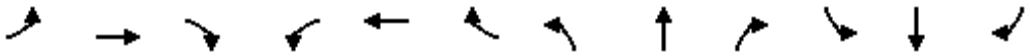
Appendix G

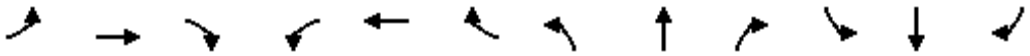
Synchro Worksheets—Existing Conditions and 2030 No Build Alternative



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	585	20	60	330	200	10	95	40	220	90	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	3326	1478	1676	3326	1500	1660	3172		1693	3164	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.65	1.00		0.65	1.00	
Satd. Flow (perm)	1676	3326	1478	1676	3326	1500	1127	3172		1158	3164	
Peak-hour factor, PHF	0.82	0.82	0.82	0.93	0.93	0.93	0.84	0.84	0.84	0.95	0.95	0.95
Adj. Flow (vph)	238	713	24	65	355	215	12	113	48	232	95	74
RTOR Reduction (vph)	0	0	11	0	0	144	0	35	0	0	53	0
Lane Group Flow (vph)	238	713	13	65	355	71	12	126	0	232	116	0
Confl. Peds. (#/hr)			3									
Confl. Bikes (#/hr)	1	1										
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Bus Blockages (#/hr)	0	4	0	0	4	0	0	0	0	0	0	0
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2			6	6	
Actuated Green, G (s)	14.7	30.8	30.8	4.9	21.1	21.1	18.2	18.2		18.2	18.2	
Effective Green, g (s)	14.7	32.6	32.6	3.9	22.1	22.1	18.8	18.8		18.8	18.8	
Actuated g/C Ratio	0.22	0.48	0.48	0.06	0.33	0.33	0.28	0.28		0.28	0.28	
Clearance Time (s)	3.7	5.8	5.8	3.0	5.0	5.0	4.6	4.6		4.6	4.6	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	366	1611	716	97	1092	493	315	886		323	884	
v/s Ratio Prot	c0.14	c0.21		0.04	0.11			0.04			0.04	
v/s Ratio Perm			0.01			0.05	0.01			c0.20		
v/c Ratio	0.65	0.44	0.02	0.67	0.33	0.14	0.04	0.14		0.72	0.13	
Uniform Delay, d1	24.0	11.4	9.0	31.1	17.0	15.9	17.7	18.2		21.9	18.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	0.3	0.0	15.2	0.2	0.2	0.0	0.1		7.0	0.0	
Delay (s)	27.6	11.7	9.0	46.3	17.2	16.1	17.7	18.3		28.8	18.2	
Level of Service	C	B	A	D	B	B	B	B		C	B	
Approach Delay (s)		15.5			19.8			18.2			24.3	
Approach LOS		B			B			B			C	

Intersection Summary					
HCM Average Control Delay	18.6	HCM Level of Service		B	
HCM Volume to Capacity ratio	0.57				
Actuated Cycle Length (s)	67.3	Sum of lost time (s)		7.7	
Intersection Capacity Utilization	59.3%	ICU Level of Service		B	
Analysis Period (min)	15				
Description: South TSA					

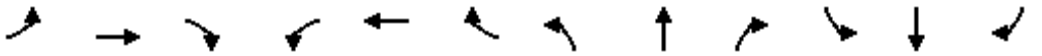
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	585	340	30	590	15	120	0	80	5	0	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.73	0.73	0.73	0.46	0.46	0.46
Hourly flow rate (vph)	11	616	358	31	615	16	164	0	110	11	0	43
Pedestrians		4									10	
Lane Width (ft)		12.0									12.0	
Walking Speed (ft/s)		4.0									4.0	
Percent Blockage		0									1	
Right turn flare (veh)									2			
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	640			616			1054	1340	308	1079	1332	329
vC1, stage 1 conf vol							637	637		695	695	
vC2, stage 2 conf vol							417	703		384	637	
vCu, unblocked vol	640			616			1054	1340	308	1079	1332	329
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	99			97			54	100	84	97	100	93
cM capacity (veh/h)	932			967			354	329	688	313	320	650

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	216	411	358	31	410	220	274	54
Volume Left	11	0	0	31	0	0	164	11
Volume Right	0	0	358	0	0	16	110	43
cSH	932	1700	1700	967	1700	1700	589	535
Volume to Capacity	0.01	0.24	0.21	0.03	0.24	0.13	0.46	0.10
Queue Length 95th (ft)	1	0	0	3	0	0	61	8
Control Delay (s)	0.5	0.0	0.0	8.8	0.0	0.0	18.7	12.5
Lane LOS	A			A			C	B
Approach Delay (s)	0.1			0.4			18.7	12.5
Approach LOS							C	B

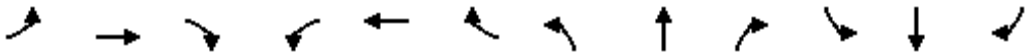
Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	54.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	695	110	80	540	205	160	155	55	260	250	365
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	3.7	4.0		4.0	4.0	4.0	4.0	4.0	4.6	4.0	4.0	4.6
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3252	3252		1676	3326	1500	1660	3320	1485	1693	3386	1515
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.58	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	3252	3252		1676	3326	1500	1016	3320	1485	1132	3386	1515
Peak-hour factor, PHF	0.82	0.82	0.82	0.93	0.93	0.93	0.84	0.84	0.84	0.95	0.95	0.95
Adj. Flow (vph)	335	848	134	86	581	220	190	185	65	274	263	384
RTOR Reduction (vph)	0	11	0	0	0	131	0	0	44	0	0	260
Lane Group Flow (vph)	335	971	0	86	581	89	190	185	21	274	263	124
Confl. Peds. (#/hr)			3									
Confl. Bikes (#/hr)	1	1										
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Bus Blockages (#/hr)	0	4	0	0	4	0	0	0	0	0	0	0
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases						4	2		2	6	6	6
Actuated Green, G (s)	12.8	32.5		6.8	26.6	26.6	25.0	25.0	25.0	25.0	25.0	25.0
Effective Green, g (s)	12.8	34.3		5.8	27.6	27.6	25.6	25.6	25.0	25.6	25.6	25.0
Actuated g/C Ratio	0.16	0.44		0.07	0.36	0.36	0.33	0.33	0.32	0.33	0.33	0.32
Clearance Time (s)	3.7	5.8		3.0	5.0	5.0	4.6	4.6	4.6	4.6	4.6	4.6
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	536	1436		125	1181	533	335	1094	478	373	1116	487
v/s Ratio Prot	c0.10	c0.30		0.05	0.17			0.06			0.08	
v/s Ratio Perm						0.06	0.19		0.01	c0.24		0.08
v/c Ratio	0.62	0.68		0.69	0.49	0.17	0.57	0.17	0.04	0.73	0.24	0.25
Uniform Delay, d1	30.2	17.3		35.1	19.6	17.2	21.5	18.5	18.1	23.0	18.9	19.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	1.4		13.4	0.4	0.2	1.8	0.1	0.0	6.9	0.1	0.2
Delay (s)	32.2	18.7		48.5	20.0	17.4	23.3	18.6	18.2	30.0	19.0	19.7
Level of Service	C	B		D	C	B	C	B	B	C	B	B
Approach Delay (s)		22.1			22.1			20.5			22.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	77.7	Sum of lost time (s)	7.7
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
Description: South TSA			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	800	365	45	1260	15	165	0	110	5	0	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.73	0.73	0.73	0.46	0.46	0.46
Hourly flow rate (vph)	11	842	384	47	1312	16	226	0	151	11	0	43
Pedestrians		4						1			10	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			1	
Right turn flare (veh)									2			
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1338			843			1662	2296	422	1942	2288	678
vC1, stage 1 conf vol							864	864		1424	1424	
vC2, stage 2 conf vol							797	1432		517	864	
vCu, unblocked vol	1338			843			1662	2296	422	1942	2288	678
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	98			94			0	100	74	91	100	89
cM capacity (veh/h)	507			794			207	155	580	118	154	383

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	291	561	384	47	875	453	377	54
Volume Left	11	0	0	47	0	0	226	11
Volume Right	0	0	384	0	0	16	151	43
cSH	507	1700	1700	794	1700	1700	292	264
Volume to Capacity	0.02	0.33	0.23	0.06	0.51	0.27	1.29	0.21
Queue Length 95th (ft)	2	0	0	5	0	0	459	19
Control Delay (s)	0.7	0.0	0.0	9.8	0.0	0.0	190.2	22.1
Lane LOS	A			A			F	C
Approach Delay (s)	0.2			0.3			190.2	22.1
Approach LOS							F	C

Intersection Summary				
Average Delay	24.2			
Intersection Capacity Utilization	75.7%	ICU Level of Service	D	
Analysis Period (min)	15			