



Tollway Contract 4383-Task Order 1

I-294 at Irving Park Road

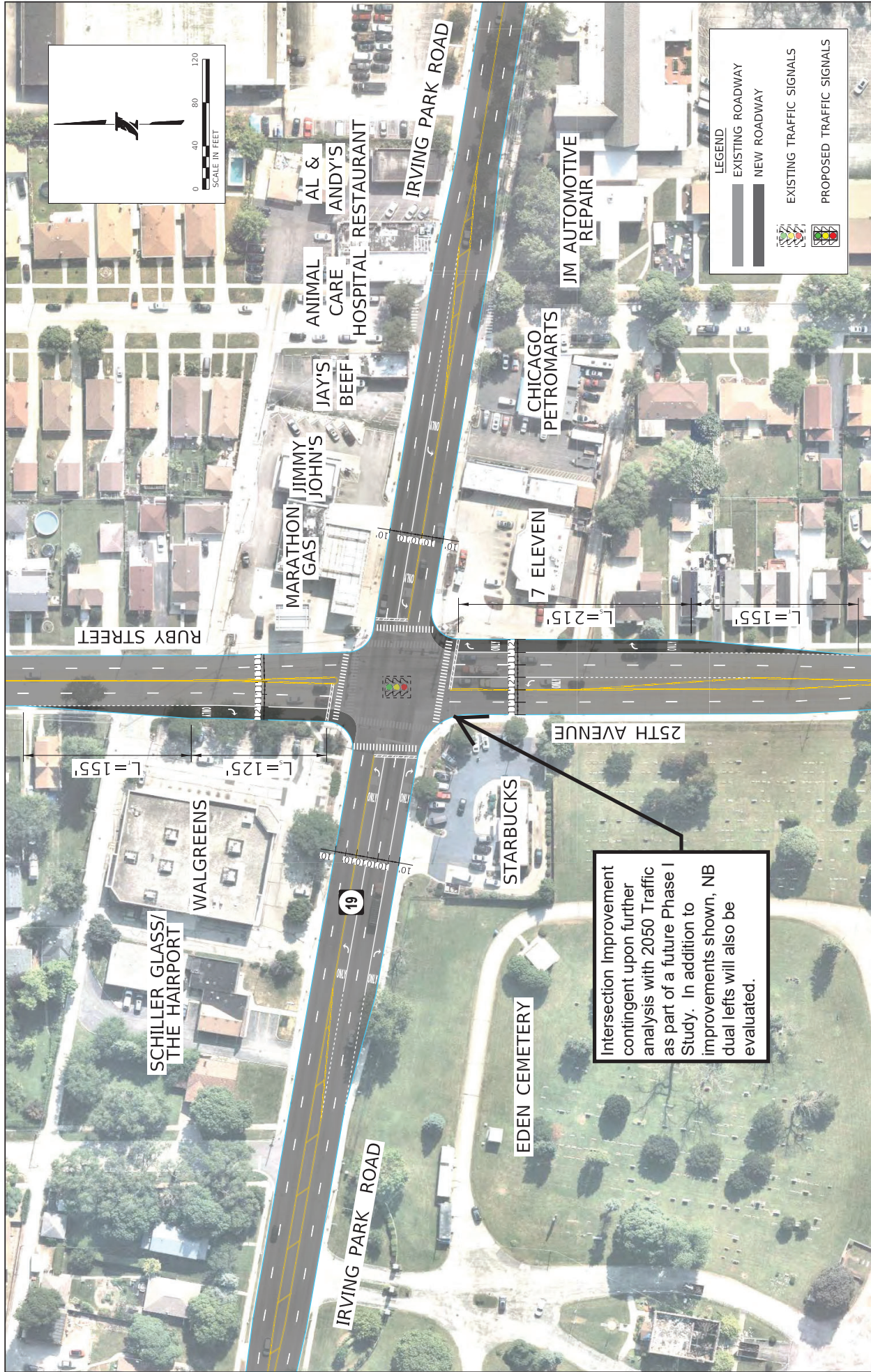
Interchange Feasibility Study

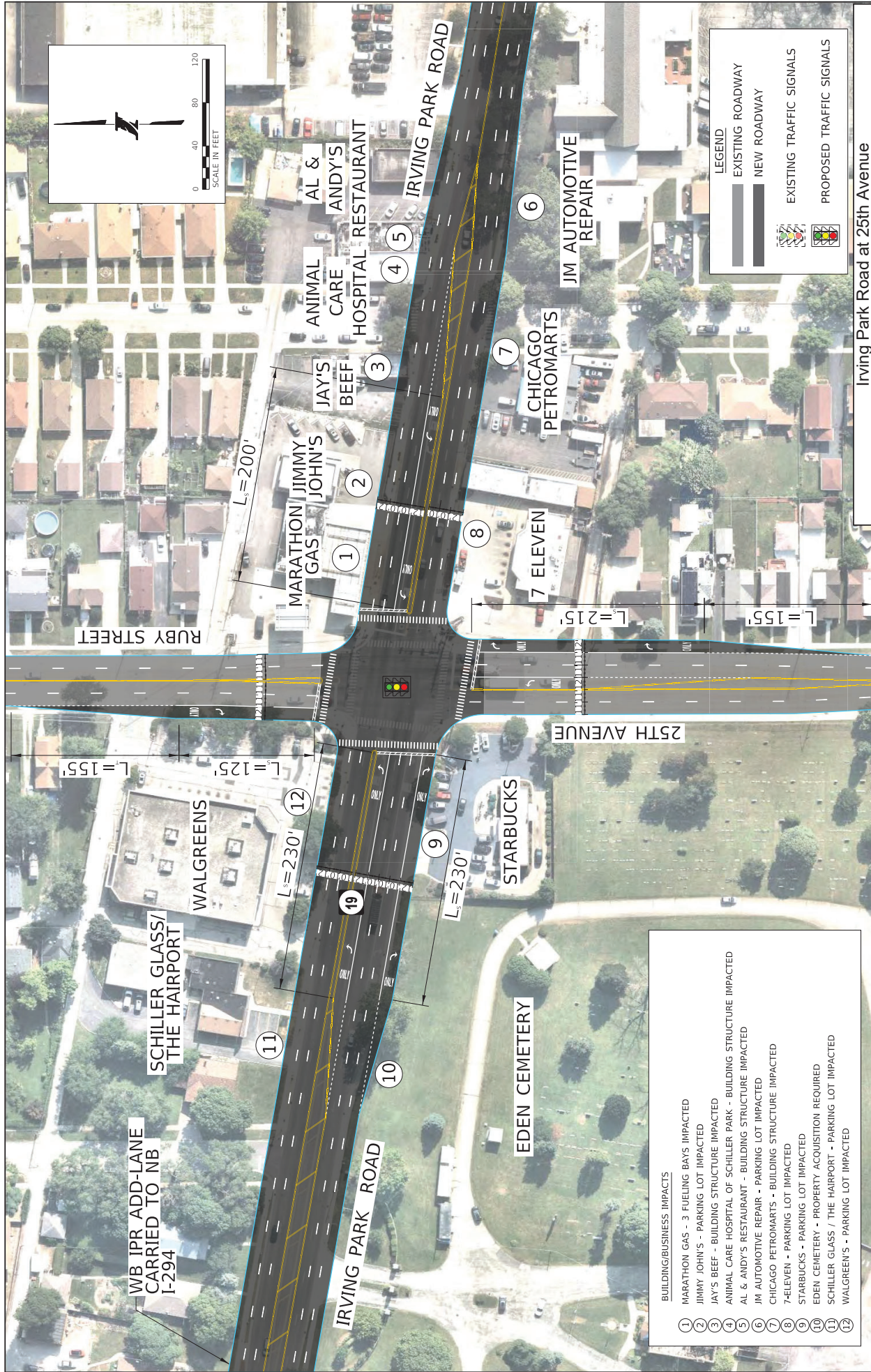
Appendix E

Irving Park Road at 25th Avenue

Intersection Improvement Alternatives

and Synchro Summary Reports





Lanes, Volumes, Timings
22: 25th & Irving

Existing Conditions - AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	990	170	130	1390	30	260	320	125	35	195	40
Future Volume (vph)	90	990	170	130	1390	30	260	320	125	35	195	40
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1636	3410	1383	1636	3195	0	1678	3280	0	0	3192	0
Flt Permitted	0.087			0.178			0.216				0.763	
Satd. Flow (perm)	150	3410	1383	306	3195	0	381	3280	0	0	2450	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165		4			25			18	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		32.8			77.7			20.5			17.3	
Peak Hour Factor	0.85	0.93	0.72	0.79	0.96	0.57	0.87	0.60	0.83	0.77	0.85	0.56
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	1065	236	165	1501	0	299	684	0	0	345	0
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2	2 3	1	6		3	8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2	2 3	1	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	8.0		8.0	8.0	
Minimum Split (s)	6.5	36.0		6.5	35.0		6.5	36.0		21.0	21.0	
Total Split (s)	10.0	82.0		15.0	87.0		22.0	43.0		21.0	21.0	
Total Split (%)	7.1%	58.6%		10.7%	62.1%		15.7%	30.7%		15.0%	15.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effect Green (s)	84.5	75.5	99.2	91.4	79.3		41.2	38.7			15.0	
Actuated g/C Ratio	0.60	0.54	0.71	0.65	0.57		0.29	0.28			0.11	
v/c Ratio	0.67	0.58	0.23	0.56	0.83		1.00	0.74			1.24	
Control Delay	40.9	16.1	1.8	14.8	17.0		97.3	50.5			182.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	40.9	16.1	1.8	14.8	17.0		97.3	50.5			182.3	
LOS	D	B	A	B	B		F	D			F	
Approach Delay		15.6			16.8			64.8			182.3	
Approach LOS		B			B			E			F	
Queue Length 50th (ft)	37	173	7	41	261		~246	294			~197	
Queue Length 95th (ft)	m#94	230	15	m45	m287		#411	218			#277	
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200			110					

Lanes, Volumes, Timings
22: 25th & Irving

Existing Conditions - AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	159	1859	1024	309	1850		298	923			278	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.67	0.57	0.23	0.53	0.81		1.00	0.74			1.24	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 123 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 40.1

Intersection LOS: D

Intersection Capacity Utilization 84.8%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F
Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Future Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95
Frt			0.850		0.995			0.967			0.943	
Flt Protected	0.950			0.950			0.950				0.995	
Satd. Flow (prot)	1636	3410	1383	1636	3195	0	1678	3280	0	0	3072	0
Flt Permitted	0.061			0.127			0.202				0.781	
Satd. Flow (perm)	105	3410	1383	219	3195	0	357	3280	0	0	2411	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			203		3			28			81	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		32.8			77.7			20.5			17.3	
Peak Hour Factor	0.85	0.93	0.72	0.79	0.96	0.57	0.87	0.60	0.83	0.77	0.85	0.56
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	153	1151	250	165	1490	53	351	533	151	45	229	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	1151	250	165	1543	0	351	684	0	0	444	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	1.04	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left		Right	Left			Left			Left		
Leading Detector (ft)	36	256	36	36	256		36	256		20	256	
Trailing Detector (ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Position(ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Size(ft)	36	6	36	36	6		36	36		20	36	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA		pm+pt	NA		Perm	NA	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F
Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2	2 3	1	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	8.0		8.0	8.0	
Minimum Split (s)	6.5	36.0		6.5	35.0		6.5	36.0		21.0	21.0	
Total Split (s)	14.0	70.0		17.0	73.0		25.0	53.0		28.0	28.0	
Total Split (%)	10.0%	50.0%		12.1%	52.1%		17.9%	37.9%		20.0%	20.0%	
Maximum Green (s)	10.5	64.0		13.5	67.0		21.5	47.0		22.0	22.0	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0		7.0	7.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	79.0	66.0	91.0	81.0	67.0		49.5	47.0			22.0	
Actuated g/C Ratio	0.56	0.47	0.65	0.58	0.48		0.35	0.34			0.16	
v/c Ratio	0.88	0.72	0.26	0.68	1.01		1.07	0.61			0.99	
Control Delay	82.9	23.6	1.4	33.4	44.1		105.3	40.0			88.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	82.9	23.6	1.4	33.4	44.1		105.3	40.0			88.6	
LOS	F	C	A	C	D		F	D			F	
Approach Delay		25.8			43.1			62.1			88.6	
Approach LOS		C			D			E			F	
Queue Length 50th (ft)	108	227	6	80	~534		~283	262			180	
Queue Length 95th (ft)	#207	254	10	m82	m#491		#456	194			#267	
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200			110					
Base Capacity (vph)	173	1607	970	266	1530		329	1119			447	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.88	0.72	0.26	0.62	1.01		1.07	0.61			0.99	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 123 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 45.8

Intersection LOS: D

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Lanes, Volumes, Timings

22: 25th & Irving

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w dual
LT's Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Future Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		0	0		0
Storage Lanes	2		1	2		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95
Frt			0.850		0.995			0.967			0.943	
Flt Protected	0.950			0.950			0.950				0.995	
Satd. Flow (prot)	3173	3410	1383	3173	3195	0	1678	3280	0	0	3072	0
Flt Permitted	0.950			0.950			0.202				0.781	
Satd. Flow (perm)	3173	3410	1383	3173	3195	0	357	3280	0	0	2411	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		3			28			81	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		32.8			77.7			20.5			17.3	
Peak Hour Factor	0.85	0.93	0.72	0.79	0.96	0.57	0.87	0.60	0.83	0.77	0.85	0.56
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	153	1151	250	165	1490	53	351	533	151	45	229	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	1151	250	165	1543	0	351	684	0	0	444	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	1.04	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left		Right	Left			Left			Left		
Leading Detector (ft)	36	256	36	36	256		36	256		20	256	
Trailing Detector (ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Position(ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Size(ft)	36	6	36	36	6		36	36		20	36	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot	NA	pt+ov	Prot	NA		pm+pt	NA		Perm	NA	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w dual
LT's Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8			4	
Permitted Phases							8			4		
Detector Phase	5	2	2 3	1	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	8.0		8.0	8.0	
Minimum Split (s)	7.5	36.0		7.5	35.0		6.5	36.0		21.0	21.0	
Total Split (s)	15.0	72.0		15.0	72.0		25.0	53.0		28.0	28.0	
Total Split (%)	10.7%	51.4%		10.7%	51.4%		17.9%	37.9%		20.0%	20.0%	
Maximum Green (s)	10.5	66.0		10.5	66.0		21.5	47.0		22.0	22.0	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		4.5	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		0.0	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		3.5	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0		7.0	7.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	10.1	66.3	91.3	10.2	66.4		49.5	47.0			22.0	
Actuated g/C Ratio	0.07	0.47	0.65	0.07	0.47		0.35	0.34			0.16	
v/c Ratio	0.67	0.71	0.26	0.71	1.02		1.07	0.61			0.99	
Control Delay	84.6	23.0	2.9	74.9	46.1		105.3	40.0			88.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	84.6	23.0	2.9	74.9	46.1		105.3	40.0			88.6	
LOS	F	C	A	E	D		F	D			F	
Approach Delay		25.9			48.8			62.1			88.6	
Approach LOS		C			D			E			F	
Queue Length 50th (ft)	75	218	17	80	~655		~283	262			180	
Queue Length 95th (ft)	108	245	21	m81	m#605		#456	194			#267	
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200			110					
Base Capacity (vph)	237	1614	945	237	1516		329	1119			447	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.65	0.71	0.26	0.70	1.02		1.07	0.61			0.99	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 123 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 47.9

Intersection LOS: D

Intersection Capacity Utilization 89.3%

ICU Level of Service E

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F w dual
LT's Timing Plan: AM

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F with RTL's
added Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Future Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		200	110		110	0		110
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1636	3410	1383	1636	3378	1568	1678	3601	1524	0	3334	1455
Flt Permitted	0.060			0.130			0.398				0.763	
Satd. Flow (perm)	103	3410	1383	224	3378	1568	703	3601	1524	0	2564	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204			78			37			51
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		32.8			77.7			20.5			17.3	
Peak Hour Factor	0.85	0.93	0.72	0.79	0.96	0.57	0.87	0.60	0.83	0.77	0.85	0.56
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	153	1151	250	165	1490	53	351	533	151	45	229	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	1151	250	165	1490	53	351	533	151	0	274	170
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.02	1.00	1.04	0.98	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	2	1	1	2	1
Detector Template	Left		Right	Left		Right	Left		Right	Left		Right
Leading Detector (ft)	36	256	36	36	256	20	36	256	20	20	256	20
Trailing Detector (ft)	0	250	0	0	250	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	250	0	0	250	0	0	0	0	0	0	0
Detector 1 Size(ft)	36	6	36	36	6	20	36	36	20	20	36	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Perm	NA	pm+ov

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F with RTL's
added Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8	1		4	5
Permitted Phases	2			6		6	8		8	4		4
Detector Phase	5	2	2 3	1	6	6	3	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	8.0	3.0	8.0	8.0	3.0
Minimum Split (s)	6.5	36.0		6.5	35.0	35.0	6.5	36.0	6.5	21.0	21.0	6.5
Total Split (s)	14.0	70.0		17.0	73.0	73.0	25.0	53.0	17.0	28.0	28.0	14.0
Total Split (%)	10.0%	50.0%		12.1%	52.1%	52.1%	17.9%	37.9%	12.1%	20.0%	20.0%	10.0%
Maximum Green (s)	10.5	64.0		13.5	67.0	67.0	21.5	47.0	13.5	22.0	22.0	10.5
Yellow Time (s)	3.5	4.5		3.5	4.5	4.5	3.5	4.5	3.5	4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5	1.5	0.0	1.5	0.0	1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0	6.0	3.5	6.0	3.5		6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead		Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0	7.0	3.0	7.0	3.0	7.0	7.0	3.0
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0	22.0		23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0	0		0		0	0	
Act Effct Green (s)	79.8	66.8	91.8	81.8	67.8	67.8	48.7	46.2	63.7		21.2	37.7
Actuated g/C Ratio	0.57	0.48	0.66	0.58	0.48	0.48	0.35	0.33	0.46		0.15	0.27
v/c Ratio	0.88	0.71	0.26	0.67	0.91	0.07	0.89	0.45	0.21		0.71	0.40
Control Delay	83.8	23.0	1.3	32.2	29.7	1.9	63.9	38.2	17.3		67.0	31.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	83.8	23.0	1.3	32.2	29.7	1.9	63.9	38.2	17.3		67.0	31.7
LOS	F	C	A	C	C	A	E	D	B		E	C
Approach Delay		25.5			29.1			43.9			53.5	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	109	227	6	78	352	1	261	198	59		125	87
Queue Length 95th (ft)	#209	254	10	m80	m349	m1	#404	157	93		165	76
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200		200	110		110			110
Base Capacity (vph)	173	1626	976	269	1636	800	394	1208	735		402	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio	0.88	0.71	0.26	0.61	0.91	0.07	0.89	0.44	0.21		0.68	0.40

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 123 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 33.4

Intersection LOS: C

Intersection Capacity Utilization 86.7%

ICU Level of Service E

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F with RTL's
added Timing Plan: AM

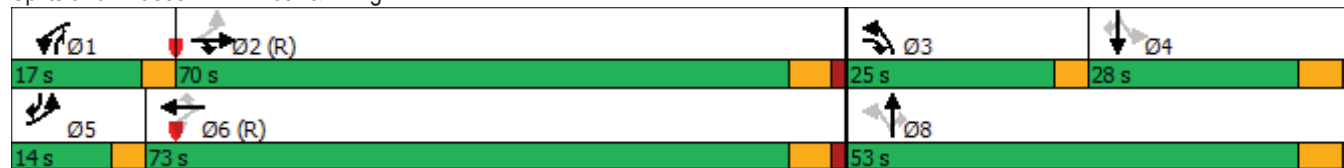
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F with RTL's added
N/S Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Future Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		110	0		110
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00
Fr _t			0.850		0.995				0.850			0.850
Fl _t Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1636	3410	1383	1636	3195	0	1678	3601	1524	0	3334	1455
Fl _t Permitted	0.060			0.130			0.398				0.763	
Satd. Flow (perm)	103	3410	1383	224	3195	0	703	3601	1524	0	2564	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			204		3				37			51
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		32.8			77.7			20.5			17.3	
Peak Hour Factor	0.85	0.93	0.72	0.79	0.96	0.57	0.87	0.60	0.83	0.77	0.85	0.56
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	153	1151	250	165	1490	53	351	533	151	45	229	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	1151	250	165	1543	0	351	533	151	0	274	170
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	0.98	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2	1	1	2	1
Detector Template	Left		Right	Left			Left		Right	Left		Right
Leading Detector (ft)	36	256	36	36	256		36	256	20	20	256	20
Trailing Detector (ft)	0	250	0	0	250		0	0	0	0	0	0
Detector 1 Position(ft)	0	250	0	0	250		0	0	0	0	0	0
Detector 1 Size(ft)	36	6	36	36	6		36	36	20	20	36	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA	pm+ov

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F with RTL's added

N/S Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8	1		4	5
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2	2 3	1	6		3	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	8.0	3.0	8.0	8.0	3.0
Minimum Split (s)	6.5	36.0		6.5	35.0		6.5	36.0	6.5	21.0	21.0	6.5
Total Split (s)	14.0	70.0		17.0	73.0		25.0	53.0	17.0	28.0	28.0	14.0
Total Split (%)	10.0%	50.0%		12.1%	52.1%		17.9%	37.9%	12.1%	20.0%	20.0%	10.0%
Maximum Green (s)	10.5	64.0		13.5	67.0		21.5	47.0	13.5	22.0	22.0	10.5
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	3.5	4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5	0.0	1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	3.5		6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0	3.0	7.0	7.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	79.8	66.8	91.8	81.8	67.8		48.7	46.2	63.7		21.2	37.7
Actuated g/C Ratio	0.57	0.48	0.66	0.58	0.48		0.35	0.33	0.46		0.15	0.27
v/c Ratio	0.88	0.71	0.26	0.67	1.00		0.89	0.45	0.21		0.71	0.40
Control Delay	83.8	23.0	1.3	32.2	41.1		63.9	38.2	17.3		67.0	31.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	83.8	23.0	1.3	32.2	41.1		63.9	38.2	17.3		67.0	31.7
LOS	F	C	A	C	D		E	D	B		E	C
Approach Delay		25.5			40.2			43.9			53.5	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	109	227	6	78	~534		261	198	59		125	87
Queue Length 95th (ft)	#209	254	10	m80	m#491		#404	157	93		165	76
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200			110		110			110
Base Capacity (vph)	173	1626	976	269	1549		394	1208	735		402	429
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	0
Reduced v/c Ratio	0.88	0.71	0.26	0.61	1.00		0.89	0.44	0.21		0.68	0.40

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 123 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 37.4

Intersection LOS: D

Intersection Capacity Utilization 89.6%

ICU Level of Service E

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F with RTL's added
N/S Timing Plan: AM

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving

 Ø1	 Ø2 (R)	 Ø3	 Ø4
17 s	70 s	25 s	28 s
 Ø5	 Ø6 (R)	 Ø8	
14 s	73 s	53 s	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w added Thru
Lane Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Future Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	0.95	0.95	0.95	0.95
Frt			0.850		0.995			0.967			0.943	
Flt Protected	0.950			0.950			0.950				0.995	
Satd. Flow (prot)	1636	4900	1383	1636	4591	0	1678	3280	0	0	3072	0
Flt Permitted	0.950			0.950			0.202				0.781	
Satd. Flow (perm)	1636	4900	1383	1636	4591	0	357	3280	0	0	2411	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184		4			29			81	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		385			325			904			763	
Travel Time (s)		7.5			6.3			20.5			17.3	
Peak Hour Factor	0.85	0.93	0.72	0.79	0.96	0.57	0.87	0.60	0.83	0.77	0.85	0.56
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	153	1151	250	165	1490	53	351	533	151	45	229	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	1151	250	165	1543	0	351	684	0	0	444	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	1.04	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left		Right	Left			Left			Left		
Leading Detector (ft)	36	256	36	36	256		36	256		20	256	
Trailing Detector (ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Position(ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Size(ft)	36	6	36	36	6		36	36		20	36	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot	NA	pt+ov	Prot	NA		pm+pt	NA		Perm	NA	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w added Thru
Lane Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8			4	
Permitted Phases							8			4		
Detector Phase	5	2	2 3	1	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	8.0		8.0	8.0	
Minimum Split (s)	7.5	36.0		7.5	35.0		6.5	36.0		21.0	21.0	
Total Split (s)	23.0	62.0		23.0	62.0		27.0	55.0		28.0	28.0	
Total Split (%)	16.4%	44.3%		16.4%	44.3%		19.3%	39.3%		20.0%	20.0%	
Maximum Green (s)	18.5	56.0		18.5	56.0		23.5	49.0		22.0	22.0	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		4.5	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		0.0	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		3.5	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0		7.0	7.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	16.7	56.9	84.4	17.1	57.3		52.0	49.5			22.0	
Actuated g/C Ratio	0.12	0.41	0.60	0.12	0.41		0.37	0.35			0.16	
v/c Ratio	0.79	0.58	0.28	0.82	0.82		0.98	0.58			0.99	
Control Delay	90.4	27.7	2.4	77.8	36.4		79.1	37.6			88.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	90.4	27.7	2.4	77.8	36.4		79.1	37.6			88.6	
LOS	F	C	A	E	D		E	D			F	
Approach Delay		29.8			40.4			51.7			88.6	
Approach LOS		C			D			D			F	
Queue Length 50th (ft)	146	180	12	156	315		254	256			180	
Queue Length 95th (ft)	#213	225	17	m158	m310		#433	190			#267	
Internal Link Dist (ft)		305			245			824			683	
Turn Bay Length (ft)	230		230	200			110					
Base Capacity (vph)	216	1991	906	216	1882		359	1178			447	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.71	0.58	0.28	0.76	0.82		0.98	0.58			0.99	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 123 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 43.9

Intersection LOS: D

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F w added Thru
Lane Timing Plan: AM

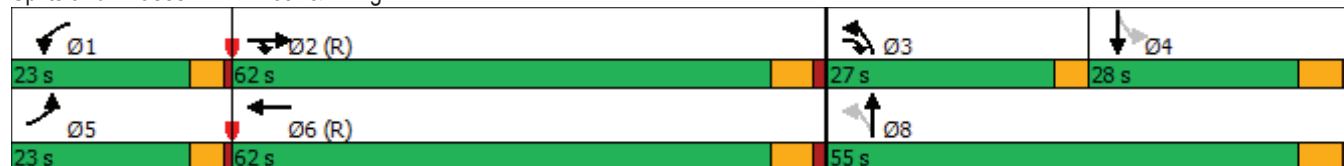
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w added Thru Lane E/W, RTL

N/S Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Future Volume (vph)	130	1070	180	130	1430	30	305	320	125	35	195	95
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		110	0		110
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00
Flt			0.850		0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1636	4900	1383	1636	4591	0	1678	3601	1524	0	3334	1455
Flt Permitted	0.950			0.950			0.398				0.763	
Satd. Flow (perm)	1636	4900	1383	1636	4591	0	703	3601	1524	0	2564	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184		4				23			56
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		385			325			904			763	
Travel Time (s)		7.5			6.3			20.5			17.3	
Peak Hour Factor	0.85	0.93	0.72	0.79	0.96	0.57	0.87	0.60	0.83	0.77	0.85	0.56
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	153	1151	250	165	1490	53	351	533	151	45	229	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	1151	250	165	1543	0	351	533	151	0	274	170
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	0.98	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2	1	1	2	1
Detector Template	Left		Right	Left			Left		Right	Left		Right
Leading Detector (ft)	36	256	36	36	256		36	256	20	20	256	20
Trailing Detector (ft)	0	250	0	0	250		0	0	0	0	0	0
Detector 1 Position(ft)	0	250	0	0	250		0	0	0	0	0	0
Detector 1 Size(ft)	36	6	36	36	6		36	36	20	20	36	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot	NA	pm+ov	Prot	NA		pm+pt	NA	pm+ov	Perm	NA	pm+ov

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w added Thru Lane E/W, RTL
N/S Timing Plan: AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	3	1	6		3	8	1		4	5
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	3	1	6		3	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	8.0	3.0	8.0	8.0	3.0
Minimum Split (s)	7.5	36.0	6.5	7.5	35.0		6.5	36.0	7.5	21.0	21.0	7.5
Total Split (s)	23.0	62.0	27.0	23.0	62.0		27.0	55.0	23.0	28.0	28.0	23.0
Total Split (%)	16.4%	44.3%	19.3%	16.4%	44.3%		19.3%	39.3%	16.4%	20.0%	20.0%	16.4%
Maximum Green (s)	18.5	56.0	23.5	18.5	56.0		23.5	49.0	18.5	22.0	22.0	18.5
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5	4.5	4.5	3.5
All-Red Time (s)	1.0	1.5	0.0	1.0	1.5		0.0	1.5	1.0	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	6.0	3.5	4.5	6.0		3.5	6.0	4.5		6.0	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead		Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0	3.0	7.0	7.0	3.0
Recall Mode	None	C-Min	None	None	C-Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	16.7	58.7	87.7	17.1	59.1		50.2	47.7	70.8		21.2	43.9
Actuated g/C Ratio	0.12	0.42	0.63	0.12	0.42		0.36	0.34	0.51		0.15	0.31
v/c Ratio	0.79	0.56	0.27	0.82	0.79		0.85	0.43	0.19		0.71	0.34
Control Delay	89.3	26.8	2.1	77.2	35.7		56.9	36.8	15.9		67.0	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	89.3	26.8	2.1	77.2	35.7		56.9	36.8	15.9		67.0	25.7
LOS	F	C	A	E	D		E	D	B		E	C
Approach Delay		29.0			39.7			40.6			51.2	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	146	180	11	156	315		254	194	59		125	76
Queue Length 95th (ft)	#213	225	15	m158	m310		#366	154	91		165	65
Internal Link Dist (ft)		305			245			824			683	
Turn Bay Length (ft)	230		230	200			110		110			110
Base Capacity (vph)	216	2054	939	216	1941		415	1260	797		402	512
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	0
Reduced v/c Ratio	0.71	0.56	0.27	0.76	0.79		0.85	0.42	0.19		0.68	0.33

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 123 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 37.5

Intersection LOS: D

Intersection Capacity Utilization 77.8%

ICU Level of Service D

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F w added Thru Lane E/W, RTL
N/S Timing Plan: AM

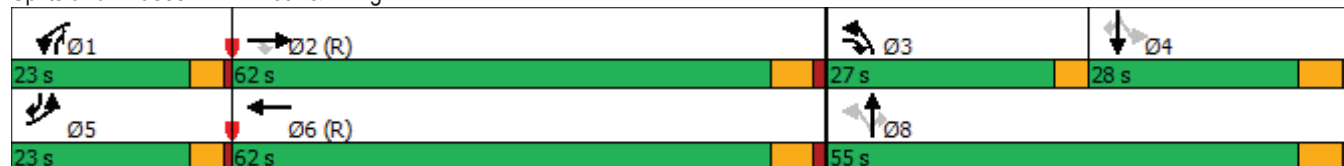
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1215	135	180	985	65	240	250	140	155	340	25
Future Volume (vph)	50	1215	135	180	985	65	240	250	140	155	340	25
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95
Frt			0.850		0.990			0.945			0.990	
Flt Protected	0.950			0.950			0.950				0.985	
Satd. Flow (prot)	1636	3410	1383	1636	3181	0	1678	3187	0	0	3268	0
Flt Permitted	0.155			0.102			0.117				0.688	
Satd. Flow (perm)	267	3410	1383	176	3181	0	207	3187	0	0	2282	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		7			77			4	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		28.7			68.0			20.5			17.3	
Peak Hour Factor	0.60	0.98	0.92	0.83	0.94	0.84	0.93	0.79	0.76	0.82	0.85	0.63
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	83	1240	147	217	1048	77	258	316	184	189	400	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	1240	147	217	1125	0	258	500	0	0	629	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	1.04	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left		Right	Left			Left			Left		
Leading Detector (ft)	36	256	36	36	256		36	256		20	256	
Trailing Detector (ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Position(ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Size(ft)	36	6	36	36	6		36	36		20	36	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA		pm+pt	NA		Perm	NA	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2	2 3	1	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		2.5	15.0		3.0	8.0		8.0	8.0	
Minimum Split (s)	6.5	36.0		6.5	35.0		6.5	36.0		36.0	36.0	
Total Split (s)	13.0	88.0		15.0	90.0		18.0	57.0		39.0	39.0	
Total Split (%)	8.1%	55.0%		9.4%	56.3%		11.3%	35.6%		24.4%	24.4%	
Maximum Green (s)	9.5	82.0		11.5	84.0		14.5	51.0		33.0	33.0	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0		7.0	7.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	88.4	77.4	100.0	94.2	80.4		58.1	55.6			33.0	
Actuated g/C Ratio	0.55	0.48	0.62	0.59	0.50		0.36	0.35			0.21	
v/c Ratio	0.38	0.75	0.16	1.04	0.70		1.03	0.43			1.33	
Control Delay	13.6	28.1	3.9	104.9	19.0		107.1	35.8			209.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	13.6	28.1	3.9	104.9	19.0		107.1	35.8			209.2	
LOS	B	C	A	F	B		F	D			F	
Approach Delay		24.8			32.9			60.0			209.2	
Approach LOS		C			C			E			F	
Queue Length 50th (ft)	16	517	12	~117	417		~278	185			~447	
Queue Length 95th (ft)	34	471	m27	m#192	m391		#476	203			#531	
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200			110					
Base Capacity (vph)	230	1747	889	208	1674		250	1157			473	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.36	0.71	0.17	1.04	0.67		1.03	0.43			1.33	
Intersection Summary												
Area Type:	Other											
Cycle Length: 160												
Actuated Cycle Length: 160												
Offset: 155 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green												
Natural Cycle: 115												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.33												
Intersection Signal Delay: 61.4							Intersection LOS: E					
Intersection Capacity Utilization 88.2%							ICU Level of Service E					

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F
Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Future Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95
Flt			0.850		0.990			0.925			0.979	
Flt Protected	0.950			0.950			0.950				0.986	
Satd. Flow (prot)	1636	3410	1383	1636	3181	0	1678	3104	0	0	3217	0
Flt Permitted	0.080			0.060			0.198				0.640	
Satd. Flow (perm)	138	3410	1383	103	3181	0	350	3104	0	0	2088	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100		5			184			12	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		28.7			68.0			20.5			17.3	
Peak Hour Factor	0.60	0.98	0.92	0.83	0.94	0.84	0.93	0.79	0.76	0.82	0.85	0.63
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	217	1367	158	217	1112	77	177	316	316	189	400	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	1367	158	217	1189	0	177	632	0	0	684	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	1.04	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left		Right	Left			Left			Left		
Leading Detector (ft)	36	256	36	36	256		36	256		20	256	
Trailing Detector (ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Position(ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Size(ft)	36	6	36	36	6		36	36		20	36	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA		pm+pt	NA		Perm	NA	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F
Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2	2 3	1	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		2.5	15.0		3.0	8.0		8.0	8.0	
Minimum Split (s)	6.5	36.0		6.5	35.0		6.5	36.0		36.0	36.0	
Total Split (s)	20.2	72.0		20.4	72.2		13.6	67.6		54.0	54.0	
Total Split (%)	12.6%	45.0%		12.8%	45.1%		8.5%	42.3%		33.8%	33.8%	
Maximum Green (s)	16.7	66.0		16.9	66.2		10.1	61.6		48.0	48.0	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		4.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0		7.0	7.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	85.1	66.0	79.6	85.7	66.3		64.1	61.6			48.0	
Actuated g/C Ratio	0.53	0.41	0.50	0.54	0.41		0.40	0.38			0.30	
v/c Ratio	0.95	0.97	0.21	1.00	0.90		0.79	0.48			1.08	
Control Delay	77.9	54.1	8.3	117.8	37.3		59.3	26.9			109.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	77.9	54.1	8.3	117.8	37.3		59.3	26.9			109.6	
LOS	E	D	A	F	D		E	C			F	
Approach Delay		52.9			49.7			34.0			109.6	
Approach LOS		D			D			C			F	
Queue Length 50th (ft)	174	673	18	168	576		124	185			~414	
Queue Length 95th (ft)	154	m#890	m43	m#269	m630		#222	195			#495	
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200			110					
Base Capacity (vph)	229	1406	738	217	1321		224	1308			634	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.95	0.97	0.21	1.00	0.90		0.79	0.48			1.08	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 155 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 57.0

Intersection LOS: E

Intersection Capacity Utilization 93.9%

ICU Level of Service F

Lanes, Volumes, Timings

22: 25th & Irving

Alt 4E/4F
Timing Plan: PM

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving

 Ø1	 Ø2 (R)	 Ø3	 Ø4
20.4 s	72 s	13.6 s	54 s
 Ø5	 Ø6 (R)	 Ø8	
20.2 s	72.2 s	67.6 s	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w dual
LT's Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Future Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		0	0		0
Storage Lanes	2		1	2		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95
Flt			0.850		0.990			0.925			0.979	
Flt Protected	0.950			0.950			0.950				0.986	
Satd. Flow (prot)	3173	3410	1383	3173	3181	0	1678	3104	0	0	3217	0
Flt Permitted	0.950			0.950			0.186				0.647	
Satd. Flow (perm)	3173	3410	1383	3173	3181	0	328	3104	0	0	2111	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106		6			168			11	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		28.7			68.0			20.5			17.3	
Peak Hour Factor	0.60	0.98	0.92	0.83	0.94	0.84	0.93	0.79	0.76	0.82	0.85	0.63
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	217	1367	158	217	1112	77	177	316	316	189	400	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	1367	158	217	1189	0	177	632	0	0	684	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	1.04	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left		Right	Left			Left			Left		
Leading Detector (ft)	36	256	36	36	256		36	256		20	256	
Trailing Detector (ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Position(ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Size(ft)	36	6	36	36	6		36	36		20	36	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot	NA	pt+ov	Prot	NA		pm+pt	NA		Perm	NA	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w dual
LT's Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8			4	
Permitted Phases							8			4		
Detector Phase	5	2	2 3	1	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		2.5	15.0		3.0	8.0		8.0	8.0	
Minimum Split (s)	7.5	36.0		7.0	35.0		6.5	36.0		36.0	36.0	
Total Split (s)	16.0	75.0		18.0	77.0		15.0	67.0		52.0	52.0	
Total Split (%)	10.0%	46.9%		11.3%	48.1%		9.4%	41.9%		32.5%	32.5%	
Maximum Green (s)	11.5	69.0		13.5	71.0		11.5	61.0		46.0	46.0	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		4.5	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		0.0	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		3.5	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0		7.0	7.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	11.5	69.3	84.3	13.2	71.0		63.5	61.0			46.0	
Actuated g/C Ratio	0.07	0.43	0.53	0.08	0.44		0.40	0.38			0.29	
v/c Ratio	0.95	0.93	0.20	0.83	0.84		0.78	0.49			1.11	
Control Delay	108.3	45.5	6.5	113.6	29.4		57.7	28.3			122.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	108.3	45.5	6.5	113.6	29.4		57.7	28.3			122.0	
LOS	F	D	A	F	C		E	C			F	
Approach Delay		49.8			42.4			34.8			122.0	
Approach LOS		D			D			C			F	
Queue Length 50th (ft)	121	624	14	113	554		124	193			~425	
Queue Length 95th (ft)	110	m#813	m37	m137	m596		#219	204			#507	
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200			110					
Base Capacity (vph)	228	1476	778	267	1414		227	1287			614	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.95	0.93	0.20	0.81	0.84		0.78	0.49			1.11	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 155 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 55.6

Intersection LOS: E

Intersection Capacity Utilization 89.5%

ICU Level of Service E

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F w dual
LT's Timing Plan: PM

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

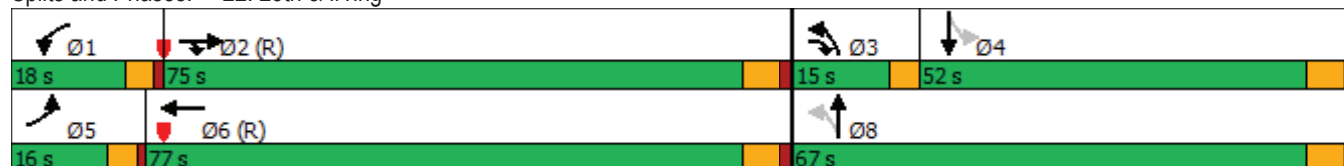
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w RTL's
added Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Future Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		200	110		110	0		110
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1636	3410	1383	1636	3378	1568	1678	3601	1524	0	3312	1455
Flt Permitted	0.138			0.055			0.219				0.733	
Satd. Flow (perm)	238	3410	1383	95	3378	1568	387	3601	1524	0	2467	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111			68			20			68
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		28.7			68.0			20.5			17.3	
Peak Hour Factor	0.60	0.98	0.92	0.83	0.94	0.84	0.93	0.79	0.76	0.82	0.85	0.63
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	217	1367	158	217	1112	77	177	316	316	189	400	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	1367	158	217	1112	77	177	316	316	0	589	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.02	1.00	1.04	0.98	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	2	1	1	2	1
Detector Template	Left		Right	Left		Right	Left		Right	Left		Right
Leading Detector (ft)	36	256	36	36	256	20	36	256	20	20	256	20
Trailing Detector (ft)	0	250	0	0	250	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	250	0	0	250	0	0	0	0	0	0	0
Detector 1 Size(ft)	36	6	36	36	6	20	36	36	20	20	36	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Perm	NA	pm+ov

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w RTL's
added Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8	1		4	5
Permitted Phases	2			6		6	8		8	4		4
Detector Phase	5	2	2 3	1	6	6	3	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		2.5	15.0	15.0	3.0	8.0	2.5	8.0	8.0	3.0
Minimum Split (s)	6.5	36.0		6.5	35.0	35.0	6.5	36.0	6.5	36.0	36.0	6.5
Total Split (s)	16.0	75.0		20.0	79.0	79.0	18.0	65.0	20.0	47.0	47.0	16.0
Total Split (%)	10.0%	46.9%		12.5%	49.4%	49.4%	11.3%	40.6%	12.5%	29.4%	29.4%	10.0%
Maximum Green (s)	12.5	69.0		16.5	73.0	73.0	14.5	59.0	16.5	41.0	41.0	12.5
Yellow Time (s)	3.5	4.5		3.5	4.5	4.5	3.5	4.5	3.5	4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5	1.5	0.0	1.5	0.0	1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0	6.0	3.5	6.0	3.5		6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead		Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0	7.0	3.0	7.0	3.0	7.0	7.0	3.0
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0	22.0		23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0	0		0		0	0	
Act Effct Green (s)	84.0	69.0	86.4	91.5	73.0	73.0	61.5	59.0	81.5		41.6	60.1
Actuated g/C Ratio	0.52	0.43	0.54	0.57	0.46	0.46	0.38	0.37	0.51		0.26	0.38
v/c Ratio	0.93	0.93	0.20	1.02	0.72	0.10	0.68	0.24	0.40		0.92	0.16
Control Delay	56.9	45.9	5.3	121.6	23.1	0.9	48.4	35.6	24.4		77.7	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	56.9	45.9	5.3	121.6	23.1	0.9	48.4	35.6	24.4		77.7	12.2
LOS	E	D	A	F	C	A	D	D	C		E	B
Approach Delay		43.6			37.1			34.0			68.6	
Approach LOS		D			D			C			E	
Queue Length 50th (ft)	128	624	11	~171	491	1	127	120	187		319	18
Queue Length 95th (ft)	109	m#813	m32	m#273	m535	m1	191	138	212		#393	27
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200		200	110		110			110
Base Capacity (vph)	234	1470	802	213	1541	752	265	1327	786		641	588
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio	0.93	0.93	0.20	1.02	0.72	0.10	0.67	0.24	0.40		0.92	0.16

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 155 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 43.7

Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F w RTL's
added Timing Plan: PM

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w RTL's added
N/S Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Future Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		110	0		110
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00
Flt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1636	3410	1383	1636	3181	0	1678	3601	1524	0	3312	1455
Flt Permitted	0.112			0.055			0.219				0.733	
Satd. Flow (perm)	193	3410	1383	95	3181	0	387	3601	1524	0	2467	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		6				20			68
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1685			3987			904			763	
Travel Time (s)		28.7			68.0			20.5			17.3	
Peak Hour Factor	0.60	0.98	0.92	0.83	0.94	0.84	0.93	0.79	0.76	0.82	0.85	0.63
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	217	1367	158	217	1112	77	177	316	316	189	400	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	1367	158	217	1189	0	177	316	316	0	589	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	0.98	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2	1	1	2	1
Detector Template	Left		Right	Left			Left		Right	Left		Right
Leading Detector (ft)	36	256	36	36	256		36	256	20	20	256	20
Trailing Detector (ft)	0	250	0	0	250		0	0	0	0	0	0
Detector 1 Position(ft)	0	250	0	0	250		0	0	0	0	0	0
Detector 1 Size(ft)	36	6	36	36	6		36	36	20	20	36	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA	pm+ov

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w RTL's added
N/S Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8	1		4	5
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2	2 3	1	6		3	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0		2.5	15.0		3.0	8.0	2.5	8.0	8.0	3.0
Minimum Split (s)	6.5	36.0		6.5	35.0		6.5	36.0	6.5	36.0	36.0	6.5
Total Split (s)	16.0	75.0		20.0	79.0		18.0	65.0	20.0	47.0	47.0	16.0
Total Split (%)	10.0%	46.9%		12.5%	49.4%		11.3%	40.6%	12.5%	29.4%	29.4%	10.0%
Maximum Green (s)	12.5	69.0		16.5	73.0		14.5	59.0	16.5	41.0	41.0	12.5
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5	3.5	4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5	0.0	1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	3.5		6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0	3.0	7.0	7.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	84.0	69.0	86.4	91.5	73.0		61.5	59.0	81.5		41.6	60.1
Actuated g/C Ratio	0.52	0.43	0.54	0.57	0.46		0.38	0.37	0.51		0.26	0.38
v/c Ratio	1.01	0.93	0.20	1.02	0.82		0.68	0.24	0.40		0.92	0.16
Control Delay	82.8	45.9	5.3	121.6	27.0		48.4	35.6	24.4		77.7	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	82.8	45.9	5.3	121.6	27.0		48.4	35.6	24.4		77.7	12.2
LOS	F	D	A	F	C		D	D	C		E	B
Approach Delay		46.8			41.6			34.0			68.6	
Approach LOS		D			D			C			E	
Queue Length 50th (ft)	~151	624	11	~171	546		127	120	187		319	18
Queue Length 95th (ft)	127	m#813	m32	m#273	m594		191	138	212		#393	27
Internal Link Dist (ft)		1605			3907			824			683	
Turn Bay Length (ft)	230		230	200			110		110			110
Base Capacity (vph)	214	1470	802	213	1454		265	1327	786		641	588
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	0
Reduced v/c Ratio	1.01	0.93	0.20	1.02	0.82		0.67	0.24	0.40		0.92	0.16

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 155 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 46.2

Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F w RTL's added
N/S Timing Plan: PM

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving

 Ø1	 Ø2 (R)	 Ø3	 Ø4
20 s	75 s	18 s	47 s
 Ø5	 Ø6 (R)	 Ø8	
16 s	79 s	65 s	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w added Thru
lane Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Future Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	0.95	0.95	0.95	0.95
Flt			0.850		0.990			0.925			0.979	
Flt Protected	0.950			0.950			0.950				0.986	
Satd. Flow (prot)	1636	4900	1383	1636	4570	0	1678	3104	0	0	3217	0
Flt Permitted	0.950			0.950			0.209				0.639	
Satd. Flow (perm)	1636	4900	1383	1636	4570	0	369	3104	0	0	2085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129		7			186			12	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		385			325			904			763	
Travel Time (s)		6.6			5.5			20.5			17.3	
Peak Hour Factor	0.60	0.98	0.92	0.83	0.94	0.84	0.93	0.79	0.76	0.82	0.85	0.63
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	217	1367	158	217	1112	77	177	316	316	189	400	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	1367	158	217	1189	0	177	632	0	0	684	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	1.04	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left		Right	Left			Left			Left		
Leading Detector (ft)	36	256	36	36	256		36	256		20	256	
Trailing Detector (ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Position(ft)	0	250	0	0	250		0	0		0	0	
Detector 1 Size(ft)	36	6	36	36	6		36	36		20	36	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot	NA	pt+ov	Prot	NA		pm+pt	NA		Perm	NA	

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w added Thru
lane Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	2 3	1	6		3	8			4	
Permitted Phases							8			4		
Detector Phase	5	2	2 3	1	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		2.5	15.0		3.0	8.0		8.0	8.0	
Minimum Split (s)	7.5	36.0		7.0	35.0		6.5	36.0		36.0	36.0	
Total Split (s)	28.0	63.0		28.0	63.0		13.0	69.0		56.0	56.0	
Total Split (%)	17.5%	39.4%		17.5%	39.4%		8.1%	43.1%		35.0%	35.0%	
Maximum Green (s)	23.5	57.0		23.5	57.0		9.5	63.0		50.0	50.0	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		4.5	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		0.0	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		3.5	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0		7.0	7.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	22.9	57.5	70.6	22.9	57.5		65.6	63.1			50.0	
Actuated g/C Ratio	0.14	0.36	0.44	0.14	0.36		0.41	0.39			0.31	
v/c Ratio	0.93	0.78	0.23	0.93	0.72		0.77	0.47			1.04	
Control Delay	98.9	47.2	8.2	123.5	35.4		56.6	26.0			96.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	98.9	47.2	8.2	123.5	35.4		56.6	26.0			96.8	
LOS	F	D	A	F	D		E	C			F	
Approach Delay		50.1			49.0			32.7			96.8	
Approach LOS		D			D			C			F	
Queue Length 50th (ft)	233	408	13	219	410		122	181			~399	
Queue Length 95th (ft)	213	m495	m38	m#293	m433		#213	192			#481	
Internal Link Dist (ft)		305			245			824			683	
Turn Bay Length (ft)	230		230	200			110					
Base Capacity (vph)	240	1762	682	240	1647		229	1335			659	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.90	0.78	0.23	0.90	0.72		0.77	0.47			1.04	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 155 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 53.6

Intersection LOS: D

Intersection Capacity Utilization 83.8%

ICU Level of Service E

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F w added Thru
lane Timing Plan: PM

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

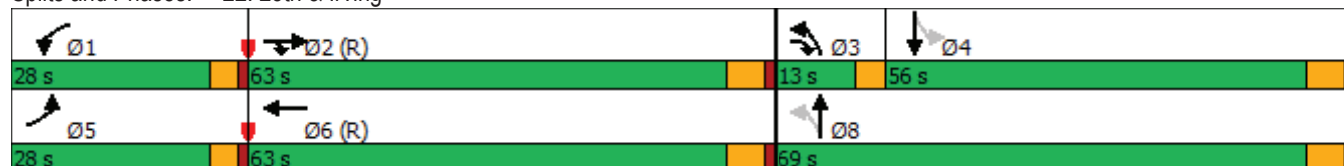
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving



Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w added Thru lane E/W, RTL
N/S Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Future Volume (vph)	130	1340	145	180	1045	65	165	250	240	155	340	60
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	12	11	11	12	12	11	12
Storage Length (ft)	230		230	200		0	110		110	0		110
Storage Lanes	1		1	1		0	1		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00
Flt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1636	4900	1383	1636	4570	0	1678	3601	1524	0	3312	1455
Flt Permitted	0.950			0.950			0.233				0.733	
Satd. Flow (perm)	1636	4900	1383	1636	4570	0	411	3601	1524	0	2467	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137		8				20			44
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		385			325			904			763	
Travel Time (s)		6.6			5.5			20.5			17.3	
Peak Hour Factor	0.60	0.98	0.92	0.83	0.94	0.84	0.93	0.79	0.76	0.82	0.85	0.63
Heavy Vehicles (%)	3%	4%	9%	3%	5%	3%	4%	2%	6%	3%	4%	11%
Adj. Flow (vph)	217	1367	158	217	1112	77	177	316	316	189	400	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	1367	158	217	1189	0	177	316	316	0	589	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.02	1.09	1.09	1.09	1.00	1.04	0.98	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2	1	1	2	1
Detector Template	Left		Right	Left			Left		Right	Left		Right
Leading Detector (ft)	36	256	36	36	256		36	256	20	20	256	20
Trailing Detector (ft)	0	250	0	0	250		0	0	0	0	0	0
Detector 1 Position(ft)	0	250	0	0	250		0	0	0	0	0	0
Detector 1 Size(ft)	36	6	36	36	6		36	36	20	20	36	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)								250			250	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot	NA	pm+ov	Prot	NA		pm+pt	NA	pm+ov	Perm	NA	pm+ov

Lanes, Volumes, Timings
22: 25th & Irving

Alt 4E/4F w added Thru lane E/W, RTL
N/S Timing Plan: PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	5	2	3	1	6		3	8	1		4	5
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	3	1	6		3	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	2.5	15.0		3.0	8.0	2.5	8.0	8.0	3.0
Minimum Split (s)	7.5	36.0	6.5	7.0	35.0		6.5	36.0	7.0	36.0	36.0	7.5
Total Split (s)	31.0	66.0	13.0	31.0	66.0		13.0	63.0	31.0	50.0	50.0	31.0
Total Split (%)	19.4%	41.3%	8.1%	19.4%	41.3%		8.1%	39.4%	19.4%	31.3%	31.3%	19.4%
Maximum Green (s)	26.5	60.0	9.5	26.5	60.0		9.5	57.0	26.5	44.0	44.0	26.5
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5	4.5	4.5	3.5
All-Red Time (s)	1.0	1.5	0.0	1.0	1.5		0.0	1.5	1.0	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	6.0	3.5	4.5	6.0		3.5	6.0	4.5		6.0	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead		Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0	3.0	7.0	7.0	3.0
Recall Mode	None	C-Min	None	None	C-Min		None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			22.0			23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	24.4	61.5	77.9	24.4	61.5		60.1	57.6	88.0		43.8	74.1
Actuated g/C Ratio	0.15	0.38	0.49	0.15	0.38		0.38	0.36	0.55		0.27	0.46
v/c Ratio	0.88	0.73	0.21	0.88	0.67		0.75	0.24	0.37		0.87	0.14
Control Delay	90.2	42.8	5.9	114.4	31.9		57.9	36.7	20.2		70.3	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	90.2	42.8	5.9	114.4	31.9		57.9	36.7	20.2		70.3	13.3
LOS	F	D	A	F	C		E	D	C		E	B
Approach Delay		45.4			44.6			34.9			62.4	
Approach LOS		D			D			C			E	
Queue Length 50th (ft)	232	383	6	218	395		130	122	166		311	28
Queue Length 95th (ft)	213	m472	m31	m265	m403		#226	141	188		363	36
Internal Link Dist (ft)		305			245			824			683	
Turn Bay Length (ft)	230		230	200			110		110			110
Base Capacity (vph)	270	1884	743	270	1762		236	1296	867		678	716
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	0
Reduced v/c Ratio	0.80	0.73	0.21	0.80	0.67		0.75	0.24	0.36		0.87	0.13

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 155 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 45.8

Intersection LOS: D

Intersection Capacity Utilization 76.4%

ICU Level of Service D

Lanes, Volumes, Timings 22: 25th & Irving

Alt 4E/4F w added Thru lane E/W, RTL
N/S Timing Plan: PM

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: 25th & Irving

