

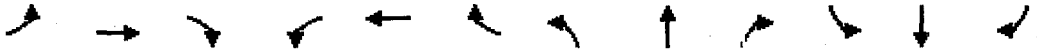
Appendix D

Total Future Intersection Capacity Analyses

The Randall School
1: Eye Street SW & Delaware Avenue

Total Future AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			0.99			0.97			0.96	
Flt Protected		1.00			1.00			0.97			0.97	
Satd. Flow (prot)		1547			1542			1453			1446	
Flt Permitted		0.95			0.97			0.81			0.81	
Satd. Flow (perm)		1472			1496			1218			1214	
Volume (vph)	22	226	11	29	378	29	40	9	16	60	11	28
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	246	12	32	411	32	43	10	17	65	12	30
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	280	0	0	475	0	0	70	0	0	107	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			8			4		
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	72.0			72.0			18.0			18.0		
Effective Green, g (s)	73.0			73.0			19.0			19.0		
Actuated g/C Ratio	0.73			0.73			0.19			0.19		
Clearance Time (s)	5.0			5.0			5.0			5.0		
Lane Grp Cap (vph)	1075			1092			231			231		
v/s Ratio Prot												
v/s Ratio Perm	0.19			c0.32			0.06			c0.09		
v/c Ratio	0.26			0.43			0.30			0.46		
Uniform Delay, d1	4.5			5.3			34.8			36.0		
Progression Factor	1.00			1.00			0.93			1.00		
Incremental Delay, d2	0.6			1.3			2.7			6.5		
Delay (s)	5.1			6.6			35.2			42.5		
Level of Service	A			A			D			D		
Approach Delay (s)	5.1			6.6			35.2			42.5		
Approach LOS	A			A			D			D		
Intersection Summary												
HCM Average Control Delay			12.4		HCM Level of Service			B				
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)			8.0				
Intersection Capacity Utilization			81.7%		ICU Level of Service			D				
Analysis Period (min)			15									
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕↗↘			↕↗↘	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.85		1.00	0.85		1.00			1.00	0.85
Flt Protected		0.98	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1525	1298		1565	1304		4255			4272	1301
Flt Permitted		0.14	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		221	1298		1565	1304		4255			4272	1301
Volume (vph)	114	117	117	0	375	214	0	2412	55	0	2150	135
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	127	127	0	408	233	0	2622	60	0	2337	147
RTOR Reduction (vph)	0	0	8	0	0	5	0	2	0	0	0	34
Lane Group Flow (vph)	0	251	119	0	408	228	0	2680	0	0	2337	113
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	Perm		Perm			Perm						Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		29.0	29.0		24.0	24.0		81.0			81.0	81.0
Effective Green, g (s)		29.0	29.0		29.0	29.0		83.0			83.0	83.0
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.69			0.69	0.69
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		53	314		378	315		2943			2955	900
v/s Ratio Prot					0.26			0.63			0.55	
v/s Ratio Perm		c1.14	0.09			0.18						0.09
v/c Ratio		4.74	0.38		1.08	0.73		0.91			0.79	0.13
Uniform Delay, d1		45.5	38.0		45.5	41.8		15.4			12.6	6.2
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		1723.1	3.5		69.2	13.6		5.5			2.2	0.3
Delay (s)		1768.6	41.5		114.7	55.4		20.9			14.8	6.5
Level of Service		F	D		F	E		C			B	A
Approach Delay (s)		1188.3			93.1			20.9			14.4	
Approach LOS		F			F			C			B	
Intersection Summary												
HCM Average Control Delay		97.1			HCM Level of Service			F				
HCM Volume to Capacity ratio		1.89										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		123.6%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
6: M St SW & Local S Cap SB

Total Future AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Frt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		1.00					0.95	0.97	
Satd. Flow (prot)		4577	1425		4567					1513	1509	
Flt Permitted		1.00	1.00		0.91					0.95	0.97	
Satd. Flow (perm)		4577	1425		4144					1513	1509	
Volume (vph)	0	515	281	81	1850	0	0	0	0	462	60	41
Peak-hour factor, 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
Adj. Flow (vph)	0	572	312	90	2056	0	0	0	0	513	67	46
RTOR Reduction (vph)	0	0	250	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	572	62	0	2146	0	0	0	0	312	308	0
Turn Type		Perm D.P+P								Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		18.0	18.0		64.0					24.0	24.0	
Effective Green, g (s)		20.0	20.0		65.0					26.0	26.0	
Actuated g/C Ratio		0.20	0.20		0.65					0.26	0.26	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		915	285		2884					393	392	
v/s Ratio Prot		0.12			c0.33					c0.21	0.20	
v/s Ratio Perm			0.04		c0.15							
v/c Ratio		0.63	0.22		0.74					0.79	0.79	
Uniform Delay, d1		36.6	33.5		11.9					34.5	34.4	
Progression Factor		0.86	2.86		0.03					1.00	1.00	
Incremental Delay, d2		3.1	1.7		0.2					15.2	14.6	
Delay (s)		34.7	97.5		0.6					49.7	49.0	
Level of Service		C	F		A					D	D	
Approach Delay (s)		56.9			0.6			0.0			49.4	
Approach LOS		E			A			A			D	
Intersection Summary												
HCM Average Control Delay		22.5			HCM Level of Service		C					
HCM Volume to Capacity ratio		0.76										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)		9.0					
Intersection Capacity Utilization		88.2%			ICU Level of Service		E					
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↑	↑				
Ideal Flow (vph/pl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Frt		1.00			0.99		1.00	0.98				
Flt Protected		1.00			1.00		0.95	0.97				
Satd. Flow (prot)		4561			4522		1513	1507				
Flt Permitted		0.82			1.00		0.95	0.97				
Satd. Flow (perm)		3761			4522		1513	1507				
Volume (vph)	66	911	0	0	576	50	1355	130	107	0	0	0
Peak-hour factor, 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
Adj. Flow (vph)	73	1012	0	0	640	56	1506	144	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	1085	0	0	686	0	890	874	0	0	0	0
Turn Type	D.P+P						Split					
Protected Phases	7	5 7			5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		43.0			14.0		43.0	43.0				
Effective Green, g (s)		46.0			15.0		45.0	45.0				
Actuated g/C Ratio		0.46			0.15		0.45	0.45				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		1978			678		681	678				
v/s Ratio Prot		c0.17			c0.15		c0.59	0.58				
v/s Ratio Perm		0.08										
v/c Ratio		0.55			1.01		1.31	1.29				
Uniform Delay, d1		19.5			42.5		27.5	27.5				
Progression Factor		0.09			1.00		1.00	1.00				
Incremental Delay, d2		0.8			37.4		148.6	140.7				
Delay (s)		2.6			79.9		176.1	168.2				
Level of Service		A			E		F	F				
Approach Delay (s)		2.6			79.9			172.2			0.0	
Approach LOS		A			E			F			A	
Intersection Summary												
HCM Average Control Delay			102.2			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			93.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

The Randall School
1: Eye Street SW & Delaware Avenue

Total Future AM
Improvement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frft		0.99			0.99			0.97			0.96	
Flt Protected		1.00			1.00			0.97			0.97	
Satd. Flow (prot)		1547			1542			1453			1446	
Flt Permitted		0.95			0.97			0.80			0.80	
Satd. Flow (perm)		1471			1496			1201			1192	
Volume (vph)	22	226	11	29	378	29	40	9	16	60	11	28
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	246	12	32	411	32	43	10	17	65	12	30
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	280	0	0	475	0	0	70	0	0	107	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		66.0			66.0			24.0			24.0	
Effective Green, g (s)		67.0			67.0			25.0			25.0	
Actuated g/C Ratio		0.67			0.67			0.25			0.25	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		986			1002			300			298	
v/s Ratio Prot												
v/s Ratio Perm		0.19			0.32			0.06			0.09	
v/c Ratio		0.28			0.47			0.23			0.36	
Uniform Delay, d1		6.7			8.0			29.9			30.9	
Progression Factor		1.00			1.00			0.79			1.00	
Incremental Delay, d2		0.7			1.6			1.5			3.3	
Delay (s)		7.5			9.6			25.2			34.2	
Level of Service		A			A			C			C	
Approach Delay (s)		7.5			9.6			25.2			34.2	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		12.9				HCM Level of Service		B				
HCM Volume to Capacity ratio		0.44										
Actuated Cycle Length (s)		100.0				Sum of lost time (s)		8.0				
Intersection Capacity Utilization		81.7%				ICU Level of Service		D				
Analysis Period (min)		15										
c Critical Lane Group												

The Randal School
2: Eye Street SW & Half St SW

Total Future AM
Improvement



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1			1	1	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	254	59	101	386	68	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	276	64	110	420	74	72
Pedestrians	2			5	8	
Lane Width (ft)	10.0			10.0	10.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	1	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	670			452		
pX, platoon unblocked					0.78	
vC, conflicting volume			348		957	321
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			348		945	321
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		64	90
cM capacity (veh/h)			1204		204	713
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	340	529	146			
Volume Left	0	110	74			
Volume Right	64	0	72			
cSH	1700	1204	315			
Volume to Capacity	0.20	0.09	0.46			
Queue Length 95th (ft)	0	8	58			
Control Delay (s)	0.0	2.5	25.9			
Lane LOS		A	D			
Approach Delay (s)	0.0	2.5	25.9			
Approach LOS			D			
Intersection Summary						
Average Delay			5.0			
Intersection Capacity Utilization			67.4%		ICU Level of Service	C
Analysis Period (min)			15			

The Randall School
3: Eye Street SW & S Capitol St

Total Future AM
Improvement

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.85		1.00	0.85		1.00			1.00	0.85
Flt Protected		0.98	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1451	1233		1565	1304		4254			4272	1299
Flt Permitted		0.15	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		223	1233		1565	1304		4254			4272	1299
Volume (vph)	114	117	117	0	375	214	0	2412	55	0	2150	135
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	127	127	0	408	233	0	2622	60	0	2337	147
RTOR Reduction (vph)	0	0	3	0	0	15	0	2	0	0	0	52
Lane Group Flow (vph)	0	251	124	0	408	218	0	2680	0	0	2337	95
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	prn+pt		Perm			Perm						Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		39.6	39.6		24.0	24.0		70.4			70.4	70.4
Effective Green, g (s)		39.6	39.6		29.0	29.0		72.4			72.4	72.4
Actuated g/C Ratio		0.33	0.33		0.24	0.24		0.60			0.60	0.60
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		141	407		378	315		2567			2577	784
v/s Ratio Prot		c0.10			0.26			c0.63			0.55	
v/s Ratio Perm		c0.49	0.10			0.17						0.07
v/c Ratio		1.78	0.30		1.08	0.69		1.04			0.91	0.12
Uniform Delay, d1		40.2	29.9		45.5	41.4		23.8			20.8	10.2
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		378.1	1.9		69.2	11.8		30.6			6.0	0.3
Delay (s)		418.3	31.9		114.7	53.2		54.4			26.8	10.5
Level of Service		F	C		F	D		D			C	B
Approach Delay (s)		288.5			92.3			54.4			25.8	
Approach LOS		F			F			D			C	
Intersection Summary												
HCM Average Control Delay		61.2			HCM Level of Service			E				
HCM Volume to Capacity ratio		1.28										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		109.3%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
4: M St SW & Delaware Avenue

Total Future AM
Improvement

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑			↑↓				↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0				4.0
Lane Util. Factor		0.91		1.00	0.91			1.00				1.00
Frpb, ped/bikes		0.99		1.00	1.00			0.99				1.00
Flpb, ped/bikes		1.00		0.99	1.00			1.00				1.00
Frt		0.99		1.00	0.99			0.96				0.86
Flt Protected		1.00		0.95	1.00			0.97				1.00
Satd. Flow (prot)		4196		1467	4221			1437				1353
Flt Permitted		0.92		0.32	1.00			0.97				1.00
Satd. Flow (perm)		3856		502	4221			1437				1353
Volume (vph)	6	665	60	35	1560	86	50	11	29	0	0	27
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	723	65	38	1696	93	54	12	32	0	0	29
RTOR Reduction (vph)	0	11	0	0	6	0	0	18	0	0	0	21
Lane Group Flow (vph)	0	785	0	38	1783	0	0	80	0	0	0	8
Confl. Peds. (#/hr)	18		13	13		18	7		12	12		7
Turn Type	Perm			Perm			Perm					custom
Protected Phases		2			6			8				4
Permitted Phases	2			6			8					4
Actuated Green, G (s)		64.0		64.0	64.0			26.0				26.0
Effective Green, g (s)		65.0		65.0	65.0			27.0				27.0
Actuated g/C Ratio		0.65		0.65	0.65			0.27				0.27
Clearance Time (s)		5.0		5.0	5.0			5.0				5.0
Lane Grp Cap (vph)		2506		326	2744			388				365
v/s Ratio Prot					0.42							0.01
v/s Ratio Perm		0.20		0.08				0.06				
v/c Ratio		0.31		0.12	0.65			0.21				0.02
Uniform Delay, d1		7.7		6.6	10.6			28.2				26.8
Progression Factor		1.00		0.45	0.67			1.00				1.02
Incremental Delay, d2		0.3		0.5	0.8			1.2				0.1
Delay (s)		8.0		3.4	7.9			29.4				27.4
Level of Service		A		A	A			C				C
Approach Delay (s)		8.0			7.8			29.4			27.4	
Approach LCS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		8.8			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.52										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		77.2%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
5: M St SW & Half St SW

Total Future AM
Improvement

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						  	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00						1.00	
Frt	1.00	0.99		1.00	0.99						0.94	
Flt Protected	0.95	1.00		0.95	1.00						0.99	
Satd. Flow (prot)	1485	4221		1481	4234						1418	
Flt Permitted	0.06	1.00		0.30	1.00						0.99	
Satd. Flow (perm)	101	4221		463	4234						1418	
Volume (vph)	66	744	52	37	1745	88	0	0	0	28	23	47
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	809	57	40	1897	96	0	0	0	30	25	51
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	72	858	0	40	1993	0	0	0	0	0	106	0
Confl. Peds. (#/hr)	16		15	15		16	15			9	9	15
Turn Type	Perm			Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)	63.0	63.0		63.0	63.0						26.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0						28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64						0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)	65	2701		296	2710						397	
v/s Ratio Prot		0.20			0.47							
v/s Ratio Perm	0.71			0.09							0.07	
v/c Ratio	1.11	0.32		0.14	0.74						0.27	
Uniform Delay, d1	18.0	8.1		7.1	12.2						28.0	
Progression Factor	1.70	0.98		1.10	0.82						1.04	
Incremental Delay, d2	143.1	0.3		0.6	1.2						1.6	
Delay (s)	173.6	8.3		8.4	11.3						30.8	
Level of Service	F	A		A	B						C	
Approach Delay (s)		20.9			11.2			0.0			30.8	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM Average Control Delay	14.8		HCM Level of Service		B							
HCM Volume to Capacity ratio	0.86											
Actuated Cycle Length (s)	100.0		Sum of lost time (s)		8.0							
Intersection Capacity Utilization	88.2%		ICU Level of Service		E							
Analysis Period (min)	15											
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Flt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		1.00					0.95	0.97	
Satd. Flow (prot)		4577	1425		4567					1513	1509	
Flt Permitted		1.00	1.00		0.90					0.95	0.97	
Satd. Flow (perm)		4577	1425		4139					1513	1509	
Volume (vph)	0	515	281	81	1850	0	0	0	0	462	60	41
Peak-hour factor, 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
Adj. Flow (vph)	0	572	312	90	2056	0	0	0	0	513	67	46
RTOR Reduction (vph)	0	0	246	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	572	66	0	2146	0	0	0	0	312	308	0
Turn Type		Perm D.P+P								Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		19.0	19.0		65.0					23.0	23.0	
Effective Green, g (s)		21.0	21.0		66.0					25.0	25.0	
Actuated g/C Ratio		0.21	0.21		0.66					0.25	0.25	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		961	299		2924					378	377	
v/s Ratio Prot		0.12			c0.33					c0.21	0.20	
v/s Ratio Perm			0.05		c0.15							
v/c Ratio		0.60	0.22		0.73					0.83	0.82	
Uniform Delay, d1		35.7	32.7		11.2					35.4	35.3	
Progression Factor		0.84	2.81		0.02					1.00	1.00	
Incremental Delay, d2		2.6	1.6		0.2					18.3	17.6	
Delay (s)		32.6	93.4		0.4					53.7	52.9	
Level of Service		C	F		A					D	D	
Approach Delay (s)		54.1			0.4			0.0			53.3	
Approach LOS		D			A			A			D	
Intersection Summary												
HCM Average Control Delay			22.4		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					9.0		
Intersection Capacity Utilization			88.2%		ICU Level of Service					E		
Analysis Period (min)			15									
c Critical Lane Group												

The Randall School
7: H Street SW & Site Driveway

Total Future AM
Improvement

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↕			↕			↕			↕				
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Volume (veh/h)	22	0	18	0	0	0	82	0	0	0	0	3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	24	0	20	0	0	0	89	0	0	0	0	3		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type							None			None				
Median storage veh														
Upstream signal (ft)	552													
pX, platoon unblocked														
vC, conflicting volume	0				20				61	58	10	58	67	0
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	0				20				61	58	10	58	67	0
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99				100				90	100	100	100	100	100
cM capacity (veh/h)	1623				1597				921	821	1072	929	811	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1										
Volume Total	43	0	89	3										
Volume Left	24	0	89	0										
Volume Right	20	0	0	3										
cSH	1623	1700	921	1085										
Volume to Capacity	0.01	0.00	0.10	0.00										
Queue Length 95th (ft)	1	0	8	0										
Control Delay (s)	4.0	0.0	9.3	8.3										
Lane LOS	A		A	A										
Approach Delay (s)	4.0	0.0	9.3	8.3										
Approach LOS			A	A										
Intersection Summary														
Average Delay				7.6										
Intersection Capacity Utilization				21.7%	ICU Level of Service			A						
Analysis Period (min)				15										

The Randall School
66: M St SW & Local S Cap NB

Total Future AM
Improvement

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↑	↑				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Frt		1.00			0.99		1.00	0.98				
Flt Protected		1.00			1.00		0.95	0.97				
Satd. Flow (prot)		4561			4522		1513	1507				
Flt Permitted		0.83			1.00		0.95	0.97				
Satd. Flow (perm)		3784			4522		1513	1507				
Volume (vph)	66	911	0	0	576	50	1355	130	107	0	0	0
Peak-hour factor, 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
Adj. Flow (vph)	73	1012	0	0	640	56	1506	144	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	1085	0	0	686	0	890	874	0	0	0	0
Turn Type	D.P+P						Split					
Protected Phases	7	5 7			5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		43.0			16.0		43.0	43.0				
Effective Green, g (s)		46.0			17.0		45.0	45.0				
Actuated g/C Ratio		0.46			0.17		0.45	0.45				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		1966			769		681	678				
v/s Ratio Prot		c0.16			c0.15		c0.59	0.58				
v/s Ratio Perm		0.09										
v/c Ratio		0.55			0.89		1.31	1.29				
Uniform Delay, d1		19.5			40.6		27.5	27.5				
Progression Factor		0.09			1.00		1.00	1.00				
Incremental Delay, d2		0.8			14.8		148.6	140.7				
Delay (s)		2.6			55.4		176.1	168.2				
Level of Service		A			E		F	F				
Approach Delay (s)		2.6			55.4			172.2			0.0	
Approach LOS		A			E			F			A	
Intersection Summary												
HCM Average Control Delay			97.5			HCM Level of Service			F			
HCM Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			93.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

The Randall School
1: Eye Street SW & Delaware Avenue

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		1.00			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.97			0.93			0.96	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		1549			1505			1410			1437	
Flt Permitted		0.96			0.92			0.86			0.63	
Satd. Flow (perm)		1499			1397			1227			931	
Volume (vph)	51	773	35	18	190	56	47	26	83	88	15	51
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	840	38	20	207	61	51	28	90	96	16	55
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	931	0	0	288	0	0	169	0	0	167	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		72.0			72.0			18.0			18.0	
Effective Green, g (s)		73.0			73.0			19.0			19.0	
Actuated g/C Ratio		0.73			0.73			0.19			0.19	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1094			1020			233			177	
v/s Ratio Prot												
v/s Ratio Perm		c0.62			0.21			0.14			c0.18	
v/c Ratio		0.85			0.28			0.73			0.94	
Uniform Delay, d1		9.6			4.6			38.0			40.0	
Progression Factor		1.00			1.00			0.88			1.00	
Incremental Delay, d2		8.4			0.7			17.4			54.2	
Delay (s)		18.0			5.3			50.7			94.2	
Level of Service		B			A			D			F	
Approach Delay (s)		18.0			5.3			50.7			94.2	
Approach LOS		B			A			D			F	
Intersection Summary												
HCM Average Control Delay		27.4			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.87										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		86.9%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		0.99	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		0.97	0.85		1.00	0.85		1.00			1.00	0.85
Flt Protected		0.99	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1405	1233		1565	1304		4251			4272	1299
Flt Permitted		0.70	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		992	1233		1565	1304		4251			4272	1299
Volume (vph)	103	175	529	0	152	282	0	1790	49	0	2222	114
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	190	575	0	165	307	0	1946	53	0	2415	124
RTOR Reduction (vph)	0	7	7	0	0	17	0	2	0	0	0	38
Lane Group Flow (vph)	0	385	478	0	165	290	0	1997	0	0	2415	86
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	Perm		Perm			Perm						Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		29.0	29.0		24.0	24.0		81.0			81.0	81.0
Effective Green, g (s)		29.0	29.0		29.0	29.0		83.0			83.0	83.0
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.69			0.69	0.69
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		240	298		378	315		2940			2955	898
v/s Ratio Prot					0.11			0.47			0.57	
v/s Ratio Perm		0.39	0.39			0.22						0.07
v/c Ratio		1.60	1.60		0.44	0.92		0.68			0.82	0.10
Uniform Delay, d1		45.5	45.5		38.6	44.4		10.8			13.1	6.1
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		290.8	287.3		3.6	33.7		1.3			2.6	0.2
Delay (s)		336.3	332.8		42.2	78.1		12.0			15.8	6.3
Level of Service		F	F		D	E		B			B	A
Approach Delay (s)		334.4			65.5			12.0			15.3	
Approach LCS		F			E			B			B	
Intersection Summary												
HCM Average Control Delay		65.8			HCM Level of Service			E				
HCM Volume to Capacity ratio		1.02										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		106.6%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
6: M St SW & Local S Cap SB

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Flt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		0.99					0.95	0.98	
Satd. Flow (prot)		4577	1425		4545					1513	1526	
Flt Permitted		1.00	1.00		0.71					0.95	0.98	
Satd. Flow (perm)		4577	1425		3267					1513	1526	
Volume (vph)	0	750	602	131	803	0	0	0	0	286	89	30
Peak-hour factor, 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
Adj. Flow (vph)	0	833	669	146	892	0	0	0	0	318	99	33
RTOR Reduction (vph)	0	0	395	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	833	274	0	1038	0	0	0	0	222	222	0
Turn Type		Perm D.P+P								Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		39.0	39.0		64.0					24.0	24.0	
Effective Green, g (s)		41.0	41.0		65.0					26.0	26.0	
Actuated g/C Ratio		0.41	0.41		0.65					0.26	0.26	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		1877	584		2430					393	397	
v/s Ratio Prot		0.18			0.10					0.15	0.15	
v/s Ratio Perm			0.19		0.18							
v/c Ratio		0.44	0.47		0.43					0.56	0.56	
Uniform Delay, d1		21.3	21.6		8.5					32.1	32.0	
Progression Factor		0.98	7.13		0.07					1.00	1.00	
Incremental Delay, d2		0.6	2.0		0.4					5.8	5.6	
Delay (s)		21.4	155.6		1.0					37.9	37.6	
Level of Service		C	F		A					D	D	
Approach Delay (s)		81.2			1.0			0.0			37.8	
Approach LOS		F			A			A			D	
Intersection Summary												
HCM Average Control Delay		46.8			HCM Level of Service			D				
HCM Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		84.0%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↑	↑				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Frt		1.00			0.96		1.00	0.93				
Flt Protected		1.00			1.00		0.95	0.99				
Satd. Flow (prot)		4566			4398		1513	1476				
Flt Permitted		0.88			1.00		0.95	0.99				
Satd. Flow (perm)		4042			4398		1513	1476				
Volume (vph)	47	989	0	0	632	223	302	108	119	0	0	0
Peak-hour factor, 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
Adj. Flow (vph)	52	1099	0	0	702	248	336	120	132	0	0	0
RTOR Reduction (vph)	0	0	0	0	64	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	1151	0	0	886	0	287	273	0	0	0	0
Turn Type	D.P+P						Split					
Protected Phases	7	5	7		5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		64.0			35.0		22.0	22.0				
Effective Green, g (s)		67.0			36.0		24.0	24.0				
Actuated g/C Ratio		0.67			0.36		0.24	0.24				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		2871			1583		363	354				
v/s Ratio Prot		0.12			0.20		0.19	0.18				
v/s Ratio Perm		0.14										
v/c Ratio		0.40			0.56		0.79	0.77				
Uniform Delay, d1		7.4			25.6		35.6	35.4				
Progression Factor		0.13			1.00		1.00	1.00				
Incremental Delay, d2		0.4			1.4		16.0	14.9				
Delay (s)		1.3			27.1		51.6	50.4				
Level of Service		A			C		D	D				
Approach Delay (s)		1.3			27.1			51.0			0.0	
Approach LOS		A			C			D			A	
Intersection Summary												
HCM Average Control Delay		21.3			HCM Level of Service		C					
HCM Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)		9.0					
Intersection Capacity Utilization		67.9%			ICU Level of Service		C					
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
1: Eye Street SW & Delaware Avenue

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Fr _t		0.99			0.97			0.93			0.96	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		1549			1505			1410			1437	
Flt Permitted		0.96			0.92			0.88			0.70	
Satd. Flow (perm)		1498			1395			1255			1036	
Volume (vph)	51	773	35	18	190	56	47	26	83	88	15	51
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	840	38	20	207	61	51	28	90	96	16	55
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	932	0	0	288	0	0	169	0	0	167	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases	2		6		6		8		8		4	
Permitted Phases	2		6		8		8		4		4	
Actuated Green, G (s)	65.0		65.0		25.0		25.0		25.0		25.0	
Effective Green, g (s)	66.0		66.0		26.0		26.0		26.0		26.0	
Actuated g/C Ratio	0.66		0.66		0.26		0.26		0.26		0.26	
Clearance Time (s)	5.0		5.0		5.0		5.0		5.0		5.0	
Lane Grp Cap (vph)	989		921		326		269					
v/s Ratio Prot												
v/s Ratio Perm	c0.62		0.21		0.13		0.16					
v/c Ratio	0.94		0.31		0.52		0.62					
Uniform Delay, d ₁	15.3		7.3		31.6		32.7					
Progression Factor	1.00		1.00		0.80		1.00					
Incremental Delay, d ₂	17.6		0.9		5.7		10.3					
Delay (s)	32.9		8.2		30.8		43.0					
Level of Service	C		A		C		D					
Approach Delay (s)	32.9		8.2		30.8		43.0					
Approach LOS	C		A		C		D					
Intersection Summary												
HCM Average Control Delay			29.2		HCM Level of Service			C				
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)			8.0				
Intersection Capacity Utilization			86.9%		ICU Level of Service			E				
Analysis Period (min)			15									
c Critical Lane Group												

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	683	193	77	191	70	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	742	210	84	208	76	61
Pedestrians	2			5	8	
Lane Width (ft)	10.0			10.0	10.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	1	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	670			452		
pX, platoon unblocked			0.52		0.56	0.52
vC, conflicting volume			960		1232	860
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			924		1231	733
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			78		10	72
cM capacity (veh/h)			385		85	218
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	952	291	137			
Volume Left	0	84	76			
Volume Right	210	0	61			
cSH	1700	385	116			
Volume to Capacity	0.56	0.22	1.18			
Queue Length 95th (ft)	0	20	214			
Control Delay (s)	0.0	7.9	209.3			
Lane LOS		A	F			
Approach Delay (s)	0.0	7.9	209.3			
Approach LOS			F			
Intersection Summary						
Average Delay		22.4				
Intersection Capacity Utilization		88.2%	ICU Level of Service		E	
Analysis Period (min)		15				

The Randall School
3: Eye Street SW & S Capitol St

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		0.99	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		0.96	0.85		1.00	0.85		1.00			1.00	0.85
Flt Protected		0.99	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1396	1233		1565	1304		4251			4272	1299
Flt Permitted		0.69	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		979	1233		1565	1304		4251			4272	1299
Volume (vph)	103	175	529	0	152	282	0	1790	49	0	2222	114
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	190	575	0	165	307	0	1946	53	0	2415	124
RTOR Reduction (vph)	0	1	1	0	0	97	0	2	0	0	0	42
Lane Group Flow (vph)	0	416	459	0	165	210	0	1997	0	0	2415	82
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	pr+pt	Perm			Perm						Perm	
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		46.7	46.7		24.0	24.0		63.3			63.3	63.3
Effective Green, g (s)		46.7	46.7		29.0	29.0		65.3			65.3	65.3
Actuated g/C Ratio		0.39	0.39		0.24	0.24		0.54			0.54	0.54
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		429	480		378	315		2313			2325	707
v/s Ratio Prot		0.11			0.11			0.47			0.57	
v/s Ratio Perm		0.27	0.37			0.16						0.06
v/c Ratio		0.97	0.96		0.44	0.67		0.86			1.04	0.12
Uniform Delay, d1		35.9	35.6		38.6	41.1		23.5			27.4	13.3
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		36.4	31.4		3.6	10.7		4.6			29.6	0.3
Delay (s)		72.3	67.1		42.2	51.8		28.1			57.0	13.6
Level of Service		E	E		D	D		C			E	B
Approach Delay (s)		69.6			48.4			28.1			54.9	
Approach LOS		E			D			C			D	
Intersection Summary												
HCM Average Control Delay		47.4			HCM Level of Service			D				
HCM Volume to Capacity ratio		1.01										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		106.6%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑			↑				↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0				4.0
Lane Util. Factor		0.91		1.00	0.91			1.00				1.00
Frpb, ped/bikes		1.00		1.00	0.99			1.00				0.98
Flpb, ped/bikes		1.00		1.00	1.00			0.99				1.00
Frt		0.99		1.00	0.99			0.98				0.86
Flt Protected		1.00		0.95	1.00			0.97				1.00
Satd. Flow (prot)		4226		1481	4196			1473				1327
Flt Permitted		0.93		0.14	1.00			0.97				1.00
Satd. Flow (perm)		3913		223	4196			1473				1327
Volume (vph)	12	1256	64	18	914	77	68	19	14	0	0	53
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	1365	70	20	993	84	74	21	15	0	0	58
RTOR Reduction (vph)	0	6	0	0	10	0	0	6	0	0	0	42
Lane Group Flow (vph)	0	1442	0	20	1067	0	0	104	0	0	0	16
Confl. Peds. (#/hr)	18		13	13		18	7		12	12		7
Turn Type	Perm			Perm			Perm			custom		
Protected Phases	2			6			8					
Permitted Phases	2			6			8					4
Actuated Green, G (s)		64.0		64.0	64.0			26.0				26.0
Effective Green, g (s)		65.0		65.0	65.0			27.0				27.0
Actuated g/C Ratio		0.65		0.65	0.65			0.27				0.27
Clearance Time (s)		5.0		5.0	5.0			5.0				5.0
Lane Grp Cap (vph)		2543		145	2727			398				358
v/s Ratio Prot					0.25							
v/s Ratio Perm		0.37		0.09				0.07				0.01
v/c Ratio		0.57		0.14	0.39			0.26				0.04
Uniform Delay, d1		9.7		6.7	8.2			28.7				27.0
Progression Factor		1.00		1.12	1.08			1.00				1.00
Incremental Delay, d2		0.9		1.9	0.4			1.6				0.2
Delay (s)		10.6		9.4	9.3			30.3				27.1
Level of Service		B		A	A			C				C
Approach Delay (s)		10.6			9.3			30.3			27.1	
Approach LOS		B			A			C			C	
Intersection Summary												
HCM Average Control Delay		11.2				HCM Level of Service		B				
HCM Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		100.0				Sum of lost time (s)		8.0				
Intersection Capacity Utilization		66.2%				ICU Level of Service		C				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
5: M St SW & Half St SW

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Frt	1.00	1.00		1.00	0.99						0.96	
Flt Protected	0.95	1.00		0.95	1.00						0.97	
Satd. Flow (prot)	1482	4261		1485	4200						1445	
Flt Permitted	0.25	1.00		0.08	1.00						0.97	
Satd. Flow (perm)	391	4261		122	4200						1445	
Volume (vph)	117	1696	24	40	838	86	0	0	0	85	30	47
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	1843	26	43	911	93	0	0	0	92	33	51
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	127	1868	0	43	1004	0	0	0	0	0	176	0
Confl. Peds. (#/hr)	16		15	15		16	15		9	9		15
Turn Type	Perm			Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)	63.0	63.0		63.0	63.0						26.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0						28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64						0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)	250	2727		78	2688						405	
v/s Ratio Prot		0.44			0.24							
v/s Ratio Perm	0.32			0.35							0.12	
v/c Ratio	0.51	0.68		0.55	0.37						0.43	
Uniform Delay, d1	9.6	11.5		10.0	8.5						29.5	
Progression Factor	1.88	1.90		1.19	1.22						0.86	
Incremental Delay, d2	6.8	1.3		23.5	0.4						2.6	
Delay (s)	24.9	23.2		35.5	10.8						28.0	
Level of Service	C	C		D	B						C	
Approach Delay (s)		23.3			11.8			0.0			28.0	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM Average Control Delay		19.8		HCM Level of Service		B						
HCM Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		100.0		Sum of lost time (s)		8.0						
Intersection Capacity Utilization		91.4%		ICU Level of Service		F						
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Frt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		0.99					0.95	0.98	
Satd. Flow (prot)		4577	1425		4545					1513	1526	
Flt Permitted		1.00	1.00		0.70					0.95	0.98	
Satd. Flow (perm)		4577	1425		3221					1513	1526	
Volume (vph)	0	750	602	131	803	0	0	0	0	286	89	30
Peak-hour factor, 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
Adj. Flow (vph)	0	833	669	146	892	0	0	0	0	318	99	33
RTOR Reduction (vph)	0	0	435	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	833	234	0	1038	0	0	0	0	222	222	0
Turn Type		Perm D.P+P								Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		33.0	33.0		58.0					30.0	30.0	
Effective Green, g (s)		35.0	35.0		59.0					32.0	32.0	
Actuated g/C Ratio		0.35	0.35		0.59					0.32	0.32	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		1602	499		2218					484	488	
v/s Ratio Prot		c0.18			c0.11					c0.15	0.15	
v/s Ratio Perm			0.16		0.16							
v/c Ratio		0.52	0.47		0.47					0.46	0.45	
Uniform Delay, d1		25.8	25.3		11.6					27.1	27.1	
Progression Factor		0.91	6.18		0.21					1.00	1.00	
Incremental Delay, d2		0.9	2.3		0.6					3.1	3.0	
Delay (s)		24.3	158.4		3.0					30.2	30.1	
Level of Service		C	F		A					C	C	
Approach Delay (s)		84.0			3.0			0.0			30.2	
Approach LOS		F			A			A			C	
Intersection Summary												
HCM Average Control Delay		47.8			HCM Level of Service					D		
HCM Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)					9.0		
Intersection Capacity Utilization		84.0%			ICU Level of Service					E		
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
7: H Street SW & Site Driveway

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	0	90	0	0	0	66	0	0	0	0	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	98	0	0	0	72	0	0	0	0	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None				None	
Median storage veh												
Upstream signal (ft)		551										
pX, platoon unblocked												
vC, conflicting volume	0			98			133	73	49	73	122	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			98			133	73	49	73	122	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			91	100	100	100	100	94
cM capacity (veh/h)	1523			1495			789	812	1020	913	763	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	110	0	72	60								
Volume Left	12	0	72	0								
Volume Right	98	0	0	60								
cSH	1523	1700	789	1085								
Volume to Capacity	0.01	0.00	0.09	0.06								
Queue Length 95th (ft)	1	0	7	4								
Control Delay (s)	0.8	0.0	10.0	8.5								
Lane LOS	A		B	A								
Approach Delay (s)	0.8	0.0	10.0	8.5								
Approach LOS			B	A								
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			24.3%									
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↖	↕				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Flt		1.00			0.96		1.00	0.93				
Flt Protected		1.00			1.00		0.95	0.99				
Satd. Flow (prot)		4566			4398		1513	1476				
Flt Permitted		0.88			1.00		0.95	0.99				
Satd. Flow (perm)		4017			4398		1513	1476				
Volume (vph)	47	989	0	0	632	223	302	108	119	0	0	0
Peak-hour factor, 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
Adj. Flow (vph)	52	1099	0	0	702	248	336	120	132	0	0	0
RTOR Reduction (vph)	0	0	0	0	64	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	1151	0	0	886	0	287	273	0	0	0	0
Turn Type	D.P+P						Split					
Protected Phases	7	5	7		5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		64.0			38.0		22.0	22.0				
Effective Green, g (s)		67.0			39.0		24.0	24.0				
Actuated g/C Ratio		0.67			0.39		0.24	0.24				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		2845			1715		363	354				
v/s Ratio Prot		0.11			0.20		0.19	0.18				
v/s Ratio Perm		0.16										
v/c Ratio		0.40			0.52		0.79	0.77				
Uniform Delay, d1		7.5			23.3		35.6	35.4				
Progression Factor		0.15			1.00		1.00	1.00				
Incremental Delay, d2		0.4			1.1		16.0	14.9				
Delay (s)		1.5			24.4		51.6	50.4				
Level of Service		A			C		D	D				
Approach Delay (s)		1.5			24.4		51.0				0.0	
Approach LOS		A			C		D				A	
Intersection Summary												
HCM Average Control Delay			20.4			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			67.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												