

## APPENDIX 5

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### INTERSECTION CAPACITY ANALYSES

**EXISTING (2007) TRAFFIC**

Project: Stonebridge (Phases 10-12)

Proj # 15056

Date: July 18, 2007

Overall v/c Ratio Summary

Description: Existing (2007) Traffic

**AM Peak Hour**

Intersection	Critical Movements											Overall v/c	Overall LOS	
	Volume						Volume to Capacity Ratio							
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5			v/c 6
Riverstone & Jockvale													0.00	-
Jockvale & Cambrian													0.00	-
Jockvale & Blackleaf													0.00	-
Jockvale & Gofflinks													0.00	-
Jockvale & Prince of Wales	339	273					0.77	0.49					0.61	B
Cambrian & Kilbirnie													0.00	-
Cambrian & Greenbank													0.00	-
Greenbank & Dundonald													0.00	-
Cambrian & Cedarview													0.00	-
Cambrian & Realigned Greenbank													0.00	-
Greenbank & Kilbirnie													0.00	-
Greenbank & Jockvale													0.00	-

**PM Peak Hour**

Intersection	Critical Movements											Overall v/c	Overall LOS	
	Volume						Volume to Capacity Ratio							
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5			v/c 6
Riverstone & Jockvale													0.00	-
Jockvale & Cambrian													0.00	-
Jockvale & Blackleaf													0.00	-
Jockvale & Gofflinks													0.00	-
Jockvale & Prince of Wales	234	609					0.21	0.93					0.48	A
Cambrian & Kilbirnie													0.00	-
Cambrian & Greenbank													0.00	-
Greenbank & Dundonald													0.00	-
Cambrian & Cedarview													0.00	-
Cambrian & Realigned Greenbank													0.00	-
Greenbank & Kilbirnie													0.00	-
Greenbank & Jockvale													0.00	-

STONEBRIDGE: PHASES 10-12  
 10: JOCKVALE ROAD & GREENBANK ROAD

EXISTING (2007) TRAFFIC  
 AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	3	51	39	1	463	8	300	17	218	234	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	3	51	39	1	463	8	300	17	218	234	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	58	503	325	454
Volume Left (vph)	4	39	8	218
Volume Right (vph)	51	463	17	2
Hadj (s)	-0.48	-0.50	0.01	0.13
Departure Headway (s)	7.6	6.1	6.9	6.7
Degree Utilization, x	0.12	0.85	0.62	0.84
Capacity (veh/h)	400	575	489	520
Control Delay (s)	11.6	40.7	20.9	41.8
Approach Delay (s)	11.6	40.7	20.9	41.8
Approach LOS	B	E	C	E

Intersection Summary	V/C	0.15	0.87	0.66	0.87
Delay				35.0	
HCM Level of Service				D	
Intersection Capacity Utilization			93.3%		ICU Level of Service
Analysis Period (min)			60		F

STONEBRIDGE: PHASES 10-12  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD

EXISTING (2007) TRAFFIC  
 AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	18	82	423	10	24	241
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	18	82	423	10	24	241
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	717	428			433	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717	428			433	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	87			98	
cM capacity (veh/h)	388	627			1127	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	18	82	433	24	241
Volume Left	18	0	0	24	0
Volume Right	0	82	10	0	0
cSH	388	627	1700	1127	1700
Volume to Capacity	0.05	0.13	0.25	0.02	0.14
Queue Length 95th (m)	1.0	3.2	0.0	0.5	0.0
Control Delay (s)	14.7	11.6	0.0	8.3	0.0
Lane LOS	B	B		A	
Approach Delay (s)	12.2		0.0	0.7	
Approach LOS	B				

Intersection Summary			
Average Delay		1.8	
Intersection Capacity Utilization		36.2%	ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

EXISTING (2007) TRAFFIC  
AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	4	5	68	26	122	5	309	42	47	209	3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	4	5	68	26	122	5	309	42	47	209	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	758	666	210	650	646	330	212			351		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	758	666	210	650	646	330	212			351		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	81	93	83	100			96		
cM capacity (veh/h)	245	364	830	365	374	712	1358			1208		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	9	68	148	5	351	47	212
Volume Left	2	0	68	0	5	0	47	0
Volume Right	0	5	0	122	0	42	0	3
cSH	245	529	365	614	1358	1700	1208	1700
Volume to Capacity	0.01	0.02	0.19	0.24	0.00	0.21	0.04	0.12
Queue Length 95th (m)	0.2	0.4	4.8	6.6	0.1	0.0	0.9	0.0
Control Delay (s)	19.8	11.9	17.1	12.7	7.7	0.0	8.1	0.0
Lane LOS	C	B	C	B	A		A	
Approach Delay (s)	13.4		14.1		0.1		1.5	
Approach LOS	B		B					

Intersection Summary		
Average Delay		4.3
Intersection Capacity Utilization	43.8%	ICU Level of Service A
Analysis Period (min)		60

STONEBRIDGE: PHASES 10-12  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S)

EXISTING (2007) TRAFFIC  
 AM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↙	↑	↗		↙	↗
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	235	243	39	104	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	235	243	39	104	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	282				606	262
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282				606	262
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				76	94
cM capacity (veh/h)	1280				441	776

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	235	282	104	43
Volume Left	54	0	0	104	0
Volume Right	0	0	39	0	43
cSH	1280	1700	1700	441	776
Volume to Capacity	0.04	0.14	0.17	0.24	0.06
Queue Length 95th (m)	0.9	0.0	0.0	6.4	1.2
Control Delay (s)	7.9	0.0	0.0	15.7	9.9
Lane LOS	A			C	A
Approach Delay (s)	1.5		0.0	14.0	
Approach LOS				B	

Intersection Summary					
Average Delay			3.5		
Intersection Capacity Utilization			35.4%	ICU Level of Service	A
Analysis Period (min)			60		

STONEBRIDGE: PHASES 10-12  
4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

EXISTING (2007) TRAFFIC  
AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕	↕	↖	↗	↕
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Frnt		0.994				0.850		0.999			0.971	
Flt Protected		0.982			0.999		0.950			0.950		
Satd. Flow (prot)	0	1742	0	0	1783	1517	1695	3387	0	1695	3292	0
Flt Permitted		0.751			0.995		0.595			0.379		
Satd. Flow (perm)	0	1332	0	0	1775	1517	1062	3387	0	676	3292	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			410		1			49		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70		60			60		
Link Distance (m)		843.6			306.3		329.6			362.7		
Travel Time (s)		43.4			15.8		19.8			21.8		
Volume (vph)	121	202	16	3	214	410	19	404	3	273	205	49
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	121	202	16	3	214	410	19	404	3	273	205	49
Lane Group Flow (vph)	0	339	0	0	217	410	19	407	0	273	254	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	38.0	38.0	0.0	38.0	38.0	38.0	32.0	32.0	0.0	20.0	52.0	0.0
Total Split (%)	42.2%	42.2%	0.0%	42.2%	42.2%	42.2%	35.6%	35.6%	0.0%	22.2%	57.8%	0.0%
Maximum Green (s)	30.6	30.6		30.6	30.6	30.6	25.4	25.4		13.4	45.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		27.8			27.8	27.8	30.3	30.3		48.2	48.2	
Actuated g/C Ratio		0.33			0.33	0.33	0.36	0.36		0.57	0.57	
v/c Ratio		0.77			0.37	0.53	0.05	0.33		0.49	0.13	
Control Delay		32.3			22.4	4.4	21.8	22.3		13.5	7.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		32.3			22.4	4.4	21.8	22.3		13.5	7.8	
LOS		C			C	A	C	C		B	A	
Approach Delay		32.3			10.6			22.3			10.7	
Approach LOS		C			B			C			B	
90th %ile Green (s)	30.6	30.6		30.6	30.6	30.6	25.4	25.4		13.4	45.4	



STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

EXISTING (2007) TRAFFIC  
 AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	30.6	30.6		30.6	30.6	30.6	25.4	25.4		13.4	45.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
50th %ile Green (s)	26.4	26.4		26.4	26.4	26.4	26.1	26.1		12.7	45.4	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
30th %ile Green (s)	21.4	21.4		21.4	21.4	21.4	28.6	28.6		10.2	45.4	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
10th %ile Green (s)	14.7	14.7		14.7	14.7	14.7	31.2	31.2		7.6	45.4	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
Queue Length 50th (m)		43.8			24.0	0.0	1.9	24.1		20.2	7.1	
Queue Length 95th (m)		#93.1			45.4	26.7	7.4	43.1		42.3	15.4	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		505			671	828	382	1219		568	1909	
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		0.67			0.32	0.50	0.05	0.33		0.48	0.13	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 84.1  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 17.1  
 Intersection Capacity Utilization 72.6%  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 90  
 70th %ile Actuated Cycle: 90  
 50th %ile Actuated Cycle: 85.8  
 30th %ile Actuated Cycle: 80.8  
 10th %ile Actuated Cycle: 74.1  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

01	02	04
20 s	32 s	38 s
06	08	
52 s	38 s	

STONEBRIDGE: PHASES 10-12  
2: CAMBRIAN ROAD & GREENBANK ROAD

EXISTING (2007) TRAFFIC  
AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	19	8	4	8	62	30	2	113	5	9	43	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	19	8	4	8	62	30	2	113	5	9	43	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	92			12			164	156	10	202	143	77
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	92			12			164	156	10	202	143	77
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	84	100	99	94	100
cM capacity (veh/h)	1503			1607			753	723	1071	653	735	984

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	100	120	54
Volume Left	19	8	2	9
Volume Right	4	30	5	2
cSH	1503	1607	733	727
Volume to Capacity	0.01	0.00	0.16	0.07
Queue Length 95th (m)	0.3	0.1	4.1	1.7
Control Delay (s)	4.6	0.6	10.9	10.4
Lane LOS	A	A	B	B
Approach Delay (s)	4.6	0.6	10.9	10.4
Approach LOS			B	B

Intersection Summary			
Average Delay		6.8	
Intersection Capacity Utilization		22.9%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 15: CAMBRIAN ROAD & CEDARVIEW ROAD

EXISTING (2007) TRAFFIC  
 AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↑	↘	↘	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	5	61	19	5	26	14
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	61	19	5	26	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	88	22			24	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	88	22			24	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	94			98	
cM capacity (veh/h)	898	1056			1591	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	66	24	40
Volume Left	5	0	26
Volume Right	61	5	0
cSH	1042	1700	1591
Volume to Capacity	0.06	0.01	0.02
Queue Length 95th (m)	1.4	0.0	0.3
Control Delay (s)	8.7	0.0	4.8
Lane LOS	A		A
Approach Delay (s)	8.7	0.0	4.8
Approach LOS	A		

Intersection Summary			
Average Delay		5.9	
Intersection Capacity Utilization		19.9%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 10: JOCKVALE ROAD & GREENBANK ROAD

EXISTING (2007) TRAFFIC  
 PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	13	1	1	1	5	607	0	97	1	514	140	16
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	1	1	1	5	607	0	97	1	514	140	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	15	613	98	670
Volume Left (vph)	13	1	0	514
Volume Right (vph)	1	607	1	16
Hadj (s)	0.17	-0.56	0.03	0.17
Departure Headway (s)	7.5	5.5	7.0	6.2
Degree Utilization, x	0.03	0.93	0.19	1.15
Capacity (veh/h)	455	648	500	576
Control Delay (s)	10.8	62.3	11.6	316.9
Approach Delay (s)	10.8	62.3	11.6	316.9
Approach LOS	B	F	B	F

Intersection Summary	EB	WB	NB	SB
Delay	0.03	0.95	0.20	1.16
HCM Level of Service				
Intersection Capacity Utilization		92.2%		
ICU Level of Service				F
Analysis Period (min)		60		

STONEBRIDGE: PHASES 10-12  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD

EXISTING (2007) TRAFFIC  
 PM PEAK HOUR



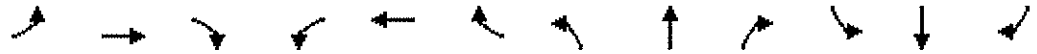
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↘	↑	↘	↙	↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	24	62	444	56	155	487
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	62	444	56	155	487
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1269	472			500	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1269	472			500	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	90			85	
cM capacity (veh/h)	159	592			1064	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	24	62	500	155	487
Volume Left	24	0	0	155	0
Volume Right	0	62	56	0	0
cSH	159	592	1700	1064	1700
Volume to Capacity	0.15	0.10	0.29	0.15	0.29
Queue Length 95th (m)	3.7	2.5	0.0	3.6	0.0
Control Delay (s)	31.7	11.8	0.0	9.0	0.0
Lane LOS	D	B		A	
Approach Delay (s)	17.4		0.0	2.2	
Approach LOS	C				

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization		50.7%	ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

EXISTING (2007) TRAFFIC  
PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	6	21	4	38	7	83	2	411	69	146	364	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	21	4	38	7	83	2	411	69	146	364	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1158	1140	364	1120	1106	446	365			480		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1158	1140	364	1120	1106	446	365			480		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	88	99	74	96	86	100			87		
cM capacity (veh/h)	130	173	680	149	182	613	1194			1082		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	6	25	38	90	2	480	146	365
Volume Left	6	0	38	0	2	0	146	0
Volume Right	0	4	0	83	0	69	0	1
cSH	130	197	149	517	1194	1700	1082	1700
Volume to Capacity	0.05	0.13	0.26	0.17	0.00	0.28	0.13	0.21
Queue Length 95th (m)	1.0	3.0	7.1	4.4	0.0	0.0	3.3	0.0
Control Delay (s)	34.0	25.9	37.5	13.4	8.0	0.0	8.8	0.0
Lane LOS	D	D	E	B	A		A	
Approach Delay (s)	27.5		20.6		0.0		2.5	
Approach LOS	D		C					

Intersection Summary		
Average Delay		4.2
Intersection Capacity Utilization	54.7%	ICU Level of Service
Analysis Period (min)		60
		A

STONEBRIDGE: PHASES 10-12  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S)

EXISTING (2007) TRAFFIC  
 PM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↖	↑	↗		↖	↗
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	331	362	78	34	38
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	331	362	78	34	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	440				840	401
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				840	401
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				89	94
cM capacity (veh/h)	1120				319	649

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	331	440	34	38
Volume Left	54	0	0	34	0
Volume Right	0	0	78	0	38
cSH	1120	1700	1700	319	649
Volume to Capacity	0.05	0.19	0.26	0.11	0.06
Queue Length 95th (m)	1.1	0.0	0.0	2.5	1.3
Control Delay (s)	8.4	0.0	0.0	17.6	10.9
Lane LOS	A			C	B
Approach Delay (s)	1.2		0.0	14.1	
Approach LOS				B	

Intersection Summary					
Average Delay			1.6		
Intersection Capacity Utilization			41.8%	ICU Level of Service	A
Analysis Period (min)			60		

STONEBRIDGE: PHASES 10-12  
4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

EXISTING (2007) TRAFFIC  
PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↗	↖	↕		↖	↕	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Frt		0.990				0.850		0.999			0.973	
Flt Protected		0.992			0.999		0.950			0.950		
Satd. Flow (prot)	0	1752	0	0	1783	1517	1695	3387	0	1695	3299	0
Flt Permitted		0.863			0.991		0.367			0.524		
Satd. Flow (perm)	0	1524	0	0	1768	1517	655	3387	0	935	3299	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				273		1			48	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	57	280	28	6	290	273	14	233	1	609	615	136
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	57	280	28	6	290	273	14	233	1	609	615	136
Lane Group Flow (vph)	0	365	0	0	296	273	14	234	0	609	751	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	32.0	32.0	0.0	20.0	52.0	0.0
Total Split (%)	40.2%	40.2%	0.0%	40.2%	40.2%	40.2%	36.8%	36.8%	0.0%	23.0%	59.8%	0.0%
Maximum Green (s)	27.6	27.6		27.6	27.6	27.6	25.4	25.4		13.4	45.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Act Effct Green (s)		31.0			31.0	31.0	28.0	28.0		48.0	48.0	
Actuated g/C Ratio		0.36			0.36	0.36	0.32	0.32		0.55	0.55	
v/c Ratio		0.67			0.47	0.38	0.07	0.21		0.93	0.41	
Control Delay		30.7			24.7	4.3	21.7	22.1		46.4	11.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		30.7			24.7	4.3	21.7	22.1		46.4	11.3	
LOS		C			C	A	C	C		D	B	
Approach Delay		30.7			14.9			22.0			27.0	
Approach LOS		C			B			C			C	
Queue Length 50th (m)		45.9			34.6	0.0	1.5	13.5		61.0	30.3	
Queue Length 95th (m)		#94.5			63.7	19.6	6.1	24.2		#175.1	48.6	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		546			630	716	211	1091		656	1842	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	

David Hook  
IBI GROUP

Lanes, Volumes, Timings  
7/10/2007



STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

EXISTING (2007) TRAFFIC  
 PM PEAK HOUR

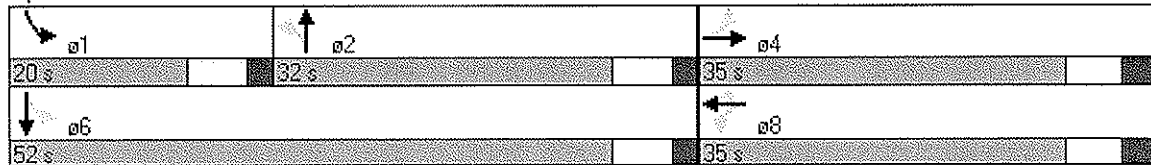


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.67			0.47	0.38	0.07	0.21		0.93	0.41	

Intersection Summary

Area Type: Other  
 Cycle Length: 87  
 Actuated Cycle Length: 87  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 24.4      Intersection LOS: C  
 Intersection Capacity Utilization 92.9%      ICU Level of Service F  
 Analysis Period (min) 60  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE



STONEBRIDGE: PHASES 10-12  
2: CAMBRIAN ROAD & GREENBANK ROAD

EXISTING (2007) TRAFFIC  
PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	37	4	3	14	8	3	77	4	7	158	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	37	4	3	14	8	3	77	4	7	158	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	22			41			156	71	39	110	69	18
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	22			41			156	71	39	110	69	18
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	91	100	99	81	99
cM capacity (veh/h)	1593			1568			682	817	1033	801	819	1061

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	43	25	84	175
Volume Left	2	3	3	7
Volume Right	4	8	4	10
cSH	1593	1568	819	829
Volume to Capacity	0.00	0.00	0.10	0.21
Queue Length 95th (m)	0.0	0.0	2.4	5.6
Control Delay (s)	0.3	0.9	9.9	10.5
Lane LOS	A	A	A	B
Approach Delay (s)	0.3	0.9	9.9	10.5
Approach LOS			A	B

Intersection Summary			
Average Delay		8.3	
Intersection Capacity Utilization	22.4%		ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 15: CAMBRIAN ROAD & CEDARVIEW ROAD

EXISTING (2007) TRAFFIC  
 PM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑		↑	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	5	22	8	9	34	21
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	22	8	9	34	21
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	102	12			17	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	102	12			17	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			98	
cM capacity (veh/h)	878	1068			1600	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	27	17	55
Volume Left	5	0	34
Volume Right	22	9	0
cSH	1027	1700	1600
Volume to Capacity	0.03	0.01	0.02
Queue Length 95th (m)	0.6	0.0	0.5
Control Delay (s)	8.6	0.0	4.6
Lane LOS	A		A
Approach Delay (s)	8.6	0.0	4.6
Approach LOS	A		

Intersection Summary			
Average Delay		4.9	
Intersection Capacity Utilization	19.8%		ICU Level of Service
Analysis Period (min)		60	A

## **FUTURE (2013) BACKGROUND TRAFFIC**

Overall v/c Ratio Summary

Description: Future (2013) Background Traffic

**AM Peak Hour**

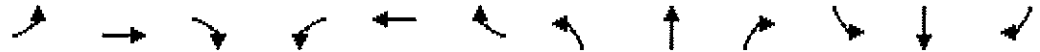
Intersection	Critical Movements														Overall v/c	Overall LOS
	Volume						Volume to Capacity Ratio									
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5	v/c 6				
Riverstone & Jockvale (Signalized)	880	24					0.57	0.07					0.48	A		
Jockvale & Cambrian	279	198					0.74	0.32					0.48	A		
Jockvale & Blackleaf (Unsignalized)													0.00	-		
Jockvale & Balckleaf (Signalized)	214	346					0.55	0.29					0.35	A		
Jockvale & Golfinks													0.00	-		
Jockvale & Prince of Wales	455	298					0.83	0.66					0.75	C		
Jockvale & Prince of Wales (Double-left)	455	298					0.80	0.53					0.67	B		
Cambrian & Kilbirnie													0.00	-		
Cambrian & Greenbank													0.00	-		
Greenbank & Dundonald													0.00	-		
Cambrian & Cedarview													0.00	-		
Cambrian & Realigned Greenbank													0.00	-		
Greenbank & Kilbirnie													0.00	-		
Greenbank & Jockvale													0.00	-		

**PM Peak Hour**

Intersection	Critical Movements														Overall v/c	Overall LOS
	Volume						Volume to Capacity Ratio									
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5	v/c 6				
Riverstone & Jockvale	5	943					0.02	0.63					0.54	A		
Jockvale & Cambrian	184	100					0.71	0.25					0.43	A		
Jockvale & Blackleaf (Unsignalized)													0.00	-		
Jockvale & Blackleaf (Signalized)	132	416					0.41	0.33					0.35	A		
Jockvale & Golfinks													0.00	-		
Jockvale & Prince of Wales	431	594					0.97	0.94					0.95	E		
Jockvale & Prince of Wales (Double-left)	431	594					0.87	0.77					0.81	D		
Cambrian & Kilbirnie													0.00	-		
Cambrian & Greenbank													0.00	-		
Greenbank & Dundonald													0.00	-		
Cambrian & Cedarview													0.00	-		
Cambrian & Realigned Greenbank													0.00	-		
Greenbank & Kilbirnie													0.00	-		
Greenbank & Jockvale													0.00	-		

STONEBRIDGE: PHASES 10-12  
8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2013) TRAFFIC - trial  
AM PEAK HOUR























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	25	0	5	18	0	82	1	870	10	24	384	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	25	0	5	18	0	82	1	870	10	24	384	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1390	1318	388	1314	1316	875	391			880		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1390	1318	388	1314	1316	875	391			880		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	72	100	99	86	100	76	100			97		
cM capacity (veh/h)	89	152	661	131	153	349	1168			768		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	25	5	18	82	1	880	24	391
Volume Left	25	0	18	0	1	0	24	0
Volume Right	0	5	0	82	0	10	0	7
cSH	89	661	131	349	1168	1700	768	1700
Volume to Capacity	0.28	0.01	0.14	0.24	0.00	0.52	0.03	0.23
Queue Length 95th (m)	7.9	0.2	3.3	6.4	0.0	0.0	0.7	0.0
Control Delay (s)	60.7	10.5	36.9	18.5	8.1	0.0	9.8	0.0
Lane LOS	F	B	E	C	A		A	
Approach Delay (s)	52.4		21.8		0.0		0.6	
Approach LOS	F		C					

Intersection Summary		
Average Delay		2.8
Intersection Capacity Utilization	63.8%	ICU Level of Service
Analysis Period (min)		60
		B

STONEBRIDGE: PHASES 10-12  
8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	50.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frnt		0.850			0.850			0.998			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1517	0	1695	1517	0	1695	1781	0	1695	1779	0
Flt Permitted	0.704			0.754			0.495			0.212		
Satd. Flow (perm)	1256	1517	0	1345	1517	0	883	1781	0	378	1779	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		534			210			1			2	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		152.2			313.0			402.4			1314.1	
Travel Time (s)		11.0			22.5			20.7			67.6	
Volume (vph)	25	0	5	18	0	82	1	870	10	24	384	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	0	5	18	0	82	1	870	10	24	384	7
Lane Group Flow (vph)	25	5	0	18	82	0	1	880	0	24	391	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	27.0	27.0	0.0	27.0	27.0	0.0	73.0	73.0	0.0	73.0	73.0	0.0
Total Split (%)	27.0%	27.0%	0.0%	27.0%	27.0%	0.0%	73.0%	73.0%	0.0%	73.0%	73.0%	0.0%
Maximum Green (s)	22.0	22.0		22.0	22.0		68.0	68.0		68.0	68.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	8.3	8.3		8.3	8.3		86.6	86.6		86.6	86.6	
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.87	0.87		0.87	0.87	
v/c Ratio	0.24	0.01		0.16	0.26		0.00	0.57		0.07	0.25	
Control Delay	47.7	0.0		44.9	2.0		1.0	3.8		2.2	2.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.7	0.0		44.9	2.0		1.0	3.8		2.2	2.1	
LOS	D	A		D	A		A	A		A	A	

STONEBRIDGE: PHASES 10-12  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
 AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		39.8			9.7			3.8			2.1	
Approach LOS		D			A			A			A	
90th %ile Green (s)	10.0	10.0		10.0	10.0		80.0	80.0		80.0	80.0	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	8.4	8.4		8.4	8.4		81.6	81.6		81.6	81.6	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.7	6.7		6.7	6.7		83.3	83.3		83.3	83.3	
50th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.9	5.9		5.9	5.9		84.1	84.1		84.1	84.1	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		95.0	95.0		95.0	95.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	4.3	0.0		3.1	0.0		0.0	40.8		0.5	9.4	
Queue Length 95th (m)	12.7	0.0		10.1	0.0		m0.1	84.9		2.3	22.1	
Internal Link Dist (m)		128.2			289.0			378.4			1290.1	
Turn Bay Length (m)	25.0			25.0			50.0			90.0		
Base Capacity (vph)	289	760		309	511		764	1543		327	1541	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.01		0.06	0.16		0.00	0.57		0.07	0.25	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 8 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 4.5  
 Intersection LOS: A  
 Intersection Capacity Utilization 63.8%  
 ICU Level of Service B  
 Analysis Period (min) 60  
 m Volume for 95th percentile queue is metered by upstream signal.






















Splits and Phases: 8: RIVERSTONE DRIVE & JOCKVALE ROAD

↑ a2	→ a4
73s	27s
↓ a6	← a8
73s	27s



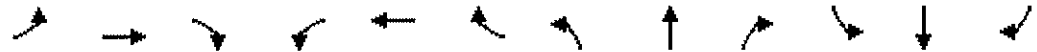
STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
AM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Storage Length (m)	25.0		0.0	25.0		0.0	75.0		0.0	65.0		0.0	
Storage Lanes	1		0	1		0	1		0	1		0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2		
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Lane Util. 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	
Frnt		0.861			0.889			0.987			0.973		
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1695	1536	0	1695	1586	0	1695	1761	0	1695	1736	0	
Flt Permitted	0.633			0.722			0.466			0.319			
Satd. Flow (perm)	1129	1536	0	1288	1586	0	831	1761	0	569	1736	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		50			146			11			27		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Link Speed (k/h)		50			50			70			70		
Link Distance (m)		308.6			482.0			375.9			402.4		
Travel Time (s)		22.2			34.7			19.3			20.7		
Volume (vph)	279	4	50	68	52	146	23	456	42	51	292	64	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	279	4	50	68	52	146	23	456	42	51	292	64	
Lane Group Flow (vph)	279	54	0	68	198	0	23	498	0	51	356	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0		
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	
Total Split (%)	50.0%	50.0%	0.0%	50.0%	50.0%	0.0%	50.0%	50.0%	0.0%	50.0%	50.0%	0.0%	
Maximum Green (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	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		
Act Effct Green (s)	16.7	16.7		16.7	16.7		25.3	25.3		25.3	25.3		
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.51	0.51		0.51	0.51		
v/c Ratio	0.74	0.10		0.16	0.32		0.05	0.56		0.18	0.40		
Control Delay	27.3	4.1		10.9	5.0		8.9	12.8		8.7	8.3		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	27.3	4.1		10.9	5.0		8.9	12.8		8.7	8.3		
LOS	C	A		B	A		A	B		A	A		

STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		23.5			6.5			12.6			8.4	
Approach LOS		C			A			B			A	
90th %ile Green (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
70th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	16.1	16.1		16.1	16.1		23.9	23.9		23.9	23.9	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	13.5	13.5		13.5	13.5		26.5	26.5		26.5	26.5	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	9.0	9.0		9.0	9.0		31.0	31.0		31.0	31.0	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	19.4	0.3		3.8	2.8		0.9	25.1		2.0	14.2	
Queue Length 95th (m)	#49.2	5.2		9.6	13.2		4.5	#78.0		6.4	37.5	
Internal Link Dist (m)		284.6			458.0			351.9			378.4	
Turn Bay Length (m)	25.0			25.0			75.0			65.0		
Base Capacity (vph)	474	674		541	751		420	896		288	891	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.59	0.08		0.13	0.26		0.05	0.56		0.18	0.40	

Intersection Summary

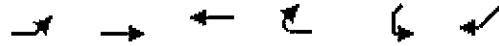
Area Type: Other  
 Cycle Length: 50  
 Actuated Cycle Length: 50  
 Offset: 21 (42%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 12.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 73.4%  
 ICU Level of Service D  
 Analysis Period (min) 60  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: CAMBRIAN ROAD & JOCKVALE ROAD

↑ ø2	→ ø4
25 s	25 s
↓ ø6	← ø8
25 s	25 s

STONEBRIDGE: PHASES 10-12  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S)

FUTURE (2013) TRAFFIC  
 AM PEAK HOUR



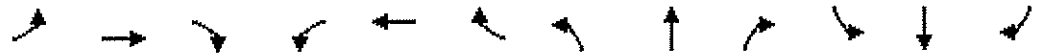
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↖	↑	↗		↖	↗
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	351	281	39	104	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	351	281	39	104	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	320				760	300
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	320				760	300
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				71	94
cM capacity (veh/h)	1240				358	739

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	351	320	104	43
Volume Left	54	0	0	104	0
Volume Right	0	0	39	0	43
cSH	1240	1700	1700	358	739
Volume to Capacity	0.04	0.21	0.19	0.29	0.06
Queue Length 95th (m)	1.0	0.0	0.0	8.5	1.3
Control Delay (s)	8.0	0.0	0.0	19.2	10.2
Lane LOS	A			C	B
Approach Delay (s)	1.1		0.0	16.5	
Approach LOS				C	

Intersection Summary				
Average Delay			3.3	
Intersection Capacity Utilization		37.5%		ICU Level of Service
Analysis Period (min)		60		A

STONEBRIDGE: PHASES 10-12  
4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2013) TRAFFIC  
AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Frt		0.993				0.850		0.999			0.963	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3387	0	1695	3265	0
Flt Permitted		0.812			0.995		0.556			0.236		
Satd. Flow (perm)	0	1439	0	0	1775	1517	992	3387	0	421	3265	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			3			448					51	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	114	318	23	3	224	448	16	481	3	298	244	80
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	114	318	23	3	224	448	16	481	3	298	244	80
Lane Group Flow (vph)	0	455	0	0	227	448	16	484	0	298	324	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8		2			1		6
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	58.4	58.4	0.0	58.4	58.4	58.4	30.6	30.6	0.0	31.0	61.6	0.0
Total Split (%)	48.7%	48.7%	0.0%	48.7%	48.7%	48.7%	25.5%	25.5%	0.0%	25.8%	51.3%	0.0%
Maximum Green (s)	51.0	51.0		51.0	51.0	51.0	24.0	24.0		24.4	55.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		40.6			40.6	40.6	35.3	35.3		58.1	58.1	
Actuated g/C Ratio		0.38			0.38	0.38	0.33	0.33		0.54	0.54	
v/c Ratio		0.83			0.34	0.52	0.05	0.43		0.66	0.18	
Control Delay		35.7			23.7	3.7	33.3	33.0		20.6	12.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		35.7			23.7	3.7	33.3	33.0		20.6	12.1	
LOS		D			C	A	C	C		C	B	
Approach Delay		35.7			10.5			33.0			16.1	
Approach LOS		D			B			C			B	
90th %ile Green (s)	51.0	51.0		51.0	51.0	51.0	24.0	24.0		24.4	55.0	

STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2013) TRAFFIC  
 AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	45.4	45.4		45.4	45.4	45.4	28.3	28.3		20.1	55.0	
70th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
50th %ile Green (s)	38.3	38.3		38.3	38.3	38.3	32.3	32.3		16.1	55.0	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
30th %ile Green (s)	31.6	31.6		31.6	31.6	31.6	35.6	35.6		12.8	55.0	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
10th %ile Green (s)	22.8	22.8		22.8	22.8	22.8	39.4	39.4		9.0	55.0	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
Queue Length 50th (m)		76.6			30.2	0.0	2.1	38.3		30.7	13.3	
Queue Length 95th (m)		135.6			52.9	29.3	9.3	76.3		70.7	29.1	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		654			805	933	328	1121		512	1800	
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			0.28	0.48	0.05	0.43		0.58	0.18	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 106.8  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 22.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 83.3%  
 ICU Level of Service E  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 114.4  
 50th %ile Actuated Cycle: 107.3  
 30th %ile Actuated Cycle: 100.6  
 10th %ile Actuated Cycle: 91.8

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

31 s	30.6 s	58.4 s
61.6 s	58.4 s	

STONEBRIDGE: PHASES 10-12  
2: CAMBRIAN ROAD & GREENBANK ROAD

FUTURE (2013) TRAFFIC  
AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↕			↕				↕			↕		
Sign Control	Free			Free				Stop			Stop		
Grade	0%			0%				0%			0%		
Volume (veh/h)	2	41	104	11	87	8	153	7	96	29	13	5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	2	41	104	11	87	8	153	7	96	29	13	5	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage veh													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	95			145			222	214	93	310	262	91	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	95			145			222	214	93	310	262	91	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	100			99			79	99	90	95	98	99	
cM capacity (veh/h)	1499			1437			714	677	964	570	637	967	

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	147	106	256	47
Volume Left	2	11	153	29
Volume Right	104	8	96	5
cSH	1499	1437	790	615
Volume to Capacity	0.00	0.01	0.32	0.08
Queue Length 95th (m)	0.0	0.2	10.0	1.7
Control Delay (s)	0.1	0.8	11.7	11.3
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	0.8	11.7	11.3
Approach LOS			B	B

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	60		

STONEBRIDGE: PHASES 10-12  
 15: CAMBRIAN ROAD & CEDARVIEW ROAD

FUTURE (2013) TRAFFIC  
 AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P		A	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	6	113	23	9	44	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	113	23	9	44	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	136	28			32	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136	28			32	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	89			97	
cM capacity (veh/h)	834	1048			1580	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	119	32	64
Volume Left	6	0	44
Volume Right	113	9	0
cSH	1034	1700	1580
Volume to Capacity	0.12	0.02	0.03
Queue Length 95th (m)	2.7	0.0	0.6
Control Delay (s)	8.9	0.0	5.1
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	5.1
Approach LOS	A		

Intersection Summary			
Average Delay		6.5	
Intersection Capacity Utilization		24.7%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 16: DUNDONALD DRIVE & GREENBANK ROAD

FUTURE (2013) TRAFFIC  
 AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵		↶		↷	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	21	65	191	6	21	107
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	65	191	6	21	107
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	343	194			197	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	343	194			197	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	92			98	
cM capacity (veh/h)	643	847			1376	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	86	197	128
Volume Left	21	0	21
Volume Right	65	6	0
cSH	786	1700	1376
Volume to Capacity	0.11	0.12	0.02
Queue Length 95th (m)	2.6	0.0	0.3
Control Delay (s)	10.1	0.0	1.4
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	1.4
Approach LOS	B		

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization		33.6%	ICU Level of Service
Analysis Period (min)		60	A



STONEBRIDGE: PHASES 10-12  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
 AM PEAK HOUR



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑	↓	↘
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	214	59	17	307	346	64
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	214	59	17	307	346	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)				376		
pX, platoon unblocked						
vC, conflicting volume	687	346	410			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	687	346	410			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	47	92	99			
cM capacity (veh/h)	407	697	1149			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	214	59	17	307	346	64
Volume Left	214	0	17	0	0	0
Volume Right	0	59	0	0	0	64
cSH	407	697	1149	1700	1700	1700
Volume to Capacity	0.53	0.08	0.01	0.18	0.20	0.04
Queue Length 95th (m)	22.6	1.9	0.3	0.0	0.0	0.0
Control Delay (s)	23.6	10.6	8.2	0.0	0.0	0.0
Lane LOS	C	B	A			
Approach Delay (s)	20.8		0.4		0.0	
Approach LOS	C					

Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utilization			38.4%	ICU Level of Service		A
Analysis Period (min)			60			

STONEBRIDGE: PHASES 10-12  
19: CAMBRIAN ROAD & KILBIRNIE DRIVE

FUTURE (2013) TRAFFIC  
AM PEAK HOUR



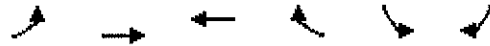
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↕				↕			↕			↕		
Sign Control	Free				Free			Stop			Stop		
Grade	0%				0%			0%			0%		
Volume (veh/h)	0	163	3	40	90	9	15	0	136	34	0	1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	0	163	3	40	90	9	15	0	136	34	0	1	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None	None					
Median storage veh													
Upstream signal (m)	309												
pX, platoon unblocked													
vC, conflicting volume	99			166			340	344	164	475	340	94	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	99			166			340	344	164	475	340	94	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	100			97			98	100	85	92	100	100	
cM capacity (veh/h)	1494			1412			600	563	880	414	565	962	

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	166	139	151	35
Volume Left	0	40	15	34
Volume Right	3	9	136	1
cSH	1494	1412	841	420
Volume to Capacity	0.00	0.03	0.18	0.08
Queue Length 95th (m)	0.0	0.6	4.6	1.9
Control Delay (s)	0.0	2.4	10.2	14.3
Lane LOS		A	B	B
Approach Delay (s)	0.0	2.4	10.2	14.3
Approach LOS			B	B

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	60		

STONEBRIDGE: PHASES 10-12  
 40: CAMBRIAN ROAD & REALIGNED GREENBANK ROAD

FUTURE (2013) TRAFFIC  
 AM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	23	30	117	165	90	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	23	30	117	165	90	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	282				276	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282				276	200
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				87	100
cM capacity (veh/h)	1280				701	841

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	53	282	92
Volume Left	23	0	90
Volume Right	0	165	2
cSH	1280	1700	704
Volume to Capacity	0.02	0.17	0.13
Queue Length 95th (m)	0.4	0.0	3.2
Control Delay (s)	3.5	0.0	10.9
Lane LOS	A		B
Approach Delay (s)	3.5	0.0	10.9
Approach LOS			B

Intersection Summary			
Average Delay		2.8	
Intersection Capacity Utilization		35.4%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2013) TRAFFIC - trial  
PM PEAK HOUR























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	0	2	24	0	62	5	726	56	155	916	27
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	0	2	24	0	62	5	726	56	155	916	27
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2038	2032	930	1992	2017	754	943			782		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2038	2032	930	1992	2017	754	943			782		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	51	100	99	37	100	85	99			81		
cM capacity (veh/h)	30	46	324	38	47	409	727			836		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	15	2	24	62	5	782	155	943
Volume Left	15	0	24	0	5	0	155	0
Volume Right	0	2	0	62	0	56	0	27
cSH	30	324	38	409	727	1700	836	1700
Volume to Capacity	0.49	0.01	0.63	0.15	0.01	0.46	0.19	0.55
Queue Length 95th (m)	15.8	0.1	23.8	3.7	0.1	0.0	4.8	0.0
Control Delay (s)	227.4	16.2	230.6	15.4	10.0	0.0	10.3	0.0
Lane LOS	F	C	F	C	A		B	
Approach Delay (s)	202.6		75.4		0.1		1.5	
Approach LOS	F		F					

Intersection Summary			
Average Delay		5.8	
Intersection Capacity Utilization	74.0%		ICU Level of Service D
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12  
8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	50.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frt		0.850			0.850			0.989			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1517	0	1695	1517	0	1695	1765	0	1695	1777	0
Flt Permitted	0.717			0.757			0.164			0.253		
Satd. Flow (perm)	1279	1517	0	1351	1517	0	293	1765	0	451	1777	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		178			262			10			4	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		152.2			313.0			402.4			1314.1	
Travel Time (s)		11.0			22.5			20.7			67.6	
Volume (vph)	15	0	2	24	0	62	5	726	56	155	916	27
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	0	2	24	0	62	5	726	56	155	916	27
Lane Group Flow (vph)	15	2	0	24	62	0	5	782	0	155	943	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	57.0	57.0	0.0	57.0	57.0	0.0
Total Split (%)	28.8%	28.8%	0.0%	28.8%	28.8%	0.0%	71.3%	71.3%	0.0%	71.3%	71.3%	0.0%
Maximum Green (s)	18.0	18.0		18.0	18.0		52.0	52.0		52.0	52.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	7.9	7.9		7.9	7.9		67.0	67.0		67.0	67.0	
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.84	0.84		0.84	0.84	
v/c Ratio	0.12	0.01		0.18	0.16		0.02	0.53		0.41	0.63	
Control Delay	34.2	0.0		35.5	0.9		1.6	2.9		6.5	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.2	0.0		35.5	0.9		1.6	2.9		6.5	5.7	
LOS	C	A		D	A		A	A		A	A	

STONEBRIDGE: PHASES 10-12  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
 PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		30.2			10.6			2.9				5.8
Approach LOS		C			B			A				A
90th %ile Green (s)	9.0	9.0		9.0	9.0		61.0	61.0		61.0	61.0	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	7.6	7.6		7.6	7.6		62.4	62.4		62.4	62.4	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.7	6.7		6.7	6.7		63.3	63.3		63.3	63.3	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.8	5.8		5.8	5.8		64.2	64.2		64.2	64.2	
30th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		75.0	75.0		75.0	75.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	2.0	0.0		3.2	0.0		0.1	16.4		4.5	37.8	
Queue Length 95th (m)	7.6	0.0		10.3	0.0		m0.2	31.6		19.4	107.4	
Internal Link Dist (m)		128.2			289.0			378.4			1290.1	
Turn Bay Length (m)	25.0			25.0			50.0			90.0		
Base Capacity (vph)	304	496		321	560		245	1479		378	1488	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.00		0.07	0.11		0.02	0.53		0.41	0.63	

Intersection Summary






















Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.63  
 Intersection Signal Delay: 5.1  
 Intersection LOS: A  
 Intersection Capacity Utilization 74.0%  
 ICU Level of Service D  
 Analysis Period (min) 60  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: RIVERSTONE DRIVE & JOCKVALE ROAD

↑ a2	→ a4
57 s	23 s
↓ a6	← a8
57 s	23 s

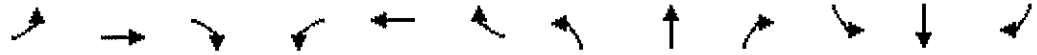
STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	75.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frnt		0.922			0.866			0.982			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1645	0	1695	1545	0	1695	1752	0	1695	1711	0
Flt Permitted	0.692			0.719			0.232			0.358		
Satd. Flow (perm)	1235	1645	0	1283	1545	0	414	1752	0	639	1711	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			89			17			47	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		308.6			482.0			375.9			402.4	
Travel Time (s)		22.2			34.7			19.3			20.7	
Volume (vph)	184	28	30	38	11	89	46	514	69	152	573	217
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	184	28	30	38	11	89	46	514	69	152	573	217
Lane Group Flow (vph)	184	58	0	38	100	0	46	583	0	152	790	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	55.0	55.0	0.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%
Maximum Green (s)	20.0	20.0		20.0	20.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	16.9	16.9		16.9	16.9		55.1	55.1		55.1	55.1	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.69	0.69		0.69	0.69	
v/c Ratio	0.71	0.16		0.14	0.25		0.16	0.48		0.35	0.66	
Control Delay	44.8	14.8		25.0	8.7		7.2	8.0		5.9	7.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	44.8	14.8		25.0	8.7		7.2	8.0		5.9	7.3	
LOS	D	B		C	A		A	A		A	A	

STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
PM PEAK HOUR



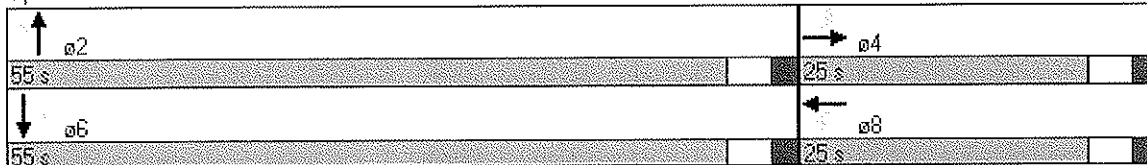
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		37.6			13.2			7.9			7.0	
Approach LOS		D			B			A			A	
90th %ile Green (s)	20.0	20.0		20.0	20.0		50.0	50.0		50.0	50.0	
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	19.9	19.9		19.9	19.9		50.1	50.1		50.1	50.1	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	16.4	16.4		16.4	16.4		53.6	53.6		53.6	53.6	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	13.6	13.6		13.6	13.6		56.4	56.4		56.4	56.4	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	9.4	9.4		9.4	9.4		60.6	60.6		60.6	60.6	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	23.8	3.1		4.3	1.2		2.0	31.7		4.8	20.7	
Queue Length 95th (m)	#50.9	12.4		11.9	13.6		7.6	71.9		m7.8	29.4	
Internal Link Dist (m)		284.6			458.0			351.9			378.4	
Turn Bay Length (m)	25.0			25.0			75.0			65.0		
Base Capacity (vph)	324	454		337	471		285	1213		440	1194	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.57	0.13		0.11	0.21		0.16	0.48		0.35	0.66	

Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 8 (10%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 11.5  
 Intersection Capacity Utilization 76.5%  
 Analysis Period (min) 60  
 Intersection LOS: B  
 ICU Level of Service D

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: CAMBRIAN ROAD & JOCKVALE ROAD





STONEBRIDGE: PHASES 10-12  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S)

FUTURE (2013) TRAFFIC  
 PM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↘	↑	↕		↘	↗
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	397	523	78	34	38
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	397	523	78	34	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	601				1067	562
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	601				1067	562
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				85	93
cM capacity (veh/h)	976				232	526

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	397	601	34	38
Volume Left	54	0	0	34	0
Volume Right	0	0	78	0	38
cSH	976	1700	1700	232	526
Volume to Capacity	0.06	0.23	0.35	0.15	0.07
Queue Length 95th (m)	1.2	0.0	0.0	3.6	1.6
Control Delay (s)	8.9	0.0	0.0	23.2	12.4
Lane LOS	A			C	B
Approach Delay (s)	1.1		0.0	17.5	
Approach LOS				C	

Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization		50.7%	ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12  
4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2013) TRAFFIC  
PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↗	↖	↕		↖	↕	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Fr't		0.993				0.850		0.999			0.975	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3387	0	1695	3305	0
Flt Permitted		0.580			0.992		0.322			0.376		
Satd. Flow (perm)	0	1028	0	0	1770	1517	575	3387	0	671	3305	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				298					29	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	108	302	21	7	421	298	30	278	1	594	733	150
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	108	302	21	7	421	298	30	278	1	594	733	150
Lane Group Flow (vph)	0	431	0	0	428	298	30	279	0	594	883	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	56.0	56.0	0.0	56.0	56.0	56.0	25.0	25.0	0.0	39.0	64.0	0.0
Total Split (%)	46.7%	46.7%	0.0%	46.7%	46.7%	46.7%	20.8%	20.8%	0.0%	32.5%	53.3%	0.0%
Maximum Green (s)	48.6	48.6		48.6	48.6	48.6	18.4	18.4		32.4	57.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		51.6			51.6	51.6	21.4	21.4		60.0	60.0	
Actuated g/C Ratio		0.43			0.43	0.43	0.18	0.18		0.50	0.50	
v/c Ratio		0.97			0.56	0.36	0.29	0.46		0.94	0.53	
Control Delay		91.4			29.0	3.6	51.8	47.0		57.4	20.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		91.4			29.0	3.6	51.8	47.0		57.4	20.9	
LOS		F			C	A	D	D		E	C	
Approach Delay		91.4			18.6			47.5			35.6	
Approach LOS		F			B			D			D	
90th %ile Green (s)	48.6	48.6		48.6	48.6	48.6	18.4	18.4		32.4	57.4	

STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2013) TRAFFIC  
 PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	48.6	48.6		48.6	48.6	48.6	18.4	18.4		32.4	57.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
50th %ile Green (s)	48.6	48.6		48.6	48.6	48.6	18.4	18.4		32.4	57.4	
50th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
30th %ile Green (s)	48.6	48.6		48.6	48.6	48.6	18.4	18.4		32.4	57.4	
30th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
10th %ile Green (s)	46.6	46.6		46.6	46.6	46.6	20.5	20.5		30.3	57.4	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
Queue Length 50th (m)		88.8			68.1	0.0	5.7	28.9		96.0	64.1	
Queue Length 95th (m)		#178.9			113.4	21.9	16.6	46.7		#193.0	94.8	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		447			767	826	103	607		634	1673	
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		0.96			0.56	0.36	0.29	0.46		0.94	0.53	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 119.6  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 40.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 104.4%  
 ICU Level of Service G  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 120  
 50th %ile Actuated Cycle: 120  
 30th %ile Actuated Cycle: 120  
 10th %ile Actuated Cycle: 118

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

ø1	ø2	ø4
39 s	25 s	56 s
ø5	ø8	
64 s	56 s	

STONEBRIDGE: PHASES 10-12  
2: CAMBRIAN ROAD & GREENBANK ROAD

FUTURE (2013) TRAFFIC  
PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	75	301	14	55	29	118	13	66	18	9	3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	75	301	14	55	29	118	13	66	18	9	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	84			376			340	348	226	406	484	70
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	84			376			340	348	226	406	484	70
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			80	98	92	96	98	100
cM capacity (veh/h)	1513			1182			596	567	814	496	476	993

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	381	98	197	30
Volume Left	5	14	118	18
Volume Right	301	29	66	3
cSH	1513	1182	652	515
Volume to Capacity	0.00	0.01	0.30	0.06
Queue Length 95th (m)	0.1	0.3	9.0	1.3
Control Delay (s)	0.1	1.2	12.9	12.4
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	1.2	12.9	12.4
Approach LOS			B	B

Intersection Summary			
Average Delay		4.4	
Intersection Capacity Utilization	45.5%		ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 15: CAMBRIAN ROAD & CEDARVIEW ROAD

FUTURE (2013) TRAFFIC  
 PM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	6	56	10	12	91	24
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	56	10	12	91	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	222	16			22	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	16			22	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	95			94	
cM capacity (veh/h)	722	1063			1593	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	62	22	115
Volume Left	6	0	91
Volume Right	56	12	0
cSH	1017	1700	1593
Volume to Capacity	0.06	0.01	0.06
Queue Length 95th (m)	1.4	0.0	1.3
Control Delay (s)	8.8	0.0	5.9
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	5.9
Approach LOS	A		

Intersection Summary			
Average Delay		6.2	
Intersection Capacity Utilization		24.0%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 16: DUNDONALD DRIVE & GREENBANK ROAD

FUTURE (2013) TRAFFIC  
 PM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙ ↘		↑	↗ ↘	↙ ↘	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	14	42	155	23	73	251
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	42	155	23	73	251
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	564	166			178	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	564	166			178	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	95			95	
cM capacity (veh/h)	462	878			1398	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	178	324
Volume Left	14	0	73
Volume Right	42	23	0
cSH	716	1700	1398
Volume to Capacity	0.08	0.10	0.05
Queue Length 95th (m)	1.8	0.0	1.2
Control Delay (s)	10.5	0.0	2.1
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	2.1
Approach LOS	B		

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization	41.8%		ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12  
17: BLACKLEAF DRIVE & JOCKVALE ROAD

FUTURE (2013) TRAFFIC  
PM PEAK HOUR



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↘	↙	↑	↑	↘
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	132	35	64	497	416	225
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	132	35	64	497	416	225
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)					376	
pX, platoon unblocked						
vC, conflicting volume	1041	416	641			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1041	416	641			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	44	95	93			
cM capacity (veh/h)	237	637	943			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	132	35	64	497	416	225
Volume Left	132	0	64	0	0	0
Volume Right	0	35	0	0	0	225
cSH	237	637	943	1700	1700	1700
Volume to Capacity	0.56	0.05	0.07	0.29	0.24	0.13
Queue Length 95th (m)	24.6	1.2	1.5	0.0	0.0	0.0
Control Delay (s)	38.7	11.0	9.1	0.0	0.0	0.0
Lane LOS	E	B	A			
Approach Delay (s)	32.9		1.0		0.0	
Approach LOS	D					

Intersection Summary						
Average Delay			4.4			
Intersection Capacity Utilization			44.6%	ICU Level of Service		A
Analysis Period (min)			60			

STONEBRIDGE: PHASES 10-12  
19: CAMBRIAN ROAD & KILBIRNIE DRIVE

FUTURE (2013) TRAFFIC  
PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	144	14	148	90	36	7	0	78	20	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	144	14	148	90	36	7	0	78	20	0	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)					309							
pX, platoon unblocked												
vC, conflicting volume	126			158			558	575	151	635	564	108
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	126			158			558	575	151	635	564	108
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			98	100	91	94	100	100
cM capacity (veh/h)	1460			1422			405	384	895	328	389	946

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	159	274	85	21
Volume Left	1	148	7	20
Volume Right	14	36	78	1
cSH	1460	1422	814	339
Volume to Capacity	0.00	0.10	0.10	0.06
Queue Length 95th (m)	0.0	2.4	2.4	1.4
Control Delay (s)	0.1	4.6	9.9	16.3
Lane LOS	A	A	A	C
Approach Delay (s)	0.1	4.6	9.9	16.3
Approach LOS			A	C

Intersection Summary			
Average Delay		4.6	
Intersection Capacity Utilization		42.8%	ICU Level of Service
Analysis Period (min)		60	A



STONEBRIDGE: PHASES 10-12  
 40: CAMBRIAN ROAD & REALIGNED GREENBANK ROAD

FUTURE (2013) TRAFFIC  
 PM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	101	50	120	313	12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	101	50	120	313	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	170				215	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170				215	110
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				59	99
cM capacity (veh/h)	1407				772	943

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	103	170	325
Volume Left	2	0	313
Volume Right	0	120	12
cSH	1407	1700	777
Volume to Capacity	0.00	0.10	0.42
Queue Length 95th (m)	0.0	0.0	14.9
Control Delay (s)	0.2	0.0	12.9
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	12.9
Approach LOS			B

Intersection Summary			
Average Delay		7.1	
Intersection Capacity Utilization		36.3%	ICU Level of Service
Analysis Period (min)		60	A

## **FUTURE (2018) BACKGROUND TRAFFIC**

AM Peak Hour

PM Peak Hour





















Intersection	Critical Movements											Overall v/c	Overall LOS	
	Volume						Volume to Capacity Ratio							
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5			v/c 6
Riverstone & Jockvale (Signalized)	920	24					0.60	0.08					0.51	A
Jockvale & Cambrian	288	198					0.76	0.31					0.48	A
Jockvale & Blackleaf (Unsignalized)													0.00	-
Jockvale & Blackleaf (Signalized)	214	374					0.55	0.31					0.37	A
Jockvale & Golflinks													0.00	-
Jockvale & Prince of Wales	483	325					0.87	0.76					0.82	D
Jockvale & Prince of Wales (Double-left)	483	325					0.83	0.59					0.71	C
Cambrian & Kilbirnie													0.00	-
Cambrian & Greenbank													0.00	-
Greenbank & Dundonald													0.00	-
Cambrian & Cedarview													0.00	-
Cambrian & Realigned Greenbank													0.00	-
Greenbank & Kilbirnie													0.00	-
Greenbank & Jockvale													0.00	-

PM Peak Hour

Intersection	Critical Movements											Overall v/c	Overall LOS	
	Volume						Volume to Capacity Ratio							
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5			v/c 6
Riverstone & Jockvale	5	984					0.02	0.65					0.56	A
Jockvale & Cambrian	189	100					0.73	0.25					0.44	A
Jockvale & Blackleaf (Unsignalized)													0.00	-
Jockvale & Blackleaf (Signalized)	543						0.43						0.43	A
Jockvale & Golflinks													0.00	-
Jockvale & Prince of Wales	473	725					1.22	1.16					1.18	F
Jockvale & Prince of Wales (Double-left)	473	725					0.95	0.93					0.94	E
Cambrian & Kilbirnie													0.00	-
Cambrian & Greenbank													0.00	-
Greenbank & Dundonald													0.00	-
Cambrian & Cedarview													0.00	-
Cambrian & Realigned Greenbank													0.00	-
Greenbank & Kilbirnie													0.00	-
Greenbank & Jockvale													0.00	-

STONEBRIDGE: PHASES 10-12  
8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	50.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frnt		0.850			0.850			0.998			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1517	0	1695	1517	0	1695	1781	0	1695	1779	0
Flt Permitted	0.704			0.754			0.480			0.198		
Satd. Flow (perm)	1256	1517	0	1345	1517	0	856	1781	0	353	1779	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		512			199			1			2	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		152.2			313.0			402.4			1314.1	
Travel Time (s)		11.0			22.5			20.7			67.6	
Volume (vph)	25	0	5	18	0	82	1	910	10	24	412	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	0	5	18	0	82	1	910	10	24	412	7
Lane Group Flow (vph)	25	5	0	18	82	0	1	920	0	24	419	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	74.0	74.0	0.0	74.0	74.0	0.0
Total Split (%)	26.0%	26.0%	0.0%	26.0%	26.0%	0.0%	74.0%	74.0%	0.0%	74.0%	74.0%	0.0%
Maximum Green (s)	21.0	21.0		21.0	21.0		69.0	69.0		69.0	69.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	8.3	8.3		8.3	8.3		86.6	86.6		86.6	86.6	
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.87	0.87		0.87	0.87	
v/c Ratio	0.24	0.01		0.16	0.27		0.00	0.60		0.08	0.27	
Control Delay	47.7	0.0		44.9	2.1		1.0	4.1		2.3	2.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.7	0.0		44.9	2.1		1.0	4.1		2.3	2.2	
LOS	D	A		D	A		A	A		A	A	

STONEBRIDGE: PHASES 10-12  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
 AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		39.8			9.8			4.1				2.2
Approach LOS		D			A			A				A
90th %ile Green (s)	10.0	10.0		10.0	10.0		80.0	80.0		80.0	80.0	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	8.4	8.4		8.4	8.4		81.6	81.6		81.6	81.6	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.7	6.7		6.7	6.7		83.3	83.3		83.3	83.3	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.9	5.9		5.9	5.9		84.1	84.1		84.1	84.1	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		95.0	95.0		95.0	95.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	4.3	0.0		3.1	0.0		0.0	44.7		0.5	10.3	
Queue Length 95th (m)	12.7	0.0		10.1	0.0		m0.1	m86.2		2.3	24.0	
Internal Link Dist (m)		128.2			289.0			378.4			1290.1	
Turn Bay Length (m)	25.0			25.0			50.0			90.0		
Base Capacity (vph)	276	733		296	489		741	1543		306	1541	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.01		0.06	0.17		0.00	0.60		0.08	0.27	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 8 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.60  
 Intersection Signal Delay: 4.6  
 Intersection LOS: A  
 Intersection Capacity Utilization 66.0%  
 ICU Level of Service C  
 Analysis Period (min) 60  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: RIVERSTONE DRIVE & JOCKVALE ROAD

↑ ø2 74 s	→ ø4 26 s
↓ ø5 74 s	← ø3 26 s

STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	75.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frnt		0.861			0.889			0.988			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1536	0	1695	1586	0	1695	1763	0	1695	1740	0
Flt Permitted	0.633			0.721			0.447			0.305		
Satd. Flow (perm)	1129	1536	0	1286	1586	0	798	1763	0	544	1740	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			146			11			26	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		308.6			482.0			375.9			402.4	
Travel Time (s)		22.2			34.7			19.3			20.7	
Volume (vph)	288	4	51	68	52	146	25	487	42	51	319	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	288	4	51	68	52	146	25	487	42	51	319	65
Lane Group Flow (vph)	288	55	0	68	198	0	25	529	0	51	384	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	24.0	24.0	0.0	24.0	24.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	48.0%	48.0%	0.0%	48.0%	48.0%	0.0%	52.0%	52.0%	0.0%	52.0%	52.0%	0.0%
Maximum Green (s)	19.0	19.0		19.0	19.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	16.8	16.8		16.8	16.8		25.2	25.2		25.2	25.2	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.50	0.50		0.50	0.50	
v/c Ratio	0.76	0.10		0.16	0.31		0.06	0.59		0.19	0.43	
Control Delay	29.6	4.3		11.2	5.2		8.6	13.2		8.5	8.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.6	4.3		11.2	5.2		8.6	13.2		8.5	8.5	
LOS	C	A		B	A		A	B		A	A	

STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
AM PEAK HOUR

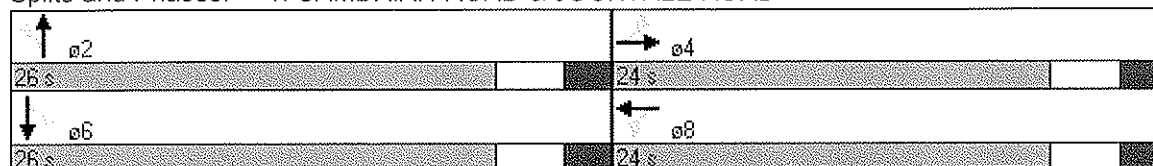


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		25.6			6.7			13.0			8.5	
Approach LOS		C			A			B			A	
90th %ile Green (s)	19.0	19.0		19.0	19.0		21.0	21.0		21.0	21.0	
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	19.0	19.0		19.0	19.0		21.0	21.0		21.0	21.0	
70th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	17.2	17.2		17.2	17.2		22.8	22.8		22.8	22.8	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	14.1	14.1		14.1	14.1		25.9	25.9		25.9	25.9	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	9.6	9.6		9.6	9.6		30.4	30.4		30.4	30.4	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	19.4	0.2		3.6	2.7		1.0	28.9		2.1	16.7	
Queue Length 95th (m)	#53.6	5.4		9.9	13.7		4.6	#82.1		6.3	32.8	
Internal Link Dist (m)		284.6			458.0			351.9			378.4	
Turn Bay Length (m)	25.0			25.0			75.0			65.0		
Base Capacity (vph)	452	645		514	722		402	895		274	890	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.64	0.09		0.13	0.27		0.06	0.59		0.19	0.43	

Intersection Summary

Area Type: Other  
 Cycle Length: 50  
 Actuated Cycle Length: 50  
 Offset: 20 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 13.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 75.6%  
 ICU Level of Service D  
 Analysis Period (min) 60  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: CAMBRIAN ROAD & JOCKVALE ROAD



STONEBRIDGE: PHASES 10-12  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S)

FUTURE (2018) TRAFFIC  
 AM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↖	↑	↗		↖	↗
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	379	314	39	104	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	379	314	39	104	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	353				820	334
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	353				820	334
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				68	94
cM capacity (veh/h)	1206				329	708

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	379	353	104	43
Volume Left	54	0	0	104	0
Volume Right	0	0	39	0	43
cSH	1206	1700	1700	329	708
Volume to Capacity	0.04	0.22	0.21	0.32	0.06
Queue Length 95th (m)	1.0	0.0	0.0	9.6	1.4
Control Delay (s)	8.1	0.0	0.0	21.0	10.4
Lane LOS	A			C	B
Approach Delay (s)	1.0		0.0	17.9	
Approach LOS				C	

Intersection Summary					
Average Delay			3.3		
Intersection Capacity Utilization			39.4%	ICU Level of Service	A
Analysis Period (min)			60		



STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

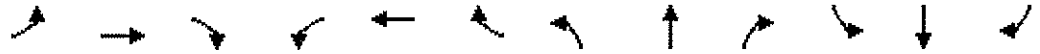
FUTURE (2018) TRAFFIC  
 AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↖	↕	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Fr't		0.993				0.850		0.999			0.965	
Fit Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3387	0	1695	3272	0
Fit Permitted		0.776			0.993		0.531			0.180		
Satd. Flow (perm)	0	1375	0	0	1772	1517	947	3387	0	321	3272	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				488		1			47	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	121	338	24	4	247	488	18	559	4	325	284	88
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	121	338	24	4	247	488	18	559	4	325	284	88
Lane Group Flow (vph)	0	483	0	0	251	488	18	563	0	325	372	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	58.0	58.0	0.0	58.0	58.0	58.0	31.0	31.0	0.0	31.0	62.0	0.0
Total Split (%)	48.3%	48.3%	0.0%	48.3%	48.3%	48.3%	25.8%	25.8%	0.0%	25.8%	51.7%	0.0%
Maximum Green (s)	50.6	50.6		50.6	50.6	50.6	24.4	24.4		24.4	55.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		44.8			44.8	44.8	33.6	33.6		58.4	58.4	
Actuated g/C Ratio		0.40			0.40	0.40	0.30	0.30		0.52	0.52	
v/c Ratio		0.87			0.35	0.54	0.06	0.55		0.76	0.21	
Control Delay		40.4			23.7	3.9	35.9	38.2		28.7	13.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		40.4			23.7	3.9	35.9	38.2		28.7	13.9	
LOS		D			C	A	D	D		C	B	
Approach Delay		40.4			10.6			38.1			20.8	
Approach LOS		D			B			D			C	
90th %ile Green (s)	50.6	50.6		50.6	50.6	50.6	24.4	24.4		24.4	55.4	

STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2018) TRAFFIC  
 AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	50.6	50.6		50.6	50.6	50.6	24.4	24.4		24.4	55.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
50th %ile Green (s)	44.7	44.7		44.7	44.7	44.7	29.9	29.9		18.9	55.4	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
30th %ile Green (s)	36.9	36.9		36.9	36.9	36.9	34.1	34.1		14.7	55.4	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
10th %ile Green (s)	26.7	26.7		26.7	26.7	26.7	38.7	38.7		10.1	55.4	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
Queue Length 50th (m)		86.4			34.1	0.0	2.7	52.1		39.6	18.5	
Queue Length 95th (m)		#167.4			59.1	32.2	10.1	#93.9		#95.8	34.0	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		620			797	951	286	1023		476	1740	
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		0.78			0.31	0.51	0.06	0.55		0.68	0.21	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 111.3  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 25.6  
 Intersection Capacity Utilization 90.1%  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 120  
 50th %ile Actuated Cycle: 114.1  
 30th %ile Actuated Cycle: 106.3  
 10th %ile Actuated Cycle: 96.1  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

01	02	04
31 s	31 s	58 s
05	08	
52 s	58 s	

STONEBRIDGE: PHASES 10-12  
2: CAMBRIAN ROAD & GREENBANK ROAD

FUTURE (2018) TRAFFIC  
AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	41	110	12	89	8	159	7	106	29	13	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	41	110	12	89	8	159	7	106	29	13	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	97			151			228	221	96	326	272	93
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	97			151			228	221	96	326	272	93
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			77	99	89	95	98	99
cM capacity (veh/h)	1496			1430			706	671	960	549	629	964

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	153	109	272	47
Volume Left	2	12	159	29
Volume Right	110	8	106	5
cSH	1496	1430	786	597
Volume to Capacity	0.00	0.01	0.35	0.08
Queue Length 95th (m)	0.0	0.2	11.0	1.8
Control Delay (s)	0.1	0.9	12.0	11.5
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	0.9	12.0	11.5
Approach LOS			B	B

Intersection Summary			
Average Delay		6.7	
Intersection Capacity Utilization		39.4%	ICU Level of Service
Analysis Period (min)		60	A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↔	↔	
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	6	118	26	9	48	26
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	118	26	9	48	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	152	30			35	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152	30			35	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	89			97	
cM capacity (veh/h)	814	1044			1576	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	124	35	74
Volume Left	6	0	48
Volume Right	118	9	0
cSH	1030	1700	1576
Volume to Capacity	0.12	0.02	0.03
Queue Length 95th (m)	2.9	0.0	0.7
Control Delay (s)	9.0	0.0	4.9
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	4.9
Approach LOS	A		

Intersection Summary			
Average Delay			6.3
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)			60

STONEBRIDGE: PHASES 10-12  
 16: DUNDONALD DRIVE & GREENBANK ROAD

FUTURE (2018) TRAFFIC  
 AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑		↔	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	21	65	207	6	21	114
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	65	207	6	21	114
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	366	210			213	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	366	210			213	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	92			98	
cM capacity (veh/h)	624	830			1357	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	86	213	135
Volume Left	21	0	21
Volume Right	65	6	0
cSH	768	1700	1357
Volume to Capacity	0.11	0.13	0.02
Queue Length 95th (m)	2.6	0.0	0.3
Control Delay (s)	10.3	0.0	1.3
Lane LOS	B		A
Approach Delay (s)	10.3	0.0	1.3
Approach LOS	B		

Intersection Summary			
Average Delay		2.4	
Intersection Capacity Utilization		34.9%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
 AM PEAK HOUR



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	214	59	17	340	374	64
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	214	59	17	340	374	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)					376	
pX, platoon unblocked						
vC, conflicting volume	748	374	438			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	748	374	438			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	43	91	98			
cM capacity (veh/h)	374	672	1122			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	214	59	17	340	374	64
Volume Left	214	0	17	0	0	0
Volume Right	0	59	0	0	0	64
cSH	374	672	1122	1700	1700	1700
Volume to Capacity	0.57	0.09	0.02	0.20	0.22	0.04
Queue Length 95th (m)	26.8	2.0	0.3	0.0	0.0	0.0
Control Delay (s)	27.3	10.9	8.3	0.0	0.0	0.0
Lane LOS	D	B	A			
Approach Delay (s)	23.7		0.4		0.0	
Approach LOS	C					

Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilization			40.0%		ICU Level of Service	A
Analysis Period (min)			60			

STONEBRIDGE: PHASES 10-12  
19: CAMBRIAN ROAD & KILBIRNIE DRIVE

FUTURE (2018) TRAFFIC  
AM PEAK HOUR



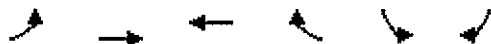
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	173	3	40	93	9	15	0	136	34	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	173	3	40	93	9	15	0	136	34	0	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)					309							
pX, platoon unblocked												
vC, conflicting volume	102			176			353	356	174	488	354	98
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	102			176			353	356	174	488	354	98
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			97	100	84	92	100	100
cM capacity (veh/h)	1490			1400			588	553	869	404	555	959

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	176	142	151	35
Volume Left	0	40	15	34
Volume Right	3	9	136	1
cSH	1490	1400	830	411
Volume to Capacity	0.00	0.03	0.18	0.09
Queue Length 95th (m)	0.0	0.6	4.7	2.0
Control Delay (s)	0.0	2.3	10.3	14.6
Lane LOS		A	B	B
Approach Delay (s)	0.0	2.3	10.3	14.6
Approach LOS			B	B

Intersection Summary			
Average Delay		4.8	
Intersection Capacity Utilization		39.9%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 40: CAMBRIAN ROAD & REALIGNED GREENBANK ROAD

FUTURE (2018) TRAFFIC  
 AM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	26	31	121	169	95	3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	31	121	169	95	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	290				288	206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	290				288	206
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				86	100
cM capacity (veh/h)	1272				688	835





















Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	57	290	98
Volume Left	26	0	95
Volume Right	0	169	3
cSH	1272	1700	691
Volume to Capacity	0.02	0.17	0.14
Queue Length 95th (m)	0.4	0.0	3.5
Control Delay (s)	3.7	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	3.7	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay		2.9	
Intersection Capacity Utilization		36.7%	ICU Level of Service
Analysis Period (min)		60	A



STONEBRIDGE: PHASES 10-12  
8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	50.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Fr <sub>t</sub>		0.850			0.850			0.990			0.996	
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1517	0	1695	1517	0	1695	1766	0	1695	1777	0
Fl <sub>t</sub> Permitted	0.717			0.757			0.167			0.245		
Satd. Flow (perm)	1279	1517	0	1351	1517	0	298	1766	0	437	1777	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		182			257			10			4	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		152.2			313.0			402.4			1314.1	
Travel Time (s)		11.0			22.5			20.7			67.6	
Volume (vph)	15	0	2	24	0	62	5	777	56	155	957	27
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	0	2	24	0	62	5	777	56	155	957	27
Lane Group Flow (vph)	15	2	0	24	62	0	5	833	0	155	984	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	67.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	25.6%	25.6%	0.0%	25.6%	25.6%	0.0%	74.4%	74.4%	0.0%	74.4%	74.4%	0.0%
Maximum Green (s)	18.0	18.0		18.0	18.0		62.0	62.0		62.0	62.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	8.1	8.1		8.1	8.1		76.8	76.8		76.8	76.8	
Actuated g/C Ratio	0.09	0.09		0.09	0.09		0.85	0.85		0.85	0.85	
v/c Ratio	0.13	0.01		0.20	0.17		0.02	0.55		0.42	0.65	
Control Delay	39.3	0.0		41.0	1.0		1.4	2.9		6.3	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	39.3	0.0		41.0	1.0		1.4	2.9		6.3	5.7	
LOS	D	A		D	A		A	A		A	A	

STONEBRIDGE: PHASES 10-12  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
 PM PEAK HOUR

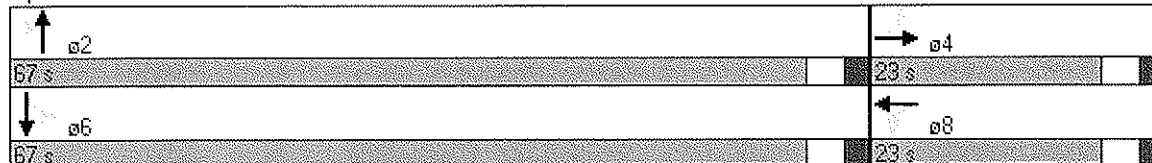


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		34.7			12.1			2.9			5.8	
Approach LOS		C			B			A			A	
90th %ile Green (s)	9.4	9.4		9.4	9.4		70.6	70.6		70.6	70.6	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	7.9	7.9		7.9	7.9		72.1	72.1		72.1	72.1	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.9	6.9		6.9	6.9		73.1	73.1		73.1	73.1	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.9	5.9		5.9	5.9		74.1	74.1		74.1	74.1	
30th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		85.0	85.0		85.0	85.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	2.2	0.0		3.6	0.0		0.1	18.8		4.7	42.5	
Queue Length 95th (m)	8.2	0.0		11.4	0.0		m0.2	36.1		19.9	119.7	
Internal Link Dist (m)		128.2			289.0			378.4			1290.1	
Turn Bay Length (m)	25.0			25.0			50.0			90.0		
Base Capacity (vph)	270	464		285	523		254	1508		373	1517	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.00		0.08	0.12		0.02	0.55		0.42	0.65	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 88 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 5.1  
 Intersection LOS: A  
 Intersection Capacity Utilization 76.3%  
 ICU Level of Service D  
 Analysis Period (min) 60  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: RIVERSTONE DRIVE & JOCKVALE ROAD



STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	75.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frt		0.921			0.866			0.984			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1643	0	1695	1545	0	1695	1756	0	1695	1715	0
Flt Permitted	0.692			0.719			0.210			0.329		
Satd. Flow (perm)	1235	1643	0	1283	1545	0	375	1756	0	587	1715	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			89			14			40	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		308.6			482.0			375.9			402.4	
Travel Time (s)		22.2			34.7			19.3			20.7	
Volume (vph)	189	28	31	38	11	89	46	560	69	152	615	216
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	189	28	31	38	11	89	46	560	69	152	615	216
Lane Group Flow (vph)	189	59	0	38	100	0	46	629	0	152	831	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	31.1%	31.1%	0.0%	31.1%	31.1%	0.0%	68.9%	68.9%	0.0%	68.9%	68.9%	0.0%
Maximum Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	18.8	18.8		18.8	18.8		63.2	63.2		63.2	63.2	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.70	0.70		0.70	0.70	
v/c Ratio	0.73	0.16		0.14	0.25		0.17	0.51		0.37	0.68	
Control Delay	51.0	16.2		28.1	9.2		7.8	8.7		6.5	8.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.0	16.2		28.1	9.2		7.8	8.7		6.5	8.2	
LOS	D	B		C	A		A	A		A	A	

STONEBRIDGE: PHASES 10-12  
1: CAMBRIAN ROAD & JOCKVALE ROAD

FUTURE (2018) TRAFFIC  
PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		42.7			14.4			8.6				8.0
Approach LOS		D			B			A				A
90th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0		57.0
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord		Coord
70th %ile Green (s)	21.8	21.8		21.8	21.8		58.2	58.2		58.2		58.2
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord		Coord
50th %ile Green (s)	18.5	18.5		18.5	18.5		61.5	61.5		61.5		61.5
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord		Coord
30th %ile Green (s)	15.1	15.1		15.1	15.1		64.9	64.9		64.9		64.9
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord		Coord
10th %ile Green (s)	10.6	10.6		10.6	10.6		69.4	69.4		69.4		69.4
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord		Coord
Queue Length 50th (m)	28.0	3.6		4.9	1.4		2.2	39.9		5.2		23.6
Queue Length 95th (m)	#53.6	13.5		13.0	14.5		8.6	89.6		m8.1		#35.2
Internal Link Dist (m)		284.6			458.0			351.9				378.4
Turn Bay Length (m)	25.0			25.0			75.0			65.0		
Base Capacity (vph)	329	461		342	477		263	1238		412		1216
Starvation Cap Reductn	0	0		0	0		0	0		0		0
Spillback Cap Reductn	0	0		0	0		0	0		0		0
Storage Cap Reductn	0	0		0	0		0	0		0		0
Reduced v/c Ratio	0.57	0.13		0.11	0.21		0.17	0.51		0.37		0.68

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 8 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 12.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 79.1%  
 ICU Level of Service D  
 Analysis Period (min) 60  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: CAMBRIAN ROAD & JOCKVALE ROAD

↑ ø2 62s	→ ø4 28s
↓ ø6 62s	← ø8 28s

STONEBRIDGE: PHASES 10-12  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S)

FUTURE (2018) TRAFFIC  
 PM PEAK HOUR















Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↵	↑	↵		↵	↵
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	440	569	78	34	38
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	440	569	78	34	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	647				1156	608
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647				1156	608
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				83	92
cM capacity (veh/h)	939				205	496

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	440	647	34	38
Volume Left	54	0	0	34	0
Volume Right	0	0	78	0	38
cSH	939	1700	1700	205	496
Volume to Capacity	0.06	0.26	0.38	0.17	0.08
Queue Length 95th (m)	1.3	0.0	0.0	4.2	1.7
Control Delay (s)	9.1	0.0	0.0	26.1	12.9
Lane LOS	A			D	B
Approach Delay (s)	1.0		0.0	19.1	
Approach LOS				C	

Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization		53.3%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2018) TRAFFIC  
 PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↗	↖	↕		↖	↕	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Fr <sub>t</sub>		0.993				0.850					0.976	
Fl <sub>t</sub> Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3390	0	1695	3309	0
Fl <sub>t</sub> Permitted		0.515			0.992		0.283			0.337		
Satd. Flow (perm)	0	912	0	0	1770	1517	505	3390	0	601	3309	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				325					27	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	118	332	24	7	453	325	32	323	1	725	851	162
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	118	332	24	7	453	325	32	323	1	725	851	162
Lane Group Flow (vph)	0	474	0	0	460	325	32	324	0	725	1013	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	55.0	26.0	26.0	0.0	39.0	65.0	0.0
Total Split (%)	45.8%	45.8%	0.0%	45.8%	45.8%	45.8%	21.7%	21.7%	0.0%	32.5%	54.2%	0.0%
Maximum Green (s)	47.6	47.6		47.6	47.6	47.6	19.4	19.4		32.4	58.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		51.0			51.0	51.0	22.0	22.0		61.0	61.0	
Actuated g/C Ratio		0.42			0.42	0.42	0.18	0.18		0.51	0.51	
v/c Ratio		1.22			0.61	0.39	0.34	0.52		1.16	0.60	
Control Delay		449.6			31.2	3.8	54.8	47.7		332.8	22.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		449.6			31.2	3.8	54.8	47.7		332.8	22.0	
LOS		F			C	A	D	D		F	C	
Approach Delay		449.6			19.8			48.4			151.7	
Approach LOS		F			B			D			F	
90th %ile Green (s)	47.6	47.6		47.6	47.6	47.6	19.4	19.4		32.4	58.4	

STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2018) TRAFFIC  
 PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	47.6	47.6		47.6	47.6	47.6	19.4	19.4		32.4	58.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
50th %ile Green (s)	47.6	47.6		47.6	47.6	47.6	19.4	19.4		32.4	58.4	
50th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
30th %ile Green (s)	47.6	47.6		47.6	47.6	47.6	19.4	19.4		32.4	58.4	
30th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
10th %ile Green (s)	47.6	47.6		47.6	47.6	47.6	19.4	19.4		32.4	58.4	
10th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
Queue Length 50th (m)		~126.3			76.2	0.0	6.1	33.7		~156.7	76.8	
Queue Length 95th (m)		#216.3			126.8	23.7	17.8	53.4		#268.2	113.3	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		389			752	832	93	622		625	1695	
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		1.22			0.61	0.39	0.34	0.52		1.16	0.60	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 120  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.22  
 Intersection Signal Delay: 152.0  
 Intersection LOS: F  
 Intersection Capacity Utilization 117.6%  
 ICU Level of Service H  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 120  
 50th %ile Actuated Cycle: 120  
 30th %ile Actuated Cycle: 120  
 10th %ile Actuated Cycle: 120  
 ~ 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: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

ø1	ø2	ø4
39 s	26 s	55 s
ø5	ø8	
65 s	55 s	

STONEBRIDGE: PHASES 10-12  
4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2018) TRAFFIC - trial  
PM PEAK HOUR

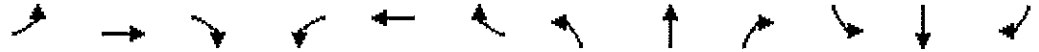


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕	↕	↕	↕	↕
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.97	0.95	0.95
Frnt		0.993				0.850					0.976	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3390	0	3288	3309	0
Flt Permitted		0.594			0.993		0.950			0.950		
Satd. Flow (perm)	0	1052	0	0	1772	1517	1695	3390	0	3288	3309	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				325					21	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	118	332	24	7	453	325	32	323	1	725	851	162
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	118	332	24	7	453	325	32	323	1	725	851	162
Lane Group Flow (vph)	0	474	0	0	460	325	32	324	0	725	1013	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases				8		8						
Detector Phases	4	4		8	8	8	5	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	8.0	24.6		10.6	24.6	
Total Split (s)	62.0	62.0	0.0	62.0	62.0	62.0	8.0	26.0	0.0	32.0	50.0	0.0
Total Split (%)	51.7%	51.7%	0.0%	51.7%	51.7%	51.7%	6.7%	21.7%	0.0%	26.7%	41.7%	0.0%
Maximum Green (s)	54.6	54.6		54.6	54.6	54.6	4.0	19.4		25.4	43.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.5	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	0.5	2.0		2.0	2.0	
Lead/Lag							Lead	Lag		Lead	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	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Act Effct Green (s)		55.4			55.4	55.4	4.0	22.0		27.9	49.2	
Actuated g/C Ratio		0.47			0.47	0.47	0.03	0.19		0.24	0.42	
v/c Ratio		0.95			0.55	0.37	0.56	0.51		0.93	0.72	
Control Delay		66.3			24.8	3.1	97.6	46.7		68.5	32.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		66.3			24.8	3.1	97.6	46.7		68.5	32.8	
LOS		E			C	A	F	D		E	C	
Approach Delay		66.3			15.8			51.3			47.7	
Approach LOS		E			B			D			D	
90th %ile Green (s)	54.6	54.6		54.6	54.6	54.6	4.0	19.4		25.4	43.4	



STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2018) TRAFFIC - trial  
 PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
70th %ile Green (s)	54.6	54.6		54.6	54.6	54.6	4.0	19.4		25.4	43.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
50th %ile Green (s)	54.6	54.6		54.6	54.6	54.6	4.0	19.4		25.4	43.4	
50th %ile Term Code	Max	Max		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
30th %ile Green (s)	54.6	54.6		54.6	54.6	54.6	0.0	19.4		25.4	51.4	
30th %ile Term Code	Max	Max		Hold	Hold	Hold	Skip	MaxR		Max	Hold	
10th %ile Green (s)	42.5	42.5		42.5	42.5	42.5	0.0	19.4		24.7	50.7	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Skip	MaxR		Gap	Hold	
Queue Length 50th (m)		93.4			67.7	0.0	7.0	33.7		80.2	99.3	
Queue Length 95th (m)		#188.2			112.6	20.4	#24.7	53.4		#135.9	#150.3	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		511			857	902	57	637		784	1400	
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		0.93			0.54	0.36	0.56	0.51		0.92	0.72	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 117.4  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 43.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 99.4%  
 ICU Level of Service F  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 120  
 50th %ile Actuated Cycle: 120  
 30th %ile Actuated Cycle: 120  
 10th %ile Actuated Cycle: 107.2  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

32 s	26 s	62 s
8 s	50 s	62 s

STONEBRIDGE: PHASES 10-12  
2: CAMBRIAN ROAD & GREENBANK ROAD

FUTURE (2018) TRAFFIC  
PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	78	325	14	54	29	123	13	69	18	9	3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	78	325	14	54	29	123	13	69	18	9	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	83			403			354	362	240	422	510	68
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			403			354	362	240	422	510	68
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			79	98	91	96	98	100
cM capacity (veh/h)	1514			1156			583	557	798	480	460	995

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	408	97	205	30
Volume Left	5	14	123	18
Volume Right	325	29	69	3
cSH	1514	1156	639	499
Volume to Capacity	0.00	0.01	0.32	0.06
Queue Length 95th (m)	0.1	0.3	9.9	1.3
Control Delay (s)	0.1	1.3	13.3	12.7
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	1.3	13.3	12.7
Approach LOS			B	B

Intersection Summary			
Average Delay		4.4	
Intersection Capacity Utilization		47.9%	ICU Level of Service
Analysis Period (min)		60	A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	59	11	14	96	27
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	59	11	14	96	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	237	18			25	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	237	18			25	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	94			94	
cM capacity (veh/h)	706	1061			1589	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	66	25	123
Volume Left	7	0	96
Volume Right	59	14	0
cSH	1007	1700	1589
Volume to Capacity	0.07	0.01	0.06
Queue Length 95th (m)	1.5	0.0	1.3
Control Delay (s)	8.8	0.0	5.9
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	5.9
Approach LOS	A		

Intersection Summary			
Average Delay		6.1	
Intersection Capacity Utilization		24.7%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12  
 16: DUNDONALD DRIVE & GREENBANK ROAD

FUTURE (2018) TRAFFIC  
 PM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	14	42	163	23	73	275
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	42	163	23	73	275
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	596	174			186	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	596	174			186	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	95			95	
cM capacity (veh/h)	442	869			1388	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	186	348
Volume Left	14	0	73
Volume Right	42	23	0
cSH	700	1700	1388
Volume to Capacity	0.08	0.11	0.05
Queue Length 95th (m)	1.8	0.0	1.2
Control Delay (s)	10.6	0.0	2.0
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	2.0
Approach LOS	B		

Intersection Summary			
Average Delay			2.2
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)			60



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↶	↶	↷
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	132	35	64	543	459	225
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	132	35	64	543	459	225
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)					376	
pX, platoon unblocked						
vC, conflicting volume	1130	459	684			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1130	459	684			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	37	94	93			
cM capacity (veh/h)	209	602	909			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	132	35	64	543	459	225
Volume Left	132	0	64	0	0	0
Volume Right	0	35	0	0	0	225
cSH	209	602	909	1700	1700	1700
Volume to Capacity	0.63	0.06	0.07	0.32	0.27	0.13
Queue Length 95th (m)	32.0	1.3	1.6	0.0	0.0	0.0
Control Delay (s)	50.3	11.3	9.3	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	42.1		1.0		0.0	
Approach LOS	E					

Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization			47.0%		ICU Level of Service	A
Analysis Period (min)			60			

STONEBRIDGE: PHASES 10-12  
17: BLACKLEAF DRIVE & JOCKVALE ROAD

FUTURE (2018) TRAFFIC - trial  
PM PEAK HOUR



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑	↑	↗
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0	0.0	30.0			30.0
Storage Lanes	1	1	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2	15.2	15.2	15.2	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Turning Speed (k/h)	24	14	24			14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.850				0.850
Fl <sub>t</sub> Protected	0.950		0.950			
Satd. Flow (prot)	1695	1517	1695	1784	1784	1517
Fl <sub>t</sub> Permitted	0.950		0.389			
Satd. Flow (perm)	1695	1517	694	1784	1784	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		35				225
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)	50			70	70	
Link Distance (m)	262.6			132.0	375.9	
Travel Time (s)	18.9			6.8	19.3	
Volume (vph)	132	35	64	543	459	225
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	132	35	64	543	459	225
Lane Group Flow (vph)	132	35	64	543	459	225
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	2	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.7	22.7	23.3	23.3	23.3	23.3
Total Split (s)	22.7	22.7	27.3	27.3	27.3	27.3
Total Split (%)	45.4%	45.4%	54.6%	54.6%	54.6%	54.6%
Maximum Green (s)	18.0	18.0	22.0	22.0	22.0	22.0
Yellow Time (s)	3.6	3.6	4.5	4.5	4.5	4.5
All-Red Time (s)	1.1	1.1	0.8	0.8	0.8	0.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	7.7	7.7	9.4	9.4	9.4	9.4
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	9.5	9.5	35.3	35.3	35.3	35.3
Actuated g/C Ratio	0.19	0.19	0.71	0.71	0.71	0.71
v/c Ratio	0.41	0.11	0.13	0.43	0.36	0.20
Control Delay	17.8	6.7	5.1	6.1	5.5	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	6.7	5.1	6.1	5.5	1.3
LOS	B	A	A	A	A	A

STONEBRIDGE: PHASES 10-12  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD

FUTURE (2018) TRAFFIC - trial  
 PM PEAK HOUR



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	15.5			6.0	4.2	
Approach LOS	B			A	A	
90th %ile Green (s)	12.2	12.2	27.8	27.8	27.8	27.8
90th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	10.1	10.1	29.9	29.9	29.9	29.9
70th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	8.8	8.8	31.2	31.2	31.2	31.2
50th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	7.5	7.5	32.5	32.5	32.5	32.5
30th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
10th %ile Green (s)	0.0	0.0	44.7	44.7	44.7	44.7
10th %ile Term Code	Skip	Skip	Coord	Coord	Coord	Coord
Queue Length 50th (m)	9.6	0.0	1.6	17.5	13.9	0.0
Queue Length 95th (m)	21.4	5.3	6.9	49.2	38.3	7.1
Internal Link Dist (m)	238.6			108.0	351.9	
Turn Bay Length (m)	30.0		30.0			30.0
Base Capacity (vph)	634	589	490	1260	1260	1138
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	0.21	0.06	0.13	0.43	0.36	0.20

Intersection Summary

Area Type: Other  
 Cycle Length: 50  
 Actuated Cycle Length: 50  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.43  
 Intersection Signal Delay: 6.2  
 Intersection Capacity Utilization 47.0%  
 Analysis Period (min) 60  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 17: BLACKLEAF DRIVE & JOCKVALE ROAD

↑ 2	↑ 4
27.3 s	22.7 s
↓ 6	
27.3 s	

STONEBRIDGE: PHASES 10-12  
19: CAMBRIAN ROAD & KILBIRNIE DRIVE

FUTURE (2018) TRAFFIC  
PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	150	14	148	89	36	7	0	78	20	0	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	150	14	148	89	36	7	0	78	20	0	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)					309							
pX, platoon unblocked												
vC, conflicting volume	125			164			563	580	157	640	569	107
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	125			164			563	580	157	640	569	107
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			98	100	91	94	100	100
cM capacity (veh/h)	1462			1414			401	381	889	326	386	947

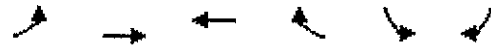
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	165	273	85	21
Volume Left	1	148	7	20
Volume Right	14	36	78	1
cSH	1462	1414	808	336
Volume to Capacity	0.00	0.10	0.11	0.06
Queue Length 95th (m)	0.0	2.5	2.5	1.4
Control Delay (s)	0.1	4.7	10.0	16.4
Lane LOS	A	A	A	C
Approach Delay (s)	0.1	4.7	10.0	16.4
Approach LOS			A	C

Intersection Summary			
Average Delay		4.5	
Intersection Capacity Utilization		43.1%	ICU Level of Service
Analysis Period (min)		60	A



STONEBRIDGE: PHASES 10-12  
 40: CAMBRIAN ROAD & REALIGNED GREENBANK ROAD

FUTURE (2018) TRAFFIC  
 PM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↗		↘	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	3	107	52	115	334	14
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	107	52	115	334	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	167				222	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	167				222	110
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				56	99
cM capacity (veh/h)	1411				764	944

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	110	167	348
Volume Left	3	0	334
Volume Right	0	115	14
cSH	1411	1700	770
Volume to Capacity	0.00	0.10	0.45
Queue Length 95th (m)	0.0	0.0	17.1
Control Delay (s)	0.2	0.0	13.5
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	13.5
Approach LOS			B

Intersection Summary			
Average Delay		7.6	
Intersection Capacity Utilization		37.4%	ICU Level of Service
Analysis Period (min)		60	A

**FUTURE (2013) BACKGROUND PLUS SITE GENERATED  
TRAFFIC**

Project: Stonebridge (Phases 10-12)

Proj # 15056

Date: July 18, 2007

Overall v/c Ratio Summary

Description: Future (2013) Background plus Site Generated Traffic

**AM Peak Hour**

Intersection	Critical Movements												Overall v/c	Overall LOS
	Volume						Volume to Capacity Ratio							
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5	v/c 6		
Riverstone & Jockvale (Signalized)	1077	24					0.72	0.10					0.63	B
Jockvale & Cambrian	458	228					0.91	0.28					0.52	A
Jockvale & Blackleaf (Unsignalized)													0.00	A
Jockvale & Baickleaf (Signalized)	232	368					0.58	0.31					0.38	A
Jockvale & Gofflinks													0.00	-
Jockvale & Prince of Wales	486	298					0.85	0.68					0.78	C
Jockvale & Prince of Wales (Double-left)	486	298					0.81	0.54					0.68	B
Cambrian & Kilbirnie													0.00	-
Cambrian & Greenbank													0.00	-
Greenbank & Dundonald													0.00	-
Cambrian & Cedarview													0.00	-
Cambrian & Realigned Greenbank													0.00	-
Greenbank & Kilbirnie													0.00	-
Greenbank & Jockvale													0.00	-

**PM Peak Hour**

Intersection	Critical Movements												Overall v/c	Overall LOS
	Volume						Volume to Capacity Ratio							
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5	v/c 6		
Riverstone & Jockvale	5	1190					0.05	0.80					0.75	C
Jockvale & Cambrian	283	106	68	993			0.90	0.23	0.49	0.88			0.71	C
Jockvale & Blackleaf (Unsignalized)													0.00	-
Jockvale & Blackleaf (Signalized)	143	428					0.43	0.34					0.36	A
Jockvale & Gofflinks													0.00	-
Jockvale & Prince of Wales	448	594					1.02	0.97					0.99	E
Jockvale & Prince of Wales (Double-left)	448	594					0.89	0.79					0.83	D
Cambrian & Kilbirnie													0.00	-
Cambrian & Greenbank													0.00	-
Greenbank & Dundonald													0.00	-
Cambrian & Cedarview													0.00	-
Cambrian & Realigned Greenbank													0.00	-
Greenbank & Kilbirnie													0.00	-
Greenbank & Jockvale													0.00	-

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	50.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frt		0.850			0.850			0.998			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1517	0	1695	1517	0	1695	1781	0	1695	1774	0
Flt Permitted	0.691			0.754			0.469			0.158		
Satd. Flow (perm)	1233	1517	0	1345	1517	0	837	1781	0	282	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		519			172			2			6	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		152.2			313.0			402.4			1314.1	
Travel Time (s)		11.0			22.5			20.7			67.6	
Volume (vph)	69	0	5	25	0	82	1	1061	16	24	437	19
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	69	0	5	25	0	82	1	1061	16	24	437	19
Lane Group Flow (vph)	69	5	0	25	82	0	1	1077	0	24	456	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	87.0	87.0	0.0	87.0	87.0	0.0
Total Split (%)	20.9%	20.9%	0.0%	20.9%	20.9%	0.0%	79.1%	79.1%	0.0%	79.1%	79.1%	0.0%
Maximum Green (s)	18.0	18.0		18.0	18.0		82.0	82.0		82.0	82.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	12.3	12.3		12.2	12.2		92.7	92.7		92.7	92.7	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.84	0.84		0.84	0.84	
v/c Ratio	0.50	0.01		0.17	0.26		0.00	0.72		0.10	0.30	
Control Delay	58.0	0.0		44.8	1.9		2.0	7.3		3.8	3.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	58.0	0.0		44.8	1.9		2.0	7.3		3.8	3.3	
LOS	E	A		D	A		A	A		A	A	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		54.0			11.9			7.3				3.3
Approach LOS		D			B			A				A
90th %ile Green (s)	16.6	16.6		16.6	16.6		83.4	83.4		83.4	83.4	83.4
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	Coord
70th %ile Green (s)	13.4	13.4		13.4	13.4		86.6	86.6		86.6	86.6	86.6
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	Coord
50th %ile Green (s)	11.3	11.3		11.3	11.3		88.7	88.7		88.7	88.7	88.7
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	Coord
30th %ile Green (s)	9.1	9.1		9.1	9.1		90.9	90.9		90.9	90.9	90.9
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	Coord
10th %ile Green (s)	0.0	0.0		0.0	0.0		105.0	105.0		105.0	105.0	105.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	Coord
Queue Length 50th (m)	13.0	0.0		4.5	0.0		0.0	62.8		0.7	16.8	
Queue Length 95th (m)	28.1	0.0		12.8	0.0		m0.0m	156.6		3.6	39.4	
Internal Link Dist (m)		128.2			289.0			378.4			1290.1	
Turn Bay Length (m)	25.0			25.0			50.0			90.0		
Base Capacity (vph)	213	691		232	404		706	1502		238	1496	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.01		0.11	0.20		0.00	0.72		0.10	0.30	





















Intersection Summary

Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 8.5  
 Intersection LOS: A  
 Intersection Capacity Utilization 77.3%  
 ICU Level of Service D  
 Analysis Period (min) 60  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: RIVERSTONE DRIVE & JOCKVALE ROAD

↑ ø2	→ ø4
87 s	23 s
↓ ø5	← ø8
87 s	23 s

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 1: CAMBRIAN ROAD & JOCKVALE ROAD AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	75.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frnt		0.892			0.904			0.988			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1592	0	1695	1613	0	1695	1763	0	1695	1708	0
Flt Permitted	0.615			0.692			0.350			0.235		
Satd. Flow (perm)	1097	1592	0	1235	1613	0	625	1763	0	419	1708	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		72			146			9			41	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		308.6			482.0			375.9			402.4	
Travel Time (s)		22.2			34.7			19.3			20.7	
Volume (vph)	458	28	72	68	82	146	29	474	42	51	297	119
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	458	28	72	68	82	146	29	474	42	51	297	119
Lane Group Flow (vph)	458	100	0	68	228	0	29	516	0	51	416	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	24.0	24.0	0.0	24.0	24.0	0.0
Total Split (%)	56.4%	56.4%	0.0%	56.4%	56.4%	0.0%	43.6%	43.6%	0.0%	43.6%	43.6%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	25.3	25.3		25.3	25.3		21.7	21.7		21.7	21.7	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.39	0.39		0.39	0.39	
v/c Ratio	0.91	0.13		0.12	0.28		0.12	0.74		0.31	0.60	
Control Delay	45.6	3.8		8.3	4.3		13.3	23.9		15.7	14.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.6	3.8		8.3	4.3		13.3	23.9		15.7	14.3	
LOS	D	A		A	A		B	C		B	B	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 1: CAMBRIAN ROAD & JOCKVALE ROAD AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		38.2			5.2			23.4			14.4	
Approach LOS		D			A			C			B	
90th %ile Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
70th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
50th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	25.1	25.1		25.1	25.1		19.9	19.9		19.9	19.9	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	18.5	18.5		18.5	18.5		26.5	26.5		26.5	26.5	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	33.7	1.2		3.1	3.7		1.7	40.3		3.1	31.4	
Queue Length 95th (m)	#94.1	7.7		8.9	14.7		6.8	#98.9		8.5	45.1	
Internal Link Dist (m)		284.6			458.0			351.9			378.4	
Turn Bay Length (m)	25.0			25.0			75.0			65.0		
Base Capacity (vph)	539	818		606	866		246	701		165	698	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.85	0.12		0.11	0.26		0.12	0.74		0.31	0.60	

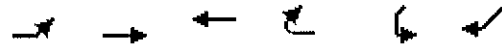
Intersection Summary

Area Type: Other  
 Cycle Length: 55  
 Actuated Cycle Length: 55  
 Offset: 18 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 22.7 Intersection LOS: C  
 Intersection Capacity Utilization 86.5% ICU Level of Service E  
 Analysis Period (min) 60  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: CAMBRIAN ROAD & JOCKVALE ROAD

↑ ø2	→ ø4
24 s	31 s
↓ ø6	← ø8
24 s	31 s

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S) AM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↖	↑	↗		↖	↗
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	382	289	39	104	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	382	289	39	104	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	328				798	308
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	328				798	308
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				69	94
cM capacity (veh/h)	1232				339	732

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	382	328	104	43
Volume Left	54	0	0	104	0
Volume Right	0	0	39	0	43
cSH	1232	1700	1700	339	732
Volume to Capacity	0.04	0.22	0.19	0.31	0.06
Queue Length 95th (m)	1.0	0.0	0.0	9.2	1.3
Control Delay (s)	8.1	0.0	0.0	20.3	10.2
Lane LOS	A			C	B
Approach Delay (s)	1.0		0.0	17.3	
Approach LOS				C	

Intersection Summary					
Average Delay			3.3		
Intersection Capacity Utilization			38.0%	ICU Level of Service	A
Analysis Period (min)			60		



STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↖	↕	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Fr't		0.993				0.850		0.999			0.963	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3387	0	1695	3265	0
Flt Permitted		0.804			0.995		0.555			0.230		
Satd. Flow (perm)	0	1425	0	0	1775	1517	990	3387	0	410	3265	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				448						51
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	122	339	25	3	230	448	17	481	3	298	244	81
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	122	339	25	3	230	448	17	481	3	298	244	81
Lane Group Flow (vph)	0	486	0	0	233	448	17	484	0	298	325	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	60.0	30.0	30.0	0.0	30.0	60.0	0.0
Total Split (%)	50.0%	50.0%	0.0%	50.0%	50.0%	50.0%	25.0%	25.0%	0.0%	25.0%	50.0%	0.0%
Maximum Green (s)	52.6	52.6		52.6	52.6	52.6	23.4	23.4		23.4	53.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		43.2			43.2	43.2	33.5	33.5		56.5	56.5	
Actuated g/C Ratio		0.40			0.40	0.40	0.31	0.31		0.52	0.52	
v/c Ratio		0.85			0.33	0.51	0.06	0.46		0.68	0.19	
Control Delay		36.1			22.5	3.6	34.9	35.2		22.8	13.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		36.1			22.5	3.6	34.9	35.2		22.8	13.1	
LOS		D			C	A	C	D		C	B	
Approach Delay		36.1			10.0			35.1			17.8	
Approach LOS		D			B			D			B	
90th %ile Green (s)	52.6	52.6		52.6	52.6	52.6	23.4	23.4		23.4	53.4	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	49.1	49.1		49.1	49.1	49.1	25.7	25.7		21.1	53.4	
70th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
50th %ile Green (s)	41.4	41.4		41.4	41.4	41.4	30.1	30.1		16.7	53.4	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
30th %ile Green (s)	34.2	34.2		34.2	34.2	34.2	33.6	33.6		13.2	53.4	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
10th %ile Green (s)	24.6	24.6		24.6	24.6	24.6	37.6	37.6		9.2	53.4	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
Queue Length 50th (m)		82.7			30.3	0.0	2.4	40.4		32.9	14.3	
Queue Length 95th (m)		#158.5			52.9	28.3	9.8	76.8		73.4	30.1	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		667			828	947	308	1052		493	1736	
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		0.73			0.28	0.47	0.06	0.46		0.60	0.19	

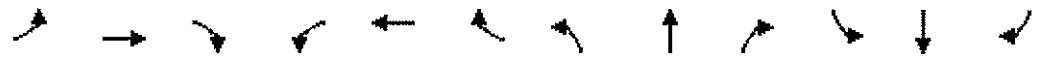
Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 107.8  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 23.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 85.4%  
 ICU Level of Service E  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 116.5  
 50th %ile Actuated Cycle: 108.8  
 30th %ile Actuated Cycle: 101.6  
 10th %ile Actuated Cycle: 92  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

30 s	30 s	60 s
60 s	60 s	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 2: CAMBRIAN ROAD & GREENBANK ROAD AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	41	127	103	87	12	223	16	245	42	27	14
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	41	127	103	87	12	223	16	245	42	27	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	99			168			439	418	104	664	475	93
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	99			168			439	418	104	664	475	93
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			52	97	74	84	94	99
cM capacity (veh/h)	1494			1410			468	486	950	255	451	964

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	172	202	484	83
Volume Left	4	103	223	42
Volume Right	127	12	245	14
cSH	1494	1410	631	347
Volume to Capacity	0.00	0.07	0.77	0.24
Queue Length 95th (m)	0.1	1.7	61.7	6.6
Control Delay (s)	0.2	4.2	28.7	18.6
Lane LOS	A	A	D	C
Approach Delay (s)	0.2	4.2	28.7	18.6
Approach LOS			D	C

Intersection Summary			
Average Delay		17.4	
Intersection Capacity Utilization		68.4%	ICU Level of Service
Analysis Period (min)		60	C

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 15: CAMBRIAN ROAD & CEDARVIEW ROAD AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	6	136	23	9	52	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	136	23	9	52	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	152	28			32	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152	28			32	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	87			97	
cM capacity (veh/h)	813	1048			1580	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	142	32	72
Volume Left	6	0	52
Volume Right	136	9	0
cSH	1035	1700	1580
Volume to Capacity	0.14	0.02	0.03
Queue Length 95th (m)	3.3	0.0	0.7
Control Delay (s)	9.0	0.0	5.4
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	5.4
Approach LOS	A		

Intersection Summary			
Average Delay		6.8	
Intersection Capacity Utilization		26.7%	ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 16: DUNDONALD DRIVE & GREENBANK ROAD AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	32	168	272	9	57	138
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	32	168	272	9	57	138
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	528	276			281	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	528	276			281	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	78			96	
cM capacity (veh/h)	488	762			1282	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	200	281	195
Volume Left	32	0	57
Volume Right	168	9	0
cSH	699	1700	1282
Volume to Capacity	0.29	0.17	0.04
Queue Length 95th (m)	8.4	0.0	1.0
Control Delay (s)	12.2	0.0	2.6
Lane LOS	B		A
Approach Delay (s)	12.2	0.0	2.6
Approach LOS	B		

Intersection Summary			
Average Delay			4.4
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)			60

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD AM PEAK HOUR



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↶	↶	↷
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	232	68	19	313	368	69
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	232	68	19	313	368	69
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)					376	
pX, platoon unblocked						
vC, conflicting volume	719	368	437			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	719	368	437			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	40	90	98			
cM capacity (veh/h)	389	677	1123			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	232	68	19	313	368	69
Volume Left	232	0	19	0	0	0
Volume Right	0	68	0	0	0	69
cSH	389	677	1123	1700	1700	1700
Volume to Capacity	0.60	0.10	0.02	0.18	0.22	0.04
Queue Length 95th (m)	29.5	2.3	0.4	0.0	0.0	0.0
Control Delay (s)	27.7	10.9	8.3	0.0	0.0	0.0
Lane LOS	D	B	A			
Approach Delay (s)	23.9		0.5		0.0	
Approach LOS	C					

Intersection Summary						
Average Delay			6.9			
Intersection Capacity Utilization			40.7%	ICU Level of Service		A
Analysis Period (min)			60			

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 19: CAMBRIAN ROAD & KILBIRNIE DRIVE AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	6	304	18	46	158	26	34	0	155	99	0	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	304	18	46	158	26	34	0	155	99	0	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)					309							
pX, platoon unblocked												
vC, conflicting volume	184			322			598	601	313	743	597	171
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	184			322			598	601	313	743	597	171
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			91	100	79	61	100	99
cM capacity (veh/h)	1391			1238			396	397	727	252	399	873

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	328	230	189	109
Volume Left	6	46	34	99
Volume Right	18	26	155	10
cSH	1391	1238	632	270
Volume to Capacity	0.00	0.04	0.30	0.40
Queue Length 95th (m)	0.1	0.8	8.9	13.9
Control Delay (s)	0.2	1.9	13.1	27.3
Lane LOS	A	A	B	D
Approach Delay (s)	0.2	1.9	13.1	27.3
Approach LOS			B	D

Intersection Summary			
Average Delay		6.9	
Intersection Capacity Utilization		63.4%	ICU Level of Service
Analysis Period (min)		60	B

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 22: KILBIRNIE DRIVE & GREENBANK ROAD AM PEAK HOUR



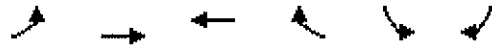
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	7	80	201	2	26	144
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	80	201	2	26	144
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	398	202			203	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	398	202			203	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	90			98	
cM capacity (veh/h)	596	839			1369	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	87	203	170
Volume Left	7	0	26
Volume Right	80	2	0
cSH	812	1700	1369
Volume to Capacity	0.11	0.12	0.02
Queue Length 95th (m)	2.5	0.0	0.4
Control Delay (s)	10.0	0.0	1.3
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	1.3
Approach LOS	A		

Intersection Summary			
Average Delay		2.4	
Intersection Capacity Utilization		36.4%	ICU Level of Service A
Analysis Period (min)		60	



STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 40: CAMBRIAN ROAD & REALIGNED GREENBANK ROAD AM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	23	38	140	221	107	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	23	38	140	221	107	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	361				334	250
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	361				334	250
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				83	100
cM capacity (veh/h)	1198				648	788

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	61	361	109
Volume Left	23	0	107
Volume Right	0	221	2
cSH	1198	1700	650
Volume to Capacity	0.02	0.21	0.17
Queue Length 95th (m)	0.4	0.0	4.2
Control Delay (s)	3.1	0.0	11.7
Lane LOS	A		B
Approach Delay (s)	3.1	0.0	11.7
Approach LOS			B

Intersection Summary			
Average Delay		2.8	
Intersection Capacity Utilization		36.7%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	50.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frt		0.850			0.850			0.990			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1517	0	1695	1517	0	1695	1766	0	1695	1768	0
Flt Permitted	0.717			0.757			0.063			0.214		
Satd. Flow (perm)	1279	1517	0	1351	1517	0	112	1766	0	382	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		133			230			9			9	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		152.2			313.0			402.4			1314.1	
Travel Time (s)		11.0			22.5			20.7			67.6	
Volume (vph)	39	0	2	25	0	62	5	834	58	155	1118	72
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	39	0	2	25	0	62	5	834	58	155	1118	72
Lane Group Flow (vph)	39	2	0	25	62	0	5	892	0	155	1190	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	67.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	25.6%	25.6%	0.0%	25.6%	25.6%	0.0%	74.4%	74.4%	0.0%	74.4%	74.4%	0.0%
Maximum Green (s)	18.0	18.0		18.0	18.0		62.0	62.0		62.0	62.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	9.1	9.1		9.1	9.1		75.8	75.8		75.8	75.8	
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.84	0.84		0.84	0.84	
v/c Ratio	0.30	0.01		0.18	0.17		0.05	0.60		0.48	0.80	
Control Delay	37.9	0.0		36.6	0.5		2.2	5.0		9.3	11.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.9	0.0		36.6	0.5		2.2	5.0		9.3	11.2	
LOS	D	A		D	A		A	A		A	B	

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STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD PM PEAK HOUR



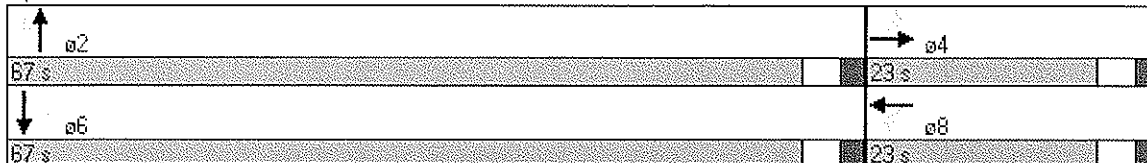
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		36.1			10.9			5.0			10.9	
Approach LOS		D			B			A			B	
90th %ile Green (s)	11.4	11.4		11.4	11.4		68.6	68.6		68.6	68.6	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	9.3	9.3		9.3	9.3		70.7	70.7		70.7	70.7	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	8.0	8.0		8.0	8.0		72.0	72.0		72.0	72.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	6.2	6.2		6.2	6.2		73.8	73.8		73.8	73.8	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		85.0	85.0		85.0	85.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	5.9	0.0		3.7	0.0		0.1	37.8		5.6	77.4	
Queue Length 95th (m)	15.8	0.0		11.4	0.0		m0.1	m83.8		31.6	#290.3	
Internal Link Dist (m)		128.2			289.0			378.4			1290.1	
Turn Bay Length (m)	25.0			25.0			50.0			90.0		
Base Capacity (vph)	270	425		285	502		94	1489		322	1491	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.00		0.09	0.12		0.05	0.60		0.48	0.80	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 9.1 Intersection LOS: A  
 Intersection Capacity Utilization 89.0% ICU Level of Service E  
 Analysis Period (min) 60

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: RIVERSTONE DRIVE & JOCKVALE ROAD



STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 1: CAMBRIAN ROAD & JOCKVALE ROAD PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	75.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frt		0.917			0.874			0.983			0.939	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1636	0	1695	1559	0	1695	1754	0	1695	1675	0
Flt Permitted	0.685			0.708			0.118			0.351		
Satd. Flow (perm)	1222	1636	0	1263	1559	0	211	1754	0	626	1675	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			89			15			76	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		308.6			482.0			375.9			402.4	
Travel Time (s)		22.2			34.7			19.3			20.7	
Volume (vph)	283	34	42	38	17	89	68	525	69	152	592	401
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	283	34	42	38	17	89	68	525	69	152	592	401
Lane Group Flow (vph)	283	76	0	38	106	0	68	594	0	152	993	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	31.1%	31.1%	0.0%	31.1%	31.1%	0.0%	68.9%	68.9%	0.0%	68.9%	68.9%	0.0%
Maximum Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	23.1	23.1		23.1	23.1		58.9	58.9		58.9	58.9	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.65	0.65		0.65	0.65	
v/c Ratio	0.90	0.17		0.12	0.23		0.49	0.51		0.37	0.88	
Control Delay	77.2	14.7		26.2	9.2		24.1	10.0		5.0	16.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	77.2	14.7		26.2	9.2		24.1	10.0		5.0	16.1	
LOS	E	B		C	A		C	B		A	B	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 1: CAMBRIAN ROAD & JOCKVALE ROAD PM PEAK HOUR

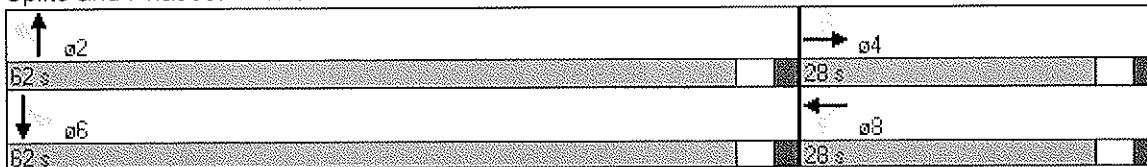


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		63.9			13.7			11.5			14.6	
Approach LOS		E			B			B			B	
90th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
70th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
50th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
30th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	18.3	18.3		18.3	18.3		61.7	61.7		61.7	61.7	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	43.0	4.1		4.6	2.0		5.1	44.1		6.7	114.7	
Queue Length 95th (m)	#98.7	15.8		13.0	15.7		#28.8	81.3		m5.5#	225.5	
Internal Link Dist (m)		284.6			458.0			351.9			378.4	
Turn Bay Length (m)	25.0			25.0			75.0			65.0		
Base Capacity (vph)	326	467		337	481		138	1154		410	1123	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.87	0.16		0.11	0.22		0.49	0.51		0.37	0.88	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 25 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 21.3 Intersection LOS: C  
 Intersection Capacity Utilization 95.9% ICU Level of Service F  
 Analysis Period (min) 60  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: CAMBRIAN ROAD & JOCKVALE ROAD



STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S) PM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↖	↑	↗		↖	↗
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	414	554	78	34	38
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	414	554	78	34	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	632				1115	593
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	632				1115	593
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				84	92
cM capacity (veh/h)	951				217	506

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	414	632	34	38
Volume Left	54	0	0	34	0
Volume Right	0	0	78	0	38
cSH	951	1700	1700	217	506
Volume to Capacity	0.06	0.24	0.37	0.16	0.08
Queue Length 95th (m)	1.3	0.0	0.0	3.9	1.7
Control Delay (s)	9.0	0.0	0.0	24.7	12.7
Lane LOS	A			C	B
Approach Delay (s)	1.0		0.0	18.4	
Approach LOS				C	

Intersection Summary					
Average Delay			1.5		
Intersection Capacity Utilization		52.4%		ICU Level of Service	A
Analysis Period (min)			60		

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↘	↕		↘	↕	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Frt		0.993				0.850		0.999			0.973	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3387	0	1695	3299	0
Flt Permitted		0.558			0.993		0.319			0.386		
Satd. Flow (perm)	0	989	0	0	1772	1517	569	3387	0	689	3299	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				298					30	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	113	313	22	7	442	298	32	278	1	594	733	158
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	113	313	22	7	442	298	32	278	1	594	733	158
Lane Group Flow (vph)	0	448	0	0	449	298	32	279	0	594	891	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	57.0	57.0	0.0	57.0	57.0	57.0	26.0	26.0	0.0	37.0	63.0	0.0
Total Split (%)	47.5%	47.5%	0.0%	47.5%	47.5%	47.5%	21.7%	21.7%	0.0%	30.8%	52.5%	0.0%
Maximum Green (s)	49.6	49.6		49.6	49.6	49.6	19.4	19.4		30.4	56.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		53.0			53.0	53.0	22.0	22.0		59.0	59.0	
Actuated g/C Ratio		0.44			0.44	0.44	0.18	0.18		0.49	0.49	
v/c Ratio		1.02			0.57	0.36	0.31	0.45		0.97	0.54	
Control Delay		143.8			28.7	3.5	51.8	46.3		72.8	21.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		143.8			28.7	3.5	51.8	46.3		72.8	21.9	
LOS		F			C	A	D	D		E	C	
Approach Delay		143.8			18.7			46.9			42.3	
Approach LOS		F			B			D			D	
90th %ile Green (s)	49.6	49.6		49.6	49.6	49.6	19.4	19.4		30.4	56.4	

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STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	49.6	49.6		49.6	49.6	49.6	19.4	19.4		30.4	56.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
50th %ile Green (s)	49.6	49.6		49.6	49.6	49.6	19.4	19.4		30.4	56.4	
50th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
30th %ile Green (s)	49.6	49.6		49.6	49.6	49.6	19.4	19.4		30.4	56.4	
30th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
10th %ile Green (s)	49.6	49.6		49.6	49.6	49.6	19.4	19.4		30.4	56.4	
10th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
Queue Length 50th (m)		~102.9			71.4	0.0	6.1	28.6		97.9	66.2	
Queue Length 95th (m)		#190.6			118.8	21.5	17.4	46.2		#195.2	97.8	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		438			783	836	104	621		615	1637	
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		1.02			0.57	0.36	0.31	0.45		0.97	0.54	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 110  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.02  
 Intersection Signal Delay: 52.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 106.6%  
 ICU Level of Service G  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 120  
 50th %ile Actuated Cycle: 120  
 30th %ile Actuated Cycle: 120  
 10th %ile Actuated Cycle: 120  
 ~ 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: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

01	02	04
37 s	26 s	57 s
05	08	
63 s	57 s	



STONEBRIDGE: PHASES 10-12  
4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2013) TRAFFIC - trial  
PM PEAK HOUR

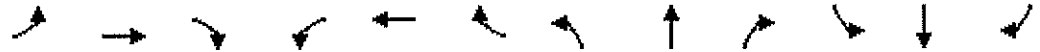
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.97	0.95	0.95
Frt		0.993				0.850		0.999			0.975	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3387	0	3288	3305	0
Flt Permitted		0.649			0.993		0.950			0.950		
Satd. Flow (perm)	0	1150	0	0	1772	1517	1695	3387	0	3288	3305	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				298					22	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	108	302	21	7	421	298	30	278	1	594	733	150
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	108	302	21	7	421	298	30	278	1	594	733	150
Lane Group Flow (vph)	0	431	0	0	428	298	30	279	0	594	883	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Detector Phases	4	4		8	8	8	5	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	8.0	24.6		10.6	24.6	
Total Split (s)	63.0	63.0	0.0	63.0	63.0	63.0	10.0	25.0	0.0	32.0	47.0	0.0
Total Split (%)	52.5%	52.5%	0.0%	52.5%	52.5%	52.5%	8.3%	20.8%	0.0%	26.7%	39.2%	0.0%
Maximum Green (s)	55.6	55.6		55.6	55.6	55.6	6.0	18.4		25.4	40.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.5	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	0.5	2.0		2.0	2.0	
Lead/Lag							Lead	Lag		Lead	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	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Act Effct Green (s)		44.7			44.7	44.7	6.0	22.2		24.3	45.3	
Actuated g/C Ratio		0.43			0.43	0.43	0.06	0.21		0.23	0.44	
v/c Ratio		0.87			0.56	0.36	0.32	0.38		0.77	0.61	
Control Delay		35.4			23.5	2.9	62.5	40.6		43.2	27.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		35.4			23.5	2.9	62.5	40.6		43.2	27.6	
LOS		D			C	A	E	D		D	C	
Approach Delay		35.4			15.1			42.7			33.9	
Approach LOS		D			B			D			C	
90th %ile Green (s)	55.6	55.6		55.6	55.6	55.6	6.0	18.4		25.4	40.4	

David Hook  
IBI GROUP

Lanes, Volumes, Timings  
7/10/2007

STONEBRIDGE: PHASES 10-12  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

FUTURE (2013) TRAFFIC - trial  
 PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
70th %ile Green (s)	55.4	55.4		55.4	55.4	55.4	6.0	18.4		25.4	40.4	
70th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
50th %ile Green (s)	45.7	45.7		45.7	45.7	45.7	6.0	19.1		24.7	40.4	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Max	Hold		Gap	MaxR	
30th %ile Green (s)	33.9	33.9		33.9	33.9	33.9	0.0	18.4		19.5	44.5	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Skip	MaxR		Gap	Hold	
10th %ile Green (s)	21.2	21.2		21.2	21.2	21.2	0.0	20.0		13.8	40.4	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Skip	Hold		Gap	MaxR	
Queue Length 50th (m)		73.2			60.4	0.0	5.8	25.6		55.8	73.2	
Queue Length 95th (m)		#151.0			100.5	18.9	17.4	46.7		#100.1	125.6	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		583			896	914	96	728		872	1457	
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		0.74			0.48	0.33	0.31	0.38		0.68	0.61	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 103.6  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 30.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 91.3%  
 ICU Level of Service F  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 119.8  
 50th %ile Actuated Cycle: 110.1  
 30th %ile Actuated Cycle: 92.4  
 10th %ile Actuated Cycle: 75.6

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

32 s	25 s	63 s
10 s	47 s	63 s

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 2: CAMBRIAN ROAD & GREENBANK ROAD PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	14	75	371	131	55	43	155	18	136	25	12	8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	75	371	131	55	43	155	18	136	25	12	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	98			446			641	648	260	772	812	76
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	98			446			641	648	260	772	812	76
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			88			54	95	83	89	96	99
cM capacity (veh/h)	1495			1114			336	340	778	227	273	985

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	460	229	309	45
Volume Left	14	131	155	25
Volume Right	371	43	136	8
cSH	1495	1114	448	277
Volume to Capacity	0.01	0.12	0.69	0.16
Queue Length 95th (m)	0.2	2.8	42.8	4.0
Control Delay (s)	0.3	5.4	30.3	20.5
Lane LOS	A	A	D	C
Approach Delay (s)	0.3	5.4	30.3	20.5
Approach LOS			D	C

Intersection Summary			
Average Delay		11.2	
Intersection Capacity Utilization		74.9%	ICU Level of Service
Analysis Period (min)		60	D

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 15: CAMBRIAN ROAD & CEDARVIEW ROAD PM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	M		P		A	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	6	69	10	12	115	24
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	69	10	12	115	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	270	16			22	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270	16			22	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	94			93	
cM capacity (veh/h)	667	1063			1593	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	75	22	139
Volume Left	6	0	115
Volume Right	69	12	0
cSH	1015	1700	1593
Volume to Capacity	0.07	0.01	0.07
Queue Length 95th (m)	1.7	0.0	1.6
Control Delay (s)	8.8	0.0	6.2
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	6.2
Approach LOS	A		

Intersection Summary			
Average Delay		6.5	
Intersection Capacity Utilization	26.2%		ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 16: DUNDONALD DRIVE & GREENBANK ROAD PM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑		↓	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	26	95	201	35	175	329
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	95	201	35	175	329
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	898	218			236	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	898	218			236	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	88			87	
cM capacity (veh/h)	269	821			1331	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	121	236	504
Volume Left	26	0	175
Volume Right	95	35	0
cSH	570	1700	1331
Volume to Capacity	0.21	0.14	0.13
Queue Length 95th (m)	5.6	0.0	3.2
Control Delay (s)	13.0	0.0	3.7
Lane LOS	B		A
Approach Delay (s)	13.0	0.0	3.7
Approach LOS	B		

Intersection Summary			
Average Delay		4.0	
Intersection Capacity Utilization		59.6%	ICU Level of Service B
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD PM PEAK HOUR



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↘	↙	↑	↑	↘
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	143	40	73	519	428	244
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	143	40	73	519	428	244
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)				376		
pX, platoon unblocked						
vC, conflicting volume	1093	428	672			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1093	428	672			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	34	94	92			
cM capacity (veh/h)	218	627	919			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	143	40	73	519	428	244
Volume Left	143	0	73	0	0	0
Volume Right	0	40	0	0	0	244
cSH	218	627	919	1700	1700	1700
Volume to Capacity	0.66	0.06	0.08	0.31	0.25	0.14
Queue Length 95th (m)	35.2	1.4	1.8	0.0	0.0	0.0
Control Delay (s)	51.4	11.1	9.3	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	42.6		1.1		0.0	
Approach LOS	E					

Intersection Summary						
Average Delay			5.9			
Intersection Capacity Utilization			46.4%	ICU Level of Service		A
Analysis Period (min)			60			

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGR. + SITE GEN. TRAFFIC - trial  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD PM PEAK HOUR



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↕	↕	↷
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0	0.0	30.0			30.0
Storage Lanes	1	1	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2	15.2	15.2	15.2	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Turning Speed (k/h)	24	14	24			14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1695	1517	1695	1784	1784	1517
Flt Permitted	0.950		0.418			
Satd. Flow (perm)	1695	1517	746	1784	1784	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		40				244
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)	50			70	70	
Link Distance (m)	262.6			132.0	375.9	
Travel Time (s)	18.9			6.8	19.3	
Volume (vph)	143	40	73	519	428	244
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	143	40	73	519	428	244
Lane Group Flow (vph)	143	40	73	519	428	244
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	2	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.7	22.7	23.3	23.3	23.3	23.3
Total Split (s)	22.7	22.7	27.3	27.3	27.3	27.3
Total Split (%)	45.4%	45.4%	54.6%	54.6%	54.6%	54.6%
Maximum Green (s)	18.0	18.0	22.0	22.0	22.0	22.0
Yellow Time (s)	3.6	3.6	4.5	4.5	4.5	4.5
All-Red Time (s)	1.1	1.1	0.8	0.8	0.8	0.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	7.7	7.7	9.4	9.4	9.7	9.7
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	9.8	9.8	35.1	35.1	35.1	35.1
Actuated g/C Ratio	0.20	0.20	0.70	0.70	0.70	0.70
v/c Ratio	0.43	0.12	0.14	0.41	0.34	0.21
Control Delay	17.8	6.4	5.2	6.2	5.5	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	6.4	5.2	6.2	5.5	1.4
LOS	B	A	A	A	A	A

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGR. + SITE GEN. TRAFFIC - trial  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD PM PEAK HOUR



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	15.3			6.1	4.0	
Approach LOS	B			A	A	
90th %ile Green (s)	12.6	12.6	27.4	27.4	27.4	27.4
90th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	10.5	10.5	29.5	29.5	29.5	29.5
70th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	9.1	9.1	30.9	30.9	30.9	30.9
50th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	7.7	7.7	32.3	32.3	32.3	32.3
30th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
10th %ile Green (s)	0.0	0.0	44.7	44.7	44.7	44.7
10th %ile Term Code	Skip	Skip	Coord	Coord	Coord	Coord
Queue Length 50th (m)	10.4	0.0	1.9	16.9	13.0	0.0
Queue Length 95th (m)	22.7	5.6	7.7	47.0	35.8	7.6
Internal Link Dist (m)	238.6			108.0	351.9	
Turn Bay Length (m)	30.0		30.0			30.0
Base Capacity (vph)	634	592	523	1251	1251	1137
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	0.23	0.07	0.14	0.41	0.34	0.21

Intersection Summary

Area Type: Other  
 Cycle Length: 50  
 Actuated Cycle Length: 50  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.43  
 Intersection Signal Delay: 6.3  
 Intersection Capacity Utilization 46.4%  
 Analysis Period (min) 60  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 17: BLACKLEAF DRIVE & JOCKVALE ROAD

↑ φ2	↑ φ4
27.3s	22.7s
↓ φ6	
27.3s	



STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 19: CAMBRIAN ROAD & KILBIRNIE DRIVE PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	213	18	168	215	103	10	0	89	57	0	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	213	18	168	215	103	10	0	89	57	0	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)					309							
pX, platoon unblocked												
vC, conflicting volume	318			231			838	886	222	924	844	266
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	318			231			838	886	222	924	844	266
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			96	100	89	72	100	99
cM capacity (veh/h)	1242			1337			256	247	818	201	261	772

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	236	486	99	61
Volume Left	5	168	10	57
Volume Right	18	103	89	4
cSH	1242	1337	669	211
Volume to Capacity	0.00	0.13	0.15	0.29
Queue Length 95th (m)	0.1	3.0	3.6	8.4
Control Delay (s)	0.2	3.6	11.3	29.0
Lane LOS	A	A	B	D
Approach Delay (s)	0.2	3.6	11.3	29.0
Approach LOS			B	D

Intersection Summary			
Average Delay		5.3	
Intersection Capacity Utilization		61.9%	ICU Level of Service B
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 22: KILBIRNIE DRIVE & GREENBANK ROAD PM PEAK HOUR

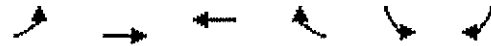


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		B		A	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	4	40	196	8	75	280
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	40	196	8	75	280
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	630	200			204	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	630	200			204	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	95			95	
cM capacity (veh/h)	421	841			1368	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	204	355
Volume Left	4	0	75
Volume Right	40	8	0
cSH	771	1700	1368
Volume to Capacity	0.06	0.12	0.05
Queue Length 95th (m)	1.3	0.0	1.2
Control Delay (s)	10.0	0.0	2.0
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	2.0
Approach LOS	A		

Intersection Summary		
Average Delay		1.9
Intersection Capacity Utilization	44.7%	ICU Level of Service A
Analysis Period (min)		60

STONEBRIDGE: PHASES 10-12 FUTURE (2013) BACKGROUND + SITE GEN. TRAFFIC  
 40: CAMBRIAN ROAD & REALIGNED GREENBANK ROAD PM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	125	63	149	368	12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	125	63	149	368	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	212				266	138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	212				266	138
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				49	99
cM capacity (veh/h)	1358				722	911

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	127	212	380
Volume Left	2	0	368
Volume Right	0	149	12
cSH	1358	1700	726
Volume to Capacity	0.00	0.12	0.52
Queue Length 95th (m)	0.0	0.0	22.6
Control Delay (s)	0.1	0.0	15.4
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	15.4
Approach LOS			C

Intersection Summary

Average Delay		8.1	
Intersection Capacity Utilization		42.1%	ICU Level of Service
Analysis Period (min)		60	A

**FUTURE (2018) BACKGROUND PLUS SITE GENERATED  
TRAFFIC**

Project: Stonebridge (Phases 10-12)

Proj # 15056

Date: July 18, 2007

Overall v/c Ratio Summary

Description: Future (2018) Background plus Site Generated Traffic

**AM Peak Hour**

Intersection	Critical Movements														Overall v/c	Overall LOS
	Volume						Volume to Capacity Ratio						Overall v/c	Overall LOS		
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5	v/c 6				
Riverstone & Jockvale (Signalized)	1117						0.74	0.10					0.65	B		
Jockvale & Cambrian	467	228					0.92	0.27					0.51	A		
Jockvale & Blackleaf (Unsignalized)													0.00	-		
Jockvale & Balckleaf (Signalized)	232	396					0.57	0.34					0.40	A		
Jockvale & Gofflinks													0.00	-		
Jockvale & Prince of Wales	514	325					0.88	0.79					0.84	D		
Jockvale & Prince of Wales (Double-left)	514	325					0.85	0.62					0.74	C		
Cambrian & Kilbirnie													0.00	-		
Cambrian & Greenbank													0.00	-		
Greenbank & Dundonald													0.00	-		
Cambrian & Cedarview													0.00	-		
Cambrian & Realigned Greenbank													0.00	-		
Greenbank & Kilbirnie													0.00	-		
Greenbank & Jockvale													0.00	-		

**PM Peak Hour**

Intersection	Critical Movements														Overall v/c	Overall LOS
	Volume						Volume to Capacity Ratio						Overall v/c	Overall LOS		
	v1	v2	v3	v4	v5	v6	v/c 1	v/c 2	v/c 3	v/c 4	v/c 5	v/c 6				
Riverstone & Jockvale	5	1231					0.05	0.83					0.78	C		
Jockvale & Cambrian	288	106	68	1034			0.91	0.23	0.61	0.92			0.74	C		
Jockvale & Blackleaf (Unsignalized)													0.00	-		
Jockvale & Blackleaf (Signalized)	565						0.45						0.45	A		
Jockvale & Gofflinks													0.00	-		
Jockvale & Prince of Wales	491	725					1.18	1.25					1.22	F		
Jockvale & Prince of Wales (Double-left)	491	725					0.98	0.96					0.97	E		
Cambrian & Kilbirnie													0.00	-		
Cambrian & Greenbank													0.00	-		
Greenbank & Dundonald													0.00	-		
Cambrian & Cedarview													0.00	-		
Cambrian & Realigned Greenbank													0.00	-		
Greenbank & Kilbirnie													0.00	-		
Greenbank & Jockvale													0.00	-		

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	50.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frt		0.850			0.850			0.998			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1517	0	1695	1517	0	1695	1781	0	1695	1774	0
Flt Permitted	0.673			0.754			0.456			0.153		
Satd. Flow (perm)	1201	1517	0	1345	1517	0	814	1781	0	273	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		505			169			2			5	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		152.2			313.0			402.4			1314.1	
Travel Time (s)		11.0			22.5			20.7			67.6	
Volume (vph)	69	0	5	25	0	82	1	1101	16	24	465	19
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	69	0	5	25	0	82	1	1101	16	24	465	19
Lane Group Flow (vph)	69	5	0	25	82	0	1	1117	0	24	484	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	97.0	97.0	0.0	97.0	97.0	0.0
Total Split (%)	19.2%	19.2%	0.0%	19.2%	19.2%	0.0%	80.8%	80.8%	0.0%	80.8%	80.8%	0.0%
Maximum Green (s)	18.0	18.0		18.0	18.0		92.0	92.0		92.0	92.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	13.0	13.0		12.8	12.8		102.1	102.1		102.1	102.1	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.85	0.85		0.85	0.85	
v/c Ratio	0.53	0.01		0.17	0.26		0.00	0.74		0.10	0.32	
Control Delay	64.9	0.0		49.2	2.0		2.0	7.8		3.8	3.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	64.9	0.0		49.2	2.0		2.0	7.8		3.8	3.3	
LOS	E	A		D	A		A	A		A	A	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		60.6			13.0			7.8			3.4	
Approach LOS		E			B			A			A	
90th %ile Green (s)	17.8	17.8		17.8	17.8		92.2	92.2		92.2	92.2	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	14.2	14.2		14.2	14.2		95.8	95.8		95.8	95.8	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	12.0	12.0		12.0	12.0		98.0	98.0		98.0	98.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	9.7	9.7		9.7	9.7		100.3	100.3		100.3	100.3	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		115.0	115.0		115.0	115.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	14.4	0.0		5.0	0.0		0.0	73.1		0.8	19.1	
Queue Length 95th (m)	30.3	0.0		13.7	0.0		m0.0m	175.2		3.7	44.5	
Internal Link Dist (m)		128.2			289.0			378.4			1290.1	
Turn Bay Length (m)	25.0			25.0			50.0			90.0		
Base Capacity (vph)	190	665		213	382		692	1515		232	1509	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.36	0.01		0.12	0.21		0.00	0.74		0.10	0.32	





















Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 9.0  
 Intersection Capacity Utilization 79.6%  
 Analysis Period (min) 60  
 Intersection LOS: A  
 ICU Level of Service D  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: RIVERSTONE DRIVE & JOCKVALE ROAD

↑ ø2 97 s	→ ø4 23 s
↓ ø6 97 s	← ø8 23 s

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 1: CAMBRIAN ROAD & JOCKVALE ROAD AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	75.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frt		0.892			0.904			0.988			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1592	0	1695	1613	0	1695	1763	0	1695	1711	0
Flt Permitted	0.609			0.692			0.312			0.197		
Satd. Flow (perm)	1087	1592	0	1235	1613	0	557	1763	0	352	1711	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			146			8			35	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		308.6			482.0			375.9			402.4	
Travel Time (s)		22.2			34.7			19.3			20.7	
Volume (vph)	467	28	73	68	82	146	31	505	42	51	324	120
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	467	28	73	68	82	146	31	505	42	51	324	120
Lane Group Flow (vph)	467	101	0	68	228	0	31	547	0	51	444	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	34.0	34.0	0.0	34.0	34.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	56.7%	56.7%	0.0%	56.7%	56.7%	0.0%	43.3%	43.3%	0.0%	43.3%	43.3%	0.0%
Maximum Green (s)	29.0	29.0		29.0	29.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	28.0	28.0		28.0	28.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.40	0.40		0.40	0.40	
v/c Ratio	0.92	0.13		0.12	0.27		0.14	0.77		0.36	0.63	
Control Delay	50.0	3.9		8.7	4.4		14.9	26.9		19.7	16.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	50.0	3.9		8.7	4.4		14.9	26.9		19.7	16.5	
LOS	D	A		A	A		B	C		B	B	



STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 1: CAMBRIAN ROAD & JOCKVALE ROAD AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		41.8			5.4			26.2			16.8	
Approach LOS		D			A			C			B	
90th %ile Green (s)	29.0	29.0		29.0	29.0		21.0	21.0		21.0	21.0	
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	29.0	29.0		29.0	29.0		21.0	21.0		21.0	21.0	
70th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	29.0	29.0		29.0	29.0		21.0	21.0		21.0	21.0	
50th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	27.6	27.6		27.6	27.6		22.4	22.4		22.4	22.4	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	20.6	20.6		20.6	20.6		29.4	29.4		29.4	29.4	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	38.2	1.3		3.4	4.0		2.1	48.5		4.2	38.0	
Queue Length 95th (m)#	102.5	8.1		9.4	15.4		7.8 #	114.1		11.3	56.7	
Internal Link Dist (m)		284.6			458.0			351.9			378.4	
Turn Bay Length (m)	25.0			25.0			75.0			65.0		
Base Capacity (vph)	544	833		618	880		222	709		140	705	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.86	0.12		0.11	0.26		0.14	0.77		0.36	0.63	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 24 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 25.2 Intersection LOS: C  
 Intersection Capacity Utilization 88.7% ICU Level of Service E  
 Analysis Period (min) 60  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: CAMBRIAN ROAD & JOCKVALE ROAD

↑ ø2 26 s	→ ø4 34 s
↓ ø6 26 s	← ø8 34 s

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S) AM PEAK HOUR

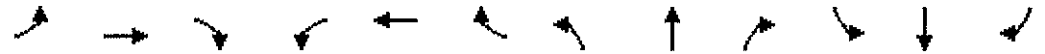


Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↵	↑	↑		↵	↗
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	410	322	39	104	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	410	322	39	104	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	361				860	342
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	361				860	342
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				67	94
cM capacity (veh/h)	1198				312	701

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	410	361	104	43
Volume Left	54	0	0	104	0
Volume Right	0	0	39	0	43
cSH	1198	1700	1700	312	701
Volume to Capacity	0.05	0.24	0.21	0.33	0.06
Queue Length 95th (m)	1.0	0.0	0.0	10.4	1.4
Control Delay (s)	8.1	0.0	0.0	22.3	10.5
Lane LOS	A			C	B
Approach Delay (s)	0.9		0.0	18.8	
Approach LOS				C	

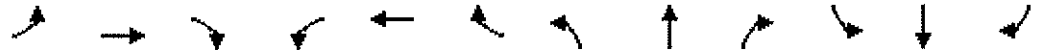
Intersection Summary					
Average Delay			3.3		
Intersection Capacity Utilization			39.8%	ICU Level of Service	A
Analysis Period (min)			60		

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↗	↖	↕		↖	↕	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Frt		0.993				0.850		0.999			0.964	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3387	0	1695	3268	0
Flt Permitted		0.771			0.993		0.530			0.180		
Satd. Flow (perm)	0	1366	0	0	1772	1517	946	3387	0	321	3268	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				488		1			47	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	129	359	26	4	253	488	19	559	4	325	284	89
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	129	359	26	4	253	488	19	559	4	325	284	89
Lane Group Flow (vph)	0	514	0	0	257	488	19	563	0	325	373	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	60.0	31.0	31.0	0.0	29.0	60.0	0.0
Total Split (%)	50.0%	50.0%	0.0%	50.0%	50.0%	50.0%	25.8%	25.8%	0.0%	24.2%	50.0%	0.0%
Maximum Green (s)	52.6	52.6		52.6	52.6	52.6	24.4	24.4		22.4	53.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		47.6			47.6	47.6	31.8	31.8		56.4	56.4	
Actuated g/C Ratio		0.42			0.42	0.42	0.28	0.28		0.50	0.50	
v/c Ratio		0.88			0.34	0.53	0.07	0.59		0.79	0.22	
Control Delay		40.9			22.3	3.7	36.7	40.2		32.3	15.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		40.9			22.3	3.7	36.7	40.2		32.3	15.1	
LOS		D			C	A	D	D		C	B	
Approach Delay		40.9			10.1			40.1			23.1	
Approach LOS		D			B			D			C	
90th %ile Green (s)	52.6	52.6		52.6	52.6	52.6	24.4	24.4		22.4	53.4	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	52.6	52.6		52.6	52.6	52.6	24.4	24.4		22.4	53.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
50th %ile Green (s)	48.6	48.6		48.6	48.6	48.6	26.7	26.7		20.1	53.4	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
30th %ile Green (s)	40.1	40.1		40.1	40.1	40.1	31.2	31.2		15.6	53.4	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
10th %ile Green (s)	29.1	29.1		29.1	29.1	29.1	36.1	36.1		10.7	53.4	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Hold	Hold		Gap	MaxR	
Queue Length 50th (m)		92.3			33.9	0.0	3.1	55.6		42.6	20.0	
Queue Length 95th (m)		#180.1			58.5	30.7	10.5	#93.9		#102.4	35.3	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		639			827	968	268	961		451	1669	
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		0.80			0.31	0.50	0.07	0.59		0.72	0.22	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 112  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 26.8  
 Intersection Capacity Utilization 92.2%  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 120  
 50th %ile Actuated Cycle: 116  
 30th %ile Actuated Cycle: 107.5  
 10th %ile Actuated Cycle: 96.5  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

ø1	ø2	ø4
29 s	31 s	60 s
ø6	ø8	
60 s	60 s	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 2: CAMBRIAN ROAD & GREENBANK ROAD AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	41	133	104	89	12	229	16	255	42	27	14
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	41	133	104	89	12	229	16	255	42	27	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	101			174			446	424	108	682	485	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	101			174			446	424	108	682	485	95
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			50	97	73	83	94	99
cM capacity (veh/h)	1491			1403			463	482	946	244	445	962

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	178	205	500	83
Volume Left	4	104	229	42
Volume Right	133	12	255	14
cSH	1491	1403	627	336
Volume to Capacity	0.00	0.07	0.80	0.25
Queue Length 95th (m)	0.1	1.7	71.3	6.8
Control Delay (s)	0.2	4.2	32.1	19.2
Lane LOS	A	A	D	C
Approach Delay (s)	0.2	4.2	32.1	19.2
Approach LOS			D	C

Intersection Summary			
Average Delay		19.2	
Intersection Capacity Utilization		70.0%	ICU Level of Service
Analysis Period (min)		60	C

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 15: CAMBRIAN ROAD & CEDARVIEW ROAD AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↑		↘	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	6	141	26	9	56	26
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	141	26	9	56	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	168	30			35	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	168	30			35	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	86			96	
cM capacity (veh/h)	793	1044			1576	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	147	35	82
Volume Left	6	0	56
Volume Right	141	9	0
cSH	1030	1700	1576
Volume to Capacity	0.14	0.02	0.04
Queue Length 95th (m)	3.5	0.0	0.8
Control Delay (s)	9.1	0.0	5.1
Lane LOS	A		A
Approach Delay (s)	9.1	0.0	5.1
Approach LOS	A		

Intersection Summary			
Average Delay		6.6	
Intersection Capacity Utilization		27.6%	ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 16: DUNDONALD DRIVE & GREENBANK ROAD AM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P		A	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	32	168	288	9	57	145
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	32	168	288	9	57	145
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	552	292			297	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	552	292			297	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	78			95	
cM capacity (veh/h)	473	747			1264	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	200	297	202
Volume Left	32	0	57
Volume Right	168	9	0
cSH	683	1700	1264
Volume to Capacity	0.29	0.17	0.05
Queue Length 95th (m)	8.6	0.0	1.0
Control Delay (s)	12.4	0.0	2.5
Lane LOS	B		A
Approach Delay (s)	12.4	0.0	2.5
Approach LOS	B		

Intersection Summary			
Average Delay		4.3	
Intersection Capacity Utilization		50.8%	ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD AM PEAK HOUR



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	232	68	19	346	396	69
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	232	68	19	346	396	69
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)	376					
pX, platoon unblocked						
vC, conflicting volume	780	396	465			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	780	396	465			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	35	90	98			
cM capacity (veh/h)	358	653	1096			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	232	68	19	346	396	69
Volume Left	232	0	19	0	0	0
Volume Right	0	68	0	0	0	69
cSH	358	653	1096	1700	1700	1700
Volume to Capacity	0.65	0.10	0.02	0.20	0.23	0.04
Queue Length 95th (m)	35.9	2.4	0.4	0.0	0.0	0.0
Control Delay (s)	33.2	11.2	8.3	0.0	0.0	0.0
Lane LOS	D	B	A			
Approach Delay (s)	28.2		0.4		0.0	
Approach LOS	D					

Intersection Summary						
Average Delay			7.6			
Intersection Capacity Utilization			42.2%	ICU Level of Service	A	
Analysis Period (min)			60			



STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 19: CAMBRIAN ROAD & KILBIRNIE DRIVE AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	6	314	18	46	161	26	34	0	155	99	0	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	314	18	46	161	26	34	0	155	99	0	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)					309							
pX, platoon unblocked												
vC, conflicting volume	187			332			611	614	323	756	610	174
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	187			332			611	614	323	756	610	174
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			91	100	78	60	100	99
cM capacity (veh/h)	1387			1227			388	390	718	246	392	869

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	338	233	189	109
Volume Left	6	46	34	99
Volume Right	18	26	155	10
cSH	1387	1227	623	264
Volume to Capacity	0.00	0.04	0.30	0.41
Queue Length 95th (m)	0.1	0.8	9.1	14.4
Control Delay (s)	0.2	1.9	13.3	28.2
Lane LOS	A	A	B	D
Approach Delay (s)	0.2	1.9	13.3	28.2
Approach LOS			B	D

Intersection Summary			
Average Delay		7.0	
Intersection Capacity Utilization		64.1%	ICU Level of Service C
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 22: KILBIRNIE DRIVE & GREENBANK ROAD AM PEAK HOUR

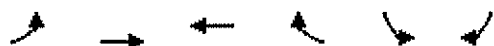


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	80	217	2	26	151
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	80	217	2	26	151
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	421	218			219	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	421	218			219	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	90			98	
cM capacity (veh/h)	578	822			1350	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	87	219	177
Volume Left	7	0	26
Volume Right	80	2	0
cSH	795	1700	1350
Volume to Capacity	0.11	0.13	0.02
Queue Length 95th (m)	2.6	0.0	0.4
Control Delay (s)	10.1	0.0	1.3
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	1.3
Approach LOS	B		

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization		37.7%	ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 40: CAMBRIAN ROAD & REALIGNED GREENBANK ROAD AM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	26	39	144	225	112	3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	39	144	225	112	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	369				348	256
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	369				348	256
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				82	100
cM capacity (veh/h)	1190				635	782

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	65	369	115
Volume Left	26	0	112
Volume Right	0	225	3
cSH	1190	1700	638
Volume to Capacity	0.02	0.22	0.18
Queue Length 95th (m)	0.5	0.0	4.6
Control Delay (s)	3.3	0.0	11.9
Lane LOS	A		B
Approach Delay (s)	3.3	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay		2.9	
Intersection Capacity Utilization	40.0%		ICU Level of Service A
Analysis Period (min)		60	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	50.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Fr <sub>t</sub>		0.850			0.850			0.991			0.991	
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1517	0	1695	1517	0	1695	1768	0	1695	1768	0
Fl <sub>t</sub> Permitted	0.717			0.757			0.063			0.188		
Satd. Flow (perm)	1279	1517	0	1351	1517	0	112	1768	0	335	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		123			209			9			8	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		152.2			313.0			402.4			1314.1	
Travel Time (s)		11.0			22.5			20.7			67.6	
Volume (vph)	39	0	2	25	0	62	5	885	58	155	1159	72
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	39	0	2	25	0	62	5	885	58	155	1159	72
Lane Group Flow (vph)	39	2	0	25	62	0	5	943	0	155	1231	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	67.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	25.6%	25.6%	0.0%	25.6%	25.6%	0.0%	74.4%	74.4%	0.0%	74.4%	74.4%	0.0%
Maximum Green (s)	18.0	18.0		18.0	18.0		62.0	62.0		62.0	62.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	9.1	9.1		9.1	9.1		75.8	75.8		75.8	75.8	
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.84	0.84		0.84	0.84	
v/c Ratio	0.30	0.01		0.18	0.18		0.05	0.63		0.55	0.83	
Control Delay	37.9	0.0		36.6	0.5		2.2	5.3		13.0	12.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.9	0.0		36.6	0.5		2.2	5.3		13.0	12.7	
LOS	D	A		D	A		A	A		B	B	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 8: RIVERSTONE DRIVE & JOCKVALE ROAD PM PEAK HOUR



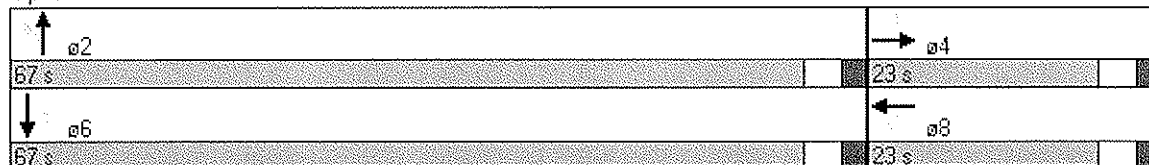
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		36.1			10.9			5.3			12.7	
Approach LOS		D			B			A			B	
90th %ile Green (s)	11.4	11.4		11.4	11.4		68.6	68.6		68.6	68.6	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	9.3	9.3		9.3	9.3		70.7	70.7		70.7	70.7	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	8.0	8.0		8.0	8.0		72.0	72.0		72.0	72.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	6.2	6.2		6.2	6.2		73.8	73.8		73.8	73.8	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		85.0	85.0		85.0	85.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	5.9	0.0		3.7	0.0		0.1	39.3		6.2	86.3	
Queue Length 95th (m)	15.8	0.0		11.4	0.0		m0.1	m85.8		#52.0	#306.4	
Internal Link Dist (m)		128.2			289.0			378.4			1290.1	
Turn Bay Length (m)	25.0			25.0			50.0			90.0		
Base Capacity (vph)	270	417		285	485		94	1491		282	1491	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.00		0.09	0.13		0.05	0.63		0.55	0.83	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 10.2 Intersection LOS: B  
 Intersection Capacity Utilization 91.3% ICU Level of Service F  
 Analysis Period (min) 60

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: RIVERSTONE DRIVE & JOCKVALE ROAD



STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 1: CAMBRIAN ROAD & JOCKVALE ROAD PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	75.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. 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
Frt		0.916			0.874			0.984			0.942	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1634	0	1695	1559	0	1695	1756	0	1695	1681	0
Flt Permitted	0.685			0.707			0.095			0.322		
Satd. Flow (perm)	1222	1634	0	1262	1559	0	170	1756	0	575	1681	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			89			14			71	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		308.6			482.0			375.9			402.4	
Travel Time (s)		22.2			34.7			19.3			20.7	
Volume (vph)	288	34	43	38	17	89	68	571	69	152	634	400
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	288	34	43	38	17	89	68	571	69	152	634	400
Lane Group Flow (vph)	288	77	0	38	106	0	68	640	0	152	1034	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	31.1%	31.1%	0.0%	31.1%	31.1%	0.0%	68.9%	68.9%	0.0%	68.9%	68.9%	0.0%
Maximum Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	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	
Act Effct Green (s)	23.2	23.2		23.2	23.2		58.8	58.8		58.8	58.8	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.65	0.65		0.65	0.65	
v/c Ratio	0.91	0.17		0.12	0.23		0.61	0.56		0.40	0.92	
Control Delay	81.3	14.5		26.2	9.2		40.5	10.8		5.5	19.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.3	14.5		26.2	9.2		40.5	10.8		5.5	19.6	
LOS	F	B		C	A		D	B		A	B	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 1: CAMBRIAN ROAD & JOCKVALE ROAD PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		67.2			13.7			13.6				17.8
Approach LOS		E			B			B				B
90th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
70th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
50th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
30th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	18.9	18.9		18.9	18.9		61.1	61.1		61.1	61.1	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)	44.0	4.1		4.6	2.0		5.8	49.6		6.5	127.2	
Queue Length 95th (m)#	101.1	15.8		13.0	15.7		#33.2	92.3		m5.5	#228.5	
Internal Link Dist (m)		284.6			458.0			351.9			378.4	
Turn Bay Length (m)	25.0			25.0			75.0			65.0		
Base Capacity (vph)	326	467		337	481		111	1153		376	1124	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.88	0.16		0.11	0.22		0.61	0.56		0.40	0.92	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 24 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 23.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 98.5%  
 ICU Level of Service F  
 Analysis Period (min) 60  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: CAMBRIAN ROAD & JOCKVALE ROAD

↑ ø2 62 s	→ ø4 28 s
↓ ø6 62 s	← ø8 28 s

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 3: JOCKVALE ROAD & GOLFLINKS DRIVE (S) PM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations	↵	↑	↶		↵	↶
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	54	457	600	78	34	38
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	54	457	600	78	34	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	678			1204	639	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	678			1204	639	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	94			82	92	
cM capacity (veh/h)	914			191	476	

Direction, Lane #	EB 1	EB 2	WB 1	SW 1	SW 2
Volume Total	54	457	678	34	38
Volume Left	54	0	0	34	0
Volume Right	0	0	78	0	38
cSH	914	1700	1700	191	476
Volume to Capacity	0.06	0.27	0.40	0.18	0.08
Queue Length 95th (m)	1.3	0.0	0.0	4.5	1.8
Control Delay (s)	9.2	0.0	0.0	27.9	13.2
Lane LOS	A			D	B
Approach Delay (s)	1.0		0.0	20.1	
Approach LOS				C	

Intersection Summary					
Average Delay			1.5		
Intersection Capacity Utilization			55.0%	ICU Level of Service	A
Analysis Period (min)			60		

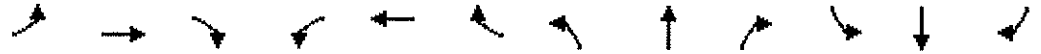


STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↖	↕	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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
Fr't		0.993				0.850					0.975	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3390	0	1695	3305	0
Flt Permitted		0.520			0.993		0.281			0.337		
Satd. Flow (perm)	0	921	0	0	1772	1517	501	3390	0	601	3305	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				325						27
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	123	343	25	7	474	325	34	323	1	725	851	170
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	123	343	25	7	474	325	34	323	1	725	851	170
Lane Group Flow (vph)	0	491	0	0	481	325	34	324	0	725	1021	0
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1		6
Permitted Phases	4			8		8	2			6		
Detector Phases	4	4		8	8	8	2	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	24.6	24.6		10.6	24.6	
Total Split (s)	58.0	58.0	0.0	58.0	58.0	58.0	26.0	26.0	0.0	36.0	62.0	0.0
Total Split (%)	48.3%	48.3%	0.0%	48.3%	48.3%	48.3%	21.7%	21.7%	0.0%	30.0%	51.7%	0.0%
Maximum Green (s)	50.6	50.6		50.6	50.6	50.6	19.4	19.4		29.4	55.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.6	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	2.0	2.0		2.0	2.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	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	Max	Max		None	Max	
Act Effct Green (s)		54.0			54.0	54.0	22.0	22.0		58.0	58.0	
Actuated g/C Ratio		0.45			0.45	0.45	0.18	0.18		0.48	0.48	
v/c Ratio		1.18			0.60	0.38	0.37	0.52		1.25	0.63	
Control Delay		382.2			28.9	3.5	56.4	47.7		482.9	24.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		382.2			28.9	3.5	56.4	47.7		482.9	24.6	
LOS		F			C	A	E	D		F	C	
Approach Delay		382.2			18.7			48.6			214.9	
Approach LOS		F			B			D			F	
90th %ile Green (s)	50.6	50.6		50.6	50.6	50.6	19.4	19.4		29.4	55.4	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
70th %ile Green (s)	50.6	50.6		50.6	50.6	50.6	19.4	19.4		29.4	55.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
50th %ile Green (s)	50.6	50.6		50.6	50.6	50.6	19.4	19.4		29.4	55.4	
50th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
30th %ile Green (s)	50.6	50.6		50.6	50.6	50.6	19.4	19.4		29.4	55.4	
30th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
10th %ile Green (s)	50.6	50.6		50.6	50.6	50.6	19.4	19.4		29.4	55.4	
10th %ile Term Code	Max	Max		Hold	Hold	Hold	MaxR	MaxR		Max	MaxR	
Queue Length 50th (m)		~127.9			77.0	0.0	6.5	33.7		~166.5	82.1	
Queue Length 95th (m)		#219.7			128.5	22.3	18.8	53.4		#278.1	121.4	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		416			797	861	92	622		582	1611	
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		1.18			0.60	0.38	0.37	0.52		1.25	0.63	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 120  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.25  
 Intersection Signal Delay: 175.1  
 Intersection Capacity Utilization 119.8%  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 120  
 50th %ile Actuated Cycle: 120  
 30th %ile Actuated Cycle: 120  
 10th %ile Actuated Cycle: 120  
 ~ 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.

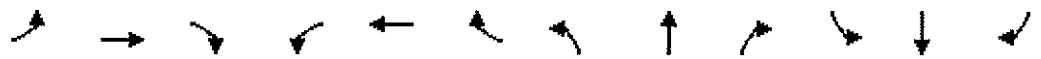
Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE

01	02	04
36 s	26 s	58 s
06	08	
62 s	58 s	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGR. + SITE GEN. TRAFFIC - trial  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↖	↕	↗
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		90.0	100.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	1		0	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2	15.2	15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.97	0.95	0.95
Frt		0.993				0.850					0.975	
Flt Protected		0.988			0.999		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1783	1517	1695	3390	0	3288	3305	0
Flt Permitted		0.574			0.993		0.950			0.950		
Satd. Flow (perm)	0	1017	0	0	1772	1517	1695	3390	0	3288	3305	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				325					22	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		843.6			306.3			329.6			362.7	
Travel Time (s)		43.4			15.8			19.8			21.8	
Volume (vph)	123	343	25	7	474	325	34	323	1	725	851	170
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	123	343	25	7	474	325	34	323	1	725	851	170
Lane Group Flow (vph)	0	491	0	0	481	325	34	324	0	725	1021	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Detector Phases	4	4		8	8	8	5	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	25.4	25.4		25.4	25.4	25.4	8.0	24.6		10.6	24.6	
Total Split (s)	63.0	63.0	0.0	63.0	63.0	63.0	8.0	25.5	0.0	31.5	49.0	0.0
Total Split (%)	52.5%	52.5%	0.0%	52.5%	52.5%	52.5%	6.7%	21.3%	0.0%	26.3%	40.8%	0.0%
Maximum Green (s)	55.6	55.6		55.6	55.6	55.6	4.0	18.9		24.9	42.4	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.5	4.6		4.6	4.6	
All-Red Time (s)	3.2	3.2		3.2	3.2	3.2	0.5	2.0		2.0	2.0	
Lead/Lag							Lead	Lag		Lead	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	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Act Effct Green (s)		59.0			59.0	59.0	4.0	21.5		27.5	46.6	
Actuated g/C Ratio		0.49			0.49	0.49	0.03	0.18		0.23	0.39	
v/c Ratio		0.98			0.55	0.36	0.61	0.53		0.96	0.79	
Control Delay		93.0			24.3	3.0	103.9	48.4		84.5	37.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		93.0			24.3	3.0	103.9	48.4		84.5	37.6	
LOS		F			C	A	F	D		F	D	
Approach Delay		93.0			15.7			53.7			57.0	
Approach LOS		F			B			D			E	
90th %ile Green (s)	55.6	55.6		55.6	55.6	55.6	4.0	18.9		24.9	42.4	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGR. + SITE GEN. TRAFFIC - trial  
 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE PM PEAK HOUR

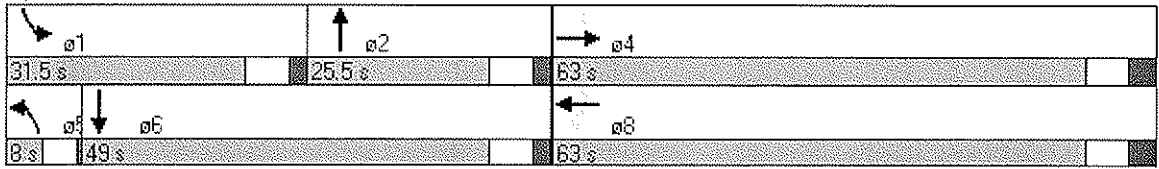


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Term Code	Max	Max		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
70th %ile Green (s)	55.6	55.6		55.6	55.6	55.6	4.0	18.9		24.9	42.4	
70th %ile Term Code	Max	Max		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
50th %ile Green (s)	55.6	55.6		55.6	55.6	55.6	4.0	18.9		24.9	42.4	
50th %ile Term Code	Max	Max		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
30th %ile Green (s)	55.6	55.6		55.6	55.6	55.6	4.0	18.9		24.9	42.4	
30th %ile Term Code	Max	Max		Hold	Hold	Hold	Max	MaxR		Max	MaxR	
10th %ile Green (s)	55.6	55.6		55.6	55.6	55.6	0.0	18.9		24.9	50.4	
10th %ile Term Code	Max	Max		Hold	Hold	Hold	Skip	MaxR		Max	Hold	
Queue Length 50th (m)		100.8			70.7	0.0	7.4	33.9		80.6	101.8	
Queue Length 95th (m)		#199.8			117.7	19.9	#26.5	53.6		#137.5	#160.6	
Internal Link Dist (m)		819.6			282.3			305.6			338.7	
Turn Bay Length (m)						90.0	100.0					
Base Capacity (vph)		502			871	911	56	607		754	1297	
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		0.98			0.55	0.36	0.61	0.53		0.96	0.79	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 110  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 52.1  
 Intersection Capacity Utilization 101.8%  
 Analysis Period (min) 60  
 90th %ile Actuated Cycle: 120  
 70th %ile Actuated Cycle: 120  
 50th %ile Actuated Cycle: 120  
 30th %ile Actuated Cycle: 120  
 10th %ile Actuated Cycle: 120  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: JOCKVALE ROAD & PRINCE OF WALES DRIVE



STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 2: CAMBRIAN ROAD & GREENBANK ROAD PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	14	78	395	131	54	43	160	18	139	25	12	8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	78	395	131	54	43	160	18	139	25	12	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	97			473			655	662	276	789	838	76
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	97			473			655	662	276	789	838	76
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			88			51	95	82	89	95	99
cM capacity (veh/h)	1496			1089			328	333	763	218	263	986

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	487	228	317	45
Volume Left	14	131	160	25
Volume Right	395	43	139	8
cSH	1496	1089	438	267
Volume to Capacity	0.01	0.12	0.72	0.17
Queue Length 95th (m)	0.2	2.9	49.4	4.2
Control Delay (s)	0.3	5.5	34.0	21.2
Lane LOS	A	A	D	C
Approach Delay (s)	0.3	5.5	34.0	21.2
Approach LOS			D	C

Intersection Summary			
Average Delay		12.2	
Intersection Capacity Utilization		77.2%	ICU Level of Service
Analysis Period (min)		60	D

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 15: CAMBRIAN ROAD & CEDARVIEW ROAD PM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙ ↘		↑			↙ ↘
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	72	11	14	120	27
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	72	11	14	120	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	285	18			25	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	285	18			25	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	93			92	
cM capacity (veh/h)	652	1061			1589	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	79	25	147
Volume Left	7	0	120
Volume Right	72	14	0
cSH	1005	1700	1589
Volume to Capacity	0.08	0.01	0.08
Queue Length 95th (m)	1.8	0.0	1.7
Control Delay (s)	8.9	0.0	6.2
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	6.2
Approach LOS	A		

Intersection Summary			
Average Delay		6.4	
Intersection Capacity Utilization		27.0%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 16: DUNDONALD DRIVE & GREENBANK ROAD PM PEAK HOUR



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	26	95	209	35	175	353
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	95	209	35	175	353
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	930	226			244	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	930	226			244	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	88			87	
cM capacity (veh/h)	258	813			1322	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	121	244	528
Volume Left	26	0	175
Volume Right	95	35	0
cSH	556	1700	1322
Volume to Capacity	0.22	0.14	0.13
Queue Length 95th (m)	5.8	0.0	3.2
Control Delay (s)	13.3	0.0	3.6
Lane LOS	B		A
Approach Delay (s)	13.3	0.0	3.6
Approach LOS	B		

Intersection Summary

Average Delay	3.9	
Intersection Capacity Utilization	61.4%	ICU Level of Service
Analysis Period (min)	60	B

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD PM PEAK HOUR



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑	↑	↗
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	143	40	73	565	471	244
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	143	40	73	565	471	244
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)	376					
pX, platoon unblocked						
vC, conflicting volume	1182	471	715			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1182	471	715			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	26	93	92			
cM capacity (veh/h)	192	593	885			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	143	40	73	565	471	244
Volume Left	143	0	73	0	0	0
Volume Right	0	40	0	0	0	244
cSH	192	593	885	1700	1700	1700
Volume to Capacity	0.74	0.07	0.08	0.33	0.28	0.14
Queue Length 95th (m)	47.7	1.5	1.9	0.0	0.0	0.0
Control Delay (s)	72.7	11.5	9.4	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	59.3		1.1		0.0	
Approach LOS	F					

Intersection Summary						
Average Delay			7.5			
Intersection Capacity Utilization			48.8%	ICU Level of Service	A	
Analysis Period (min)			60			



STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGR. + SITE GEN. TRAFFIC - trial  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD PM PEAK HOUR



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↷
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0	0.0	30.0			30.0
Storage Lanes	1	1	1			1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2	15.2	15.2	15.2	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Turning Speed (k/h)	24	14	24			14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frnt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1695	1517	1695	1784	1784	1517
Flt Permitted	0.950		0.378			
Satd. Flow (perm)	1695	1517	674	1784	1784	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		40				244
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)	50			70	70	
Link Distance (m)	262.6			132.0	375.9	
Travel Time (s)	18.9			6.8	19.3	
Volume (vph)	143	40	73	565	471	244
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	143	40	73	565	471	244
Lane Group Flow (vph)	143	40	73	565	471	244
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	2	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.7	22.7	23.3	23.3	23.3	23.3
Total Split (s)	22.7	22.7	27.3	27.3	27.3	27.3
Total Split (%)	45.4%	45.4%	54.6%	54.6%	54.6%	54.6%
Maximum Green (s)	18.0	18.0	22.0	22.0	22.0	22.0
Yellow Time (s)	3.6	3.6	4.5	4.5	4.5	4.5
All-Red Time (s)	1.1	1.1	0.8	0.8	0.8	0.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	7.7	7.7	9.4	9.4	9.4	9.4
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	9.8	9.8	35.1	35.1	35.1	35.1
Actuated g/C Ratio	0.20	0.20	0.70	0.70	0.70	0.70
v/c Ratio	0.43	0.12	0.15	0.45	0.38	0.21
Control Delay	17.8	6.4	5.5	6.6	5.8	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	6.4	5.5	6.6	5.8	1.4
LOS	B	A	A	A	A	A

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGR. + SITE GEN. TRAFFIC - trial  
 17: BLACKLEAF DRIVE & JOCKVALE ROAD PM PEAK HOUR



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	15.3			6.4	4.3	
Approach LOS	B			A	A	
90th %ile Green (s)	12.6	12.6	27.4	27.4	27.4	27.4
90th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	10.5	10.5	29.5	29.5	29.5	29.5
70th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	9.1	9.1	30.9	30.9	30.9	30.9
50th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	7.7	7.7	32.3	32.3	32.3	32.3
30th %ile Term Code	Gap	Gap	Coord	Coord	Coord	Coord
10th %ile Green (s)	0.0	0.0	44.7	44.7	44.7	44.7
10th %ile Term Code	Skip	Skip	Coord	Coord	Coord	Coord
Queue Length 50th (m)	10.4	0.0	1.9	19.1	14.7	0.0
Queue Length 95th (m)	22.7	5.6	8.0	53.8	40.9	7.6
Internal Link Dist (m)	238.6			108.0	351.9	
Turn Bay Length (m)	30.0		30.0			30.0
Base Capacity (vph)	634	592	473	1251	1251	1137
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	0.23	0.07	0.15	0.45	0.38	0.21

Intersection Summary

Area Type: Other  
 Cycle Length: 50  
 Actuated Cycle Length: 50  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.45  
 Intersection Signal Delay: 6.5  
 Intersection Capacity Utilization 48.8%  
 Analysis Period (min) 60  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 17: BLACKLEAF DRIVE & JOCKVALE ROAD

 27.3 s	 22.7 s
 27.3 s	

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 19: CAMBRIAN ROAD & KILBIRNIE DRIVE PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	219	18	168	214	103	10	0	89	57	0	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	219	18	168	214	103	10	0	89	57	0	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)					309							
pX, platoon unblocked												
vC, conflicting volume	317			237			844	891	228	928	848	266
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	317			237			844	891	228	928	848	266
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			96	100	89	71	100	99
cM capacity (veh/h)	1243			1330			254	245	811	199	259	773

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	242	485	99	61
Volume Left	5	168	10	57
Volume Right	18	103	89	4
cSH	1243	1330	664	209
Volume to Capacity	0.00	0.13	0.15	0.29
Queue Length 95th (m)	0.1	3.0	3.7	8.5
Control Delay (s)	0.2	3.6	11.4	29.3
Lane LOS	A	A	B	D
Approach Delay (s)	0.2	3.6	11.4	29.3
Approach LOS			B	D

Intersection Summary			
Average Delay		5.3	
Intersection Capacity Utilization		62.2%	ICU Level of Service
Analysis Period (min)		60	B

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 22: KILBIRNIE DRIVE & GREENBANK ROAD PM PEAK HOUR

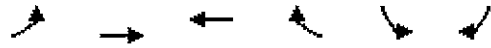


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P		4	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	4	40	204	8	75	304
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	40	204	8	75	304
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	662	208			212	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	662	208			212	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	95			94	
cM capacity (veh/h)	403	832			1358	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	212	379
Volume Left	4	0	75
Volume Right	40	8	0
cSH	759	1700	1358
Volume to Capacity	0.06	0.12	0.06
Queue Length 95th (m)	1.3	0.0	1.2
Control Delay (s)	10.0	0.0	2.0
Lane LOS	B		A
Approach Delay (s)	10.0	0.0	2.0
Approach LOS	B		

Intersection Summary			
Average Delay		1.9	
Intersection Capacity Utilization		46.4%	ICU Level of Service
Analysis Period (min)		60	A

STONEBRIDGE: PHASES 10-12 FUTURE (2018) BACKGROUND + SITE GEN. TRAFFIC  
 40: CAMBRIAN ROAD & REALIGNED GREENBANK ROAD PM PEAK HOUR



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	3	131	65	144	389	14
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	131	65	144	389	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	209				274	137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209				274	137
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				46	98
cM capacity (veh/h)	1362				714	911

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	134	209	403
Volume Left	3	0	389
Volume Right	0	144	14
cSH	1362	1700	719
Volume to Capacity	0.00	0.12	0.56
Queue Length 95th (m)	0.0	0.0	26.1
Control Delay (s)	0.2	0.0	16.3
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	16.3
Approach LOS			C

Intersection Summary			
Average Delay		8.9	
Intersection Capacity Utilization	43.3%		ICU Level of Service
Analysis Period (min)		60	A