



APPENDIX D

Synchro Level of Service Output Sheets

NORTH EAST CROSSING ADDITION
E. Main / Mill Rd. / Lapwai Rd

NO BUILD 2016 AM
 January, 2015

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↵	↶	↕↕	↶	↵	↕↕
Volume (veh/h)	316	31	182	115	10	89
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	343	34	198	125	11	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	268	99			198	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	268	99			198	
tC, single (s)	6.9	7.0			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
pO queue free %	50	96			99	
cM capacity (veh/h)	691	925			1387	

Direction, Lane #	WB 1	WB 2	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	343	34	99	99	125	11	48	48
Volume Left	343	0	0	0	0	11	0	0
Volume Right	0	34	0	0	125	0	0	0
cSH	691	925	1700	1700	1700	1387	1700	1700
Volume to Capacity	0.50	0.04	0.06	0.06	0.07	0.01	0.03	0.03
Queue Length 95th (ft)	70	3	0	0	0	1	0	0
Control Delay (s)	15.3	9.0	0.0	0.0	0.0	7.6	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	14.7		0.0			0.8		
Approach LOS	B							

Intersection Summary		
Average Delay		7.0
Intersection Capacity Utilization	32.5%	ICU Level of Service
Analysis Period (min)		15
		A

NORTH EAST CROSSING ADDITION
 E. Main St. / Mill Rd. / Lapwai Rd.

NO BUILD 2016 PM
 January, 2015

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↖	↗	↕↕	↗	↖	↕↕
Volume (vph)	138	31	115	341	82	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	150	180		135	61	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frnt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1615	2935	1599	1787	3282
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1615	2935	1599	1787	3282
Link Speed (mph)	35		35			35
Link Distance (ft)	919		318			251
Travel Time (s)	17.9		6.2			4.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	23%	1%	1%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	150	34	125	371	89	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	34	125	371	89	264
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 32.3% ICU Level of Service A
 Analysis Period (min) 15

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↘			↖	↗	
Volume (veh/h)	42	53	50	204	108	13
Sign Control	Free			Free	Stop	
Grade	1%			-1%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	58	54	222	117	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			103		405	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			103		405	74
tC, single (s)			4.1		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			96		80	98
cM capacity (veh/h)			1489		582	932

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	103	276	132
Volume Left	0	54	117
Volume Right	58	0	14
cSH	1700	1489	606
Volume to Capacity	0.06	0.04	0.22
Queue Length 95th (ft)	0	3	20
Control Delay (s)	0.0	1.7	12.6
Lane LOS		A	B
Approach Delay (s)	0.0	1.7	12.6
Approach LOS			B

Intersection Summary			
Average Delay		4.2	
Intersection Capacity Utilization		33.6%	ICU Level of Service A
Analysis Period (min)		15	

NORTH EAST CROSSING ADDITION
Lapwai Rd. / Lindsay Creek Rd. / Gun Club Rd

NO BUILD 2016 PM
January, 2015

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↘			↖	↙	
Volume (veh/h)	194	231	28	80	135	43
Sign Control	Free			Free	Stop	
Grade	1%			-1%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	211	251	30	87	147	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			462		484	336
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			462		484	336
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		72	93
cM capacity (veh/h)			1110		529	699
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	462	117	193			
Volume Left	0	30	147			
Volume Right	251	0	47			
cSH	1700	1110	562			
Volume to Capacity	0.27	0.03	0.34			
Queue Length 95th (ft)	0	2	38			
Control Delay (s)	0.0	2.3	14.7			
Lane LOS		A	B			
Approach Delay (s)	0.0	2.3	14.7			
Approach LOS			B			
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			45.5%	ICU Level of Service		A
Analysis Period (min)			15			

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	72	55	81	74	56	81
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	60	88	80	61	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			138		365	108
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			138		365	108
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			94		90	91
cM capacity (veh/h)			1452		596	932

Direction, Lane #	SE 1	NW 1	NE 1	NE 2
Volume Total	138	168	61	88
Volume Left	0	88	61	0
Volume Right	60	0	0	88
cSH	1700	1452	596	932
Volume to Capacity	0.08	0.06	0.10	0.09
Queue Length 95th (ft)	0	5	8	8
Control Delay (s)	0.0	4.2	11.7	9.3
Lane LOS		A	B	A
Approach Delay (s)	0.0	4.2	10.3	
Approach LOS			B	

Intersection Summary			
Average Delay		4.9	
Intersection Capacity Utilization		28.9%	ICU Level of Service A
Analysis Period (min)		15	

NORTH EAST CROSSING ADDITION
 Gun Club Rd. / Warner Ave. / 10th St.

NO BUILD 2016 PM
 January, 2015

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	169	161	132	81	87	62
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	184	175	143	88	95	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			359		646	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			359		646	271
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		76	91
cM capacity (veh/h)			1211		387	772
Direction, Lane #	SE 1	NW 1	NE 1	NE 2		
Volume Total	359	232	95	67		
Volume Left	0	143	95	0		
Volume Right	175	0	0	67		
cSH	1700	1211	387	772		
Volume to Capacity	0.21	0.12	0.24	0.09		
Queue Length 95th (ft)	0	10	24	7		
Control Delay (s)	0.0	5.6	17.3	10.1		
Lane LOS		A	C	B		
Approach Delay (s)	0.0	5.6	14.3			
Approach LOS			B			
Intersection Summary						
Average Delay			4.8			
Intersection Capacity Utilization			45.1%		ICU Level of Service	A
Analysis Period (min)			15			

NORTH EAST CROSSING ADDITION
Thain Rd. / 10th St.

NO BUILD 2016 AM
January, 2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	24	238	33	5	546	22	154	77	5	27	49	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	120		0	55		0	55		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prof)	1805	3504	0	1805	3588	0	1805	1885	0	1805	1900	1583
Flt Permitted	0.950			0.950			0.722			0.699		
Satd. Flow (perm)	1805	3504	0	1802	3588	0	1370	1885	0	1328	1900	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			4			3				121
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		3000			1870			1543			221	
Travel Time (s)		58.4			36.4			30.1			4.3	
Confl. Peds. (#/hr)			1	1			1					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	295	0	5	617	0	167	89	0	29	53	89
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
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)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			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	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Free
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		Free
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	4.9	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.9	26.7		10.0	24.3		27.4	27.4		28.6	28.6	
Total Split (s)	24.9	45.2		25.0	45.3		45.4	45.4		45.6	45.6	
Total Split (%)	21.5%	39.0%		21.6%	39.1%		39.2%	39.2%		39.4%	39.4%	
Maximum Green (s)	20.0	40.0		20.0	40.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.7	2.0		1.8	2.1		2.2	2.2		2.4	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.9	5.2		5.0	5.3		5.4	5.4		5.6	5.6	

NORTH EAST CROSSING ADDITION
Thain Rd. / 10th St.

NO BUILD 2016 AM
January, 2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		5.0		5.0			5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		16.0		14.0			17.0	17.0		18.0	18.0	
Pedestrian Calls (#/hr)		0		0			0	0		0	0	
Act Effct Green (s)	7.2	62.6		6.0	57.1		40.2	40.2		40.0	40.0	115.8
Actuated g/C Ratio	0.06	0.54		0.05	0.49		0.35	0.35		0.35	0.35	1.00
v/c Ratio	0.23	0.16		0.05	0.35		0.35	0.14		0.06	0.08	0.06
Control Delay	56.0	13.6		53.2	19.6		30.8	25.8		26.0	26.1	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	56.0	13.6		53.2	19.6		30.8	25.8		26.0	26.1	0.1
LOS	E	B		D	B		C	C		C	C	A
Approach Delay		17.0			19.9			29.0			12.5	
Approach LOS		B			B			C			B	
90th %ile Green (s)	9.3	53.2		6.8	50.7		40.2	40.2		40.0	40.0	
90th %ile Term Code	Gap	Coord		Gap	Coord		MaxR	MaxR		MaxR	MaxR	
70th %ile Green (s)	8.0	65.0		0.0	52.0		40.2	40.2		40.0	40.0	
70th %ile Term Code	Gap	Coord		Skip	Coord		MaxR	MaxR		MaxR	MaxR	
50th %ile Green (s)	7.1	65.0		0.0	52.9		40.2	40.2		40.0	40.0	
50th %ile Term Code	Gap	Coord		Skip	Coord		MaxR	MaxR		MaxR	MaxR	
30th %ile Green (s)	0.0	65.0		0.0	64.9		40.2	40.2		40.0	40.0	
30th %ile Term Code	Skip	Coord		Skip	Coord		MaxR	MaxR		MaxR	MaxR	
10th %ile Green (s)	0.0	65.0		0.0	64.9		40.2	40.2		40.0	40.0	
10th %ile Term Code	Skip	Coord		Skip	Coord		MaxR	MaxR		MaxR	MaxR	
Queue Length 50th (ft)	19	50		4	153		92	44		14	26	0
Queue Length 95th (ft)	48	92		17	207		153	82		36	56	0
Internal Link Dist (ft)		2920			1790			1463			141	
Turn Bay Length (ft)	75			120			55			55		
Base Capacity (vph)	311	1901		311	1770		475	656		458	656	1583
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	0.08	0.16		0.02	0.35		0.35	0.14		0.06	0.08	0.06

Intersection Summary

Area Type: Other
 Cycle Length: 115.8
 Actuated Cycle Length: 115.8
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.35
 Intersection Signal Delay: 20.0
 Intersection Capacity Utilization 44.0%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 3: 10th Street & Thain Rd

p1	p2 (R)	p4
25 s	45.2 s	45.4 s
p5	p6 (R)	p8
24.9 s	45.3 s	45.6 s

NORTH EAST CROSSING ADDITION

NO BUILD 2016 PM

Thain Rd. / 10th St.

January, 2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	55	685	104	18	417	33	139	94	9	103	115	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	120		0	55		0	55		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			1.00					
Frt		0.980			0.989			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3527	0	1805	3570	0	1805	1875	0	1787	1900	1615
Flt Permitted	0.950			0.950			0.676			0.685		
Satd. Flow (perm)	1805	3527	0	1803	3570	0	1283	1875	0	1289	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			8			5				
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		3000			1870			1543			221	
Travel Time (s)		58.4			36.4			30.1			4.3	
Confl. Peds. (#/hr)			1	1			1					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	60	745	113	20	453	36	151	102	10	112	125	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	858	0	20	489	0	151	112	0	112	125	73
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+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)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Free
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		Free
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	4.9	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.9	26.7		10.0	24.3		27.4	27.4		28.6	28.6	
Total Split (s)	24.9	45.2		25.0	45.3		45.4	45.4		45.6	45.6	
Total Split (%)	21.5%	39.0%		21.6%	39.1%		39.2%	39.2%		39.4%	39.4%	

NORTH EAST CROSSING ADDITION
 Thain Rd. / 10th St.

NO BUILD 2016 PM
 January, 2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Maximum Green (s)	20.0	40.0		20.0	40.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.7	2.0		1.8	2.1		2.2	2.2		2.4	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.9	5.2		5.0	5.3		5.4	5.4		5.6	5.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		5.0		5.0			5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		16.0		14.0			17.0	17.0		18.0	18.0	
Pedestrian Calls (#/hr)		0		0			0	0		0	0	
Act Effct Green (s)	9.2	59.8		6.9	52.9		40.2	40.2		40.0	40.0	115.8
Actuated g/C Ratio	0.08	0.52		0.06	0.46		0.35	0.35		0.35	0.35	1.00
v/c Ratio	0.42	0.47		0.19	0.30		0.34	0.17		0.25	0.19	0.05
Control Delay	58.7	19.6		55.3	21.1		30.7	25.9		29.1	27.6	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	58.7	19.6		55.3	21.1		30.7	25.9		29.1	27.6	0.1
LOS	E	B		E	C		C	C		C	C	A
Approach Delay		22.2			22.4			28.7			21.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	43	182		14	120		83	55		59	65	0
Queue Length 95th (ft)	85	299		40	170		141	98		107	111	0
Internal Link Dist (ft)		2920			1790			1463			141	
Turn Bay Length (ft)	75			120			55			55		
Base Capacity (vph)	311	1827		311	1635		445	654		445	656	1615
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	0.19	0.47		0.06	0.30		0.34	0.17		0.25	0.19	0.05

Intersection Summary

Area Type: Other
 Cycle Length: 115.8
 Actuated Cycle Length: 115.8
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.47
 Intersection Signal Delay: 23.0
 Intersection Capacity Utilization 53.8%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A
























Splits and Phases: 3: Thain Rd

25 s	45.2 s	45.4 s
24.9 s	45.3 s	45.6 s

Lanes, Volumes, Timings
8: 10th St & Thain Rd

NO BUILD 2016 PM

10/05/2016

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	139	94	9	103	115	67	55	685	104	18	417	33
Future Volume (vph)	139	94	9	103	115	67	55	685	104	18	417	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	0		0	60		0	60		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			25			110			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor				1.00								
Fr _t		0.987				0.850		0.980			0.989	
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1875	0	1805	1900	1583	1805	3507	0	1805	3570	0
Fl _t Permitted	0.676			0.685			0.404			0.266		
Satd. Flow (perm)	1284	1875	0	1300	1900	1583	768	3507	0	505	3570	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				114		20			9	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		628			236			939			866	
Travel Time (s)		12.2			4.6			18.3			16.9	
Confl. Peds. (#/hr)				1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	151	102	10	112	125	73	60	745	113	20	453	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	112	0	112	125	73	60	858	0	20	489	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)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Free	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		Free	2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	27.4	27.4		28.6	28.6		9.9	26.7		10.0	24.3	
Total Split (s)	46.0	46.0		46.0	46.0		12.0	59.8		10.0	57.8	
Total Split (%)	39.7%	39.7%		39.7%	39.7%		10.4%	51.6%		8.6%	49.9%	
Maximum Green (s)	40.6	40.6		40.4	40.4		7.8	54.6		5.8	52.5	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	2.2	2.2		2.4	2.4		1.0	2.0		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.4	5.4		5.6	5.6		4.2	5.2		4.2	5.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?								Yes		Yes		

Lanes, Volumes, Timings
8: 10th St & Thain Rd

NO BUILD 2016 PM

10/05/2016

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	17.0	17.0		18.0	18.0			16.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effect Green (s)	40.6	40.6		40.4	40.4	115.8	64.7	60.6		61.0	55.3	
Actuated g/C Ratio	0.35	0.35		0.35	0.35	1.00	0.56	0.52		0.53	0.48	
v/c Ratio	0.34	0.17		0.25	0.19	0.05	0.12	0.47		0.06	0.29	
Control Delay	30.3	25.7		28.7	27.3	0.1	11.9	18.7		11.6	19.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	30.3	25.7		28.7	27.3	0.1	11.9	18.7		11.6	19.1	
LOS	C	C		C	C	A	B	B		B	B	
Approach Delay		28.3			21.4			18.2			18.9	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	82	55		59	65	0	19	182		6	115	
Queue Length 95th (ft)	141	98		106	111	0	39	282		17	155	
Internal Link Dist (ft)		548			156			859			786	
Turn Bay Length (ft)	75						60			60		
Base Capacity (vph)	450	660		453	662	1583	498	1845		331	1708	
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	0.34	0.17		0.25	0.19	0.05	0.12	0.47		0.06	0.29	

Intersection Summary

Area Type: Other
 Cycle Length: 115.8
 Actuated Cycle Length: 115.8
 Offset: 0 (0%), Referenced to phase 2:SETL and 6:NWTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.47
 Intersection Signal Delay: 20.2
 Intersection LOS: C
 Intersection Capacity Utilization 53.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 8: 10th St & Thain Rd



Intersection

Int Delay, s/veh 8.7

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↘	↗	↕↕	↗	↘	↕↕
Traffic Vol, veh/h	391	25	191	147	8	89
Future Vol, veh/h	391	25	191	147	8	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	150	-	100	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	21	1	40	40
Mvmt Flow	425	27	208	160	9	97

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	274	104	0	0	208	0
Stage 1	208	-	-	-	-	-
Stage 2	66	-	-	-	-	-
Critical Hdwy	6.8	7.02	-	-	4.9	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.36	-	-	2.6	-
Pot Cap-1 Maneuver	698	918	-	-	1124	-
Stage 1	813	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	692	918	-	-	1124	-
Mov Cap-2 Maneuver	692	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	947	-	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	17.6	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	WBLn1	WBLn2	SWL	SWT
Capacity (veh/h)	-	-	692	918	1124	-
HCM Lane V/C Ratio	-	-	0.614	0.03	0.008	-
HCM Control Delay (s)	-	-	18.1	9	8.2	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	4.2	0.1	0	-

Lanes, Volumes, Timings
2: Main St/Mill Rd & Lapwai Rd

2040 LRTP
8/23/2016



Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	391	25	191	147	8	89
Future Volume (vph)	391	25	191	147	8	89
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	75	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				75	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1524	2983	1599	1289	2579
Flt Permitted	0.950				0.635	
Satd. Flow (perm)	1805	1524	2983	1599	862	2579
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		27		160		
Link Speed (mph)	35		35			35
Link Distance (ft)	338		819			429
Travel Time (s)	6.6		16.0			8.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	21%	1%	40%	40%
Adj. Flow (vph)	425	27	208	160	9	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	425	27	208	160	9	97
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Perm	Free	NA	Free	Perm	NA
Protected Phases			4			8
Permitted Phases	6	Free		Free	8	
Detector Phase	6		4		8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	20.2		20.2		20.2	20.2
Total Split (s)	38.0		22.0		22.0	22.0
Total Split (%)	63.3%		36.7%		36.7%	36.7%
Maximum Green (s)	33.8		17.8		17.8	17.8
Yellow Time (s)	3.2		3.2		3.2	3.2
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.2		4.2		4.2	4.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	Min		None		None	None



Lane Group	WBL	WBR	NET	NER	SWL	SWT
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	16.2	29.2	7.6	29.2	7.5	7.5
Actuated g/C Ratio	0.55	1.00	0.26	1.00	0.26	0.26
v/c Ratio	0.42	0.02	0.27	0.10	0.04	0.15
Control Delay	7.3	0.0	10.0	0.1	9.5	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	0.0	10.0	0.1	9.5	9.4
LOS	A	A	A	A	A	A
Approach Delay	6.8		5.7			9.4
Approach LOS	A		A			A
Queue Length 50th (ft)	38	0	11	0	1	5
Queue Length 95th (ft)	90	0	32	0	7	17
Internal Link Dist (ft)	258		739			349
Turn Bay Length (ft)		150		100	75	
Base Capacity (vph)	1788	1524	1844	1599	533	1594
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.02	0.11	0.10	0.02	0.06

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.2
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.42
Intersection Signal Delay:	6.7
Intersection LOS:	A
Intersection Capacity Utilization:	35.3%
ICU Level of Service:	A
Analysis Period (min):	15

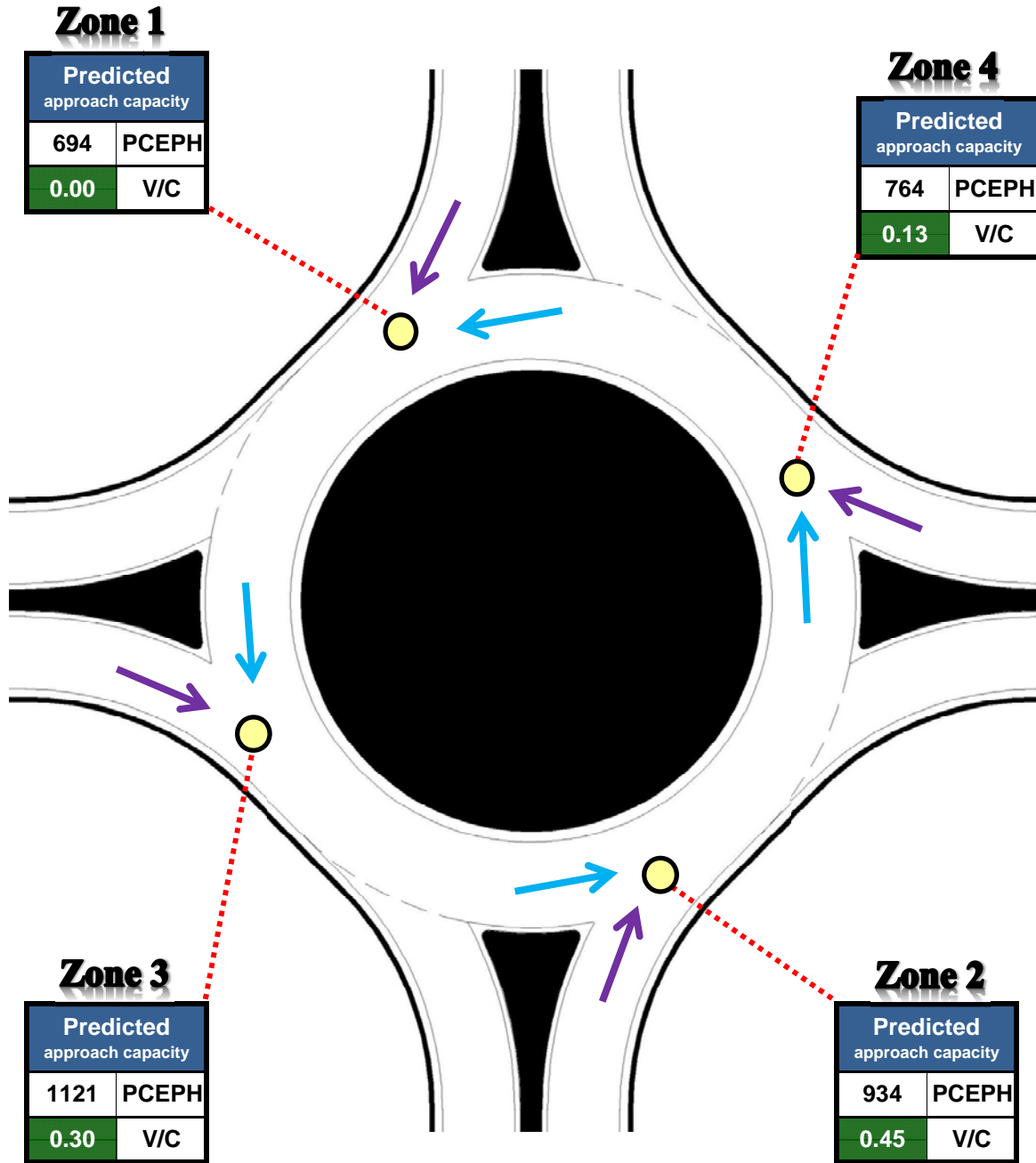
Splits and Phases: 2: Main St/Mill Rd & Lapwai Rd



1 NS x 1 EW Roundabout

Design and Results

Project Name:	Gun Club Corridor Study	Critical Lane Volume Sum				
Project Number:	216021	< 1200	1200 - 1399	1400 - 1599	≥ 1600	
Location:	Main Street & Lapwai Road	VOLUME / CAPACITY RATIO:	Zone 1	0.00	Zone 4	0.13
Date:	August 19, 2016		Zone 3	0.30	Zone 2	0.45



Intersection

Int Delay, s/veh 6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	270	302	32	113	179	49
Future Vol, veh/h	270	302	32	113	179	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	-2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	293	328	35	123	195	53

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	650
Stage 1	-	-	458
Stage 2	-	-	192
Critical Hdwy	-	4.1	6.7
Critical Hdwy Stg 1	-	-	5.7
Critical Hdwy Stg 2	-	-	5.7
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	969	414
Stage 1	-	-	617
Stage 2	-	-	832
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	969	402
Mov Cap-2 Maneuver	-	-	402
Stage 1	-	-	617
Stage 2	-	-	800

Approach	EB	WB	NB
HCM Control Delay, s	0	2	23.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	969	-
HCM Lane V/C Ratio	0.57	-	-	0.036	-
HCM Control Delay (s)	23.7	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.5	-	-	0.1	-

Intersection

Int Delay, s/veh 4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↓	↑	↓	
Traffic Vol, veh/h	270	302	32	113	179	49
Future Vol, veh/h	270	302	32	113	179	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	75	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	-2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	293	328	35	123	195	53

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	293
Stage 1	-	-	293
Stage 2	-	-	192
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1280
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1280
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	593	-	-	1280	-
HCM Lane V/C Ratio	0.418	-	-	0.027	-
HCM Control Delay (s)	15.4	-	-	7.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2.1	-	-	0.1	-

Lanes, Volumes, Timings
4: Gun Club Rd & Lapwai Rd

2040 LRTP
8/23/2016

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↖	↗
Traffic Volume (vph)	270	302	32	113	179	49
Future Volume (vph)	270	302	32	113	179	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	-2%	
Storage Length (ft)		75	75		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			75		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.971	
Flt Protected			0.950		0.962	
Satd. Flow (prot)	1890	1607	1814	1854	1793	0
Flt Permitted			0.581		0.962	
Satd. Flow (perm)	1890	1607	1109	1854	1793	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		328			37	
Link Speed (mph)	35			35	35	
Link Distance (ft)	2382			703	5361	
Travel Time (s)	46.4			13.7	104.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	293	328	35	123	195	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	293	328	35	123	248	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.99	0.99	0.99	0.99
Turning Speed (mph)		9	15		15	9
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	4			8		
Permitted Phases		4	8		2	
Detector Phase	4	4	8	8	2	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	20.2	20.2	20.2	20.2	20.2	
Total Split (s)	22.0	22.0	22.0	22.0	23.0	
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	
Maximum Green (s)	17.8	17.8	17.8	17.8	18.8	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.2	4.2	4.2	4.2	4.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	

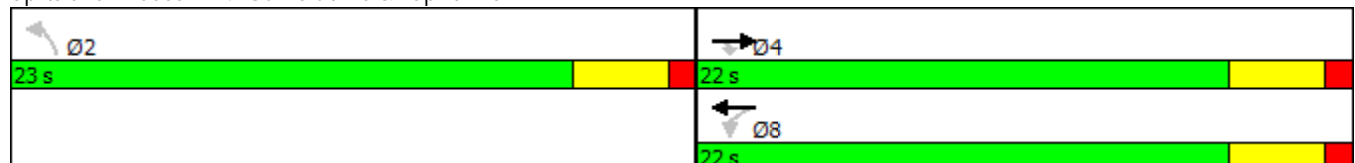


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Recall Mode	None	None	None	None	Min	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effect Green (s)	10.7	10.7	10.7	10.7	9.3	
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.32	
v/c Ratio	0.42	0.41	0.09	0.18	0.41	
Control Delay	8.9	2.9	6.7	6.9	9.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	8.9	2.9	6.7	6.9	9.6	
LOS	A	A	A	A	A	
Approach Delay	5.7			6.9	9.6	
Approach LOS	A			A	A	
Queue Length 50th (ft)	27	0	3	10	21	
Queue Length 95th (ft)	77	29	14	35	74	
Internal Link Dist (ft)	2302			623	5281	
Turn Bay Length (ft)		75	75			
Base Capacity (vph)	1226	1157	719	1203	1240	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.24	0.28	0.05	0.10	0.20	

Intersection Summary

Area Type: Other
 Cycle Length: 45
 Actuated Cycle Length: 28.8
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 6.8
 Intersection Capacity Utilization 41.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

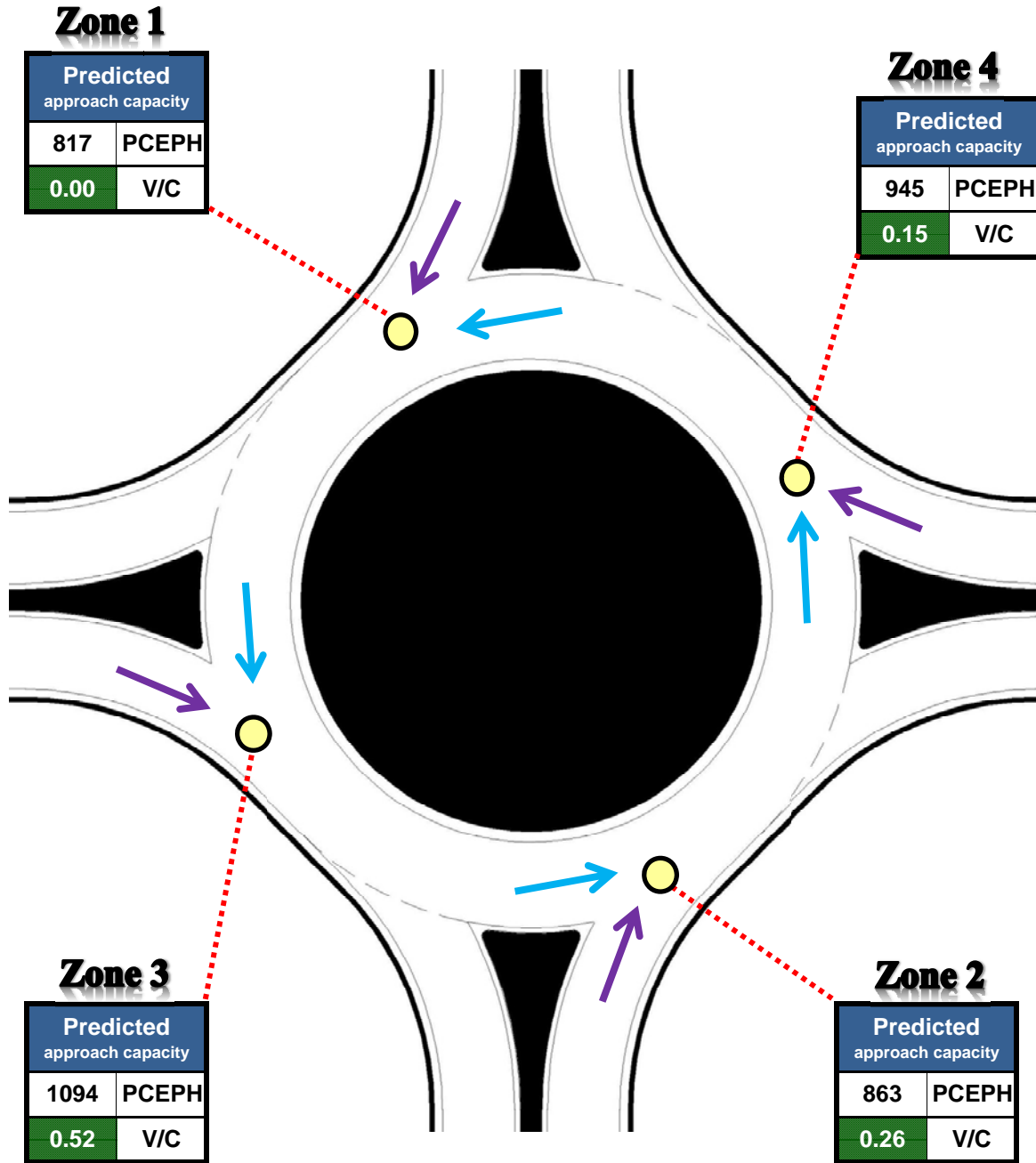
Splits and Phases: 4: Gun Club Rd & Lapwai Rd



1 NS x 1 EW Roundabout

Design and Results

Project Name:	Gun Club Corridor Study	Critical Lane Volume Sum				
Project Number:	216021	< 1200	1200 - 1399	1400 - 1599	≥ 1600	
Location:	Lapwai Road & Gun Club Road	VOLUME / CAPACITY RATIO:	Zone 1	0.00	Zone 4	0.15
Date:	August 19, 2016		Zone 3	0.52	Zone 2	0.26



Intersection

Int Delay, s/veh 5.3

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations	↘	↗	↑	↗		↘
Traffic Vol, veh/h	121	88	170	212	161	74
Future Vol, veh/h	121	88	170	212	161	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	132	96	185	230	175	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	615	185	0	0	185	0
Stage 1	185	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	453	855	-	-	1384	-
Stage 1	844	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	393	855	-	-	1384	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	568	-	-	-	-	-

Approach	NB		SE		NW
HCM Control Delay, s	14.9		0		5.5
HCM LOS	B				

Minor Lane/Major Mvmt	NBLn1	NBLn2	NWL	NWT	SET	SER
Capacity (veh/h)	393	855	1384	-	-	-
HCM Lane V/C Ratio	0.335	0.112	0.126	-	-	-
HCM Control Delay (s)	18.7	9.7	8	0	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	1.4	0.4	0.4	-	-	-

Intersection

Int Delay, s/veh 5.3

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	121	88	170	212	161	74
Future Vol, veh/h	121	88	170	212	161	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	132	96	185	230	175	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	615	185	0	0	185	0
Stage 1	185	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	453	855	-	-	1384	-
Stage 1	844	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	396	855	-	-	1384	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	571	-	-	-	-	-

Approach	NB		SE		NW
HCM Control Delay, s	14.8		0		5.5
HCM LOS	B				

Minor Lane/Major Mvmt	NBLn1	NBLn2	NWL	NWT	SET	SER
Capacity (veh/h)	396	855	1384	-	-	-
HCM Lane V/C Ratio	0.332	0.112	0.126	-	-	-
HCM Control Delay (s)	18.5	9.7	8	-	-	-
HCM Lane LOS	C	A	A	-	-	-
HCM 95th %tile Q(veh)	1.4	0.4	0.4	-	-	-

Intersection

Int Delay, s/veh 0

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	121	88	170	212	161	74
Future Vol, veh/h	121	88	170	212	161	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	132	96	185	230	175	80

Major/Minor	Major1	Minor2	Minor1
Conflicting Flow All	0	0	263
Stage 1	-	-	0
Stage 2	-	-	263
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach

NB SE NW
 HCM Control Delay, s
 HCM LOS - -

Minor Lane/Major Mvmt	NBL	NBR	NWLn1	NWLn2	SELn1	SELn2
Capacity (veh/h)	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-
























6: 10th St & Warner Ave Performance by movement

Movement	NBL	NBR	SET	SER	NWL	NWT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.6	2.8	0.3	0.8
Total Del/Veh (s)	1.1	1.7	15.4	7.8	14.4	7.9	9.4

Lanes, Volumes, Timings
8: 10th St & Thain Rd

2040 No Build + Nez Perce Dr
























11/14/2016

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	182	108	9	119	147	99	72	800	135	18	483	33
Future Volume (vph)	182	108	9	119	147	99	72	800	135	18	483	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	0		0	60		0	60		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			25			110			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor				1.00								
Fr _t		0.988				0.850		0.978			0.990	
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1877	0	1805	1900	1583	1805	3501	0	1805	3574	0
Fl _t Permitted	0.625			0.669			0.365			0.205		
Satd. Flow (perm)	1188	1877	0	1269	1900	1583	694	3501	0	390	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				114		23			8	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		628			236			939			866	
Travel Time (s)		12.2			4.6			18.3			16.9	
Confl. Peds. (#/hr)				1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	198	117	10	129	160	108	78	870	147	20	525	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	127	0	129	160	108	78	1017	0	20	561	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)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Free	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		Free	2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	27.4	27.4		28.6	28.6		9.9	26.7		10.0	24.3	
Total Split (s)	45.0	45.0		45.0	45.0		12.0	60.8		10.0	58.8	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		10.4%	52.5%		8.6%	50.8%	
Maximum Green (s)	39.6	39.6		39.4	39.4		7.8	55.6		5.8	53.5	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	2.2	2.2		2.4	2.4		1.0	2.0		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.4	5.4		5.6	5.6		4.2	5.2		4.2	5.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?								Yes		Yes		

Lanes, Volumes, Timings
8: 10th St & Thain Rd

2040 Alternative 1

11/14/2016

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	182	108	9	119	147	99	72	800	135	18	483	33
Future Volume (vph)	182	108	9	119	147	99	72	800	135	18	483	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	0		0	60		0	60		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	100			25			110			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor				1.00								
Fr _t		0.988				0.850		0.978			0.990	
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1877	0	1805	1900	1583	1805	3501	0	1805	3574	0
Fl _t Permitted	0.501			0.676			0.359			0.187		
Satd. Flow (perm)	952	1877	0	1283	1900	1583	682	3501	0	355	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				193		21			8	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		628			236			939			866	
Travel Time (s)		12.2			4.6			18.3			16.9	
Confl. Peds. (#/hr)				1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	198	117	10	129	160	108	78	870	147	20	525	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	127	0	129	160	108	78	1017	0	20	561	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)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		Free	2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.2	27.4		9.2	28.6		9.9	26.7		10.0	24.3	
Total Split (s)	18.0	37.0		12.0	31.0		11.0	56.8		10.0	55.8	
Total Split (%)	15.5%	32.0%		10.4%	26.8%		9.5%	49.1%		8.6%	48.2%	
Maximum Green (s)	13.8	31.6		7.8	25.4		6.8	51.6		5.8	50.5	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.0	2.2		1.0	2.4		1.0	2.0		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.2	5.4		4.2	5.6		4.2	5.2		4.2	5.3	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	

