

Harvey Road Gladstone – Residential Subdivision
Figure 6.2

Pedestrian and Cycle Network Facilities



7.0 CONCLUSIONS

Cardno Eppell Olsen has been commissioned by the Urban Land Development Authority (ULDA) to undertake a Traffic Impact Assessment of a proposed residential subdivision located on Harvey Road, Gladstone in the suburb of Clinton.

The areas in the vicinity of Kirkwood Road have been earmarked for residential development to cater for growth in the regional population. In order to ascertain the impact of the subject development on the surrounding road network, these external developments have been included in background traffic volumes.

The development proposes the provision of 254 residential lots containing a mixture of low and medium density dwellings and is expected to generate 223 AM and PM peak hour vehicle trips whereas the surrounding developments in the vicinity of Kirkwood Road encompass approximately 2,789 lots and are expected to generate 2,789 AM and PM peak hour vehicle trips. The estimates are conservatively high.

It is proposed to provide access to the site via two access intersections onto Harvey Road.

The following intersections have been analysed both with and without the development proposal to quantify the relative change in intersection performance:

- Dawson Highway/Kirkwood Road;
- Dawson Highway/Harvey Road/Chapman Drive.

Due to high background volumes generated by surrounding development combined with the high levels of growth in the region, the aforementioned intersections operate beyond practical capacity during the AM peak under the 2021 Background With Development scenario (irrespective of the subject development).

It is noted that capacity issues at both intersections occur irrespective of proposed development.

Possible improvements identified (required irrespective of the development) to eliminate capacity constraints include:

Dawson Highway/Kirkwood Road intersection:

- signalisation of the intersection;
- provision of a 70m short left turn lane on the Kirkwood Road approach and reconfigure the existing shared left and right turn lane to a dedicated left turn lane.

Dawson Highway/Harvey Road/Chapman Drive intersection:

- signalisation of the intersection;
- on the southern approach, extend and reconfigure existing shared right and through lane to a 320m right turn short lane, reconfigure the existing shared through and left turn lane to a dedicated right turn lane and provide a shared 120m left and through short lane;
- on the eastern approach, provide two 75 m dual right turn lanes and a 200m shared left turn and through auxiliary lane (with a left turn slip), reconfigure the existing shared left turn and through lane and shared right turn and through lane to through lanes;
- on the western approach, provide an additional through lane and a 200m shared left turn and through lane, reconfigure the existing shared 100m right and through short lane to a 100m right turn lane;
- extend the existing downstream short lane to 150m and provide an additional downstream lane on the western Dawson Highway leg;
- provide a 200m downstream short lane on eastern Dawson Highway leg.
- reconfigure the existing shared left turn and through lane to a left turn lane on the northern approach.

The intersection analysis has indicated that significant upgrading is required at the aforementioned intersections. The upgrading is required irrespective of the subject development and the relative impact of the subject development does vary.

With the extensive residential development occurring along Kirkwood Road to the south of the proposed development, it is likely that the traffic characteristics and role of Harvey Road will change over time. This extensive residential development will result in an increase in vehicle volumes along Harvey Road from 9,300vpd at 2011 to 21,400vpd at 2021 with the greater portion of traffic being through trips rather than trips related by land uses along Harvey Road.

It is noted that 2021 background traffic volumes along Harvey Road imply that Harvey Road should be upgraded to a four lane road to accommodate high background volumes irrespective of the proposed development.

The proposed priority controlled northern access is located towards the north-east corner of the development site with all turning movement allowed from the access. The northern access would function as the primary access to the development as a result of the internal road network providing a more direct route to a larger number of lots from the northern access. The access form includes a 20m right turn pocket on Harvey Road to accommodate right turn movements into the site.

Intersection analysis has indicated that the proposed priority controlled access will operate within the desirable DOS for both AM and PM peak 2011 Background With Development volume scenarios. However, the access will exceed practical capacity during both the 2021 AM and PM peak scenarios due to high background traffic volumes along Harvey Road.

To address capacity constraints the northern access will need to be signalised to accommodate 2021 peak through movement volumes along Harvey Road and Harvey Road upgraded to a four lane road.

The proposed priority controlled southern access is located towards the south-east corner of the development site and is approximately 160m south of the northern access. The access form includes a 20m right turn pocket on Harvey Road to accommodate right turn movements into the site without causing delays to southbound through movements on Harvey Road. To maintain acceptable operating characteristics at the Southern Access intersection the right turn movement from the site onto Harvey Road has been banned.

Intersection analysis showed that the proposed priority controlled southern access intersection will operate within the desirable DOS at 2021 if Harvey Road is upgraded to a four lane road. It is noted that the upgrading of Harvey Road is required irrespective of development traffic.

The proposed access and parking arrangements are appropriate and are compatible with the likely future function of Harvey Road.

The proposed development layout shows the provision of a 16m road reserve throughout the majority of the development road network which is consistent with that required under the Gladstone Regional Council Planning Scheme.

A number of streets within the development layout exceed a 100m leg length and as such traffic calming devices will need to be incorporated at appropriate locations.

Swept path analysis shows that a refuse collection vehicle will generally be able to manoeuvre within the site without mounting kerbs. However, swept path analysis showed that refuse vehicles will mount kerbs in some locations and as such the layout will need to be modified. It is noted that alterations to the layout are minor with only minor adjustment required.

The development site is serviced by a bus route that travels along Harvey Road with existing bus stops on Harvey Road and Keppel Avenue.

The development layout shows pedestrian footpaths (1.5m wide) and/or shared pedestrian/cycle paths (2m wide) within the development on at least one side of the road reserve where verges exist. The proposed pedestrian and cycle network exceed the Gladstone Regional Council Planning Scheme requirement of 1.2m pedestrian paths.

The development site is located adjacent to the Clinton Primary School which is a major cycling destination node. Provision for inexperienced cyclists (such as scholars) needs to be accommodated on an off-road shared path facility or bikeways. In addition, vehicle volumes along Harvey Road will increase significantly in future years (9,300vpd at 2010 to 21,400vpd at 2021) as the surrounding residential developments to the south of the site are implemented.

Based on the Gladstone Regional Council Planning Scheme, bikeways are mostly provided in the vicinity of primary schools for school children and for recreational cycling and are to be a minimum of 2.0m wide.

Appendix A
Development Plans

ALLOTMENTS				
Code	Dwelling Description	Minimum Dimension	Allotment Number	Allotment %
T1	Traditional - 60m ²	20m x 32m	16	6.30%
T41	Traditional Hillside - 60m ²	20m x 32m	23	9.05%
T2	Traditional - 50m ²	20m x 25m	14	5.51%
P1	Premium Courtyard - 48m ²	15m x 32m	35	13.75%
P2	Premium Courtyard - 37m ²	15m x 26m	24	9.45%
L1	LaneWAY Courtyard - 40m ²	12.5m x 32m	5	1.97%
C1	Courtyard - 40m ²	12.5m x 32m	18	7.00%
C2	Courtyard - 31m ²	12.5m x 25m	23	9.05%
L2	LaneWAY Villa - 32m ²	10m x 32m	9	3.54%
L4	LaneWAY Villa - 28m ²	10m x 28m	5	1.97%
V1	Villa - 32m ²	10m x 32m	23	9.05%
V2	Villa - 25m ²	10m x 26m	26	10.24%
T32	Terrace - 24m ²	7.5m x 32m	7	2.75%
T38	Terrace - 21m ²	7.5m x 28m	5	1.97%
L3	LaneWAY Duplex - 48m ²	15m x 32m	3	1.18%
L5	LaneWAY Duplex - 42m ²	15m x 28m	1	0.39%
D	Duplex 450-599m ²	18m x 32m	4	1.57%
T	Triplex 600-749m ²	24m x 32m	9	3.54%
Q	Quadruplex 750m ²	24m x 32m	4	1.57%
Total			254	100.00%
			297	100.00%

- Legend**
- Stage Boundary
 - Stage Affected Lots
 - LaneWAYS
 - Indicative 1.5m Footpath
 - Park / Open Space
 - Proposed Park / Open Space
 - Proposed Detention / Open Space
 - Proposed Linkage / Road Reserve



REVISION

Note:
All dimensions and areas are approximate only, and are subject to survey and Council approval.
Dimensions have been rounded to the nearest 0.1 metres.
The boundaries shown on this plan should not be used for final detailed engineering design.
Boundaries and contour details supplied by Capricorn survey group.
Trees supplied by supplied by Capricorn survey group.

CLIENT
URBAN LAND
DEVELOPMENT AUTHORITY
PROJECT
HARVEY ROAD
GLADSTONE

PROPOSED ALLOTMENT
LAYOUT OVER
LOT 193 ON CTN 1967

Date: 07 JULY 2010
Drawn By: WMM
Drawn Scale: 1:2000
Issue & Name: URBAN LAND
DEVELOPMENT AUTHORITY
Location: CLINTON
Scale: 1:1000
Sheet: A1
Plan Ref: 102367 - 24



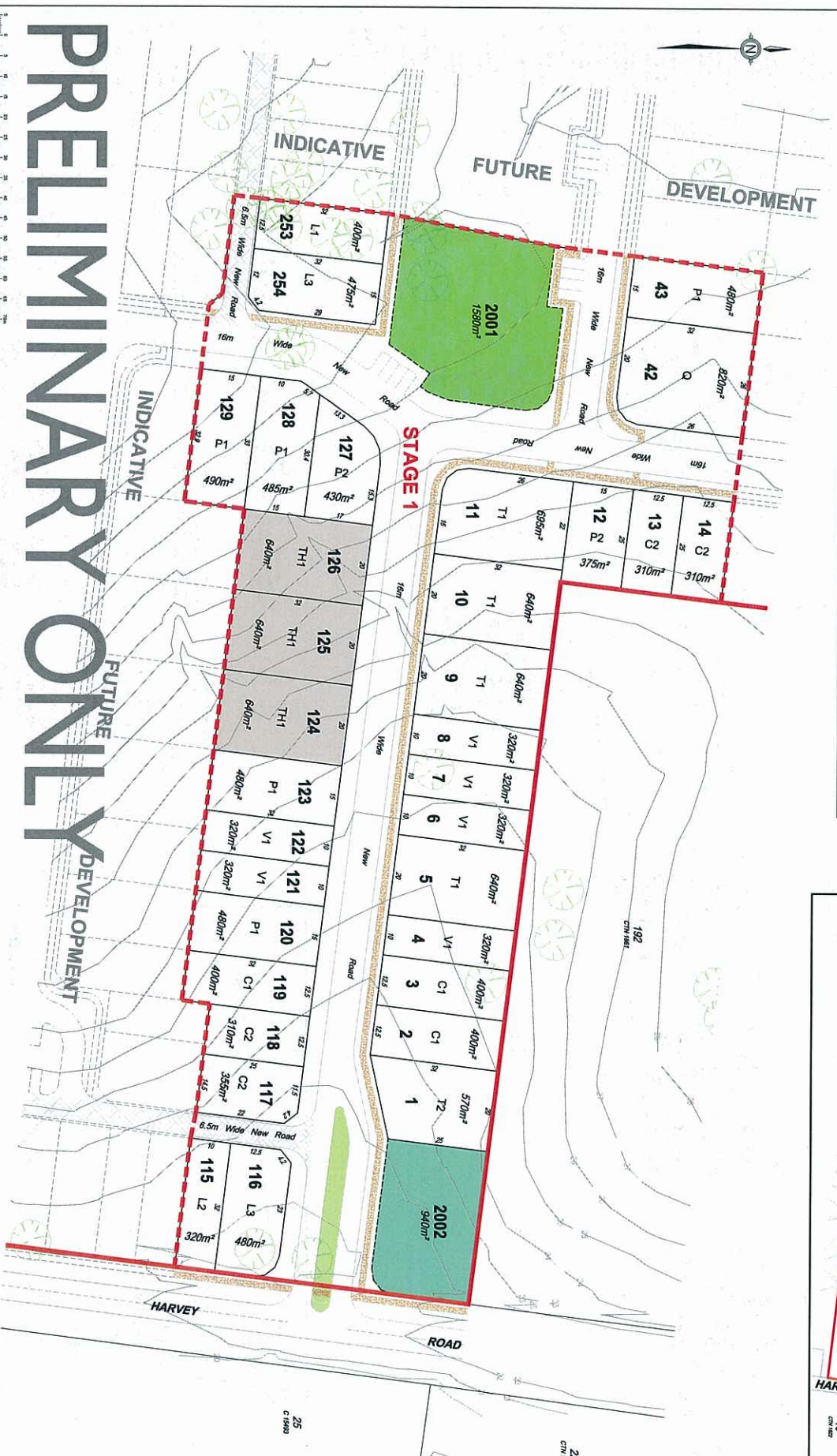
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LAND BUDGET		
Area (ha)	Percentage	
Area of Stage 1	2.459	100%
Open Space Area	0.158	6%
Park / Active Open Space	0.054	4%
Detached / Open Space	0.252	10%
Total Area of Open Space	1.525	61%
Total Area of Saleable Land	0.722	29%

DEVELOPMENT STATISTICS						
Code	Dwelling Description	Minimum Dimension	Allotment Number	Allotment %	Dwelling Per Allotment	Dwelling Yield
T1	Traditional - 60m ²	20m x 32m	4	12.12%	1	4
TH1	Traditional House - 60m ²	20m x 32m	3	9.09%	1	3
T2	Traditional - 50m ²	20m x 25m	1	3.03%	1	1
P1	Premium Cottage - 48m ²	15m x 32m	5	16.15%	1	5
P2	Premium Cottage - 37m ²	15m x 25m	2	8.06%	1	2
L1	Laneway Cottage - 40m ²	12.5m x 32m	1	3.03%	2	2
C1	Courtyard - 40m ²	12.5m x 32m	3	9.09%	1	3
C2	Courtyard - 31m ²	12.5m x 25m	4	12.12%	1	4
L2	Laneway Villa - 32m ²	10m x 32m	1	3.03%	1	1
V1	Villa - 32m ²	10m x 32m	6	18.18%	1	6
L3	Laneway Duplex - 48m ²	15m x 32m	2	8.06%	2	4
Q	Quadrant 75m ²	24m x 32m	1	3.03%	4	4
Total			33	100.00%		39

Density Calculation	
Net Residential Density	16 dw/ha



PRELIMINARY ONLY

REVISION

All dimensions and areas are subject to survey and Council approval.

The boundaries shown on this plan are indicative only and for final detailed engineering design.

Boundaries and corner details supplied by independent survey group. Trees supplied by supplied by independent survey group.

Legend

- Stop Boundary
- Stop Affected Lot
- Laneways
- Indicative 1.5m Footpath
- Park / Open Space
- Proposed Park / Open Space
- Proposed Detached / Open Space
- Proposed Laneways / Road Reserve

CLIENT: URBAN LAND DEVELOPMENT AUTHORITY

PROJECT: HARVEY ROAD GLADSTONE

PROPOSED LAYOUT: STAGE 1 OVER LOT 183 ON CTN/1861 ALLOTMENT LAYOUT

Date: 08 JULY 2010

Drawn by: WNV

Check by: 102361/STAGE 1

Land Use: URBAN LAND DEVELOPMENT AUTHORITY

Lot: 102361

Scale: 1:500

Plan Ref: 102361 - 25



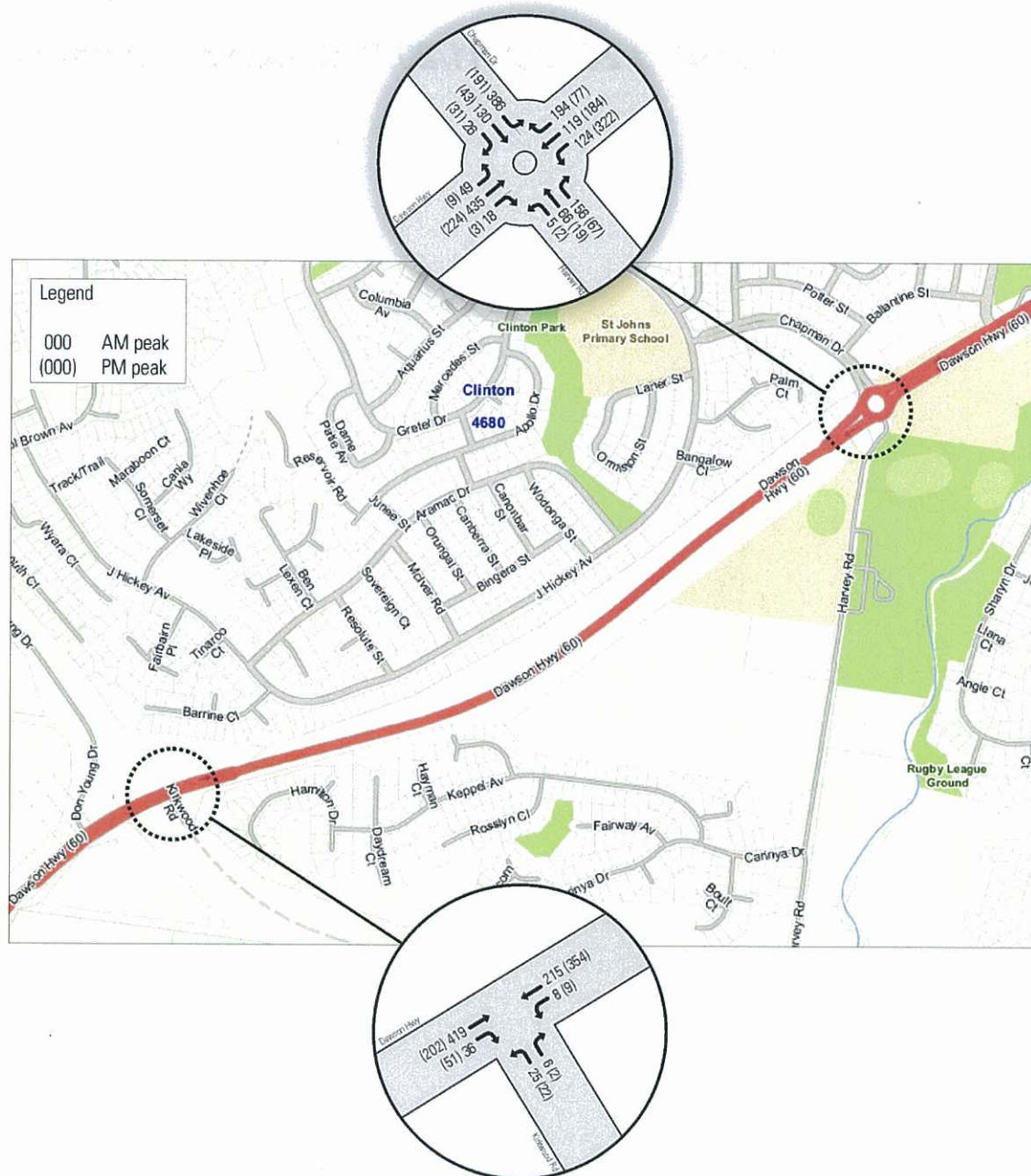
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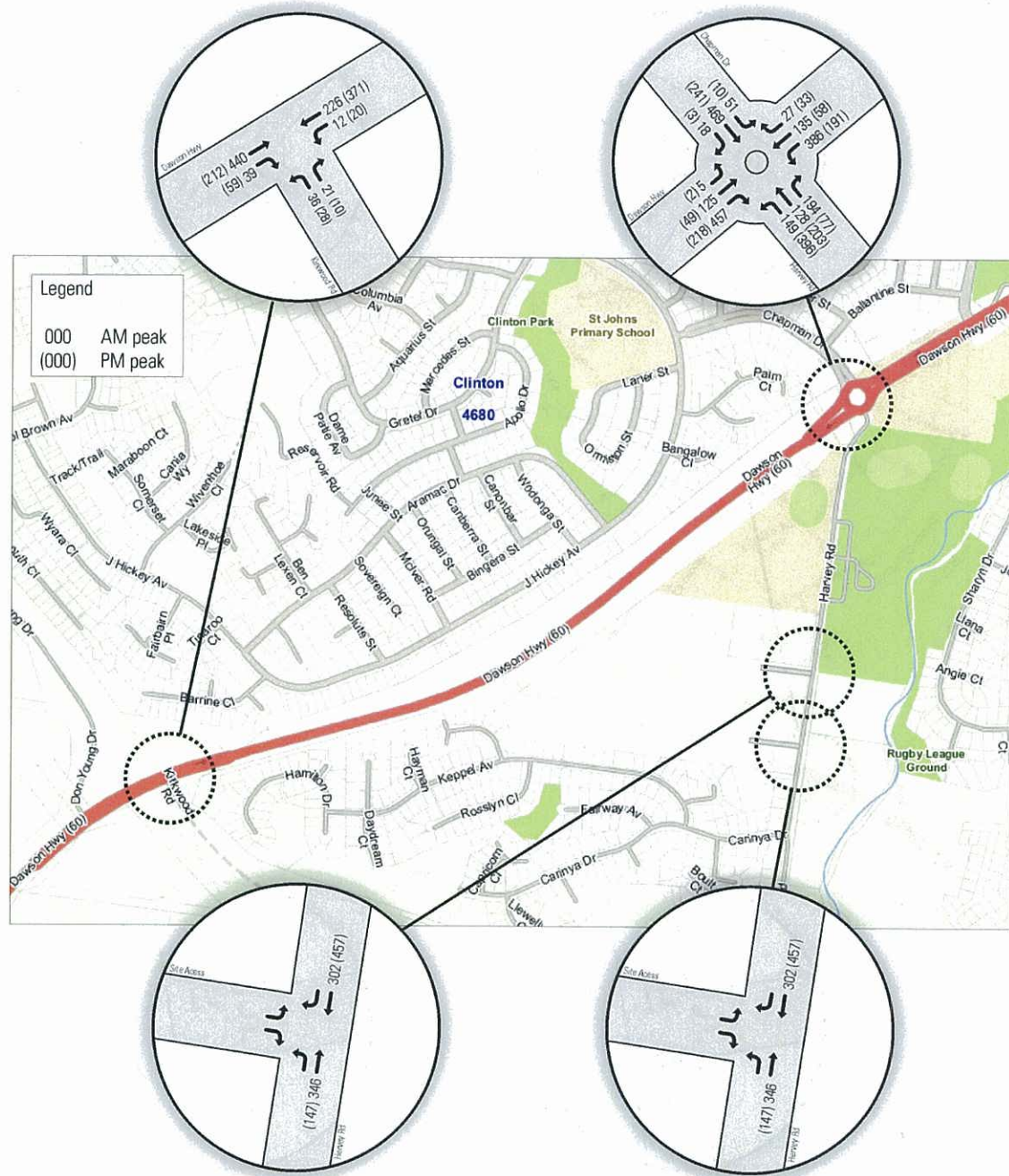
Site Plan 102361 - 25

Appendix B

Adopted 2010/2011/2021 Background Volumes

2010 Background Volumes





Legend

000 AM peak
(000) PM peak

Clinton
4680

Intersection Callouts:

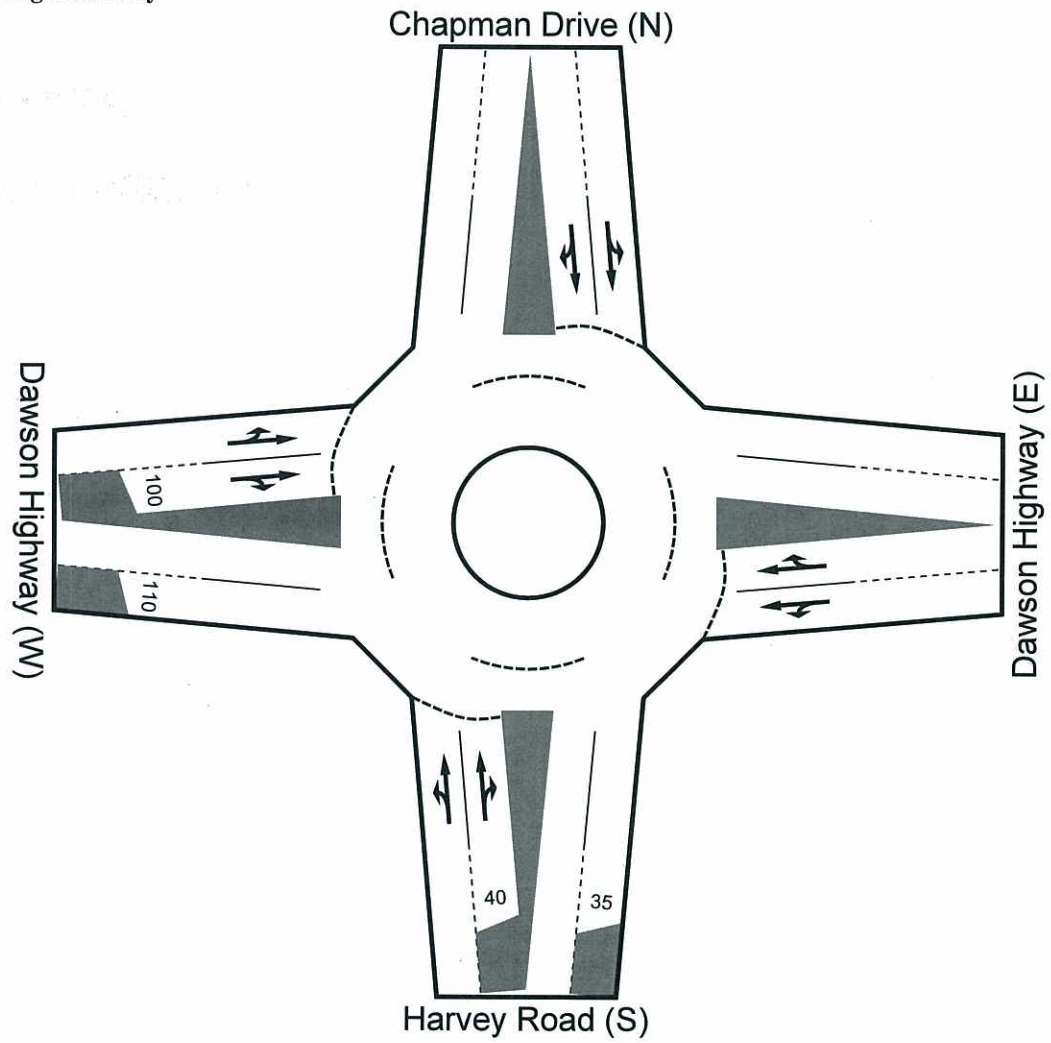
- Top Left (Dawson Hwy / [unlabeled]):**
 - Northbound: 328 (439)
 - Southbound: 46 (122)
 - Westbound: 307 (638)
 - Eastbound: 136 (84)
- Top Right (Dawson Hwy / [unlabeled]):**
 - Northbound: 191 (366)
 - Southbound: 184 (77)
 - Westbound: 198 (182)
 - Eastbound: 213 (378)
 - Central: 368 (1038)
- Bottom Left (Dawson Hwy / [unlabeled]):**
 - Northbound: 569 (1259)
 - Southbound: 682 (1414)
- Bottom Right (Dawson Hwy / [unlabeled]):**
 - Northbound: 569 (1259)
 - Southbound: 682 (1414)

Appendix C

aaSIDRA Results

Dawson Highway/Harvey Road/Chapman Drive

Existing Geometry



Chapman Drive/Dawson Highway/Harvey Road
 2010 BG AM Volumes - Existing Roundabout Layout
 Intersection ID: 0
 Roundabout

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Harvey Road (S)											
1 LT	5	66		71	3			0.069	3.8	3	500
2 R			156	156	3			0.123	12.0	5	40
	5	66	156	227	3			0.123	9.5	5	
East: Dawson Highway (E)											
1 LT	124	62		186	3			0.152	4.4	7	500U
2 TR		62	194	256	6			0.178	9.7	8	500
	124	124	194	442	5			0.178	7.5	8	
North: Chapman Drive (N)											
1 L	386			386	2			0.320	5.9	15	500
2 TR		130	26	156	2			0.177	6.1	7	500
	386	130	26	542	2			0.320	6.0	15	
West: Dawson Highway (W)											
1 LT	49	249		298	5			0.227	4.0	10	500
2 TR		206	18	224	13			0.227	5.1	10	100
	49	455	18	522	8			0.227	4.5	10	
ALL VEHICLES											
				Total Flow	% HV			Max X	Aver. Delay	Max Queue	
				1733	5			0.320	6.4	15	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

U Lane under-utilisation specified by the "User"

Chapman Drive/Dawson Highway/Harvey Road
 2010 BG PM Volumes - Existing Roundabout Layout
 Intersection ID: 0
 Roundabout

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Harvey Road (S)											
1 LT	2	19		21	0			0.021	3.8	1	500
2 R			67	67	0			0.053	11.9	2	40
	2	19	67	88	0			0.053	10.0	2	
East: Dawson Highway (E)											
1 L	322			322	0			0.200	4.5	9	500
2 TR		193	77	270	3			0.193	5.2	8	500
	322	193	77	592	2			0.200	4.8	9	
North: Chapman Drive (N)											
1 L	191			191	1			0.137	5.0	5	500
2 TR		43	31	74	3			0.071	7.2	3	500
	191	43	31	265	2			0.137	5.6	5	
West: Dawson Highway (W)											
1 LT	9	124		133	6			0.090	3.0	4	500
2 TR		110	3	113	8			0.090	3.3	4	100
	9	234	3	246	7			0.090	3.1	4	
ALL VEHICLES											
				Total Flow	% HV			Max X	Aver. Delay	Max Queue	
				1191	3			0.200	5.0	9	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Chapman Drive/Dawson Highway/Harvey Road
 2011 BG+Sur AM Volumes - Existing Roundabout Layout
 Intersection ID: 0
 Roundabout

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Harvey Road (S)												
1 LT	5	87		92	3				0.094	3.9	4	500
2 R			254	254	3				0.201	12.1	8	40
	5	87	254	346	3				0.201	9.9	8	
East: Dawson Highway (E)												
1 LT	149	50		199	2				0.163	4.5	7	500U
2 TR		78	194	272	6				0.190	9.3	9	500
	149	128	194	471	4				0.190	7.3	9	
North: Chapman Drive (N)												
1 L	386			386	2				0.339	6.4	16	500
2 TR		135	27	162	2				0.194	6.5	8	500
	386	135	27	548	2				0.339	6.4	16	
West: Dawson Highway (W)												
1 LT	51	259		310	5				0.251	4.3	12	500
2 TR		210	18	228	13				0.251	5.7	12	100
	51	469	18	538	8				0.251	4.9	12	
ALL VEHICLES												
				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				1903	5				0.339	6.8	16	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

U Lane under-utilisation specified by the "User"

Chapman Drive/Dawson Highway/Harvey Road
 2011 BG+Sur PM Volumes - Existing Roundabout Layout
 Intersection ID: 0
 Roundabout

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Harvey Road (S)											
1 LT	2	29		31	0			0.033	3.9	1	500
2 R			116	116	0			0.093	12.0	3	40
	2	29	116	147	0			0.093	10.3	3	
East: Dawson Highway (E)											
1 L	396			396	0			0.249	4.5	12	500
2 TR		203	77	280	3			0.208	5.2	9	500
	396	203	77	676	1			0.249	4.8	12	
North: Chapman Drive (N)											
1 L	191			191	1			0.140	5.1	5	500
2 TR		58	33	91	2			0.086	6.8	3	500
	191	58	33	282	1			0.140	5.7	5	
West: Dawson Highway (W)											
1 LT	10	128		138	5			0.097	3.2	4	500
2 TR		113	3	116	8			0.097	3.5	4	100
	10	241	3	254	7			0.097	3.3	4	
ALL VEHICLES											
				Total Flow	% HV			Max X	Aver. Delay	Max Queue	
				1359	2			0.249	5.3	12	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Chapman Drive/Dawson Highway/Harvey Road
 2021 BG+Sur AM Volumes - Existing Roundabout Layout
 Intersection ID: 0
 Roundabout

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Harvey Road (S)											
1 LT	5	272		277	2			0.334	5.2	16	500
2 R			1137	1137	3			0.899	17.5r	114*	40
	5	272	1137	1414	3			0.899	15.1	114	
East: Dawson Highway (E)											
1 L	369			369	1			0.294	5.0	16	500
2 TR		213	194	407	7			0.287	7.3	17	500
	369	213	194	776	4			0.294	6.2	17	
North: Chapman Drive (N)											
1 L	386			386	2			1.648	1282.9	1508	500
2 TR		182	31	213	2			1.317	730.9	569	500
	386	182	31	599	2			1.648	1086.6	1508	
West: Dawson Highway (W)											
1 LT	69	494		563	5			1.169	355.4	890	500
2 TR		298	18	316	11			1.031	163.5	263*	100
	69	792	18	879	7			1.169	286.4	890	
ALL VEHICLES											
				Total Flow	% HV			Max X	Aver. Delay	Max Queue	
				3668	4			1.650	253.2	1508	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Chapman Drive/Dawson Highway/Harvey Road
 2021 BG+Sur PM Volumes - Existing Roundabout Layout
 Intersection ID: 0
 Roundabout

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Harvey Road (S)											
1 LT	2	122		124	0			0.157	5.1	7	500
2 R			558	558	0			0.467	13.4	29	40
	2	122	558	682	0			0.467	11.9	29	
East: Dawson Highway (E)											
1 L	1058			1058	0			0.744	6.4	72	500
2 TR		378	77	455	3			0.423	5.3	24	500
	1058	378	77	1513	1			0.744	6.1	72	
North: Chapman Drive (N)											
1 L	191			191	1			0.263	8.5	13	500
2 TR		198	46	244	1			0.258	7.4	14	500
	191	198	46	435	1			0.263	7.9	14	
West: Dawson Highway (W)											
1 LT	19	223		242	5			0.229	4.7	12	500
2 TR		183	3	186	7			0.229	5.5	11	100
	19	406	3	428	6			0.229	5.1	12	
ALL VEHICLES											
				Total Flow	% HV			Max X	Aver. Delay	Max Queue	
				3058	2			0.745	7.5	72	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Chapman Drive/Dawson Highway/Harvey Road
 2011 BG+Sur AM wDev - Existing Roundabout Layout
 Intersection ID: 0
 Roundabout

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Harvey Road (S)												
1 LT	5	106		111	3				0.120	4.0	5	500
2 R			377	377	3				0.299	12.3	13	40
	5	106	377	488	3				0.299	10.4	13	
East: Dawson Highway (E)												
1 LT	179	33		212	2				0.174	4.7	8	500U
2 TR		95	194	289	6				0.203	9.0	10	500
	179	128	194	501	4				0.203	7.2	10	
North: Chapman Drive (N)												
1 L	386			386	2				0.365	7.0	19	500
2 TR		140	27	167	2				0.216	7.2	9	500
	386	140	27	553	2				0.365	7.0	19	
West: Dawson Highway (W)												
1 LT	51	264		315	5				0.274	4.8	14	500
2 TR		205	18	223	13				0.274	6.4	13	100
	51	469	18	538	8				0.274	5.5	14	
=====												
ALL VEHICLES				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				2080	4				0.366	7.5	19	
=====												

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

U Lane under-utilisation specified by the "User"

Chapman Drive/Dawson Highway/Harvey Road
 2011 BG+Sur PM wDev - Existing Roundabout Layout
 Intersection ID: 0
 Roundabout

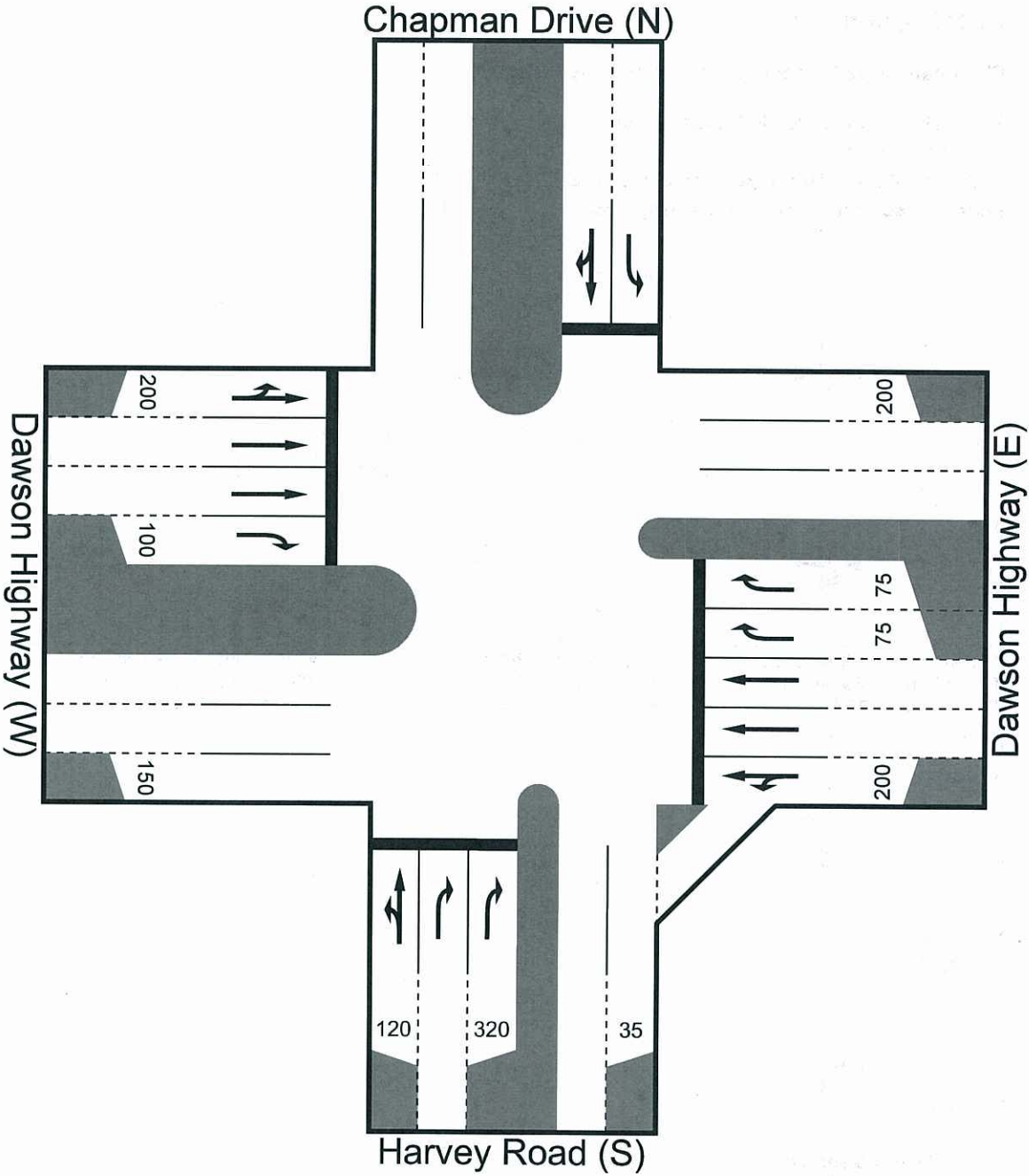
Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Harvey Road (S)											
1 LT	2	39		41	0			0.045	3.9	2	500
2 R			177	177	0			0.142	12.1	6	40
	2	39	177	218	0			0.142	10.5	6	
East: Dawson Highway (E)											
1 L	488			488	0			0.309	4.6	15	500
2 TR		203	77	280	3			0.217	5.3	10	500
	488	203	77	768	1			0.309	4.9	15	
North: Chapman Drive (N)											
1 L	191			191	1			0.144	5.3	6	500
2 TR		73	33	106	2			0.101	6.5	4	500
	191	73	33	297	1			0.144	5.7	6	
West: Dawson Highway (W)											
1 LT	10	129		139	5			0.101	3.3	4	500
2 TR		112	3	115	8			0.101	3.7	4	100
	10	241	3	254	7			0.101	3.5	4	
ALL VEHICLES											
				Total Flow	% HV			Max X	Aver. Delay	Max Queue	
				1537	2			0.309	5.6	15	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Signalised Intersection Upgrade



SIDRA INTERSECTION

Phasing Summary

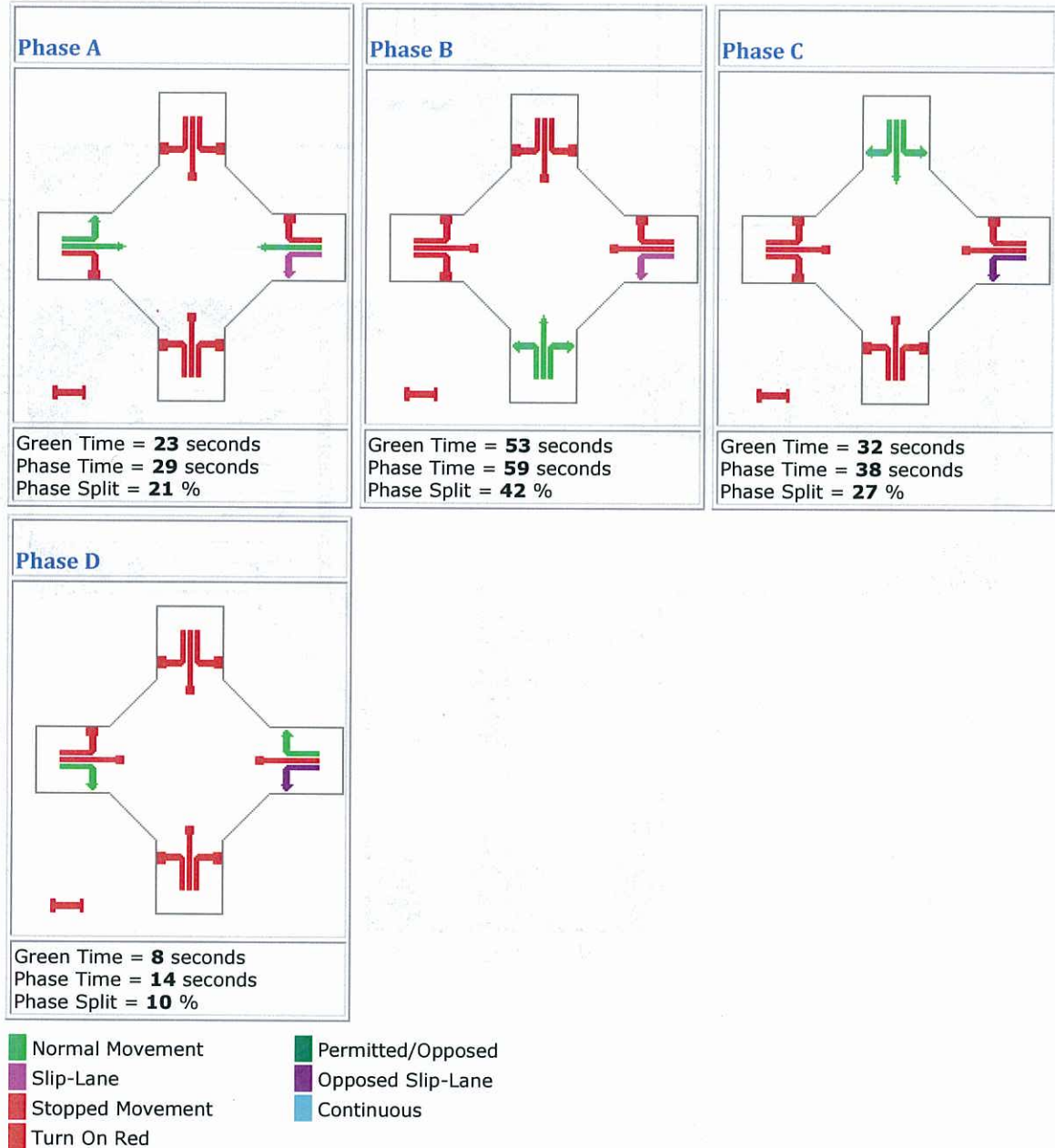
Chapman Drive/Dawson Highway/Harvey Road

2021 AM BG+Sur wDev Volumes - Signals

C = 140 seconds

Cycle Time Option: **User-specified cycle time**

Phase times determined by the program.



Chapman Drive/Dawson Highway/Harvey Road

2021 AM BG+Sur wDev Volumes - Signals

Intersection ID: 0

Fixed-Time Signals, Cycle Time = 140 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Harvey Road (S)												
1 LT	5	291		296	2	2020	53		0.601	33.9	113	120
2 R			630	630	3	2020	53		0.884	60.8	317	500
3 R			630	630	3	2020	53		0.884	60.8	317	320
	5	291	1260	1556	3				0.884	55.6	317	
East: Dawson Highway (E)												
1 L	400			400	1	2020	82	33	0.293	10.0	47	200
2 T		107		107	8	2020	23		0.338	56.2	61	500
3 T		107		107	8	2020	23		0.338	56.2	61	500
4 R			97	97	5	2020	8		0.915	95.0	69	75
5 R			97	97	5	2020	8		0.915	95.0	69	75
	400	213	194	807	4				0.915	42.6	69	
North: Chapman Drive (N)												
1 L	386			386	2	2020	32		0.891	77.4	208	500
2 TR		186	31	217	2	2020	32		0.479	51.4	101	500
	386	186	31	603	2				0.891	68.0	208	
West: Dawson Highway (W)												
1 LT	69	218		287	5	2020	23		0.899	78.1	165	200
2 T		287		287	6	2020	23		0.899	76.1	167	100
3 T		287		287	6	2020	23		0.899	76.1	167	100
4 R			18	18	89	2020	8		0.268	83.8	24	100
	69	792	18	879	7				0.899	76.9	167	
ALL VEHICLES												
				Total Flow	% HV		Cycle Time		Max X	Aver. Delay	Max Queue	
				3845	4		140		0.915	59.7	317	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

SIDRA INTERSECTION

Phasing Summary

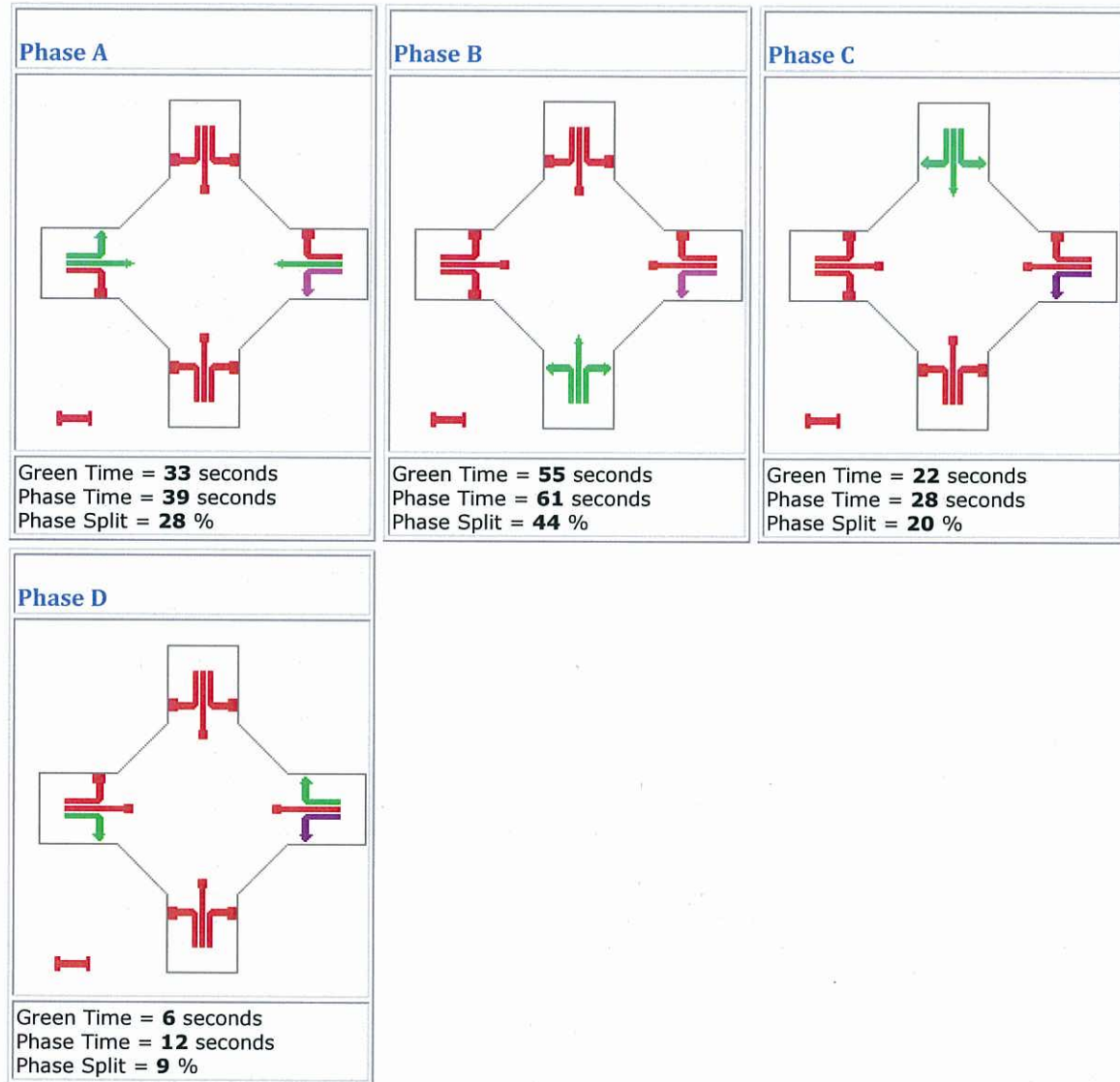
Chapman Drive/Dawson Highway/Harvey Road

2021 PM BG+Sur wDev Volumes - Signals

C = 140 seconds

Cycle Time Option: **User-specified cycle time**

Phase times determined by the program.



Chapman Drive/Dawson Highway/Harvey Road

2021 PM BG+Sur wDev Volumes - Signals

Intersection ID: 0

Fixed-Time Signals, Cycle Time = 140 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Harvey Road (S)												
1 LT	3	132		135	3	2020	55		0.269	29.4	54	120
2 R			310	310	3	2020	55		0.418	40.4	117	500
3 R			310	310	3	2020	55		0.418	40.4	117	320
	3	132	619	754	3				0.418	38.4	117	
East: Dawson Highway (E)												
1 L	1151			1151	1	2020	94	20	0.851	14.2	168	200
2 T		189		189	8	2020	33		0.417	48.8	93	500
3 T		189		189	8	2020	33		0.417	48.8	93	500
4 R			39	39	5	2020	6		0.484	83.5	29	75
5 R			39	39	5	2020	6		0.484	83.5	29	75
	1151	378	77	1606	3				0.851	25.6	168	
North: Chapman Drive (N)												
1 L	191			191	2	2020	22		0.641	68.7	99	500
2 TR		212	46	258	2	2020	22		0.828	69.1	136	500
	191	212	46	449	2				0.828	68.9	136	
West: Dawson Highway (W)												
1 LT	19	123		142	5	2020	33		0.309	48.4	70	200
2 T		142		142	6	2020	33		0.309	47.3	71	100
3 T		142		142	6	2020	33		0.309	47.3	71	100
4 R			4	4	75	2020	6		0.074	84.7	5	100
	19	406	4	429	6				0.309	48.0	71	
ALL VEHICLES												
				Total Flow	% HV		Cycle Time		Max X	Aver. Delay	Max Queue	
				3238	3		140		0.851	37.6	168	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

SIDRA INTERSECTION

Phasing Summary

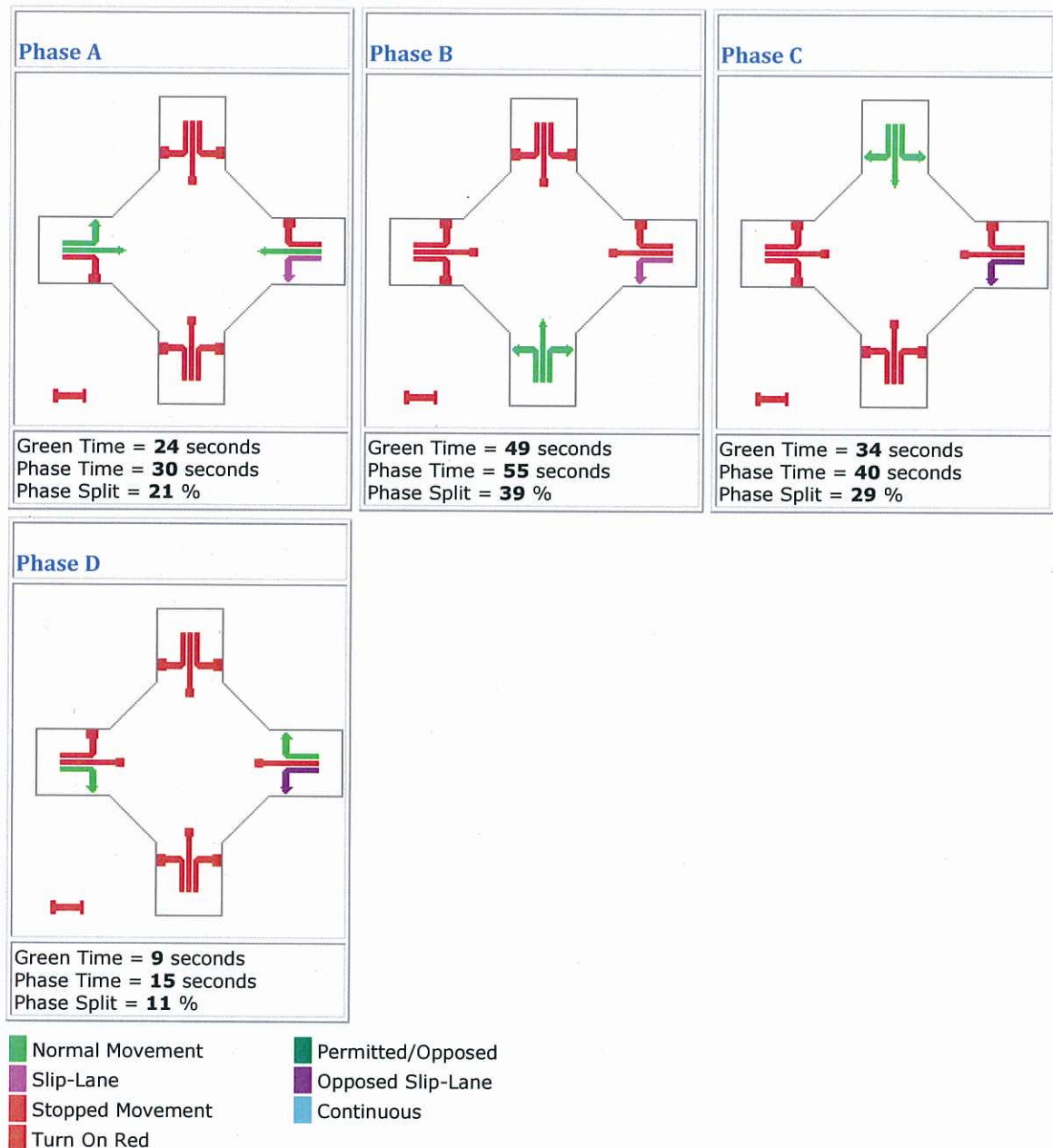
Chapman Drive/Dawson Highway/Harvey Road

2021 AM BG+Sur Volumes - Signals

C = **140** seconds

Cycle Time Option: **User-specified cycle time**

Phase times determined by the program.



Chapman Drive/Dawson Highway/Harvey Road

2021 AM BG+Sur Volumes - Signals

Intersection ID: 0

Fixed-Time Signals, Cycle Time = 140 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Harvey Road (S)											
1 LT	5	272		277	2	2020	49	0.581	36.7	110	120
2 R			569	569	3	2020	49	0.862	60.0	278	500
3 R			569	569	3	2020	49	0.862	60.0	278	320
	5	272	1137	1414	3			0.862	55.4	278	
East: Dawson Highway (E)											
1 LT	369	5		374	1	2020	79 37	0.273	9.6	42	200U
2 T		104		104	8	2020	24	0.317	55.1	59	500
3 T		104		104	8	2020	24	0.317	55.1	59	500
4 R			97	97	5	2020	9	0.813	85.5	65	75
5 R			97	97	5	2020	9	0.813	85.5	65	75
	369	213	194	776	4			0.813	40.8	65	
North: Chapman Drive (N)											
1 L	386			386	2	2020	34	0.838	68.5	193	500
2 TR		182	31	213	2	2020	34	0.443	49.4	98	500
	386	182	31	599	2			0.838	61.7	193	
West: Dawson Highway (W)											
1 LT	69	218		287	5	2020	24	0.862	71.7	158	200
2 T		287		287	6	2020	24	0.862	69.7	160	100
3 T		287		287	6	2020	24	0.862	69.7	160	100
4 R			18	18	89	2020	9	0.238	82.1	23	100
	69	792	18	879	7			0.862	70.6	160	
=====											
ALL VEHICLES				Total Flow	% HV	Cycle Time		Max X	Aver. Delay	Max Queue	
				3668	4	140		0.862	57.0	278	
=====											

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

U Lane under-utilisation specified by the "User"

SIDRA INTERSECTION

Phasing Summary

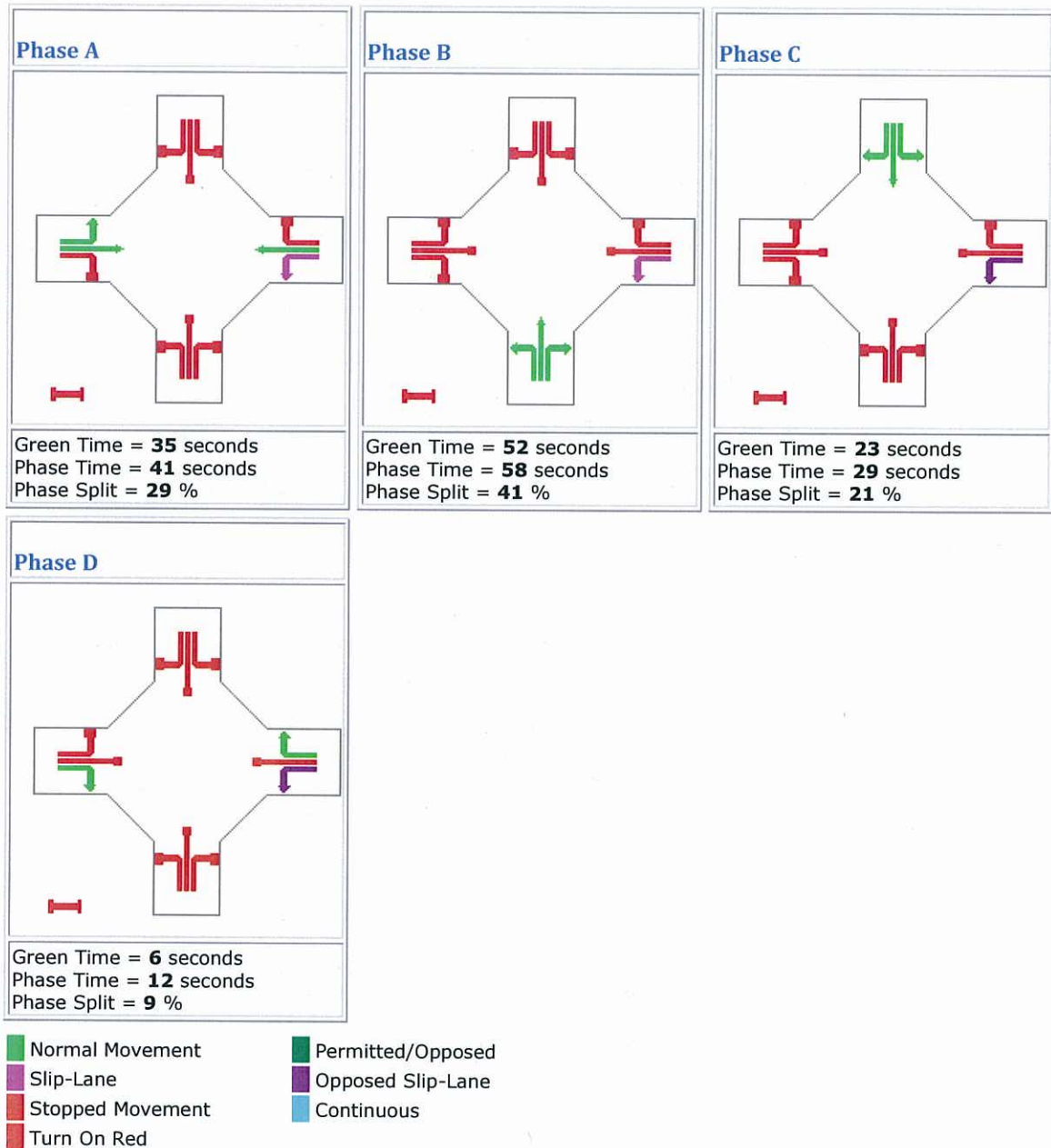
Chapman Drive/Dawson Highway/Harvey Road

2021 PM BG+Sur Volumes - Signals

C = 140 seconds

Cycle Time Option: **User-specified cycle time**

Phase times determined by the program.



Chapman Drive/Dawson Highway/Harvey Road

2021 PM BG+Sur Volumes - Signals

Intersection ID: 0

Fixed-Time Signals, Cycle Time = 140 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Harvey Road (S)												
1 LT	3	122		125	2	2020	52		0.255	31.4	52	120
2 R			279	279	3	2020	52		0.399	42.1	109	500
3 R			279	279	3	2020	52		0.399	42.1	109	320
	3	122	558	683	3				0.399	40.2	109	
East: Dawson Highway (E)												
1 L	1058			1058	1	2020	93	22	0.774	12.7	159	200
2 T		189		189	8	2020	35		0.394	46.9	92	500
3 T		189		189	8	2020	35		0.394	46.9	92	500
4 R			39	39	5	2020	6		0.484	83.5	29	75
5 R			39	39	5	2020	6		0.484	83.5	29	75
	1058	378	77	1513	3				0.774	24.8	159	
North: Chapman Drive (N)												
1 L	191			191	2	2020	23		0.613	67.6	98	500
2 TR		198	46	244	2	2020	23		0.750	64.0	124	500
	191	198	46	435	2				0.750	65.6	124	
West: Dawson Highway (W)												
1 LT	19	123		142	5	2020	35		0.291	46.6	69	200
2 T		142		142	6	2020	35		0.291	45.5	70	100
3 T		142		142	6	2020	35		0.291	45.5	70	100
4 R			4	4	75	2020	6		0.074	84.7	5	100
	19	406	4	429	6				0.291	46.2	70	
ALL VEHICLES												
				Total Flow	% HV		Cycle Time		Max X	Aver. Delay	Max Queue	
				3060	3		140		0.774	37.0	159	

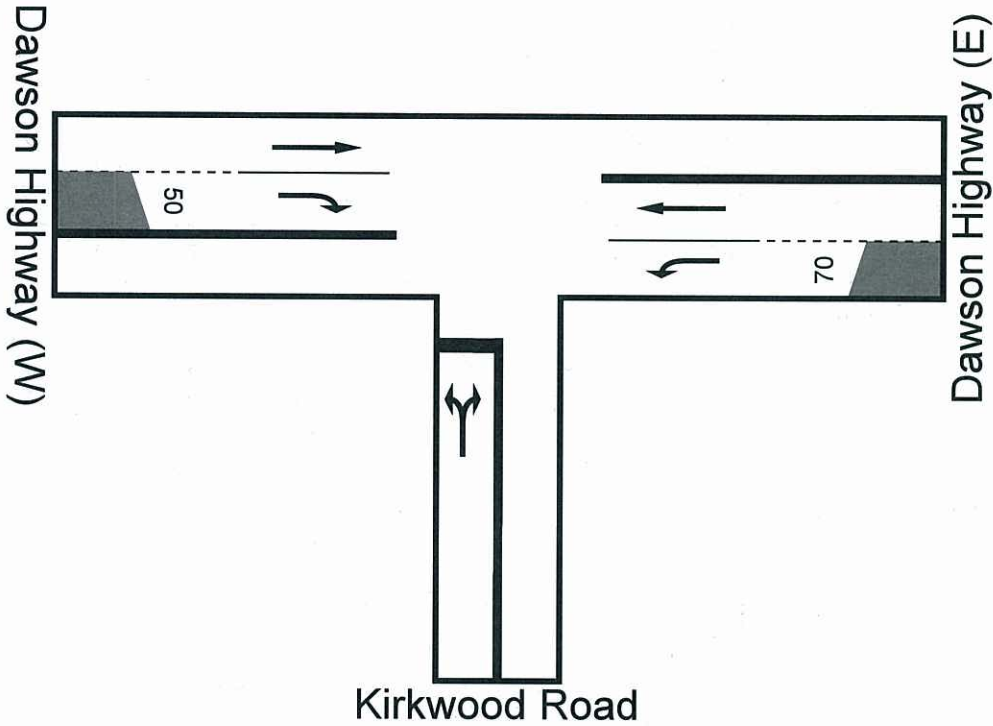
Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Dawson Highway/Kirkwood Road

Existing Geometry



Dawson Highway/Kirkwood Road
 2010 AM BG Volumes Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Kirkwood Road											
1 LR	25		6	31	23			0.055	15.4	2	500
	25	0	6	31	23			0.055	15.4	2	
East: Dawson Highway (E)											
1 L	8			8	38			0.005	9.7	0	70
2 T		215		215	8			0.116	0.0	0	500
	8	215	0	223	9			0.116	0.3		
West: Dawson Highway (W)											
1 T		419		419	7			0.225	0.0	0	500
2 R			36	36	17			0.036	10.3	1	50
	0	419	36	455	8			0.225	0.8	1	
ALL VEHICLES											
				Total Flow	% HV			Max X	Aver. Delay	Max Queue	
				709	9			0.225	1.3	2	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2010 PM BG Volumes Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	22		2	24	21				0.040	15.1	1	500
	22	0	2	24	21				0.040	15.1	1	
East: Dawson Highway (E)												
1 L	9			9	0				0.005	8.2	0	70
2 T		354		354	2				0.184	0.0	0	500
	9	354	0	363	2				0.184	0.2		
West: Dawson Highway (W)												
1 T		202		202	3				0.106	0.0	0	500
2 R			51	51	8				0.053	10.4	2	50
	0	202	51	253	4				0.106	2.1	2	
ALL VEHICLES												
				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				640	3				0.184	1.5	2	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2011 AM BG+Sur Volumes Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	57		41	98	16				0.232	18.4	9	500
	57	0	41	98	16				0.232	18.4	9	
East: Dawson Highway (E)												
1 L	17			17	41				0.012	9.7	0	70
2 T		226		226	8				0.122	0.0	0	500
	17	226	0	243	10				0.122	0.7		
West: Dawson Highway (W)												
1 T		439		439	7				0.235	0.0	0	500
2 R			44	44	16				0.045	10.4	2	50
	0	439	44	483	8				0.235	0.9	2	
ALL VEHICLES												
				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				824	10				0.236	2.9	9	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2011 PM BG+Sur Volumes Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	38		19	57	16				0.124	17.2	5	500
	38	0	19	57	16				0.124	17.2	5	
East: Dawson Highway (E)												
1 L	35			35	0				0.019	8.2	0	70
2 T		371		371	2				0.193	0.0	0	500
	35	371	0	406	2				0.193	0.7		
West: Dawson Highway (W)												
1 T		211		211	3				0.110	0.0	0	500
2 R			75	75	8				0.082	10.7	3	50
	0	211	75	286	4				0.110	2.8	3	
ALL VEHICLES												
				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				749	4				0.193	2.8	5	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2021 AM BG+Sur Volumes Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	138		156	294	13				1.388	757.8	880	500
	138	0	156	294	13				1.388	757.8	880	
East: Dawson Highway (E)												
1 L	46			46	39				0.032	9.7	0	70
2 T		328		328	8				0.177	0.0	0	500
	46	328	0	374	12				0.177	1.2		
West: Dawson Highway (W)												
1 T		638		638	7				0.342	0.0	0	500
2 R			64	64	17				0.078	11.4	3	50
	0	638	64	702	8				0.342	1.0	3	
ALL VEHICLES												
				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				1370	10				1.394	163.5	880	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2021 PM BG+Sur Volumes Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	79		77	156	12				0.692	42.3	38	500
	79	0	77	156	12				0.692	42.3	38	
East: Dawson Highway (E)												
1 L	122			122	0				0.066	8.2	0	70
2 T		539		539	2				0.280	0.0	0	500
	122	539	0	661	2				0.280	1.5		
West: Dawson Highway (W)												
1 T		307		307	3				0.160	0.0	0	500
2 R			136	136	8				0.202	13.0	8	50
	0	307	136	443	5				0.202	4.0	8	
ALL VEHICLES												
				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				1260	4				0.694	7.4	38	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2011 AM BG+Sur wDev Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	66		41	107	17				0.244	18.2	10	500
	66	0	41	107	17				0.244	18.2	10	
East: Dawson Highway (E)												
1 L	17			17	41				0.012	9.7	0	70
2 T		226		226	8				0.122	0.0	0	500
	17	226	0	243	10				0.122	0.7		
West: Dawson Highway (W)												
1 T		439		439	7				0.235	0.0	0	500
2 R			46	46	17				0.047	10.4	2	50
	0	439	46	485	8				0.235	1.0	2	
ALL VEHICLES												
				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				835	10				0.244	3.1	10	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2011 PM BG+Sur wDev Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	43		19	62	16				0.133	17.1	5	500
	43	0	19	62	16				0.133	17.1	5	
East: Dawson Highway (E)												
1 L	35			35	0				0.019	8.2	0	70
2 T		371		371	2				0.193	0.0	0	500
	35	371	0	406	2				0.193	0.7		
West: Dawson Highway (W)												
1 T		211		211	3				0.110	0.0	0	500
2 R			82	82	9				0.090	10.8	3	50
	0	211	82	293	4				0.110	3.0	3	
=====												
ALL VEHICLES				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				761	4				0.193	2.9	5	
=====												

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2021 AM BG+Sur wDev Volumes Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	148		156	304	13				1.410	796.4	944	500
	148	0	156	304	13				1.410	796.4	944	
East: Dawson Highway (E)												
1 L	46			46	39				0.032	9.7	0	70
2 T		328		328	8				0.177	0.0	0	500
	46	328	0	374	12				0.177	1.2		
West: Dawson Highway (W)												
1 T		638		638	7				0.342	0.0	0	500
2 R			67	67	16				0.081	11.4	3	50
	0	638	67	705	8				0.342	1.1	3	
ALL VEHICLES												
				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				1383	10				1.410	175.9	944	

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Dawson Highway/Kirkwood Road
 2021 PM BG+Sur wDev Volumes Existing Geometry
 Intersection ID: 0
 Stop Sign Controlled Intersection

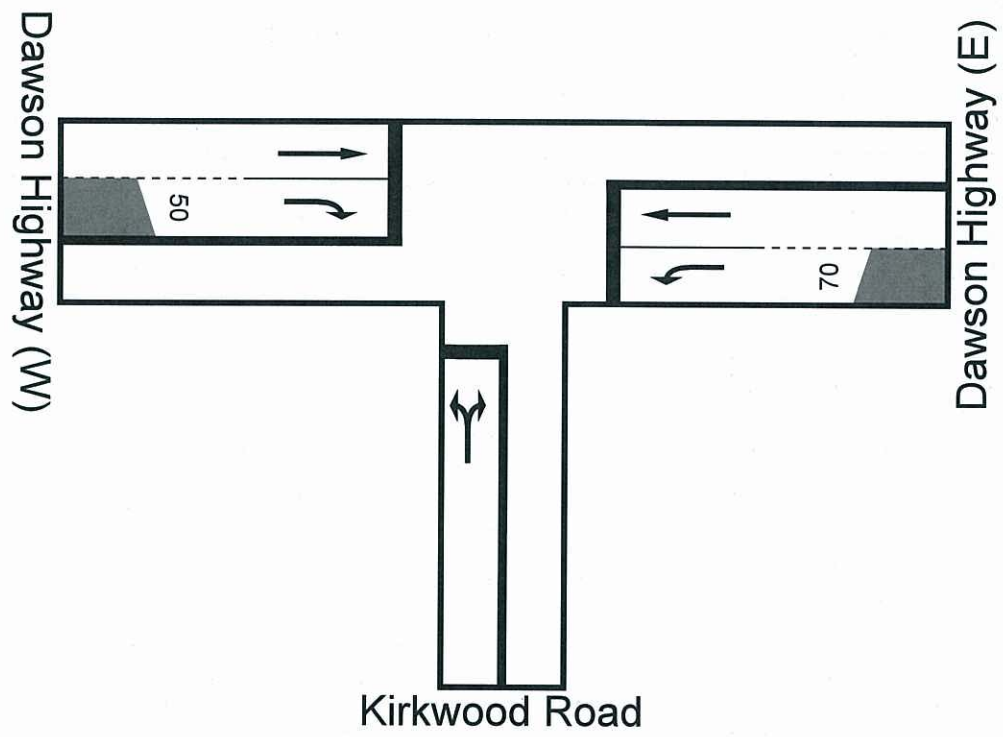
Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	83		77	160	12				0.708	43.3	40	500
	83	0	77	160	12				0.708	43.3	40	
East: Dawson Highway (E)												
1 L	122			122	0				0.066	8.2	0	70
2 T		539		539	2				0.280	0.0	0	500
	122	539	0	661	2				0.280	1.5		
West: Dawson Highway (W)												
1 T		307		307	3				0.160	0.0	0	500
2 R			143	143	8				0.211	12.9	8	50
	0	307	143	450	4				0.211	4.1	8	
=====												
ALL VEHICLES				Total Flow	% HV				Max X	Aver. Delay	Max Queue	
				1271	4				0.709	7.7	40	
=====												

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Upgraded Geometry



Dawson Highway/Kirkwood Road

2021 AM BG+Sur wDev Volumes UG Geometry 1

Intersection ID: 0

Fixed-Time Signals, Cycle Time = 90 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	148		156	304	13	1949	27		0.598	38.2	102	500
	148	0	156	304	13				0.598	38.2	102	
East: Dawson Highway (E)												
1 L	46			46	39	1949	51		0.102	18.9	13	70
2 T		328		328	8	1949	51		0.312	10.9	69	500
	46	328	0	374	12				0.312	11.9	69	
West: Dawson Highway (W)												
1 T		638		638	7	1949	51		0.604	13.7	142	500
2 R			67	67	16	1949	43		0.227	23.6	20	50
	0	638	67	705	8				0.604	14.7	142	
=====												
ALL VEHICLES				Total Flow	% HV	Cycle Time		Max X	Aver. Delay	Max Queue		
				1383	10	90		0.604	19.1	142		
=====												

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Phasing Summary

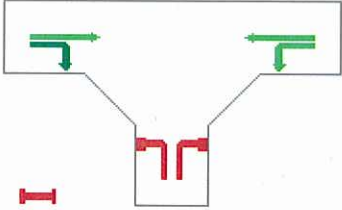
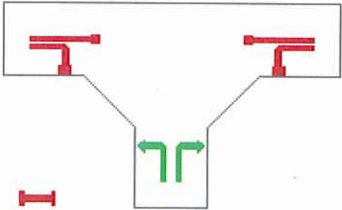
Dawson Highway/Kirkwood Road

2021 AM BG+Sur wDev Volumes UG Geometry 1

C = 90 seconds

Cycle Time Option: **User-specified cycle time**

Phase times determined by the program.

Phase A	Phase B
 Green Time = 51 seconds Phase Time = 57 seconds Phase Split = 63 %	 Green Time = 27 seconds Phase Time = 33 seconds Phase Split = 37 %

- | | |
|--|---|
|  Normal Movement |  Permitted/Opposed |
|  Slip-Lane |  Opposed Slip-Lane |
|  Stopped Movement |  Continuous |
|  Turn On Red | |

Dawson Highway/Kirkwood Road

2021 PM BG+Sur wDev Volumes UG Geometry 1

Intersection ID: 0

Fixed-Time Signals, Cycle Time = 90 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot							
South: Kirkwood Road											
1 LR	83		77	160	12	1949	19	0.443	42.8	61	500
	83	0	77	160	12			0.443	42.8	61	
East: Dawson Highway (E)											
1 L	122			122	0	1949	59	0.177	14.2	20	70
2 T		539		539	2	1949	59	0.427	7.9	90	500
	122	539	0	661	2			0.427	9.0	90	
West: Dawson Highway (W)											
1 T		307		307	3	1949	59	0.245	6.7	51	500
2 R			143	143	8	1949	47	0.466	22.7	39	50
	0	307	143	450	4			0.466	11.8	51	
=====											
ALL VEHICLES				Total Flow	% HV	Cycle Time		Max X	Aver. Delay	Max Queue	
				1271	4	90		0.466	14.3	90	
=====											

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Phasing Summary

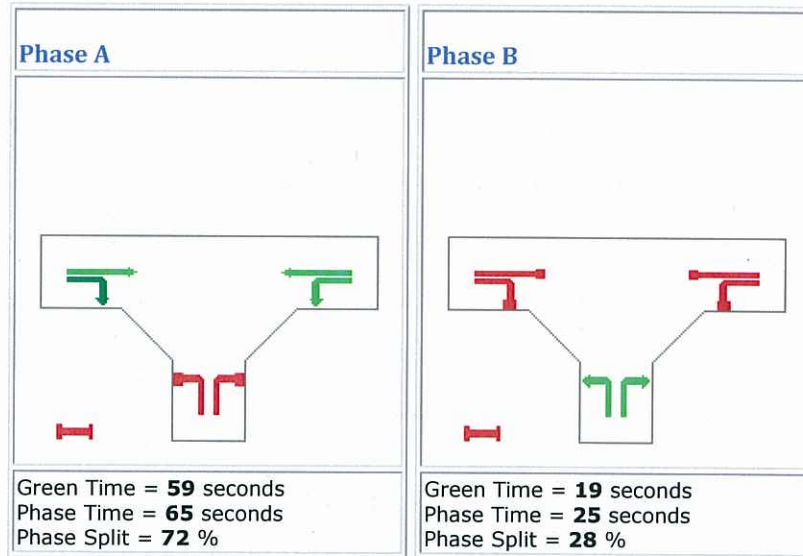
Dawson Highway/Kirkwood Road

2021 PM BG+Sur wDev Volumes UG Geometry 1

C = 90 seconds

Cycle Time Option: **User-specified cycle time**

Phase times determined by the program.



- | | |
|------------------|-------------------|
| Normal Movement | Permitted/Opposed |
| Slip-Lane | Opposed Slip-Lane |
| Stopped Movement | Continuous |
| Turn On Red | |

Dawson Highway/Kirkwood Road
 2021 AM BG+Sur Volumes UG Geometry 1
 Intersection ID: 0
 Fixed-Time Signals, Cycle Time = 90 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	138		156	294	13	1949	26		0.600	38.9	100	500
	138	0	156	294	13				0.600	38.9	100	
East: Dawson Highway (E)												
1 L	46			46	39	1949	52		0.101	18.5	12	70
2 T		328		328	8	1949	52		0.306	10.4	67	500
	46	328	0	374	12				0.306	11.4	67	
West: Dawson Highway (W)												
1 T		638		638	7	1949	52		0.592	13.0	139	500
2 R			64	64	17	1949	44		0.215	23.0	19	50
	0	638	64	702	8				0.592	13.9	139	
=====												
ALL VEHICLES				Total Flow	% HV	Cycle Time		Max X	Aver. Delay	Max Queue		
				1370	10	90		0.600	18.6	139		
=====												

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Phasing Summary

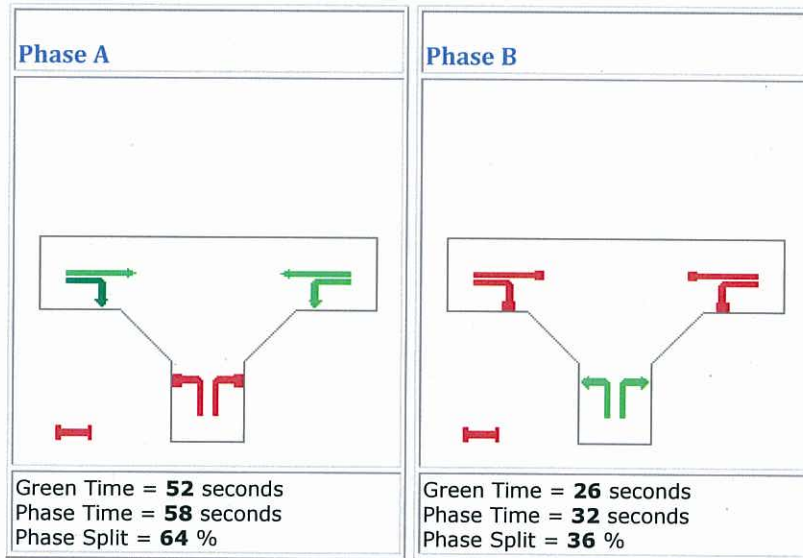
Dawson Highway/Kirkwood Road

2021 AM BG+Sur Volumes UG Geometry 1

C = 90 seconds

Cycle Time Option: **User-specified cycle time**

Phase times determined by the program.



- | | |
|------------------|-------------------|
| Normal Movement | Permitted/Opposed |
| Slip-Lane | Opposed Slip-Lane |
| Stopped Movement | Continuous |
| Turn On Red | |

Dawson Highway/Kirkwood Road
 2021 PM BG+Sur Volumes UG Geometry 1
 Intersection ID: 0
 Fixed-Time Signals, Cycle Time = 90 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
	L	T	R	Tot			1st	2nd				
South: Kirkwood Road												
1 LR	79		77	156	12	1949	19		0.431	42.7	60	500
	79	0	77	156	12				0.431	42.7	60	
East: Dawson Highway (E)												
1 L	122			122	0	1949	59		0.177	14.2	20	70
2 T		539		539	2	1949	59		0.427	7.9	90	500
	122	539	0	661	2				0.427	9.0	90	
West: Dawson Highway (W)												
1 T		307		307	3	1949	59		0.245	6.7	51	500
2 R			136	136	8	1949	47		0.445	22.6	37	50
	0	307	136	443	5				0.445	11.6	51	
=====												
ALL VEHICLES				Total Flow	% HV	Cycle Time		Max X	Aver. Delay	Max Queue		
				1260	4	90		0.445	14.1	90		
=====												

Peak flow period = 60 minutes.

Queue values in this table are 95% back of queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Phasing Summary

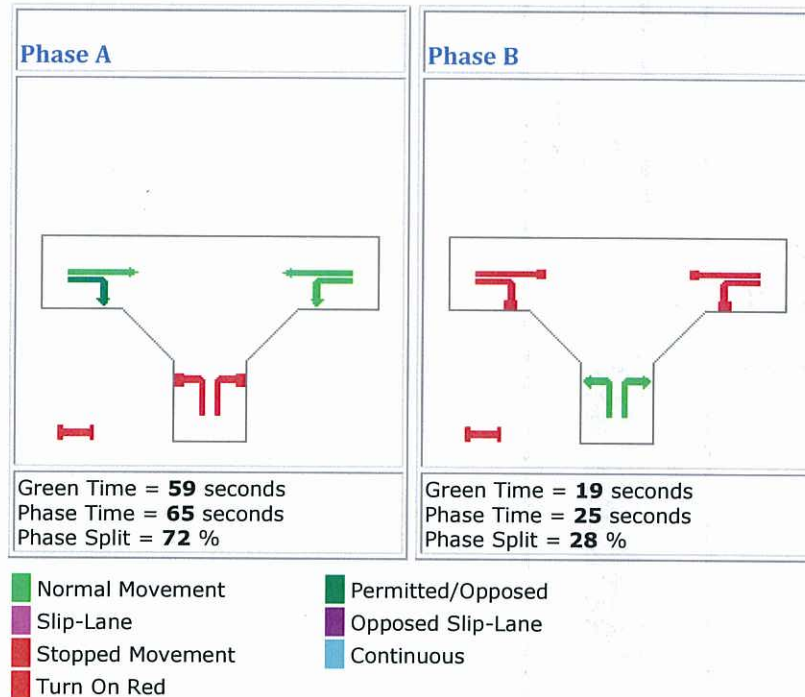
Dawson Highway/Kirkwood Road

2021 PM BG+Sur Volumes UG Geometry 1

C = 90 seconds

Cycle Time Option: **User-specified cycle time**

Phase times determined by the program.



Harvey Road/Northern Access

Priority Controlled Geometry

