0
Lane width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0		0	0		0	0		0	0	
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 9.0	G = 21.5	G =	G =	G = 9.0	G = 47.5	G =	G =
	Y = 6	Y = 6.5	Y =	Y =	Y = 6	Y = 5.5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 111.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	112	125		260	299		40	1243		156	867	
Lane group capacity, c	225	315		369	295		130	1304		196	1354	
v/c ratio, X	0.50	0.40		0.70	1.01		0.31	0.95		0.80	0.64	

424

Total green ratio, g/C	0.33	0.19		0.33	0.19		0.08	0.43		0.56	0.43	
Uniform delay, d_1	28.5	39.1		33.9	44.8		48.1	30.7		24.4	25.0	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k	0.11	0.11		0.27	0.50		0.11	0.46		0.34	0.22	
Incremental delay, d_2	1.7	0.8		6.0	55.9		1.3	15.2		20.0	1.0	
Initial queue delay, d_3												
Control delay	30.2	39.9		39.9	100.6		49.4	45.8		44.4	26.1	
Lane group LOS	C	D		D	F		D	D		D	C	
Approach delay	35.3			72.4			45.9			28.8		
Approach LOS	D			E			D			C		
Intersection delay	44.3			X_c = 0.97			Intersection LOS			D		

(425)

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	Erin Harrington	Intersection	US 15-501 & Elliott Rd
Agency or Co.	PBS&J	Area Type	All other areas
Date Performed	5/6/2004	Jurisdiction	Town of Chapel Hill
Time Period	Saturday PM	Analysis Year	2006
		Project ID	Village Plaza Option 1 Analysis

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	0	1	0	0	0	1	2	0	1	2	1
Lane group	L		R				L	T		L	T	R
Volume, V (vph)	146		422				334	1120		21	1093	182
% Heavy vehicles, %HV	1		1				1	1		1	1	1
Peak-hour factor, PHF	0.95		0.95				0.95	0.95		0.95	0.95	0.95
Pretimed (P) or actuated (A)	A		A				A	A		A	A	A
Start-up lost time, l_1	2.0		2.0				2.0	2.0		2.0	2.0	2.0
Extension of effective green, e	2.0		2.0				2.0	2.0		2.0	2.0	2.0
Arrival type, AT	3		3				3	3		3	3	3
Unit extension, UE	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000				1.000	1.000		1.000	1.000	1.000
Initial unmet demand, Q_b	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Ped / Bike / RTOR volumes	0		31	0			0			0		13
Lane width	12.0		12.0				12.0	12.0		12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N		N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0		0				0	0		0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EB Only	02	03	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = 28.0	G =	G =	G =	G = 9.0	G = 24.0	G = 71.0	G =
	Y = 6	Y =	Y =	Y =	Y = 6	Y =	Y = 6	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	154		412				352	1179		22	1151	178
Lane group capacity, c	298		696				416	2025		96	1514	677
v/c ratio, X	0.52		0.59				0.85	0.58		0.23	0.76	0.26
Total green ratio, g/C	0.19		0.49				0.26	0.63		0.06	0.47	0.47

(426)

Uniform delay, d_1	54.9		27.8				52.7	16.0		67.2	32.5	23.8
Progression factor, PF	1.000		1.000				1.000	1.000		1.000	1.000	1.000
Delay calibration, k	0.12		0.18				0.38	0.17		0.11	0.31	0.11
Incremental delay, d_2	1.6		1.4				14.9	0.4		1.2	2.3	0.2
Initial queue delay, d_3												
Control delay	56.5		29.1				67.5	16.4		68.4	34.8	24.0
Lane group LOS	E		C				E	B		E	C	C
Approach delay	36.6						28.2			33.9		
Approach LOS	D						C			C		
Intersection delay	31.8			X_c = 0.74			Intersection LOS			C		

(427)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/6/2004*
Analysis Time Period	*Saturday PM*

Site Information

Intersection	*Elliott Rd & Burger King*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 1 Analysis (Driveway A)*

East/West Street: *Elliott Rd* | North/South Street: *Burger King*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*10*	*470*	*12*	*20*	*439*	*58*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*10*	*494*	*12*	*21*	*462*	*61*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*1*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*1*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*6*	*3*	*18*	*81*	*3*	*10*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*6*	*3*	*18*	*85*	*3*	*10*
Proportion of heavy vehicles, P_{HV}	*1*	*1*	*1*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*10*	*21*		*27*			*98*	
Capacity, c_m (vph)	*1053*	*1064*		*352*			*204*	
v/c ratio	*0.01*	*0.02*		*0.08*			*0.48*	
Queue length (95%)	*0.03*	*0.06*		*0.25*			*2.36*	
Control Delay (s/veh)	*8.5*	*8.5*		*16.1*			*38.0*	

(428)

LOS	A	A	C	E
Approach delay (s/veh)	–	–	16.1	38.0
Approach LOS	–	–	C	E

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Erin Harrington*	Intersection	*Elliott Rd & Plaza*
Agency/Co.	*PBS&J*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/7/2004*	Analysis Year	*2006*
Analysis Time Period	*Saturday PM*		

Project Description *Village Plaza Option 1 Analysis (Driveway B)*

East/West Street: *Elliott Rd* | North/South Street: *Plaza*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*58*	*355*	*0*	*0*	*326*	*127*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.95*	*0.95*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*64*	*394*	*0*	*0*	*362*	*141*
Percent Heavy Vehicles	*1*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*130*	*0*	*81*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.90*	*0.95*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*144*	*0*	*90*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*64*					*144*		*90*
C (m) (vph)	*1067*					*271*		*626*
v/c	*0.06*					*0.53*		*0.14*
95% queue length	*0.19*					*2.88*		*0.50*
Control Delay	*8.6*					*32.4*		*11.7*
LOS	*A*					*D*		*B*
Approach Delay	–	–				*24.4*		
Approach LOS	–	–				*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Erin Harrington*	Intersection	*Elliott Rd & Theater*
Agency/Co.	*PBS&J*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/6/2004*	Analysis Year	*2006*
Analysis Time Period	*Saturday PM*		

Project Description *Village Plaza Option 1 Analysis (Driveway C)*

East/West Street: *Elliott Rd*	North/South Street: *Theater*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*173*	*318*	*0*	*0*	*317*	*93*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.95*	*0.95*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*192*	*353*	*0*	*0*	*352*	*103*
Percent Heavy Vehicles	*1*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*91*	*0*	*125*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.90*	*0.95*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*101*	*0*	*138*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*192*					*101*		*138*
C (m) (vph)	*1111*					*184*		*649*
v/c	*0.17*					*0.55*		*0.21*
95% queue length	*0.62*					*2.86*		*0.80*
Control Delay	*8.9*					*46.1*		*12.0*
LOS	*A*					*E*		*B*
Approach Delay	–	–				*26.4*		
Approach LOS	–	–				*D*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Erin Harrington*	Intersection	*Elliott Rd & Red Hot Blue 2*
Agency/Co.	*PBS&J*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/6/2004*	Analysis Year	*2006*
Analysis Time Period	*Saturday PM*		

Project Description *Village Plaza Option 1 Analysis (Driveway D)*

East/West Street: *Elliott Rd* | North/South Street: *Red Hot Blue 2*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*68*	*433*	*1*	*5*	*384*	*52*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*75*	*481*	*1*	*5*	*426*	*57*
Percent Heavy Vehicles	*1*	–	–	*1*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*8*	*50*	*0*	*66*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*8*	*55*	*0*	*73*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*75*	*5*		*8*			*128*	
C (m) (vph)	*1085*	*1086*		*586*			*297*	
v/c	*0.07*	*0.00*		*0.01*			*0.43*	
95% queue length	*0.22*	*0.01*		*0.04*			*2.07*	
Control Delay	*8.6*	*8.3*		*11.2*			*26.0*	
LOS	*A*	*A*		*B*			*D*	
Approach Delay	–	–	*11.2*			*26.0*		
Approach LOS	–	–	*B*			*D*		

(432)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	Erin Harrington
Agency/Co.	PBS&J
Date Performed	5/6/2004
Analysis Time Period	Saturday PM

Site Information

Intersection	Elliott Rd & Red Hot Blue 1
Jurisdiction	Town of Chapel Hill
Analysis Year	2006

Project Description: Village Plaza Option 1 Analysis (Driveway E)

East/West Street: Elliott Rd | North/South Street: Red Hot Blue 1

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	39	427	0	0	399	51
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	41	449	0	0	420	53
Proportion of heavy vehicles, P_{HV}	1	–	–	0	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	75	0	34
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	78	0	35
Proportion of heavy vehicles, P_{HV}	0	0	0	1	1	1
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LTR	
Volume, v (vph)	41						113	
Capacity, c_m (vph)	1094						326	
v/c ratio	0.04						0.35	
Queue length (95%)	0.12						1.51	

(433)

Control Delay (s/veh)	8.4						21.8	
LOS	A						C	
Approach delay (s/veh)	--	--				21.8		
Approach LOS	--	--				C		

(434)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	Erin Harrington
Agency/Co.	PBS&J
Date Performed	5/6/2004
Analysis Time Period	Saturday PM

Site Information

Intersection	Elliott Rd & Whole Foods #1
Jurisdiction	Town of Chapel Hill
Analysis Year	2006

Project Description: Village Plaza Option 1 Analysis (Driveway F)

East/West Street: Elliott Rd | North/South Street: Whole Foods #1

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	128	380	12	8	347	78
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	134	400	12	8	365	82
Proportion of heavy vehicles, P_{HV}	1	–	–	1	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		1			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	16	2	7	79	2	159
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	16	2	7	83	2	167
Proportion of heavy vehicles, P_{HV}	1	1	1	1	1	1
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	1
Configuration		LTR		LT		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR		LT		R
Volume, v (vph)	134	8		25		85		167
Capacity, c_m (vph)	1119	1157		153		171		647
v/c ratio	0.12	0.01		0.16		0.50		0.26
Queue length (95%)	0.41	0.02		0.57		2.42		1.03

435

Control Delay (s/veh)	8.7	8.1		33.1		45.2		12.5
LOS	A	A		D		E		B
Approach delay (s/veh)	–	–	33.1			23.5		
Approach LOS	–	–	D			C		

(436)

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	Erin Harrington	Intersection	Franklin St & Elliott Rd
Agency or Co.	PBS&J	Area Type	All other areas
Date Performed	5/6/2004	Jurisdiction	Town of Chapel Hill
Time Period	Saturday PM	Analysis Year	2006
		Project ID	Village Plaza Option 1 Analysis Optimized

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	1	1	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume, V (vph)	41	95	27	243	128	151	21	707	282	142	647	44
% Heavy vehicles, %HV	1	1	1	1	1	1	1	1	1	1	1	1
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type, AT	3	3		3	3		3	3		3	3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR volumes	0		0	0		0	0		0	0		0
Lane width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0		0	0		0	0		0	0	
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 4.0	G = 20.5	G =	G =	G = 4.5	G = 37.0	G =	G =
	Y = 6	Y = 6.5	Y =	Y =	Y = 6	Y = 5.5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	43	128		256	294		22	1041		149	727	
Lane group capacity, c	228	371		353	352		80	1258		194	1302	
v/c ratio, X	0.19	0.35		0.73	0.84		0.28	0.83		0.77	0.56	

437

Total green ratio, g/C	0.34	0.23		0.34	0.23		0.05	0.41		0.53	0.41	
Uniform delay, d_1	21.3	29.1		28.6	33.1		41.2	23.7		15.3	20.3	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay calibration, k	0.11	0.11		0.29	0.37		0.11	0.37		0.32	0.16	
Incremental delay, d_2	0.4	0.6		7.3	15.9		1.9	4.7		16.9	0.5	
Initial queue delay, d_3												
Control delay	21.7	29.7		35.8	49.0		43.0	28.4		32.1	20.8	
Lane group LOS	C	C		D	D		D	C		C	C	
Approach delay	27.7			42.9			28.7			22.7		
Approach LOS	C			D			C			C		
Intersection delay	29.6			X_c = 0.78			Intersection LOS			C		

INTERSECTION ANALYSES

SCENARIO 2 CONDITIONS

(439)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/6/2004*
Analysis Time Period	*Friday PM*

Site Information

Intersection	*Elliott Rd & Red Hot Blue 2*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 2 Analysis (Driveway D)*

East/West Street: *Elliott Rd* | North/South Street: *Red Hot Blue 2*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*39*	*477*	*9*	*42*	*500*	*37*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*41*	*502*	*9*	*44*	*526*	*38*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*1*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*25*	*0*	*42*	*62*	*0*	*43*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*26*	*0*	*44*	*65*	*0*	*45*
Proportion of heavy vehicles, P_{HV}	*1*	*1*	*1*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*L*		*R*
Volume, v (vph)	*41*	*44*		*70*		*65*		*45*
Capacity, c_m (vph)	*1013*	*1059*		*254*		*132*		*540*
v/c ratio	*0.04*	*0.04*		*0.28*		*0.49*		*0.08*
Queue length (95%)	*0.13*	*0.13*		*1.09*		*2.29*		*0.27*

(440)

Control Delay (s/veh)	8.7	8.5		24.5		56.2		12.3
LOS	A	A		C		F		B
Approach delay (s/veh)	–	–	24.5			38.2		
Approach LOS	–	–	C			E		

(441)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	Erin Harrington
Agency/Co.	PBS&J
Date Performed	5/6/2004
Analysis Time Period	Saturday Noon

Site Information

Intersection	Elliott Rd & Red Hot Blue 2
Jurisdiction	Town of Chapel Hill
Analysis Year	2006

Project Description: Village Plaza Option 2 Analysis (Driveway D)

East/West Street: Elliott Rd | North/South Street: Red Hot Blue 2

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	29	406	3	15	450	27
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	30	427	3	15	473	28
Proportion of heavy vehicles, P_{HV}	1	–	–	1	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	5	0	10	74	0	49
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	5	0	10	77	0	51
Proportion of heavy vehicles, P_{HV}	1	1	1	1	1	1
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	1	0	1
Configuration		LTR		L		R

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR		L		R
Volume, v (vph)	30	15		15		77		51
Capacity, c_m (vph)	1068	1135		353		209		583
v/c ratio	0.03	0.01		0.04		0.37		0.09
Queue length (95%)	0.09	0.04		0.13		1.60		0.29

(442)

Control Delay (s/veh)	8.5	8.2		15.7		31.9		11.8
LOS	A	A		C		D		B
Approach delay (s/veh)	–	–	15.7			23.9		
Approach LOS	–	–	C			C		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Erin Harrington*	Intersection	*Elliott Rd & Red Hot Blue 2*
Agency/Co.	*PBS&J*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/6/2004*	Analysis Year	*2006*
Analysis Time Period	*Saturday PM*		

Project Description *Village Plaza Option 2 Analysis (Driveway D)*

East/West Street: *Elliott Rd* | North/South Street: *Red Hot Blue 2*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*68*	*433*	*1*	*5*	*384*	*52*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*75*	*481*	*1*	*5*	*426*	*57*
Percent Heavy Vehicles	*1*	–	–	*1*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*8*	*50*	*0*	*66*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.95*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*8*	*55*	*0*	*73*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*		*L*		*R*
v (vph)	*75*	*5*		*8*		*55*		*73*
C (m) (vph)	*1085*	*1086*		*586*		*177*		*608*
v/c	*0.07*	*0.00*		*0.01*		*0.31*		*0.12*
95% queue length	*0.22*	*0.01*		*0.04*		*1.25*		*0.41*
Control Delay	*8.6*	*8.3*		*11.2*		*34.3*		*11.7*
LOS	*A*	*A*		*B*		*D*		*B*
Approach Delay	–	–	*11.2*			*21.4*		
Approach LOS	–	–	*B*			*C*		

(444)

INTERSECTION ANALYSES

SCENARIO 3 CONDITIONS

(445)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Erin Harrington*	Intersection	*Elliott Rd & Burger King*
Agency/Co.	*PBS&J*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/7/2004*	Analysis Year	*2006*
Analysis Time Period	*Friday PM*		

Project Description *Village Plaza Option 3 Analysis (Driveway A)*

East/West Street: *Elliott Rd* | North/South Street: *Burger King*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*40*	*441*	*113*	*29*	*526*	*23*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*42*	*464*	*118*	*30*	*553*	*24*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*1*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*1*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*69*	*1*	*42*	*25*	*1*	*22*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*72*	*1*	*44*	*26*	*1*	*23*
Proportion of heavy vehicles, P_{HV}	*1*	*1*	*1*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*42*	*30*		*117*			*50*	
Capacity, c_m (vph)	*1006*	*997*		*192*			*200*	
v/c ratio	*0.04*	*0.03*		*0.61*			*0.25*	
Queue length (95%)	*0.13*	*0.09*		*3.43*			*0.95*	
Control Delay (s/veh)	*8.7*	*8.7*		*49.3*			*28.9*	

(446)

LOS	A	A	E	D
Approach delay (s/veh)	–	–	49.3	28.9
Approach LOS	–	–	E	D

447

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Erin Harrington*	Intersection	*Elliott Rd & Plaza*
Agency/Co.	*PBS&J*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/7/2004*	Analysis Year	*2006*
Analysis Time Period	*Friday PM*		

Project Description *Village Plaza Option 3 Analysis (Driveway B)*

East/West Street: *Elliott Rd* | North/South Street: *Plaza*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*46*	*497*	*0*	*0*	*520*	*88*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*48*	*523*	*0*	*0*	*547*	*92*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*0*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*82*	*0*	*47*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*0*	*0*	*0*	*86*	*0*	*49*
Proportion of heavy vehicles, P_{HV}	*0*	*0*	*0*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
Volume, v (vph)	*48*					*86*		*49*
Capacity, c_m (vph)	*950*					*192*		*507*
v/c ratio	*0.05*					*0.45*		*0.10*
Queue length (95%)	*0.16*					*2.10*		*0.32*
Control Delay (s/veh)	*9.0*					*38.1*		*12.9*

(448)

LOS	A				E		B
Approach delay (s/veh)	--	--			29.0		
Approach LOS	--	--			D		

(449)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Erin Harrington*	Intersection	*Elliott Rd & Theater*
Agency/Co.	*PBS&J*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/7/2004*	Analysis Year	*2006*
Analysis Time Period	*Friday PM*		

Project Description *Village Plaza Option 3 Analysis (Driveway C)*

East/West Street: *Elliott Rd* | North/South Street: *Theater*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*112*	*488*	*0*	*0*	*511*	*52*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*117*	*513*	*0*	*0*	*537*	*54*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*0*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*34*	*0*	*75*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*0*	*0*	*0*	*35*	*0*	*78*
Proportion of heavy vehicles, P_{HV}	*0*	*0*	*0*	*1*	*0*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
Volume, v (vph)	*117*					*35*		*78*
Capacity, c_m (vph)	*990*					*155*		*527*
v/c ratio	*0.12*					*0.23*		*0.15*
Queue length (95%)	*0.40*					*0.83*		*0.52*
Control Delay (s/veh)	*9.1*					*34.9*		*13.0*

450

LOS	A					D		B
Approach delay (s/veh)	–	–				19.8		
Approach LOS	–	–				C		

(451)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/7/2004*
Analysis Time Period	*Friday PM*

Site Information

Intersection	*Elliott Rd & Red Hot Blue 2*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 3 Analysis (Driveway D)*

East/West Street: *Elliott Rd* | North/South Street: *Red Hot Blue 2*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*19*	*501*	*9*	*42*	*515*	*30*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*20*	*527*	*9*	*44*	*542*	*31*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*1*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*25*	*0*	*42*	*57*	*0*	*29*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*26*	*0*	*44*	*60*	*0*	*30*
Proportion of heavy vehicles, P_{HV}	*1*	*1*	*1*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*20*	*44*		*70*			*90*	
Capacity, c_m (vph)	*1005*	*1037*		*262*			*178*	
v/c ratio	*0.02*	*0.04*		*0.27*			*0.51*	
Queue length (95%)	*0.06*	*0.13*		*1.05*			*2.50*	

452

Control Delay (s/veh)	8.7	8.6		23.7			44.3	
LOS	A	A		C			E	
Approach delay (s/veh)	--	--	23.7			44.3		
Approach LOS	--	--	C			E		

(453)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	Erin Harrington
Agency/Co.	PBS&J
Date Performed	5/7/2004
Analysis Time Period	Friday PM

Site Information

Intersection	Elliott Rd & Red Hot Blue 1
Jurisdiction	Town of Chapel Hill
Analysis Year	2006

Project Description: Village Plaza Option 3 Analysis (Driveway E)

East/West Street: Elliott Rd | North/South Street: Red Hot Blue 1

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	45	443	0	0	507	61
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	47	466	0	0	533	64
Proportion of heavy vehicles, P_{HV}	1	–	–	0	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	86	0	29
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	90	0	30
Proportion of heavy vehicles, P_{HV}	0	0	0	1	1	1
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LTR	
Volume, v (vph)	47						120	
Capacity, c_m (vph)	985						254	
v/c ratio	0.05						0.47	
Queue length (95%)	0.15						2.36	

454

Control Delay (s/veh)	8.8						31.3	
LOS	A						D	
Approach delay (s/veh)	–	–				31.3		
Approach LOS	–	–				D		

(455)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Erin Harrington	Intersection	Elliott Rd & Burger King
Agency/Co.	PBS&J	Jurisdiction	Town of Chapel Hill
Date Performed	5/7/2004	Analysis Year	2006
Analysis Time Period	Saturday Noon		

Project Description: Village Plaza Option 3 Analysis (Driveway A)

East/West Street: Elliott Rd | North/South Street: Burger King

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	25	376	19	51	463	96
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	26	395	20	53	487	101
Proportion of heavy vehicles, P_{HV}	1	–	–	1	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			1	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	19	2	57	85	5	30
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	20	2	60	89	5	31
Proportion of heavy vehicles, P_{HV}	1	1	1	1	1	1
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	26	53		82			125	
Capacity, c_m (vph)	997	1149		363			190	
v/c ratio	0.03	0.05		0.23			0.66	
Queue length (95%)	0.08	0.14		0.85			3.90	
Control Delay (s/veh)	8.7	8.3		17.8			54.4	

456

LOS	A	A	C	F
Approach delay (s/veh)	–	–	17.8	54.4
Approach LOS	–	–	C	F

(457)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/7/2004*
Analysis Time Period	*Saturday Noon*

Site Information

Intersection	*Elliott Rd & Plaza*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 3 Analysis (Driveway B)*

East/West Street: *Elliott Rd* | North/South Street: *Plaza*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*57*	*346*	*0*	*0*	*397*	*109*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*60*	*364*	*0*	*0*	*417*	*114*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*0*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*85*	*0*	*69*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*0*	*0*	*0*	*89*	*0*	*72*
Proportion of heavy vehicles, P_{HV}	*0*	*0*	*0*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
Volume, v (vph)	*60*					*89*		*72*
Capacity, c_m (vph)	*1042*					*270*		*592*
v/c ratio	*0.06*					*0.33*		*0.12*
Queue length (95%)	*0.18*					*1.39*		*0.41*
Control Delay (s/veh)	*8.7*					*24.8*		*11.9*

458

LOS	A			C	B
Approach delay (s/veh)	--	--		19.0	
Approach LOS	--	--		C	

(459)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Erin Harrington*	Intersection	*Elliott Rd & Theater*
Agency/Co.	*PBS&J*	Jurisdiction	*Town of Chapel Hill*
Date Performed	*5/7/2004*	Analysis Year	*2006*
Analysis Time Period	*Saturday Noon*		

Project Description *Village Plaza Option 3 Analysis (Driveway C)*

East/West Street: *Elliott Rd* | North/South Street: *Theater*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*142*	*372*	*0*	*0*	*415*	*50*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*149*	*391*	*0*	*0*	*436*	*52*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*0*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*29*	*0*	*77*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*0*	*0*	*0*	*30*	*0*	*81*
Proportion of heavy vehicles, P_{HV}	*0*	*0*	*0*	*1*	*0*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
Volume, v (vph)	*149*					*30*		*81*
Capacity, c_m (vph)	*1080*					*190*		*602*
v/c ratio	*0.14*					*0.16*		*0.13*
Queue length (95%)	*0.48*					*0.55*		*0.46*
Control Delay (s/veh)	*8.9*					*27.5*		*11.9*

460

LOS	A					D		B
Approach delay (s/veh)	–	–				16.1		
Approach LOS	–	–				C		

(461)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Erin Harrington*
Agency/Co.	*PBS&J*
Date Performed	*5/7/2004*
Analysis Time Period	*Saturday Noon*

Site Information

Intersection	*Elliott Rd & Red Hot Blue 2*
Jurisdiction	*Town of Chapel Hill*
Analysis Year	*2006*

Project Description *Village Plaza Option 3 Analysis (Driveway D)*

East/West Street: *Elliott Rd* | North/South Street: *Red Hot Blue 2*

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*7*	*432*	*3*	*15*	*458*	*20*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*7*	*454*	*3*	*15*	*482*	*21*
Proportion of heavy vehicles, P_{HV}	*1*	–	–	*1*	–	–
Median type	*Undivided*					
RT Channelized?			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*5*	*0*	*10*	*71*	*0*	*41*
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate (veh/h)	*5*	*0*	*10*	*74*	*0*	*43*
Proportion of heavy vehicles, P_{HV}	*1*	*1*	*1*	*1*	*1*	*1*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*7*	*15*		*15*			*117*	
Capacity, c_m (vph)	*1067*	*1109*		*360*			*282*	
v/c ratio	*0.01*	*0.01*		*0.04*			*0.41*	
Queue length (95%)	*0.02*	*0.04*		*0.13*			*1.94*	

462

Control Delay (s/veh)	8.4	8.3		15.4			26.5	
LOS	A	A		C			D	
Approach delay (s/veh)	–	–	15.4			26.5		
Approach LOS	–	–	C			D		

463

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	Erin Harrington
Agency/Co.	PBS&J
Date Performed	5/7/2004
Analysis Time Period	Saturday Noon

Site Information

Intersection	Elliott Rd & Red Hot Blue 1
Jurisdiction	Town of Chapel Hill
Analysis Year	2006

Project Description: Village Plaza Option 3 Analysis (Driveway E)

East/West Street: Elliott Rd | North/South Street: Red Hot Blue 1

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

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	46	352	0	0	408	96
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	48	370	0	0	429	101
Proportion of heavy vehicles, P_{HV}	1	–	–	0	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	90	0	54
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	94	0	56
Proportion of heavy vehicles, P_{HV}	0	0	0	1	1	1
Percent grade (%)		0			0	
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LTR	
Volume, v (vph)	48						150	
Capacity, c_m (vph)	1042						346	
v/c ratio	0.05						0.43	
Queue length (95%)	0.14						2.11	

464

Control Delay (s/veh)	8.6						23.1	
LOS	A						C	
Approach delay (s/veh)	–	–				23.1		
Approach LOS	–	–				C		