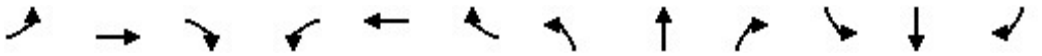


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	445	15	40	530	270	0	0	80	0	0	0
Future Volume (Veh/h)	140	445	15	40	530	270	0	0	80	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	140	445	15	40	530	270	0	0	80	0	0	0
Pedestrians								2				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					408							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	530			462			1344	1344	232	1192	1352	530
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405			462			1324	1324	232	1153	1333	405
tC, single (s)	4.3			4.3			7.6	6.6	7.0	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			96			100	100	89	100	100	100
cM capacity (veh/h)	970			1046			85	110	760	106	113	532

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	140	297	163	40	530	270	80
Volume Left	140	0	0	40	0	0	0
Volume Right	0	0	15	0	0	270	80
cSH	970	1700	1700	1046	1700	1700	760
Volume to Capacity	0.14	0.17	0.10	0.04	0.31	0.16	0.11
Queue Length 95th (ft)	13	0	0	3	0	0	9
Control Delay (s)	9.3	0.0	0.0	8.6	0.0	0.0	10.3
Lane LOS	A			A			B
Approach Delay (s)	2.2			0.4			10.3
Approach LOS							B

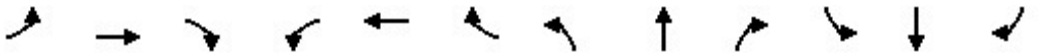
Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	45.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	35	45	325	120	235	505	60	230	15	55	75	5
Future Volume (vph)	35	45	325	120	235	505	60	230	15	55	75	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0	5.0		5.0	5.0		5.0	5.0			5.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	0.99		1.00	1.00		1.00	1.00			0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00	0.96		1.00	0.98		1.00	0.88			0.94
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)		1578	2924		1583	3108		1658	1544			1346
Flt Permitted		0.42	1.00		0.44	1.00		0.66	1.00			0.82
Satd. Flow (perm)		694	2924		727	3108		1152	1544			1133
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	45	325	120	235	505	60	230	15	55	75	5
RTOR Reduction (vph)	0	0	36	0	0	8	0	0	40	0	0	0
Lane Group Flow (vph)	0	80	409	0	235	557	0	230	30	0	0	150
Confl. Peds. (#/hr)				7			2	3				
Heavy Vehicles (%)	2%	8%	8%	8%	5%	5%	5%	0%	0%	0%	18%	18%
Bus Blockages (#/hr)	0	0	0	44	0	0	0	0	0	0	0	0
Turn Type	Prot	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA
Protected Phases	3	3	8		7	4			6			2
Permitted Phases		8			4			6			2	
Actuated Green, G (s)		44.2	36.4		48.8	38.7		23.3	23.3			23.3
Effective Green, g (s)		44.2	36.4		48.8	38.7		23.3	23.3			23.3
Actuated g/C Ratio		0.52	0.43		0.58	0.46		0.27	0.27			0.27
Clearance Time (s)		5.0	5.0		5.0	5.0		5.0	5.0			5.0
Vehicle Extension (s)		5.0	5.0		5.0	5.0		5.0	5.0			5.0
Lane Grp Cap (vph)		443	1255		520	1418		316	424			311
v/s Ratio Prot		0.02	0.14		c0.05	0.18			0.02			
v/s Ratio Perm		0.08			c0.21			c0.20				0.13
v/c Ratio		0.18	0.33		0.45	0.39		0.73	0.07			0.48
Uniform Delay, d1		10.3	16.1		9.1	15.3		27.9	22.7			25.7
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		0.4	0.7		1.3	0.8		9.9	0.1			2.5
Delay (s)		10.7	16.8		10.4	16.1		37.7	22.9			28.2
Level of Service		B	B		B	B		D	C			C
Approach Delay (s)			15.8			14.4			34.3			28.2
Approach LOS			B			B			C			C

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

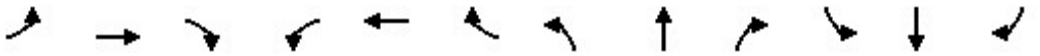
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	70
Future Volume (vph)	70
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	70
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	18%
Bus Blockages (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	445	15	40	515	250	15	20	45	0	0	0
Future Volume (vph)	140	445	15	40	515	250	15	20	45	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0				
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00				
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99				
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00				
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.90				
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1511	3006		1523	1606	1365	1583	1479				
Flt Permitted	0.47	1.00		0.49	1.00	1.00	0.95	1.00				
Satd. Flow (perm)	741	3006		781	1606	1365	1583	1479				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	445	15	40	515	250	15	20	45	0	0	0
RTOR Reduction (vph)	0	2	0	0	0	81	0	41	0	0	0	0
Lane Group Flow (vph)	140	458	0	40	515	169	15	24	0	0	0	0
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	10%	10%	10%	9%	9%	9%	5%	5%	5%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4			8		8						
Actuated Green, G (s)	28.8	28.8		28.8	28.8	28.8	3.7	3.7				
Effective Green, g (s)	28.8	28.8		28.8	28.8	28.8	3.7	3.7				
Actuated g/C Ratio	0.68	0.68		0.68	0.68	0.68	0.09	0.09				
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0				
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	502	2037		529	1088	924	137	128				
v/s Ratio Prot		0.15			c0.32		0.01	c0.02				
v/s Ratio Perm	0.19			0.05		0.12						
v/c Ratio	0.28	0.22		0.08	0.47	0.18	0.11	0.19				
Uniform Delay, d1	2.7	2.6		2.3	3.3	2.5	17.9	18.0				
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	0.3	0.1		0.1	0.3	0.1	0.4	0.7				
Delay (s)	3.0	2.7		2.4	3.6	2.6	18.2	18.7				
Level of Service	A	A		A	A	A	B	B				
Approach Delay (s)		2.7			3.2			18.6			0.0	
Approach LOS		A			A			B			A	

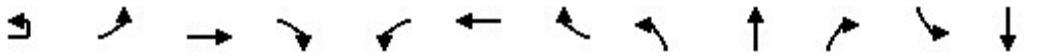
Intersection Summary			
HCM 2000 Control Delay	3.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	395	15	40	575	295	0	0	210	0	0	0
Future Volume (Veh/h)	95	395	15	40	575	295	0	0	210	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	95	395	15	40	575	295	0	0	210	0	0	0
Pedestrians								2				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					408							
pX, platoon unblocked	0.82						0.82	0.82		0.82	0.82	0.82
vC, conflicting volume	575			412			1250	1250	207	1252	1257	575
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368			412			1194	1194	207	1197	1203	368
tC, single (s)	4.3			4.3			7.6	6.6	7.0	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			96			100	100	73	100	100	100
cM capacity (veh/h)	925			1093			101	128	789	77	131	519

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	95	263	147	40	575	295	210
Volume Left	95	0	0	40	0	0	0
Volume Right	0	0	15	0	0	295	210
cSH	925	1700	1700	1093	1700	1700	789
Volume to Capacity	0.10	0.15	0.09	0.04	0.34	0.17	0.27
Queue Length 95th (ft)	9	0	0	3	0	0	27
Control Delay (s)	9.3	0.0	0.0	8.4	0.0	0.0	11.2
Lane LOS	A			A			B
Approach Delay (s)	1.8			0.4			11.2
Approach LOS							B

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	45.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	165	40	400	0	0	705	65	0	0	0	85	5
Future Volume (vph)	165	40	400	0	0	705	65	0	0	0	85	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0	5.0			5.0						5.0
Lane Util. Factor		1.00	0.95			0.95						1.00
Frpb, ped/bikes		1.00	1.00			1.00						1.00
Flpb, ped/bikes		1.00	1.00			1.00						1.00
Frt		1.00	1.00			0.99						0.96
Flt Protected		0.95	1.00			1.00						0.97
Satd. Flow (prot)		1611	3079			3120						1370
Flt Permitted		0.25	1.00			1.00						0.95
Satd. Flow (perm)		424	3079			3120						1344
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	165	40	400	0	0	705	65	0	0	0	85	5
RTOR Reduction (vph)	0	0	0	0	0	6	0	0	0	0	0	0
Lane Group Flow (vph)	0	205	400	0	0	764	0	0	0	0	0	130
Confl. Peds. (#/hr)				7			2	3				
Heavy Vehicles (%)	2%	8%	8%	8%	5%	5%	5%	0%	0%	0%	18%	18%
Bus Blockages (#/hr)	0	0	0	44	0	0	0	0	0	0	0	0
Turn Type	Prot	pm+pt	NA		pm+pt	NA		Perm			Perm	NA
Protected Phases	3	3	8		7	4			6			2
Permitted Phases		8			4			6			2	
Actuated Green, G (s)		48.0	48.0			31.8						12.5
Effective Green, g (s)		48.0	48.0			31.8						12.5
Actuated g/C Ratio		0.68	0.68			0.45						0.18
Clearance Time (s)		5.0	5.0			5.0						5.0
Vehicle Extension (s)		5.0	5.0			5.0						5.0
Lane Grp Cap (vph)		477	2096			1407						238
v/s Ratio Prot		c0.07	0.13			c0.24						
v/s Ratio Perm		0.22										c0.10
v/c Ratio		0.43	0.19			0.54						0.55
Uniform Delay, d1		5.5	4.1			14.1						26.4
Progression Factor		1.00	1.00			1.00						1.00
Incremental Delay, d2		1.3	0.2			1.5						4.5
Delay (s)		6.8	4.3			15.6						30.9
Level of Service		A	A			B						C
Approach Delay (s)			5.2			15.6			0.0			30.9
Approach LOS			A			B			A			C

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	40
Future Volume (vph)	40
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	40
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	18%
Bus Blockages (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	395	15	40	450	255	125	40	45	0	0	0
Future Volume (vph)	95	395	15	40	450	255	125	40	45	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0				
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00				
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99				
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00				
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.92				
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1511	3004		1523	1606	1365	1583	1524				
Flt Permitted	0.49	1.00		0.51	1.00	1.00	0.95	1.00				
Satd. Flow (perm)	775	3004		820	1606	1365	1583	1524				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	95	395	15	40	450	255	125	40	45	0	0	0
RTOR Reduction (vph)	0	3	0	0	0	110	0	37	0	0	0	0
Lane Group Flow (vph)	95	407	0	40	450	145	125	48	0	0	0	0
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	10%	10%	10%	9%	9%	9%	5%	5%	5%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4			8		8						
Actuated Green, G (s)	22.7	22.7		22.7	22.7	22.7	7.1	7.1				
Effective Green, g (s)	22.7	22.7		22.7	22.7	22.7	7.1	7.1				
Actuated g/C Ratio	0.57	0.57		0.57	0.57	0.57	0.18	0.18				
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0				
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	442	1713		467	915	778	282	271				
v/s Ratio Prot		0.14			c0.28		c0.08	0.03				
v/s Ratio Perm	0.12			0.05		0.11						
v/c Ratio	0.21	0.24		0.09	0.49	0.19	0.44	0.18				
Uniform Delay, d1	4.2	4.2		3.9	5.1	4.1	14.6	13.9				
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	0.2	0.1		0.1	0.4	0.1	1.1	0.3				
Delay (s)	4.4	4.3		3.9	5.5	4.2	15.7	14.2				
Level of Service	A	A		A	A	A	B	B				
Approach Delay (s)		4.3			5.0			15.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	39.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

53: Air Cargo Rd & S 160th St Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.4	0.0	0.1	0.0	0.0	3.5	1.5	1.1
Total Del/Veh (s)	61.6	11.1	12.1	83.1	77.8	58.2	14.7	54.4

54: Host Rd/SR 518 EB On Ramp & S 160th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	2.2	1.8	1.4	0.2	1.0
Total Del/Veh (s)	6.9	1.1	1.0	10.7	18.6	5.4	4.4	9.2

55: Cell Phone Lot/Rental Car Pickup & S 160th St Performance by movement

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	3.7	1.4	1.4	1.8	3.9	4.2	0.6	0.4
Total Del/Veh (s)	16.8	14.4	17.7	12.6	21.6	31.4	16.5	39.4	23.9	12.3	25.6	29.1

55: Cell Phone Lot/Rental Car Pickup & S 160th St Performance by movement

Movement	SBR	All
Denied Del/Veh (s)	0.3	1.4
Total Del/Veh (s)	26.1	25.2

Total Network Performance

Denied Del/Veh (s)	2.5
Total Del/Veh (s)	74.7

Intersection: 53: Air Cargo Rd & S 160th St

Movement	WB	WB	NB	B172	B303	B258	B253	B265	B268	SB	SB
Directions Served	L	R	TR	T	T	T	T	T	T	L	T
Maximum Queue (ft)	245	384	414	422	305	159	68	47	39	502	265
Average Queue (ft)	201	201	358	239	101	42	13	8	5	230	89
95th Queue (ft)	302	500	491	514	340	192	84	71	49	506	292
Link Distance (ft)		369	296	309	258	172	77	110	126		842
Upstream Blk Time (%)		10	75	38	20	11	5	3	1		0
Queuing Penalty (veh)		55	0	0	0	0	0	0	0		0
Storage Bay Dist (ft)	170									800	
Storage Blk Time (%)	56	0								0	0
Queuing Penalty (veh)	87	1								0	1

Intersection: 54: Host Rd/SR 518 EB On Ramp & S 160th St

Movement	EB	WB	WB	WB	NB
Directions Served	L	L	T	R	R
Maximum Queue (ft)	87	143	315	297	65
Average Queue (ft)	32	44	120	83	34
95th Queue (ft)	68	165	368	265	58
Link Distance (ft)			333	333	221
Upstream Blk Time (%)			5	1	
Queuing Penalty (veh)			22	4	
Storage Bay Dist (ft)	120	130			
Storage Blk Time (%)	0		26		
Queuing Penalty (veh)	0		10		

Intersection: 55: Cell Phone Lot/Rental Car Pickup & S 160th St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	UL	T	TR	L	T	TR	L	TR	LTR
Maximum Queue (ft)	92	150	184	272	365	333	302	125	200
Average Queue (ft)	42	72	104	117	167	136	143	57	94
95th Queue (ft)	78	126	167	249	355	319	262	138	171
Link Distance (ft)		333	333		466	466	305		182
Upstream Blk Time (%)					2	0	2		1
Queuing Penalty (veh)					0	0	0		0
Storage Bay Dist (ft)	150			250				50	
Storage Blk Time (%)	0	0		0	9		49	2	
Queuing Penalty (veh)	0	0		0	22		35	5	

Network Summary

Network wide Queuing Penalty: 241

54: Host Rd/SR 518 EB On Ramp & S 160th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	11.1	11.1	8.7	4.1	0.2	0.2	5.8
Total Del/Veh (s)	16.6	2.9	2.1	20.7	35.2	4.7	13.4	10.8	4.1	16.8

Intersection: 54: Host Rd/SR 518 EB On Ramp & S 160th St

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	TR	L	T	R	L	TR
Maximum Queue (ft)	124	61	85	189	344	340	43	72
Average Queue (ft)	52	19	25	79	219	93	12	31
95th Queue (ft)	100	47	64	230	430	299	38	58
Link Distance (ft)		364	364		326	326		223
Upstream Blk Time (%)					12	1		
Queuing Penalty (veh)					48	6		
Storage Bay Dist (ft)	120			130			100	
Storage Blk Time (%)	1			0	47			0
Queuing Penalty (veh)	1			0	19			0

53: Air Cargo Rd & S 160th St Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.4	0.0	0.2	0.0	0.0	3.5	1.3	1.1
Total Del/Veh (s)	7.8	1.3	3.9	11.7	7.7	10.6	8.6	7.7

54: Host Rd/SR 518 EB On Ramp & S 160th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.5	0.2	0.1	0.3	0.1
Total Del/Veh (s)	8.3	0.9	0.9	5.9	3.0	4.9	5.7	3.5

55: Cell Phone Lot/Rental Car Pickup & S 160th St Performance by movement

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.7	0.6	0.3	0.3	0.3	0.4
Total Del/Veh (s)	15.3	15.7	4.8	20.1	11.0	23.9	29.0	23.4	15.2

Total Network Performance

Denied Del/Veh (s)	1.3
Total Del/Veh (s)	21.3

Intersection: 53: Air Cargo Rd & S 160th St

Movement	WB	NB	SB	SB
Directions Served	L	TR	L	T
Maximum Queue (ft)	85	186	156	85
Average Queue (ft)	38	84	73	44
95th Queue (ft)	70	143	123	70
Link Distance (ft)		296		842
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	170		800	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 54: Host Rd/SR 518 EB On Ramp & S 160th St

Movement	EB	WB	WB	WB	NB
Directions Served	L	L	T	R	R
Maximum Queue (ft)	94	49	28	172	117
Average Queue (ft)	30	12	1	42	50
95th Queue (ft)	67	39	12	129	85
Link Distance (ft)			333	333	221
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	120	130			
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 55: Cell Phone Lot/Rental Car Pickup & S 160th St

Movement	EB	EB	EB	WB	WB	SB
Directions Served	UL	T	T	T	TR	LTR
Maximum Queue (ft)	152	104	114	369	315	174
Average Queue (ft)	76	35	54	169	138	77
95th Queue (ft)	133	78	100	297	262	137
Link Distance (ft)		333	333	466	466	182
Upstream Blk Time (%)				0		0
Queuing Penalty (veh)				0		0
Storage Bay Dist (ft)	150					
Storage Blk Time (%)	0			3		
Queuing Penalty (veh)	1			0		

Network Summary

Network wide Queuing Penalty: 1

54: Host Rd/SR 518 EB On Ramp & S 160th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1	0.1	3.8	0.7	0.7	0.4
Total Del/Veh (s)	13.8	4.8	3.4	12.4	8.3	3.6	12.0	11.4	4.7	7.3

Intersection: 54: Host Rd/SR 518 EB On Ramp & S 160th St

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	TR	L	T	R	L	TR
Maximum Queue (ft)	101	81	87	107	221	128	106	86
Average Queue (ft)	40	33	33	22	100	25	51	37
95th Queue (ft)	80	64	68	62	181	93	85	69
Link Distance (ft)		370	370		326	326		223
Upstream Blk Time (%)					0			
Queuing Penalty (veh)					0			
Storage Bay Dist (ft)	120			130			100	
Storage Blk Time (%)	0				3		0	0
Queuing Penalty (veh)	0				1		0	0

LANE SUMMARY

Site: 54 [54-S 160th St @ EB SR 518 On Ramp / Host Rd (Site Folder: 2037 NA Mit)]

Network: N101 [2037 NA MIT Network 5 (Network Folder: Network 5)]

S 160th St @ EB SR 518 On Ramp/Host Rd
Site Category: 2037 No Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Host Rd															
Lane 1[d]	80	5.0	80	5.0	510	0.157	100	8.5	LOS A	0.8	20.5	Full	1600	-9.1[N3]	0.0
Approach	80	5.0	80	5.0		0.157		8.5	LOS A	0.8	20.5				
East: S 160th St															
Lane 1[d]	805	9.0	805	9.0	655	1.230	100	136.3	LOS F	37.1[N4]	994.1[N4]	Full	400	-25.4[N3]	49.9
Approach	805	9.0	805	9.0		1.230		136.3	LOS F	37.1	994.1				
West: S 160th St															
Lane 1[d]	585	10.0	585	10.0	1207	0.485	100	8.2	LOS A	5.3	142.7	Full	450	0.0	0.0
Lane 2	15	10.0	15	10.0	1207	0.012	100	3.1	LOS A	0.1	2.1	Full	450	0.0	0.0
Approach	600	10.0	600	10.0		0.485		8.1	LOS A	5.3	142.7				
Intersection	1485	9.2	1485	9.2		1.230		77.6	LOS E	37.1	994.1				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach
N3 Capacity Adjustment due to downstream lane blockage determined by the program.
N4 Average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

South: Host Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	15	20	45	80	5.0	510	0.157	100	NA	NA
Approach	15	20	45	80	5.0		0.157			

East: S 160th St

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	40	515	250	805	9.0	655	1.230	100	NA	NA

Approach	40	515	250	805	9.0		1.230			
West: S 160th St										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	140	445	-	585	10.0	1207	0.485	100	NA	NA
Lane 2	-	-	15	15	10.0	1207	0.012	100	NA	NA
Approach	140	445	15	600	10.0		0.485			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1485	9.2		1.230						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Host Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: S 160th St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SR 518 EB On Ramp Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: S 160th St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 54 [54-S 160th St @ EB SR 518 On Ramp / Host Rd (Site Folder: 2037 PA Mit)]

Network: N101 [2037 PA MIT Network 5 (Network Folder: Network 5)]

S 160th St @ EB SR 518 On Ramp/Host Rd
Site Category: 2037 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Host Rd															
Lane 1[d]	210	5.0	210	5.0	625	0.336	100	10.3	LOS B	2.0	53.0	Full	1600	0.0	0.0
Approach	210	5.0	210	5.0		0.336		10.3	LOS B	2.0	53.0				
East: S 160th St															
Lane 1[d]	745	9.0	745	9.0	789	0.945	100	42.6	LOS D	30.4	815.7	Full	400	0.0	33.5
Approach	745	9.0	745	9.0		0.945		42.6	LOS D	30.4	815.7				
West: S 160th St															
Lane 1[d]	490	10.0	490	10.0	1197	0.409	100	7.1	LOS A	3.9	106.3	Full	450	0.0	0.0
Lane 2	15	10.0	15	10.0	1197	0.013	100	3.1	LOS A	0.1	2.1	Full	450	0.0	0.0
Approach	505	10.0	505	10.0		0.409		7.0	LOS A	3.9	106.3				
Intersection	1460	8.8	1460	8.8		0.945		25.6	LOS C	30.4	815.7				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Host Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	125	40	45	210	5.0	625	0.336	100	NA	NA
Approach	125	40	45	210	5.0		0.336			

East: S 160th St

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	40	450	255	745	9.0	789	0.945	100	NA	NA
Approach	40	450	255	745	9.0		0.945			

West: S 160th St

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	95	395	-	490	10.0	1197	0.409	100	NA	NA
Lane 2	-	-	15	15	10.0	1197	0.013	100	NA	NA
Approach	95	395	15	505	10.0		0.409			

	Total	%HV	Deg.Satn (v/c)
Intersection	1460	8.8	0.945

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Host Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: S 160th St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SR 518 EB On Ramp Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: S 160th St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 54 [54-S 160th St @ EB SR 518 On Ramp / Host Rd (Site Folder: 2037 NA Mit)]

S 160th St @ EB SR 518 On Ramp/Host Rd
Site Category: 2037 No Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Host Rd													
Lane 1[d]	80	5.0	558	0.143	100	7.6	LOS A	0.8	20.8	Full	1600	0.0	0.0
Approach	80	5.0		0.143		7.6	LOS A	0.8	20.8				
East: S 160th St													
Lane 1[d]	805	9.0	877	0.918	100	16.4	LOS B	24.0	644.1	Full	400	0.0	21.5
Approach	805	9.0		0.918		16.4	LOS B	24.0	644.1				
West: S 160th St													
Lane 1[d]	585	10.0	1193	0.490	100	2.2	LOS A	5.3	143.6	Full	450	0.0	0.0
Lane 2	15	10.0	1193	0.013	100	1.4	LOS A	0.1	2.2	Full	450	0.0	0.0
Approach	600	10.0		0.490		2.1	LOS A	5.3	143.6				
Intersection	1485	9.2		0.918		10.2	LOS B	24.0	644.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Host Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	15	20	45	80	5.0	558	0.143	100	NA	NA
Approach	15	20	45	80	5.0		0.143			

East: S 160th St

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	40	515	250	805	9.0	877	0.918	100	NA	NA
Approach	40	515	250	805	9.0		0.918			

West: S 160th St

Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.

From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	140	445	-	585	10.0	1193	0.490	100	NA	NA
Lane 2	-	-	15	15	10.0	1193	0.013	100	NA	NA
Approach	140	445	15	600	10.0		0.490			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1485	9.2		0.918						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Host Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: S 160th St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SR 518 EB On Ramp Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: S 160th St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 54 [54-S 160th St @ EB SR 518 On Ramp / Host Rd (Site Folder: 2037 PA Mit)]

S 160th St @ EB SR 518 On Ramp/Host Rd
Site Category: 2037 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Host Rd													
Lane 1[d]	210	5.0	626	0.336	100	9.0	LOS A	2.0	53.2	Full	1600	0.0	0.0
Approach	210	5.0		0.336		9.0	LOS A	2.0	53.2				
East: S 160th St													
Lane 1[d]	745	9.0	791	0.941	100	23.6	LOS C	25.1	672.6	Full	400	0.0	23.4
Approach	745	9.0		0.941		23.6	LOS C	25.1	672.6				
West: S 160th St													
Lane 1[d]	490	10.0	1196	0.410	100	1.9	LOS A	4.0	107.3	Full	450	0.0	0.0
Lane 2	15	10.0	1196	0.013	100	1.4	LOS A	0.1	2.2	Full	450	0.0	0.0
Approach	505	10.0		0.410		1.8	LOS A	4.0	107.3				
Intersection	1460	8.8		0.941		14.0	LOS B	25.1	672.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Host Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	125	40	45	210	5.0	626	0.336	100	NA	NA
Approach	125	40	45	210	5.0		0.336			

East: S 160th St

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	40	450	255	745	9.0	791	0.941	100	NA	NA
Approach	40	450	255	745	9.0		0.941			

West: S 160th St

Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.

From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	95	395	-	490	10.0	1196	0.410	100	NA	NA
Lane 2	-	-	15	15	10.0	1196	0.013	100	NA	NA
Approach	95	395	15	505	10.0		0.410			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1460	8.8		0.941						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Host Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: S 160th St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SR 518 EB On Ramp Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: S 160th St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										