

# APPENDIX A

## TRAFFIC



**Intersection**

Intersection Delay (sec/veh): 9.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	205	250	5	35	90	35	5	10	5	55	50	305
Conflicting Peds.(#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0.0		300.0	0.0		300.0	0.0		0.0	0.0		125.0
Median Width		0.0			0.0			0.0			0.0	
Grade (%)		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles(%)	5	25	5	5	25	5	5	5	5	15	15	15
Movement Flow Rate	216	263	5	37	95	37	5	11	5	58	53	321
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	1

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	132	0	0	268	0	0	1073	904	135	894	888	67
Stage 1	-	-	-	-	-	-	698	698	-	188	188	-
Stage 2	-	-	-	-	-	-	375	206	-	706	700	-
Follow-up Headway	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.635	4.135	3.435
Pot Capacity-1 Maneuver	1435	-	-	1278	-	-	195	274	906	248	269	961
Stage 1	-	-	-	-	-	-	426	438	-	785	721	-
Stage 2	-	-	-	-	-	-	640	726	-	407	422	-
Time blocked-Platoon(%)	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1435	-	-	1278	-	-	90	219	906	201	215	961
Mov Capacity-2 Maneuver	-	-	-	-	-	-	90	219	-	201	215	-
Stage 1	-	-	-	-	-	-	351	360	-	646	699	-
Stage 2	-	-	-	-	-	-	382	703	-	323	347	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	3.5	1.7	26.7	18.3
HCM LOS	A	A	D	C

Lane	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (vph)	187							207	961
HCM Control Delay (s)	26.7	7.952	-	-	7.901	-	-	40.7	10.6
HCM Lane VC Ratio	0.113	0.15	-	-	0.029	-	-	0.534	0.334
HCM Lane LOS	D	A	-	-	A	-	-	E	B
HCM 95th Percentile Queue (veh)	0.374	0.529	-	-	0.089	-	-	2.791	1.478

**Intersection**

Intersection Delay (sec/veh): 1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	15	445	5	15	375	5	5	5	5	10	10	85
Conflicting Peds.(#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0.0		100.0	0.0		100.0	0.0		0.0	0.0		0.0
Median Width		0.0			0.0			0.0			0.0	
Grade (%)		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles(%)	5	25	5	5	25	5	5	5	5	5	5	5
Movement Flow Rate	16	468	5	16	395	5	5	5	5	11	11	89
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	400	0	0	473	0	0	983	935	237	938	935	201
Stage 1	-	-	-	-	-	-	503	503	-	430	430	-
Stage 2	-	-	-	-	-	-	480	432	-	508	505	-
Follow-up Headway	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Capacity-1 Maneuver	1143	-	-	1073	-	-	225	263	795	241	263	832
Stage 1	-	-	-	-	-	-	545	537	-	598	579	-
Stage 2	-	-	-	-	-	-	561	577	-	542	535	-
Time blocked-Platoon(%)	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1143	-	-	1073	-	-	189	253	795	229	253	832
Mov Capacity-2 Maneuver	-	-	-	-	-	-	189	253	-	229	253	-
Stage 1	-	-	-	-	-	-	535	527	-	587	568	-
Stage 2	-	-	-	-	-	-	482	566	-	523	525	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	0.3	0.3	18.3	12.9
HCM LOS	A	A	C	B

Lane	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (vph)	286							566
HCM Control Delay (s)	18.3	8.194	-	-	8.405	-	-	12.9
HCM Lane VC Ratio	0.055	0.014	-	-	0.015	-	-	0.195
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th Percentile Queue (veh)	0.174	0.042	-	-	0.045	-	-	0.719

**Intersection**

Intersection Delay (sec/veh): 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	15	450	5	10	450	5	5	5	5	10	5	115
Conflicting Peds.(#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0.0		100.0	0.0		100.0	0.0		0.0	0.0		0.0
Median Width		0.0			0.0			0.0			0.0	
Grade (%)		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles(%)	5	25	5	5	25	5	5	5	5	5	5	5
Movement Flow Rate	16	474	5	11	474	5	5	5	5	11	5	121
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	479	0	0	479	0	0	1071	1010	240	1013	1010	240
Stage 1	-	-	-	-	-	-	509	509	-	499	499	-
Stage 2	-	-	-	-	-	-	562	501	-	514	511	-
Follow-up Headway	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Capacity-1 Maneuver	1068	-	-	1068	-	-	196	237	792	215	237	792
Stage 1	-	-	-	-	-	-	541	533	-	548	539	-
Stage 2	-	-	-	-	-	-	506	538	-	538	532	-
Time blocked-Platoon(%)	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1068	-	-	1068	-	-	159	229	792	204	229	792
Mov Capacity-2 Maneuver	-	-	-	-	-	-	159	229	-	204	229	-
Stage 1	-	-	-	-	-	-	530	522	-	537	531	-
Stage 2	-	-	-	-	-	-	418	530	-	518	521	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	0.3	0.2	20.2	12.7
HCM LOS	A	A	C	B

Lane	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (vph)	252							602
HCM Control Delay (s)	20.2	8.421	-	-	8.404	-	-	12.7
HCM Lane VC Ratio	0.063	0.015	-	-	0.01	-	-	0.227
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th Percentile Queue (veh)	0.199	0.045	-	-	0.03	-	-	0.87

**Intersection**

Intersection Delay (sec/veh): 7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	35	365	5	10	510	45	5	5	5	95	5	80
Conflicting Peds.(#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Median Width		0.0			0.0			0.0			0.0	
Grade (%)		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles(%)	5	25	5	5	25	5	5	5	5	5	5	5
Movement Flow Rate	37	384	5	11	537	47	5	5	5	100	5	84
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	584	0	0	389	0	0	1088	1067	387	1049	1046	561
Stage 1	-	-	-	-	-	-	461	461	-	583	583	-
Stage 2	-	-	-	-	-	-	627	606	-	466	463	-
Follow-up Headway	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Capacity-1 Maneuver	976	-	-	1153	-	-	191	219	654	203	226	521
Stage 1	-	-	-	-	-	-	575	561	-	493	494	-
Stage 2	-	-	-	-	-	-	466	482	-	571	559	-
Time blocked-Platoon(%)	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	976	-	-	1153	-	-	150	206	654	188	212	521
Mov Capacity-2 Maneuver	-	-	-	-	-	-	150	206	-	188	212	-
Stage 1	-	-	-	-	-	-	547	534	-	469	487	-
Stage 2	-	-	-	-	-	-	381	475	-	534	532	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	0.8	0.1	21.8	47
HCM LOS	A	A	C	E

Lane	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (vph)	230							264
HCM Control Delay (s)	21.8	8.833	0	-	8.151	0	-	47
HCM Lane VC Ratio	0.069	0.038	-	-	0.009	-	-	0.718
HCM Lane LOS	C	A	A	-	A	A	-	E
HCM 95th Percentile Queue (veh)	0.219	0.118	-	-	0.028	-	-	4.973

Lanes, Volumes, Timings  
6: HWY 15 & RR 214/HWY 830

Highway 15:06 FPS, 20 Year PM  
20/11/2012



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕	↕↕	↕↕	↕↕	↕	↕	↕↕	↕
Volume (vph)	5	125	135	5	360	445	80	265	8	305	285	5
Ideal Flow (vphpl)	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Storage Length (m)	0.0		0.0	0.0		50.0	300.0		250.0	200.0		200.0
Storage Lanes	0		0	0		1	2		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	0.97	0.95	1.00	1.00	0.95	1.00
Frt		0.931				0.850			0.850			0.850
Flt Protected		0.999			0.999		0.950			0.950		
Satd. Flow (prot)	0	1377	0	0	1479	2214	2728	2812	1258	1406	2812	1258
Flt Permitted		0.993			0.996		0.950			0.580		
Satd. Flow (perm)	0	1368	0	0	1474	2214	2728	2812	1258	858	2812	1258
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		57				468			12			61
Link Speed (k/h)		80			80			100				100
Link Distance (m)		2987.1			2399.9			349.8				1041.5
Travel Time (s)		134.4			108.0			12.6				37.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	5	132	142	5	379	468	84	279	8	321	300	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	279	0	0	384	468	84	279	8	321	300	5
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(m)		0.0			0.0			35.0			35.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	4.0		2.0	4.0	4.0	8.0	4.0	4.0	8.0	4.0	4.0
Trailing Detector (m)	0.0	2.0		0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Position(m)	0.0	2.0		0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Size(m)	2.0	2.0		2.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0	2.0
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
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2				6
Permitted Phases	8			4		4			2	6		6
Detector Phase	8	8		4	4	4	5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	29.0	29.0		29.0	29.0	29.0	20.0	61.0	61.0	41.0	41.0	41.0

Lanes, Volumes, Timings  
6: HWY 15 & RR 214/HWY 830

Highway 15:06 FPS, 20 Year PM  
20/11/2012



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Split (%)	32.2%	32.2%		32.2%	32.2%	32.2%	22.2%	67.8%	67.8%	45.6%	45.6%	45.6%
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	16.0	57.0	57.0	37.0	37.0	37.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0	0	0	0
Act Effct Green (s)		23.9			23.9	23.9	7.9	42.4	42.4	33.3	33.3	33.3
Actuated g/C Ratio		0.32			0.32	0.32	0.11	0.57	0.57	0.45	0.45	0.45
v/c Ratio		0.59			0.82	0.46	0.29	0.17	0.01	0.84	0.24	0.01
Control Delay		24.9			42.2	4.0	36.9	7.7	3.0	41.9	14.4	0.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		24.9			42.2	4.0	36.9	7.7	3.0	41.9	14.4	0.0
LOS		C			D	A	D	A	A	D	B	A
Approach Delay		24.9			21.2			14.2			28.4	
Approach LOS		C			C			B			C	
90th %ile Green (s)	25.0	25.0		25.0	25.0	25.0	10.1	51.1	51.1	37.0	37.0	37.0
90th %ile Term Code	Max	Max		Max	Max	Max	Gap	Hold	Hold	Max	Max	Max
70th %ile Green (s)	25.0	25.0		25.0	25.0	25.0	8.7	49.7	49.7	37.0	37.0	37.0
70th %ile Term Code	Hold	Hold		Max	Max	Max	Gap	Hold	Hold	Max	Max	Max
50th %ile Green (s)	25.0	25.0		25.0	25.0	25.0	7.8	48.8	48.8	37.0	37.0	37.0
50th %ile Term Code	Hold	Hold		Max	Max	Max	Gap	Hold	Hold	Max	Max	Max
30th %ile Green (s)	25.0	25.0		25.0	25.0	25.0	6.9	45.0	45.0	34.1	34.1	34.1
30th %ile Term Code	Hold	Hold		Max	Max	Max	Gap	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	17.5	17.5		17.5	17.5	17.5	0.0	21.3	21.3	21.3	21.3	21.3
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Skip	Hold	Hold	Gap	Gap	Gap
Stops (vph)		174			295	39	70	107	1	238	162	0
Fuel Used(l)		77			98	88	35	99	3	65	52	1
CO Emissions (g/hr)		1431			1808	1622	650	1836	51	1195	954	13
NOx Emissions (g/hr)		279			352	316	126	357	10	232	186	3
VOC Emissions (g/hr)		332			419	376	151	426	12	277	221	3
Dilemma Vehicles (#)		17			22	0	0	17	0	0	18	0
Queue Length 50th (m)		30.5			58.7	0.0	6.7	9.7	0.0	44.3	15.2	0.0
Queue Length 95th (m)		59.1			#112.9	11.8	13.6	15.2	1.4	#97.7	24.8	0.0
Internal Link Dist (m)		2963.1			2375.9			325.8			1017.5	
Turn Bay Length (m)						50.0	300.0		250.0	200.0		200.0
Base Capacity (vph)		518			518	1082	614	2134	957	447	1464	684
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.54			0.74	0.43	0.14	0.13	0.01	0.72	0.20	0.01

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 74.7  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 22.6 Intersection LOS: C  
 Intersection Capacity Utilization 66.1% ICU Level of Service C  
 Analysis Period (min) 15  
 90th %ile Actuated Cycle: 84.1  
 70th %ile Actuated Cycle: 82.7  
 50th %ile Actuated Cycle: 81.8  
 30th %ile Actuated Cycle: 78  
 10th %ile Actuated Cycle: 46.8  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: HWY 15 & RR 214/HWY 830

 ø2		 ø4	
61 s		29 s	
 ø5	 ø6	 ø8	
20 s	41 s	29 s	



**Intersection**

Intersection Delay (sec/veh): 139.9

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Volume (vph)	85	10	15	115	15	535	175	405	10	10	825	50
Conflicting Peds.(#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0.0		0.0	0.0		0.0	200.0		100.0	100.0		200.0
Median Width		0.0			0.0			35.0			35.0	
Grade (%)		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles(%)	5	5	5	25	25	25	25	25	5	5	25	25
Movement Flow Rate	89	11	16	121	16	563	184	426	11	11	868	53
Number of Lanes	0	1	0	0	1	0	1	2	1	1	2	1

Major/Minor	Minor 1			Minor 2			Major 1			Major 2		
Conflicting Flow Rate - All	1264	1743	219	1504	1722	461	921	0	0	437	0	0
Stage 1	800	800	-	917	917	-	-	-	-	-	-	-
Stage 2	464	943	-	587	805	-	-	-	-	-	-	-
Follow-up Headway	3.55	4.05	3.35	3.75	4.25	3.55	2.45	-	-	2.25	-	-
Pot Capacity-1 Maneuver	123	83	776	# 67	70	# 489	610	-	-	1098	-	-
Stage 1	338	389	-	251	301	-	-	-	-	-	-	-
Stage 2	540	333	-	410	343	-	-	-	-	-	-	-
Time blocked-Platoon(%)	0	0	0	0	0	0	0	-	-	0	-	-
Mov Capacity-1 Maneuver	-	57	776	# 47	48	# 489	610	-	-	1098	-	-
Mov Capacity-2 Maneuver	-	141	-	164	207	-	-	-	-	-	-	-
Stage 1	236	272	-	175	298	-	-	-	-	-	-	-
Stage 2	-	330	-	270	240	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay (s)	-	\$ 469.6	4	0.1
HCM LOS	-	F	A	A

Lane	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (vph)				-	356			
HCM Control Delay (s)	13.434	-	-	-	\$ -1	8.31	-	-
HCM Lane VC Ratio	0.302	-	-	-	1.966	0.01	-	-
HCM Lane LOS	B	-	-	-	F	A	-	-
HCM 95th Percentile Queue (veh)	1.268	-	-	-	48.421	0.029	-	-

**Intersection**

Intersection Delay (sec/veh): 7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	205	250	5	35	90	35	5	10	5	55	50	305
Conflicting Peds.(#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0.0		300.0	0.0		300.0	0.0		0.0	0.0		125.0
Median Width		40.0			40.0			0.0			0.0	
Grade (%)		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles(%)	25	25	5	5	25	25	5	5	5	25	5	25
Movement Flow Rate	216	263	5	37	95	37	5	11	5	58	53	321
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	1

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	132	0	0	268	0	0	846	904	135	757	888	67
Stage 1	-	-	-	-	-	-	698	698	-	188	188	-
Stage 2	-	-	-	-	-	-	148	206	-	569	700	-
Follow-up Headway	2.45	-	-	2.25	-	-	3.55	4.05	3.35	3.75	4.05	3.55
Pot Capacity-1 Maneuver	1298	-	-	1271	-	-	251	270	880	258	276	913
Stage 1	-	-	-	-	-	-	390	433	-	733	737	-
Stage 2	-	-	-	-	-	-	831	723	-	421	432	-
Time blocked-Platoon(%)	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1298	-	-	1271	-	-	118	210	880	208	215	913
Mov Capacity-2 Maneuver	-	-	-	-	-	-	245	335	-	282	303	-
Stage 1	-	-	-	-	-	-	314	348	-	589	713	-
Stage 2	-	-	-	-	-	-	483	700	-	326	347	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	3.7	1.7	15.7	14.6
HCM LOS	A	A	C	B

Lane	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (vph)	358							292	913
HCM Control Delay (s)	15.7	8.326	-	-	7.917	-	-	24.6	11.1
HCM Lane VC Ratio	0.059	0.166	-	-	0.029	-	-	0.379	0.352
HCM Lane LOS	C	A	-	-	A	-	-	C	B
HCM 95th Percentile Queue (veh)	0.187	0.596	-	-	0.09	-	-	1.7	1.593

**Intersection**

Intersection Delay (sec/veh): 6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	59	334	2	30	314	46	5	5	13	108	14	271
Conflicting Peds.(#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0.0		100.0	0.0		100.0	0.0		0.0	0.0		0.0
Median Width		40.0			40.0			0.0			0.0	
Grade (%)		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles(%)	5	25	5	5	25	5	5	5	5	5	5	5
Movement Flow Rate	62	352	2	32	331	48	5	5	14	114	15	285
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	379	0	0	354	0	0	714	920	177	722	897	190
Stage 1	-	-	-	-	-	-	477	477	-	419	419	-
Stage 2	-	-	-	-	-	-	237	443	-	303	478	-
Follow-up Headway	2.25	-	-	2.25	-	-	3.55	4.05	3.35	3.55	4.05	3.35
Pot Capacity-1 Maneuver	1155	-	-	1180	-	-	313	264	826	309	273	810
Stage 1	-	-	-	-	-	-	530	547	-	574	581	-
Stage 2	-	-	-	-	-	-	736	567	-	673	546	-
Time blocked-Platoon(%)	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1155	-	-	1180	-	-	183	238	826	278	246	810
Mov Capacity-2 Maneuver	-	-	-	-	-	-	363	434	-	487	444	-
Stage 1	-	-	-	-	-	-	494	510	-	536	561	-
Stage 2	-	-	-	-	-	-	448	547	-	611	509	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	1.2	0.6	11.7	18.7
HCM LOS	A	A	B	C

Lane	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (vph)	561							669
HCM Control Delay (s)	11.7	8.294	-	-	8.135	-	-	18.7
HCM Lane VC Ratio	0.043	0.054	-	-	0.027	-	-	0.618
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th Percentile Queue (veh)	0.135	0.17	-	-	0.082	-	-	4.285

Lanes, Volumes, Timings  
6: HWY 15 & RR 214/HWY 830

Highway 15:06 FPS, 20 Year PM WITH IMPROVEMENTS

20/11/2012



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕	↕↕	↕↕	↕↕	↕	↕	↕↕	↕
Volume (vph)	5	125	135	5	360	445	80	265	8	305	285	5
Ideal Flow (vphpl)	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Storage Length (m)	0.0		0.0	0.0		50.0	300.0		250.0	200.0		200.0
Storage Lanes	0		0	0		1	2		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	0.97	0.95	1.00	1.00	0.95	1.00
Frt		0.931				0.850			0.850			0.850
Flt Protected		0.999			0.999		0.950			0.950		
Satd. Flow (prot)	0	1377	0	0	1479	2214	2728	2812	1258	1406	2812	1258
Flt Permitted		0.993			0.996		0.950			0.580		
Satd. Flow (perm)	0	1368	0	0	1474	2214	2728	2812	1258	858	2812	1258
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61				468			12			61
Link Speed (k/h)		80			80			100				100
Link Distance (m)		2987.1			2399.9			349.8				1041.5
Travel Time (s)		134.4			108.0			12.6				37.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	5	132	142	5	379	468	84	279	8	321	300	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	279	0	0	384	468	84	279	8	321	300	5
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(m)		0.0			0.0			35.0				35.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	4.0		2.0	4.0	4.0	8.0	4.0	4.0	8.0	4.0	4.0
Trailing Detector (m)	0.0	2.0		0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Position(m)	0.0	2.0		0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Size(m)	2.0	2.0		2.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0	2.0
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
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm
Protected Phases		2			6		7	4				8
Permitted Phases	2			6		6			4	8		8
Detector Phase	2	2		6	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	15.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	33.0	33.0		33.0	33.0	33.0	15.0	57.0	57.0	42.0	42.0	42.0

Lanes, Volumes, Timings  
6: HWY 15 & RR 214/HWY 830

Highway 15:06 FPS, 20 Year PM WITH IMPROVEMENTS

20/11/2012








Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Split (%)	36.7%	36.7%		36.7%	36.7%	36.7%	16.7%	63.3%	63.3%	46.7%	46.7%	46.7%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	11.0	53.0	53.0	38.0	38.0	38.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0	0	0	0
Act Effect Green (s)		24.4			24.4	24.4	8.1	42.5	42.5	33.5	33.5	33.5
Actuated g/C Ratio		0.32			0.32	0.32	0.11	0.56	0.56	0.44	0.44	0.44
v/c Ratio		0.58			0.81	0.45	0.29	0.18	0.01	0.84	0.24	0.01
Control Delay		23.9			40.8	3.9	38.7	8.6	3.4	44.5	15.6	0.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		23.9			40.8	3.9	38.7	8.6	3.4	44.5	15.6	0.0
LOS		C			D	A	D	A	A	D	B	A
Approach Delay		23.9			20.5			15.3			30.3	
Approach LOS		C			C			B			C	
90th %ile Green (s)	29.0	29.0		29.0	29.0	29.0	10.4	52.4	52.4	38.0	38.0	38.0
90th %ile Term Code	Hold	Hold		Max	Max	Max	Gap	Hold	Hold	Max	Max	Max
70th %ile Green (s)	29.0	29.0		29.0	29.0	29.0	8.9	50.9	50.9	38.0	38.0	38.0
70th %ile Term Code	Hold	Hold		Max	Max	Max	Gap	Hold	Hold	Max	Max	Max
50th %ile Green (s)	29.0	29.0		29.0	29.0	29.0	7.9	49.9	49.9	38.0	38.0	38.0
50th %ile Term Code	Hold	Hold		Max	Max	Max	Gap	Hold	Hold	Max	Max	Max
30th %ile Green (s)	22.4	22.4		22.4	22.4	22.4	6.8	42.4	42.4	31.6	31.6	31.6
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	13.0	13.0		13.0	13.0	13.0	0.0	20.0	20.0	20.0	20.0	20.0
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Skip	Min	Min	Min	Min	Min
Stops (vph)		163			298	36	70	110	1	234	163	0
Fuel Used(l)		77			97	87	35	100	3	106	89	1
CO Emissions (g/hr)		1416			1804	1618	652	1844	51	1960	1653	25
NOx Emissions (g/hr)		276			351	315	127	359	10	381	322	5
VOC Emissions (g/hr)		328			418	375	151	428	12	455	383	6
Dilemma Vehicles (#)		17			23	0	0	17	0	0	18	0
Queue Length 50th (m)		30.6			59.9	0.0	7.2	11.2	0.0	48.9	16.8	0.0
Queue Length 95th (m)		58.7			#110.5	11.5	14.3	17.3	1.6	#104.3	27.1	0.0
Internal Link Dist (m)		2963.1			2375.9			325.8			1017.5	
Turn Bay Length (m)						50.0	300.0		250.0	200.0		200.0
Base Capacity (vph)		608			617	1199	433	1987	892	470	1542	717
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.46			0.62	0.39	0.19	0.14	0.01	0.68	0.19	0.01

Intersection Summary

Area Type:	Other		
Cycle Length:	90		
Actuated Cycle Length:	75.6		
Natural Cycle:	90		
Control Type:	Semi Act-Uncoord		
Maximum v/c Ratio:	0.84		
Intersection Signal Delay:	22.9	Intersection LOS:	C
Intersection Capacity Utilization:	66.1%	ICU Level of Service:	C
Analysis Period (min)	15		
90th %ile Actuated Cycle:	89.4		
70th %ile Actuated Cycle:	87.9		
50th %ile Actuated Cycle:	86.9		
30th %ile Actuated Cycle:	72.8		
10th %ile Actuated Cycle:	41		
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.			

Splits and Phases: 6: HWY 15 & RR 214/HWY 830

 ø2	 ø4	
33 s	57 s	
 ø6	 ø7	 ø8
33 s	15 s	42 s

Lanes, Volumes, Timings  
3: HWY 15 & RR 220

Highway 15:06 FPS, 20 Year PM WITH IMPROVEMENTS

20/11/2012



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕	↕↕	↕↕	↕↕	↕	↕	↕↕	↕
Volume (vph)	85	10	15	115	15	535	175	405	10	10	825	50
Ideal Flow (vphpl)	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Storage Length (m)	0.0		0.0	0.0		50.0	200.0		100.0	100.0		200.0
Storage Lanes	0		0	0		1	2		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	0.97	0.95	1.00	1.00	0.95	1.00
Frt		0.981				0.850			0.850			0.850
Flt Protected		0.963			0.958		0.950			0.950		
Satd. Flow (prot)	0	1664	0	0	1445	2214	2728	2812	1498	1674	2812	1258
Flt Permitted		0.703			0.725		0.950			0.504		
Satd. Flow (perm)	0	1215	0	0	1093	2214	2728	2812	1498	888	2812	1258
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				563			18			91
Link Speed (k/h)		80			80			100				100
Link Distance (m)		1657.5			1952.3			1962.3				3522.1
Travel Time (s)		74.6			87.9			70.6				126.8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	5%	25%	5%	25%	25%	25%	5%	5%	25%	25%
Adj. Flow (vph)	89	11	16	121	16	563	184	426	11	11	868	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	0	0	137	563	184	426	11	11	868	53
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(m)		0.0			0.0			35.0			35.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	4.0		8.0	4.0	4.0	8.0	4.0	4.0	8.0	4.0	4.0
Trailing Detector (m)	0.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Position(m)	0.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Size(m)	2.0	2.0		6.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0	2.0
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
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm
Protected Phases		2			6		7	4				8
Permitted Phases	2			6		6			4	8		8
Detector Phase	2	2		6	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	15.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	20.0	20.0		20.0	20.0	20.0	15.0	40.0	40.0	25.0	25.0	25.0

Lanes, Volumes, Timings  
3: HWY 15 & RR 220

Highway 15:06 FPS, 20 Year PM WITH IMPROVEMENTS

20/11/2012



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	25.0%	66.7%	66.7%	41.7%	41.7%	41.7%
Maximum Green (s)	16.0	16.0		16.0	16.0	16.0	11.0	36.0	36.0	21.0	21.0	21.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0	0	0	0
Act Effect Green (s)		12.7			12.7	12.7	8.7	31.2	31.2	21.1	21.1	21.1
Actuated g/C Ratio		0.24			0.24	0.24	0.17	0.60	0.60	0.40	0.40	0.40
v/c Ratio		0.38			0.52	0.58	0.41	0.25	0.01	0.03	0.76	0.09
Control Delay		20.3			26.4	4.8	23.9	5.5	2.0	12.8	21.8	1.9
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		20.3			26.4	4.8	23.9	5.5	2.0	12.8	21.8	1.9
LOS		C			C	A	C	A	A	B	C	A
Approach Delay		20.3			9.0			10.9			20.6	
Approach LOS		C			A			B			C	
90th %ile Green (s)	16.0	16.0		16.0	16.0	16.0	11.0	36.0	36.0	21.0	21.0	21.0
90th %ile Term Code	Hold	Hold		Max	Max	Max	Max	Hold	Hold	Max	Max	Max
70th %ile Green (s)	15.8	15.8		15.8	15.8	15.8	10.3	35.3	35.3	21.0	21.0	21.0
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Hold	Hold	Max	Max	Max
50th %ile Green (s)	11.8	11.8		11.8	11.8	11.8	8.8	33.8	33.8	21.0	21.0	21.0
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Hold	Hold	Max	Max	Max
30th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	7.6	31.6	31.6	20.0	20.0	20.0
30th %ile Term Code	Min	Min		Min	Min	Min	Gap	Hold	Hold	Min	Min	Min
10th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	0.0	20.0	20.0	20.0	20.0	20.0
10th %ile Term Code	Hold	Hold		Min	Min	Min	Skip	Min	Min	Min	Min	Min
Stops (vph)		79			107	56	143	163	3	9	631	4
Fuel Used(l)		21			29	87	44	81	2	4	345	17
CO Emissions (g/hr)		381			532	1617	814	1501	35	78	6374	315
NOx Emissions (g/hr)		74			104	315	158	292	7	15	1240	61
VOC Emissions (g/hr)		88			123	375	189	348	8	18	1478	73
Dilemma Vehicles (#)		10			12	0	0	38	0	0	75	0
Queue Length 50th (m)		9.0			12.5	0.0	8.7	8.1	0.0	0.7	39.1	0.0
Queue Length 95th (m)		22.1			28.4	11.4	17.9	16.7	1.2	3.7	#82.2	3.0
Internal Link Dist (m)		1633.5			1928.3			1938.3			3498.1	
Turn Bay Length (m)						50.0	200.0		100.0	100.0		200.0
Base Capacity (vph)		392			345	1084	592	1998	1070	367	1166	574
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.30			0.40	0.52	0.31	0.21	0.01	0.03	0.74	0.09

Intersection Summary



Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	52.1
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	14.6
Intersection LOS:	B
Intersection Capacity Utilization:	61.0%
ICU Level of Service:	B
Analysis Period (min):	15
90th %ile Actuated Cycle:	60
70th %ile Actuated Cycle:	59.1
50th %ile Actuated Cycle:	53.6
30th %ile Actuated Cycle:	49.6
10th %ile Actuated Cycle:	38
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

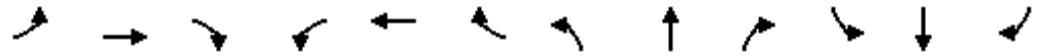
Splits and Phases: 3: HWY 15 & RR 220



Lanes, Volumes, Timings  
12: RR 210/HWY 830 & HWY 15

Highway 15:06 FPS, 50 Year PM

20/11/2012



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	402	485	5	67	172	65	5	16	10	106	99	592
Ideal Flow (vphpl)	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Storage Length (m)	300.0		300.0	0.0		300.0	0.0		0.0	0.0		125.0
Storage Lanes	1		1	0		1	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.850			0.850		0.955				0.850
Fl <sub>t</sub> Protected	0.950				0.986			0.992		0.950		
Satd. Flow (prot)	1406	2812	1498	0	2904	1258	0	1669	0	1406	1762	1258
Fl <sub>t</sub> Permitted	0.436				0.739			0.963		0.736		
Satd. Flow (perm)	645	2812	1498	0	2176	1258	0	1620	0	1089	1762	1258
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			18			91		11				623
Link Speed (k/h)		100			100			80				100
Link Distance (m)		1600.2			1328.9			2768.6				2510.3
Travel Time (s)		57.6			47.8			124.6				90.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	25%	25%	5%	5%	25%	25%	5%	5%	5%	25%	5%	25%
Adj. Flow (vph)	423	511	5	71	181	68	5	17	11	112	104	623
Shared Lane Traffic (%)												
Lane Group Flow (vph)	423	511	5	0	252	68	0	33	0	112	104	623
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(m)		40.0			40.0			3.6				3.6
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
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(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2				6
Permitted Phases	4		4	8		8	2			6		6

Lanes, Volumes, Timings  
12: RR 210/HWY 830 & HWY 15

Highway 15:06 FPS, 50 Year PM

20/11/2012



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0		20.0	20.0	20.0
Total Split (s)	17.0	37.0	37.0	20.0	20.0	20.0	23.0	23.0		23.0	23.0	23.0
Total Split (%)	28.3%	61.7%	61.7%	33.3%	33.3%	33.3%	38.3%	38.3%		38.3%	38.3%	38.3%
Maximum Green (s)	13.0	33.0	33.0	16.0	16.0	16.0	19.0	19.0		19.0	19.0	19.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
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)	4.0	4.0	4.0		4.0	4.0		4.0		4.0	4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	Min	Min	None	None		None	None	None
Walk Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0	0	0		0	0	0
Act Effect Green (s)	28.0	28.0	28.0		10.8	10.8		11.6		11.6	11.6	11.6
Actuated g/C Ratio	0.58	0.58	0.58		0.23	0.23		0.24		0.24	0.24	0.24
v/c Ratio	0.72	0.31	0.01		0.51	0.19		0.08		0.42	0.24	0.80
Control Delay	17.5	6.5	1.2		21.3	4.6		11.7		21.0	16.3	11.4
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	17.5	6.5	1.2		21.3	4.6		11.7		21.0	16.3	11.4
LOS	B	A	A		C	A		B		C	B	B
Approach Delay		11.4			17.8			11.7			13.3	
Approach LOS		B			B			B			B	
90th %ile Green (s)	13.0	33.0	33.0	16.0	16.0	16.0	19.0	19.0		19.0	19.0	19.0
90th %ile Term Code	Max	Hold	Hold	Max	Max	Max	Hold	Hold		Max	Max	Max
70th %ile Green (s)	13.0	30.0	30.0	13.0	13.0	13.0	16.6	16.6		16.6	16.6	16.6
70th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Hold		Gap	Gap	Gap
50th %ile Green (s)	13.0	27.5	27.5	10.5	10.5	10.5	10.9	10.9		10.9	10.9	10.9
50th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Hold		Gap	Gap	Gap
30th %ile Green (s)	13.0	25.7	25.7	8.7	8.7	8.7	7.9	7.9		7.9	7.9	7.9
30th %ile Term Code	Max	Hold	Hold	Gap	Gap	Gap	Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	11.7	22.5	22.5	6.8	6.8	6.8	6.2	6.2		6.2	6.2	6.2
10th %ile Term Code	Gap	Hold	Hold	Gap	Gap	Gap	Hold	Hold		Gap	Gap	Gap
Stops (vph)	202	217	1		190	11		19		81	70	80
Fuel Used(l)	129	149	1		47	8		8		31	28	133
CO Emissions (g/hr)	2389	2761	26		867	153		150		567	514	2470
NOx Emissions (g/hr)	465	537	5		169	30		29		110	100	481
VOC Emissions (g/hr)	554	640	6		201	35		35		132	119	573
Dilemma Vehicles (#)	0	49	0		23	0		3		0	9	0
Queue Length 50th (m)	17.4	9.4	0.0		10.0	0.0		1.5		8.2	7.2	0.0
Queue Length 95th (m)	#69.4	23.7	0.6		22.3	5.8		6.9		21.7	18.6	#37.7
Internal Link Dist (m)		1576.2			1304.9			2744.6			2486.3	
Turn Bay Length (m)	300.0		300.0			300.0						125.0
Base Capacity (vph)	590	2000	1071		750	493		669		445	721	883
Starvation Cap Reductn	0	0	0		0	0		0		0	0	0

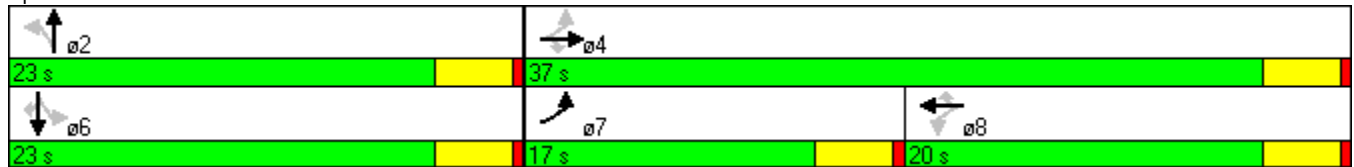


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0		0	0		0		0	0	0
Storage Cap Reductn	0	0	0		0	0		0		0	0	0
Reduced v/c Ratio	0.72	0.26	0.00		0.34	0.14		0.05		0.25	0.14	0.71

**Intersection Summary**

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	47.9
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	13.1
Intersection LOS:	B
Intersection Capacity Utilization:	57.9%
ICU Level of Service:	B
Analysis Period (min):	15
90th %ile Actuated Cycle:	60
70th %ile Actuated Cycle:	54.6
50th %ile Actuated Cycle:	46.4
30th %ile Actuated Cycle:	41.6
10th %ile Actuated Cycle:	36.7
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 12: RR 210/HWY 830 & HWY 15



Lanes, Volumes, Timings  
18: RR 212 & HWY 15

Highway 15:06 FPS, 50 Year PM

20/11/2012



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕	↗		↕↕		↗	↖	
Volume (vph)	116	655	5	59	615	91	5	5	26	212	28	532
Ideal Flow (vphpl)	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Storage Length (m)	0.0		100.0	0.0		100.0	0.0		0.0	100.0		0.0
Storage Lanes	0		1	0		1	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.901				0.857
Flt Protected		0.993			0.996			0.993		0.950		
Satd. Flow (prot)	0	2861	1498	0	2840	1498	0	1576	0	1674	1510	0
Flt Permitted		0.747			0.836			0.940		0.733		
Satd. Flow (perm)	0	2152	1498	0	2384	1498	0	1492	0	1291	1510	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			18			96		27				177
Link Speed (k/h)		100			100			80				80
Link Distance (m)		1620.5			1622.5			1826.5				2021.0
Travel Time (s)		58.3			58.4			82.2				90.9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	25%	5%	5%	25%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	122	689	5	62	647	96	5	5	27	223	29	560
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	811	5	0	709	96	0	37	0	223	589	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(m)		40.0			40.0			3.6				3.6
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0		4.0	4.0	
Trailing Detector (m)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0		2.0	2.0	
Detector 1 Position(m)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0		2.0	2.0	
Detector 1 Size(m)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	20.0	20.0		20.0	20.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0	28.0	28.0		28.0	28.0	

Lanes, Volumes, Timings  
18: RR 212 & HWY 15

Highway 15:06 FPS, 50 Year PM

20/11/2012







Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	53.3%	53.3%	53.3%	53.3%	53.3%	53.3%	46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0	28.0	24.0	24.0		24.0	24.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0	4.0		4.0	4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effect Green (s)		25.1	25.1		25.1	25.1		19.9		19.9	19.9	
Actuated g/C Ratio		0.47	0.47		0.47	0.47		0.37		0.37	0.37	
v/c Ratio		0.80	0.01		0.63	0.13		0.06		0.46	0.87	
Control Delay		20.7	1.6		14.5	2.9		6.5		16.7	27.4	
Queue Delay		0.0	0.0		0.0	0.0		0.0		0.0	0.0	
Total Delay		20.7	1.6		14.5	2.9		6.5		16.7	27.4	
LOS		C	A		B	A		A		B	C	
Approach Delay		20.6			13.1			6.5			24.5	
Approach LOS		C			B			A			C	
90th %ile Green (s)	28.0	28.0	28.0	28.0	28.0	28.0	24.0	24.0		24.0	24.0	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Hold	Hold		Max	Max	
70th %ile Green (s)	28.0	28.0	28.0	28.0	28.0	28.0	24.0	24.0		24.0	24.0	
70th %ile Term Code	Max	Max	Max	Hold	Hold	Hold	Hold	Hold		Max	Max	
50th %ile Green (s)	28.0	28.0	28.0	28.0	28.0	28.0	24.0	24.0		24.0	24.0	
50th %ile Term Code	Max	Max	Max	Hold	Hold	Hold	Hold	Hold		Max	Max	
30th %ile Green (s)	21.3	21.3	21.3	21.3	21.3	21.3	17.8	17.8		17.8	17.8	
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold	Hold	Hold	Hold		Gap	Gap	
10th %ile Green (s)	20.0	20.0	20.0	20.0	20.0	20.0	11.5	11.5		11.5	11.5	
10th %ile Term Code	Min	Min	Min	Min	Min	Min	Hold	Hold		Gap	Gap	
Stops (vph)		588	1		470	13		12		145	333	
Fuel Used(l)		251	1		227	25		6		45	120	
CO Emissions (g/hr)		4643	26		4194	468		109		828	2220	
NOx Emissions (g/hr)		904	5		816	91		21		161	432	
VOC Emissions (g/hr)		1077	6		972	108		25		192	515	
Dilemma Vehicles (#)		70	0		62	0		3		0	49	
Queue Length 50th (m)		39.6	0.0		30.7	0.0		0.7		18.0	41.3	
Queue Length 95th (m)		#72.7	0.7		47.4	6.4		5.4		34.9	#99.5	
Internal Link Dist (m)		1596.5			1598.5			1802.5			1997.0	
Turn Bay Length (m)			100.0			100.0				100.0		
Base Capacity (vph)		1163	818		1288	854		706		598	794	
Starvation Cap Reductn		0	0		0	0		0		0	0	
Spillback Cap Reductn		0	0		0	0		0		0	0	
Storage Cap Reductn		0	0		0	0		0		0	0	
Reduced v/c Ratio		0.70	0.01		0.55	0.11		0.05		0.37	0.74	

Intersection Summary






















Area Type:	Other	
Cycle Length:	60	
Actuated Cycle Length:	53.3	
Natural Cycle:	60	
Control Type:	Semi Act-Uncoord	
Maximum v/c Ratio:	0.87	
Intersection Signal Delay:	19.2	Intersection LOS: B
Intersection Capacity Utilization	86.6%	ICU Level of Service E
Analysis Period (min)	15	
90th %ile Actuated Cycle:	60	
70th %ile Actuated Cycle:	60	
50th %ile Actuated Cycle:	60	
30th %ile Actuated Cycle:	47.1	
10th %ile Actuated Cycle:	39.5	
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 18: RR 212 & HWY 15

 Ø2	 Ø4
28 s	32 s
 Ø6	 Ø8
28 s	32 s

Lanes, Volumes, Timings  
6: HWY 15 & RR 214/HWY 830

Highway 15:06 FPS, 50 Year PM  
20/11/2012

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	242	260	5	704	869	157	515	10	590	559	5
Ideal Flow (vphpl)	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Storage Length (m)	0.0		0.0	0.0		50.0	300.0		250.0	200.0		200.0
Storage Lanes	0		0	0		2	2		1	2		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt		0.924				0.850			0.850			0.850
Flt Protected		0.999					0.950			0.950		
Satd. Flow (prot)	0	2596	0	0	2812	2214	2728	2812	1258	2728	2812	1258
Flt Permitted		0.938			0.952		0.950			0.950		
Satd. Flow (perm)	0	2437	0	0	2677	2214	2728	2812	1258	2728	2812	1258
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		274				771			131			73
Link Speed (k/h)		80			80			100			100	
Link Distance (m)		2987.1			2399.9			349.8			1041.5	
Travel Time (s)		134.4			108.0			12.6			37.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	11	255	274	5	741	915	165	542	11	621	588	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	540	0	0	746	915	165	542	11	621	588	5
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(m)		0.0			0.0			35.0			35.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	4.0		2.0	4.0	4.0	8.0	4.0	4.0	8.0	4.0	4.0
Trailing Detector (m)	0.0	2.0		0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Position(m)	0.0	2.0		0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Size(m)	2.0	2.0		2.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0	2.0
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
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			6		7	4		3	8	
Permitted Phases	2			6		6			4			8
Detector Phase	2	2		6	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	15.0	24.0	24.0	15.0	24.0	24.0
Total Split (s)	29.0	29.0		29.0	29.0	29.0	15.0	24.0	24.0	22.0	31.0	31.0



Lanes, Volumes, Timings  
6: HWY 15 & RR 214/HWY 830

Highway 15:06 FPS, 50 Year PM  
20/11/2012

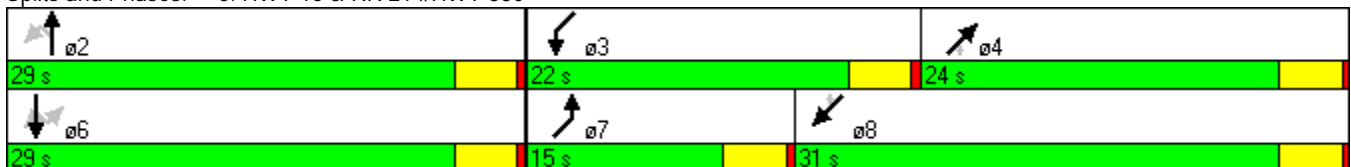


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Split (%)	38.7%	38.7%		38.7%	38.7%	38.7%	20.0%	32.0%	32.0%	29.3%	41.3%	41.3%
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	11.0	20.0	20.0	18.0	27.0	27.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0		0	0
Act Effect Green (s)		24.0			24.0	24.0	9.3	20.0	20.0	18.0	28.7	28.7
Actuated g/C Ratio		0.32			0.32	0.32	0.13	0.27	0.27	0.24	0.39	0.39
v/c Ratio		0.55			0.86	0.74	0.48	0.71	0.03	0.94	0.54	0.01
Control Delay		12.0			35.2	7.9	34.9	30.8	0.1	52.4	20.5	0.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		12.0			35.2	7.9	34.9	30.8	0.1	52.4	20.5	0.0
LOS		B			D	A	C	C	A	D	C	A
Approach Delay		12.0			20.2			31.3			36.7	
Approach LOS		B			C			C			D	
90th %ile Green (s)	25.0	25.0		25.0	25.0	25.0	11.0	20.0	20.0	18.0	27.0	27.0
90th %ile Term Code	Hold	Hold		Max	Max	Max	Max	Max	Max	Max	Hold	Hold
70th %ile Green (s)	25.0	25.0		25.0	25.0	25.0	11.0	20.0	20.0	18.0	27.0	27.0
70th %ile Term Code	Hold	Hold		Max	Max	Max	Max	Max	Max	Max	Hold	Hold
50th %ile Green (s)	25.0	25.0		25.0	25.0	25.0	9.7	20.0	20.0	18.0	28.3	28.3
50th %ile Term Code	Hold	Hold		Max	Max	Max	Gap	Max	Max	Max	Hold	Hold
30th %ile Green (s)	25.0	25.0		25.0	25.0	25.0	8.5	20.0	20.0	18.0	29.5	29.5
30th %ile Term Code	Hold	Hold		Max	Max	Max	Gap	Max	Max	Max	Hold	Hold
10th %ile Green (s)	20.3	20.3		20.3	20.3	20.3	6.6	20.0	20.0	18.0	31.4	31.4
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	Max	Max	Max	Hold	Hold
Stops (vph)		202			614	169	139	451	0	505	420	0
Fuel Used(l)		137			188	179	69	224	3	212	183	1
CO Emissions (g/hr)		2534			3485	3314	1274	4140	61	3917	3392	25
NOx Emissions (g/hr)		493			678	645	248	806	12	762	660	5
VOC Emissions (g/hr)		588			808	769	295	960	14	908	787	6
Dilemma Vehicles (#)		34			46	0	0	34	0	0	38	0
Queue Length 50th (m)		15.3			53.2	8.5	11.9	38.5	0.0	46.9	35.3	0.0
Queue Length 95th (m)		30.3			#83.8	29.6	20.7	56.1	0.0	#79.3	52.8	0.0
Internal Link Dist (m)		2963.1			2375.9			325.8			1017.5	
Turn Bay Length (m)						50.0	300.0		250.0	200.0		200.0
Base Capacity (vph)		1005			904	1258	405	759	435	663	1089	532
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.54			0.83	0.73	0.41	0.71	0.03	0.94	0.54	0.01

Intersection Summary






















Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 74.1  
 Natural Cycle: 75  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 25.9 Intersection LOS: C  
 Intersection Capacity Utilization 73.6% ICU Level of Service D  
 Analysis Period (min) 15  
 90th %ile Actuated Cycle: 75  
 70th %ile Actuated Cycle: 75  
 50th %ile Actuated Cycle: 75  
 30th %ile Actuated Cycle: 75  
 10th %ile Actuated Cycle: 70.3  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: HWY 15 & RR 214/HWY 830















Hwy 15 & RR 220  
PM Peak Hour

ISL 2030 REASSIGNED + 2.5% GROWTH RATE TO 50 YEAR  
NO FORT SASKATCHEWAN BYPASS

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	146	17	20	204	27	960	314	727	17	17	1485	89
Ideal Flow (vphpl)	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Storage Length (m)	0.0		0.0	0.0		40.0	200.0		100.0	100.0		200.0
Storage Lanes	0		0	0		1	2		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	0.97	0.95	1.00	1.00	0.95	1.00
Frt		0.985				0.850			0.850			0.850
Flt Protected		0.962			0.958		0.950			0.950		
Satd. Flow (prot)	0	1670	0	0	1688	2636	3247	3057	1498	1674	3057	1498
Flt Permitted		0.434			0.688		0.062			0.362		
Satd. Flow (perm)	0	753	0	0	1212	2636	212	3057	1498	638	3057	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				537			18			94
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1657.5			1952.3			262.4			3522.1	
Travel Time (s)		74.6			87.9			11.8			158.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	15%	5%	5%	15%	5%
Adj. Flow (vph)	154	18	21	215	28	1011	331	765	18	18	1563	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	193	0	0	243	1011	331	765	18	18	1563	94
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(m)		0.0			0.0			35.0			35.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	4.0		8.0	4.0	4.0	8.0	4.0	4.0	8.0	4.0	4.0
Trailing Detector (m)	0.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Position(m)	0.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Size(m)	2.0	2.0		6.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0	2.0
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
Turn Type	Perm	NA		Perm	NA	Free	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		2			6		7	4			8	
Permitted Phases	2			6		Free	4		4	8		8
Detector Phase	2	2		6	6		7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	20.0	20.0		20.0	20.0		10.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	43.0	43.0		43.0	43.0		12.0	77.0	77.0	65.0	65.0	65.0

Hwy 15 & RR 220  
PM Peak Hour

ISL 2030 REASSIGNED + 2.5% GROWTH RATE TO 50 YEAR  
NO FORT SASKATCHEWAN BYPASS

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Split (%)	35.8%	35.8%		35.8%	35.8%		10.0%	64.2%	64.2%	54.2%	54.2%	54.2%
Maximum Green (s)	39.0	39.0		39.0	39.0		8.0	73.0	73.0	61.0	61.0	61.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	0
Act Effct Green (s)		29.0			29.0	109.9	72.8	72.8	72.8	60.7	60.7	60.7
Actuated g/C Ratio		0.26			0.26	1.00	0.66	0.66	0.66	0.55	0.55	0.55
v/c Ratio		0.96			0.76	0.38	0.91	0.38	0.02	0.05	0.93	0.11
Control Delay		91.4			52.6	0.4	54.4	10.1	3.9	14.6	34.8	3.4
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		91.4			52.6	0.4	54.4	10.1	3.9	14.6	34.8	3.4
LOS		F			D	A	D	B	A	B	C	A
Approach Delay		91.4			10.5			23.2			32.8	
Approach LOS		F			B			C			C	
90th %ile Green (s)	39.0	39.0		39.0	39.0		8.0	73.0	73.0	61.0	61.0	61.0
90th %ile Term Code	Max	Max		Max	Max		Max	Hold	Hold	Max	Max	Max
70th %ile Green (s)	37.8	37.8		37.8	37.8		8.0	73.0	73.0	61.0	61.0	61.0
70th %ile Term Code	Gap	Gap		Hold	Hold		Max	Hold	Hold	Max	Max	Max
50th %ile Green (s)	30.5	30.5		30.5	30.5		8.0	73.0	73.0	61.0	61.0	61.0
50th %ile Term Code	Gap	Gap		Hold	Hold		Max	Hold	Hold	Max	Max	Max
30th %ile Green (s)	24.2	24.2		24.2	24.2		8.0	73.0	73.0	61.0	61.0	61.0
30th %ile Term Code	Gap	Gap		Hold	Hold		Max	Hold	Hold	Max	Max	Max
10th %ile Green (s)	16.2	16.2		16.2	16.2		8.0	69.7	69.7	57.7	57.7	57.7
10th %ile Term Code	Gap	Gap		Hold	Hold		Max	Hold	Hold	Gap	Gap	Gap
Stops (vph)		161			205	0	153	315	3	9	1175	9
Fuel Used(l)		46			57	148	76	147	3	6	586	29
CO Emissions (g/hr)		851			1047	2735	1398	2718	55	114	10837	541
NOx Emissions (g/hr)		166			204	532	272	529	11	22	2109	105
VOC Emissions (g/hr)		197			243	634	324	630	13	26	2513	126
Dilemma Vehicles (#)		8			10	0	0	33	0	0	64	0
Queue Length 50th (m)		42.0			50.7	0.0	23.6	38.7	0.0	1.8	166.6	0.0
Queue Length 95th (m)		#83.0			80.5	0.0	#59.2	62.4	3.0	6.4	#257.8	8.5
Internal Link Dist (m)		1633.5			1928.3			238.4			3498.1	
Turn Bay Length (m)						40.0	200.0		100.0	100.0		200.0
Base Capacity (vph)		273			434	2636	363	2047	1009	357	1711	880
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.71			0.56	0.38	0.91	0.37	0.02	0.05	0.91	0.11

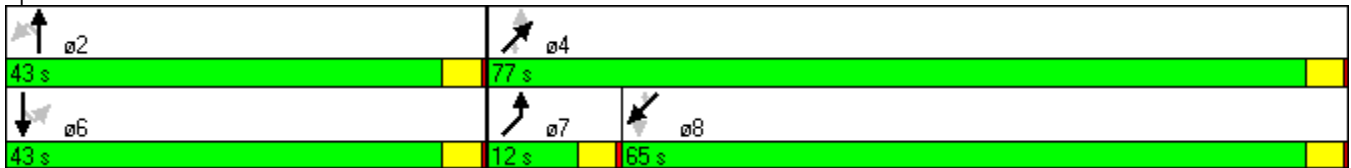
Intersection Summary

Hwy 15 & RR 220  
PM Peak Hour

ISL 2030 REASSIGNED + 2.5% GROWTH RATE TO 50 YEAR  
NO FORT SASKATCHEWAN BYPASS






















Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	109.9
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.96
Intersection Signal Delay:	26.3
Intersection LOS:	C
Intersection Capacity Utilization	78.5%
ICU Level of Service	D
Analysis Period (min)	15
90th %ile Actuated Cycle:	120
70th %ile Actuated Cycle:	118.8
50th %ile Actuated Cycle:	111.5
30th %ile Actuated Cycle:	105.2
10th %ile Actuated Cycle:	93.9
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 3: HWY 15 & RR 220



Lanes, Volumes, Timings  
3: HWY 15 & RR 220

Highway 15:06 FPS, 50 Year PM  
20/11/2012

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	159	18	22	222	30	1045	342	791	18	18	1617	97
Ideal Flow (vphpl)	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
Storage Length (m)	0.0		0.0	0.0		40.0	200.0		100.0	100.0		200.0
Storage Lanes	0		0	0		1	2		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	0.97	0.95	1.00	1.00	0.95	1.00
Frt		0.985				0.850			0.850			0.850
Flt Protected		0.962			0.958		0.950			0.950		
Satd. Flow (prot)	0	1670	0	0	1446	2214	2728	2812	1498	1674	2812	1258
Flt Permitted		0.426			0.672		0.950			0.338		
Satd. Flow (perm)	0	739	0	0	1014	2214	2728	2812	1498	596	2812	1258
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				352			19			102
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1657.5			1952.3			262.4			3522.1	
Travel Time (s)		74.6			87.9			11.8			158.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	5%	25%	5%	25%	25%	25%	5%	5%	25%	25%
Adj. Flow (vph)	167	19	23	234	32	1100	360	833	19	19	1702	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	209	0	0	266	1100	360	833	19	19	1702	102
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(m)		0.0			0.0			35.0			35.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	4.0		8.0	4.0	4.0	8.0	4.0	4.0	8.0	4.0	4.0
Trailing Detector (m)	0.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Position(m)	0.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Detector 1 Size(m)	2.0	2.0		6.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0	2.0
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
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm
Protected Phases		2			6		7	4			8	
Permitted Phases	2			6		6			4	8		8
Detector Phase	2	2		6	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	4.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	15.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	51.0	51.0		51.0	51.0	51.0	20.0	99.0	99.0	79.0	79.0	79.0

Lanes, Volumes, Timings  
3: HWY 15 & RR 220

Highway 15:06 FPS, 50 Year PM

20/11/2012








Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Split (%)	34.0%	34.0%		34.0%	34.0%	34.0%	13.3%	66.0%	66.0%	52.7%	52.7%	52.7%
Maximum Green (s)	47.0	47.0		47.0	47.0	47.0	16.0	95.0	95.0	75.0	75.0	75.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0	0	0	0
Act Effect Green (s)		47.0			47.0	47.0	16.0	95.0	95.0	75.0	75.0	75.0
Actuated g/C Ratio		0.31			0.31	0.31	0.11	0.63	0.63	0.50	0.50	0.50
v/c Ratio		0.89			0.84	1.18	1.24	0.47	0.02	0.06	1.21	0.15
Control Delay		85.2			71.3	121.4	187.0	15.4	3.8	20.3	135.8	3.9
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		85.2			71.3	121.4	187.0	15.4	3.8	20.3	135.8	3.9
LOS		F			E	F	F	B	A	C	F	A
Approach Delay		85.2			111.7			66.2			127.2	
Approach LOS		F			F			E			F	
90th %ile Green (s)	47.0	47.0		47.0	47.0	47.0	16.0	95.0	95.0	75.0	75.0	75.0
90th %ile Term Code	Max	Max		Max	Max	Max	Max	Hold	Hold	Max	Max	Max
70th %ile Green (s)	47.0	47.0		47.0	47.0	47.0	16.0	95.0	95.0	75.0	75.0	75.0
70th %ile Term Code	Max	Max		Max	Max	Max	Max	Hold	Hold	Max	Max	Max
50th %ile Green (s)	47.0	47.0		47.0	47.0	47.0	16.0	95.0	95.0	75.0	75.0	75.0
50th %ile Term Code	Max	Max		Max	Max	Max	Max	Hold	Hold	Max	Max	Max
30th %ile Green (s)	47.0	47.0		47.0	47.0	47.0	16.0	95.0	95.0	75.0	75.0	75.0
30th %ile Term Code	Hold	Hold		Max	Max	Max	Max	Hold	Hold	Max	Max	Max
10th %ile Green (s)	47.0	47.0		47.0	47.0	47.0	16.0	95.0	95.0	75.0	75.0	75.0
10th %ile Term Code	Hold	Hold		Max	Max	Max	Max	Hold	Hold	Max	Max	Max
Stops (vph)		169			224	645	275	395	3	10	1336	10
Fuel Used(l)		49			66	295	126	167	3	7	767	32
CO Emissions (g/hr)		901			1214	5462	2338	3098	58	123	14189	591
NOx Emissions (g/hr)		175			236	1063	455	603	11	24	2761	115
VOC Emissions (g/hr)		209			281	1266	542	718	13	29	3290	137
Dilemma Vehicles (#)		6			8	0	0	26	0	0	45	0
Queue Length 50th (m)		61.6			77.8	~188.2	~71.7	67.8	0.0	3.0	~341.3	0.0
Queue Length 95th (m)		#113.8			#128.6	#236.8	#105.8	83.4	3.3	8.2	#385.3	10.2
Internal Link Dist (m)		1633.5			1928.3			238.4			3498.1	
Turn Bay Length (m)						40.0	200.0		100.0	100.0		200.0
Base Capacity (vph)		234			317	935	290	1780	955	298	1406	680
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.89			0.84	1.18	1.24	0.47	0.02	0.06	1.21	0.15

Intersection Summary

Lanes, Volumes, Timings  
 3: HWY 15 & RR 220

Area Type:	Other		
Cycle Length:	150		
Actuated Cycle Length:	150		
Natural Cycle:	150		
Control Type:	Semi Act-Uncoord		
Maximum v/c Ratio:	1.24		
Intersection Signal Delay:	104.7	Intersection LOS:	F
Intersection Capacity Utilization	104.8%	ICU Level of Service	G
Analysis Period (min)	15		
90th %ile Actuated Cycle:	150		
70th %ile Actuated Cycle:	150		
50th %ile Actuated Cycle:	150		
30th %ile Actuated Cycle:	150		
10th %ile Actuated Cycle:	150		
~ 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.			

Splits and Phases: 3: HWY 15 & RR 220

	
51 s	99 s
	 
51 s	20 s 79 s