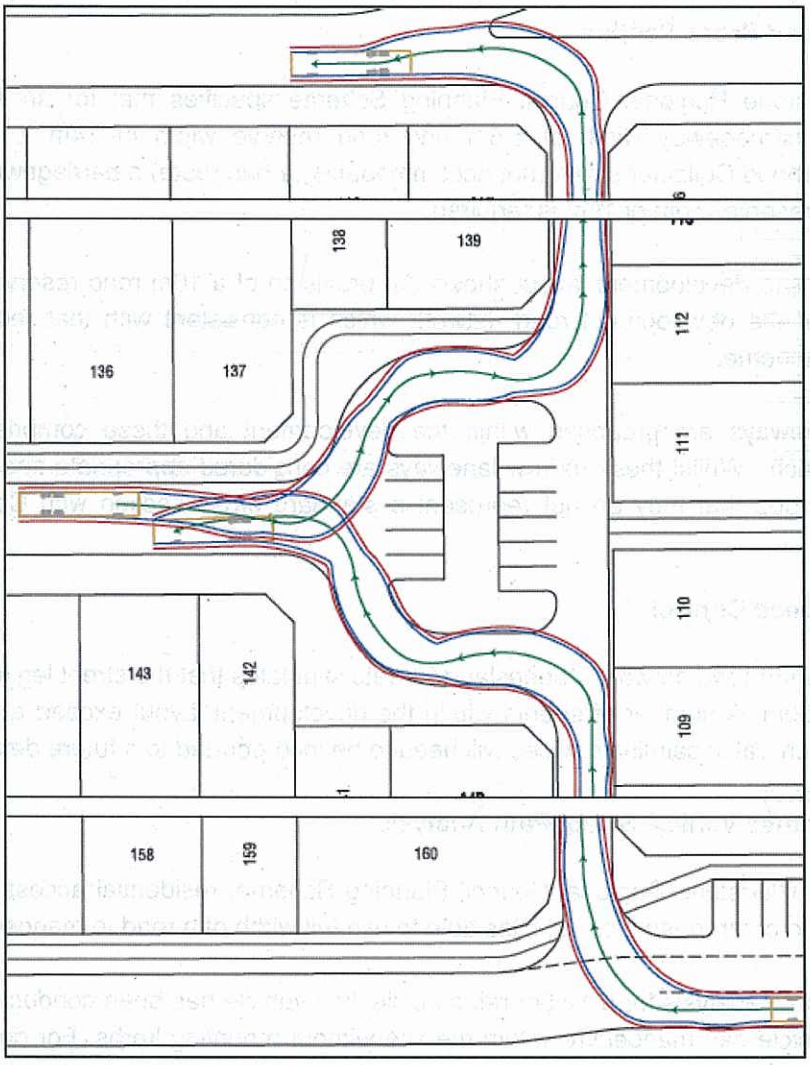
The full swept path analysis is attached at Appendix D.

Figure 6.1 ***Swept Path Issue***



6.2 Public Transport Access

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

6.3 Pedestrian and Cycle Network

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. This will provide acceptable pedestrian connectivity within the development as well as to the external pedestrian path network located along Harvey Road.

The proposed pedestrian and cycle network exceed the Gladstone Regional Council Planning Scheme requirement of 1.2m pedestrian paths. Pedestrian and cycle facilities are shown on Figure 6.2 below.

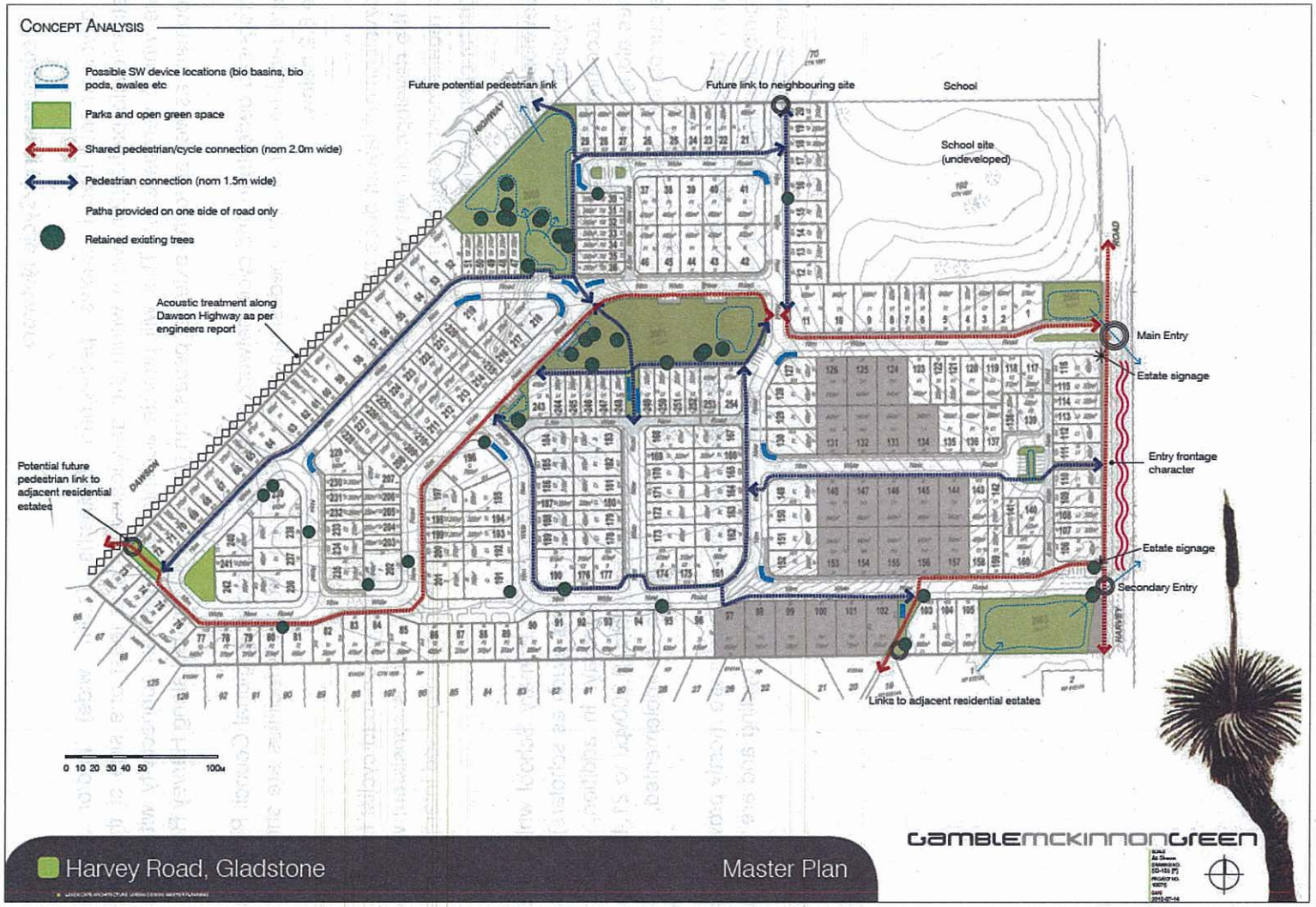
The development layout does not propose the provision of dedicated on-road cyclist facilities within the development with cyclist movements to occur on street. This is consistent with the cyclist requirements set forth in the Gladstone Planning Scheme for the proposed internal road network function and hierarchy.

The development site is located immediately south of 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 bikeway. In addition, vehicle volumes along Harvey Road will increase significantly in future years (9,300vpd to 21,400vpd) 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.

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 %	Dwelling Yield	Dwelling %
T1	Traditional - 600m²	20m x 32m	16	6.30%	16	5.39%
TH1	Traditional Hillside - 600m²	20m x 32m	23	9.06%	23	7.74%
T2	Traditional - 500m²	20m x 25m	14	5.51%	14	4.71%
P1	Premium Courtyard - 480m²	15m x 32m	35	13.78%	35	11.78%
P2	Premium Courtyard - 375m²	15m x 25m	24	9.45%	24	8.08%
L1	Laneway Courtyard - 400m²	12.5m x 32m	5	1.97%	10	3.37%
C1	Courtyard - 400m²	12.5m x 32m	18	7.09%	18	6.06%
C2	Courtyard - 310m²	12.5m x 25m	23	9.06%	23	7.74%
L2	Laneway Villa - 320m²	10m x 32m	9	3.54%	9	3.03%
L4	Laneway Villa - 280m²	10m x 28m	5	1.97%	5	1.68%
V1	Villa - 320m²	10m x 32m	23	9.06%	23	7.74%
V2	Villa - 250m²	10m x 25m	26	10.24%	26	8.75%
T32	Terrace - 240m²	7.5m x 32m	7	2.76%	7	2.36%
T28	Terrace - 210m²	7.5m x 28m	5	1.97%	5	1.68%
L3	Laneway Duplex - 480m²	15m x 32m	3	1.18%	6	2.02%
L5	Laneway Duplex - 420m²	15m x 28m	1	0.39%	2	0.67%
D	Duplex 450-599m²	18m x 32m	4	1.57%	8	2.69%
T	Triplex 600-749m²	24m x 32m	9	3.54%	27	9.09%
Q	Quadplex 750m²	24m x 32m	4	1.57%	16	5.39%
Total			254	100.00%	297	100.00%

Legend

- Stage Boundary
- Slope Affected Lots
- Laneways
- Indicative 1.5m Footpath

Park / Open Space

- Proposed Park / Open Space
- Proposed Detention / Open Space
- Pedestrian 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 engineers 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 1861

Level Datum	
Origin	
Date	07 JULY 2010
Comp By	WNW
DWG Name	102361-PROP2
Local Authority	URBAN LAND DEVELOPMENT AUTHORITY
Locality	CLINTON
Job Reference	102361
Scale	1 : 1000
Sheet	A1
Plan Ref	102361 - 24
Rev	

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Plan of Development Table	Villa Allotments 10m		Courtyard Allotments 12.5m		Premium Courtyard Allotments 15m		Traditional Allotments		Multi Family Allotments	
	Ground Floor	First Floor	Ground Floor	First Floor	Ground Floor	First Floor	Ground Floor	First Floor	Ground Floor	First Floor
Front/Primary Frontage	3.0	3.0	3.0	3.0	3.0	3.0	4.5	4.5	3.0	3.0
Garage	4.5	n/a	4.5	n/a	4.5	n/a	5.5	n/a	4.5	n/a
Rear	1.2	1.2	1.2	2.0	1.2	2.0	1.2	2.0	1.2	2.0
Side - General Lots										
Built to Boundary	0.0	1.0	0.0	1.0	0.0	1.0	n/a	n/a	0.0	1.0
Non Built to Boundary	0.9	0.9	1.0	1.0	1.0	1.5	1.2	2.0	1.0	1.0
Corner Lots - Secondary Frontage	1.5	1.5	1.5	1.5	2.0	2.0	3.0	3.0	3.0	3.0
Laneway Lots										
Rear of Lot (from laneway boundary)	0.5	0.5	0.5	0.5	0.5	0.5	n/a	n/a	0.5	0.5
On site parking requirements (minimum)	1 space to be covered and enclosed		1 space per dwelling to be covered and enclosed		1 space to be covered and enclosed		1 space to be covered and enclosed		1 space per dwelling to be covered and enclosed	
Garage location	Single or tandem garage acceptable. Double garages are only permitted on laneway allotments. Garages are to be located along the built to boundary wall		Single or tandem garage acceptable. Double garages are only permitted on laneway allotments. Garages are to be located along the built to boundary wall		Single, tandem or double garage acceptable. Garages are to be located along the built to boundary wall.		Single, tandem or double garage acceptable. Garages are to be located along the western or southern boundary where appropriate.		Single, tandem or double garage acceptable. Garages are to be located along the built to boundary wall where appropriate	
Site Cover (maximum)	70%		70%		70%		70%		70%	

Legend

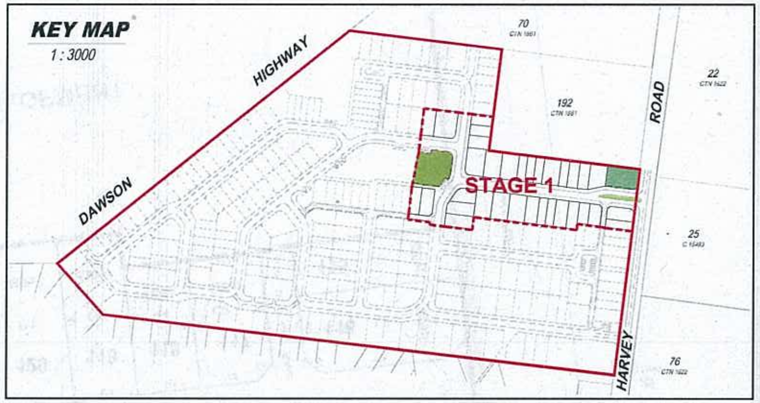
- Stage Boundary

Park / Open Space

- Proposed Park / Open Space
- Proposed Detention / Open Space
- Pedestrian Linkage / Road Reserve

Allotment Details

- Laneway Allotments
- Preferred Primary Open Space Location (min 12m²)
- Letterbox Location for Primary Dwelling (on a laneway)
- Letterbox Location for Secondary Dwelling (on a laneway)
- Potential Loft Homes
- Hillside Homes
- Maximum Building location Envelope
- Optional Built to Boundary Wall
- No Vehicle Access
- Primary Frontage
- Preferred Garage Location



Notes:

General

1. All development is to be undertaken in accordance with the Development Approval.
2. Loft Homes are permissible over garages where noted.
3. The maximum height of buildings shall not exceed two (2) storeys.

Setbacks

4. Setbacks are as per the Plan of Development Table unless otherwise specified.
5. Built to boundary walls are optional. The location of the built to boundary walls are indicated on the Plan of Development. Where built to boundary walls are not adopted side setbacks shall be in accordance with the Plan of Development Table.
6. Built to boundary walls are to have a maximum length of 15 metres and a maximum height of 3.5 metres.
7. Boundary setbacks are measured to the outermost projection.
8. First floor setbacks on single and multi family allotments must not exceed the minimum ground floor setbacks.
9. Garages must not project forward of the front building setback.

Parking

10. A minimum of one (1) off street car park is required per dwelling.
11. Allotments (not on a laneway) with a frontage of less than 12.5 metres are to have single or tandem parking with a setback to a garage of 4.5 metres. Double garages are not permitted.
12. Garages and carports served off a Laneway must be built to 0.5m rear setback.

Site Cover and Amenity

13. Site cover for each lot is not to exceed 70% of the lot.
14. Dwellings with their main living areas located at ground level should have a minimum area of private open space consisting of at least 12m² with a minimum width of 2.4 metres, preferably accessible from a living room.
15. Dwellings with their main living area above ground floor level should have a minimum area of private open space consisting of a balcony or roof area open to the sky, with a minimum area of 5m², and a minimum dimension of 1.2 metres, directly accessible from a living room.

Multi Family Dwellings

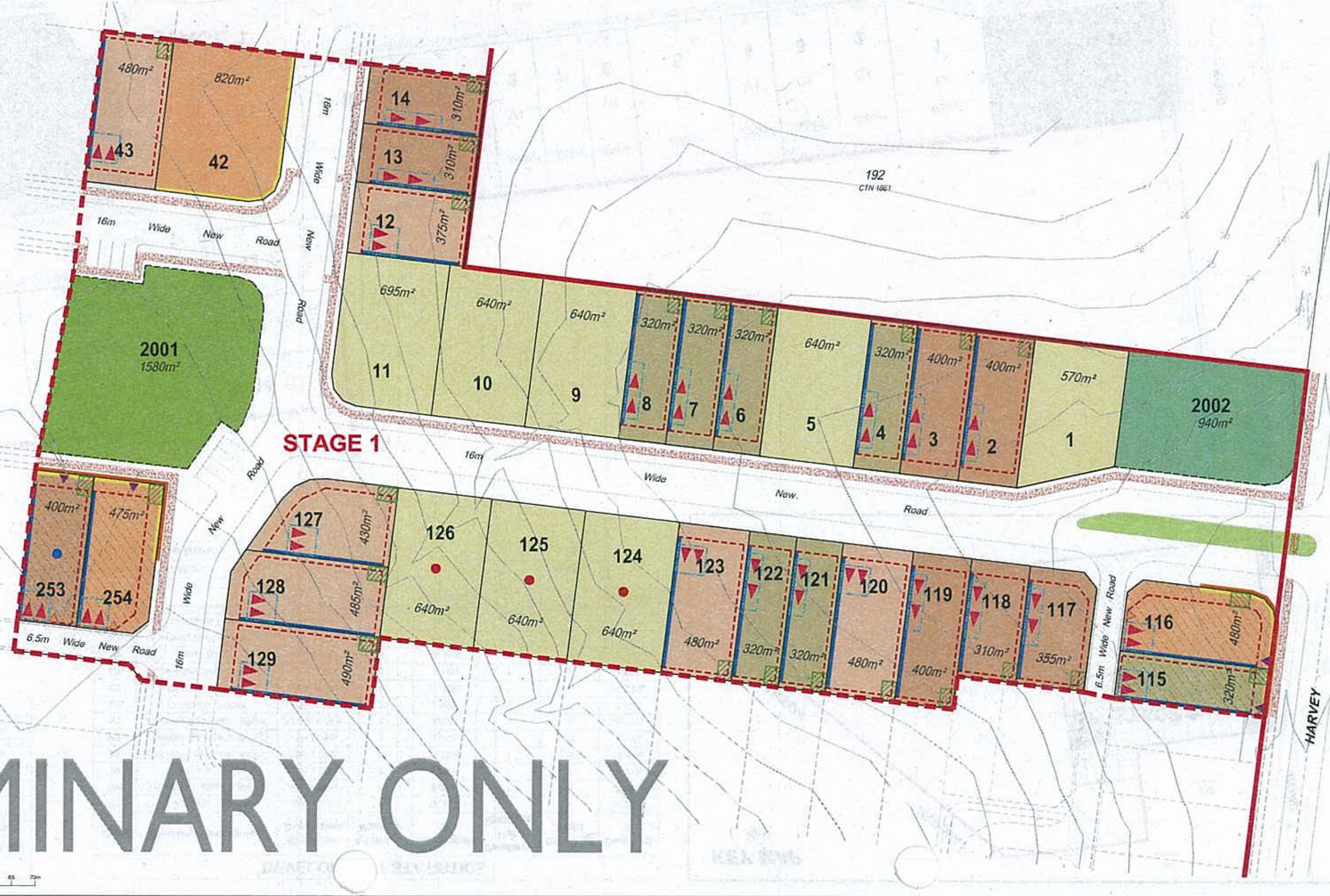
16. Multi Family Dwelling Allotments are not permitted to be developed with only one single dwelling.
17. Multi Family Dwellings have the following number of dwellings:
    - Duplex - 450-599m² - 2 dwellings
    - Triplex - 600-749m² - 3 dwellings
    - Quadplex - 750m² + - 4 dwellings
18. Where Multi Family Allotments encompass more than one frontage they are to be designed to address (entries) each street frontage.

Fencing

19. Fencing on all Primary Street Frontages, if containing openings that make it more than 50% transparent, the maximum fence height should be 1.5 metres, and be solid to a maximum height of 1.2 metres.

Definitions:

Loft Homes - A dwelling built above a garage with its own entry door at ground level.
Laneway Allotment - Allotments serviced by a laneway.
Hillside Homes - Allotments with a maximum side boundary retaining wall of 1.0 metre



PRELIMINARY ONLY

REVISION
A: Amend notes, table and lot details
B: Amend Development Table

Note
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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

PLAN OF DEVELOPMENT STAGE 1

Level Datum	
Origin	
Date	09 JULY 2010
Comp By	WNW
DWG Name	102361-PROP2-STAGE 1
Local Authority	URBAN LAND DEVELOPMENT AUTHORITY
Locality	CLINTON
Job Reference	102361
Scale	1 : 500
Sheet	A1
Plan Ref	102361 - 26
Rev	B

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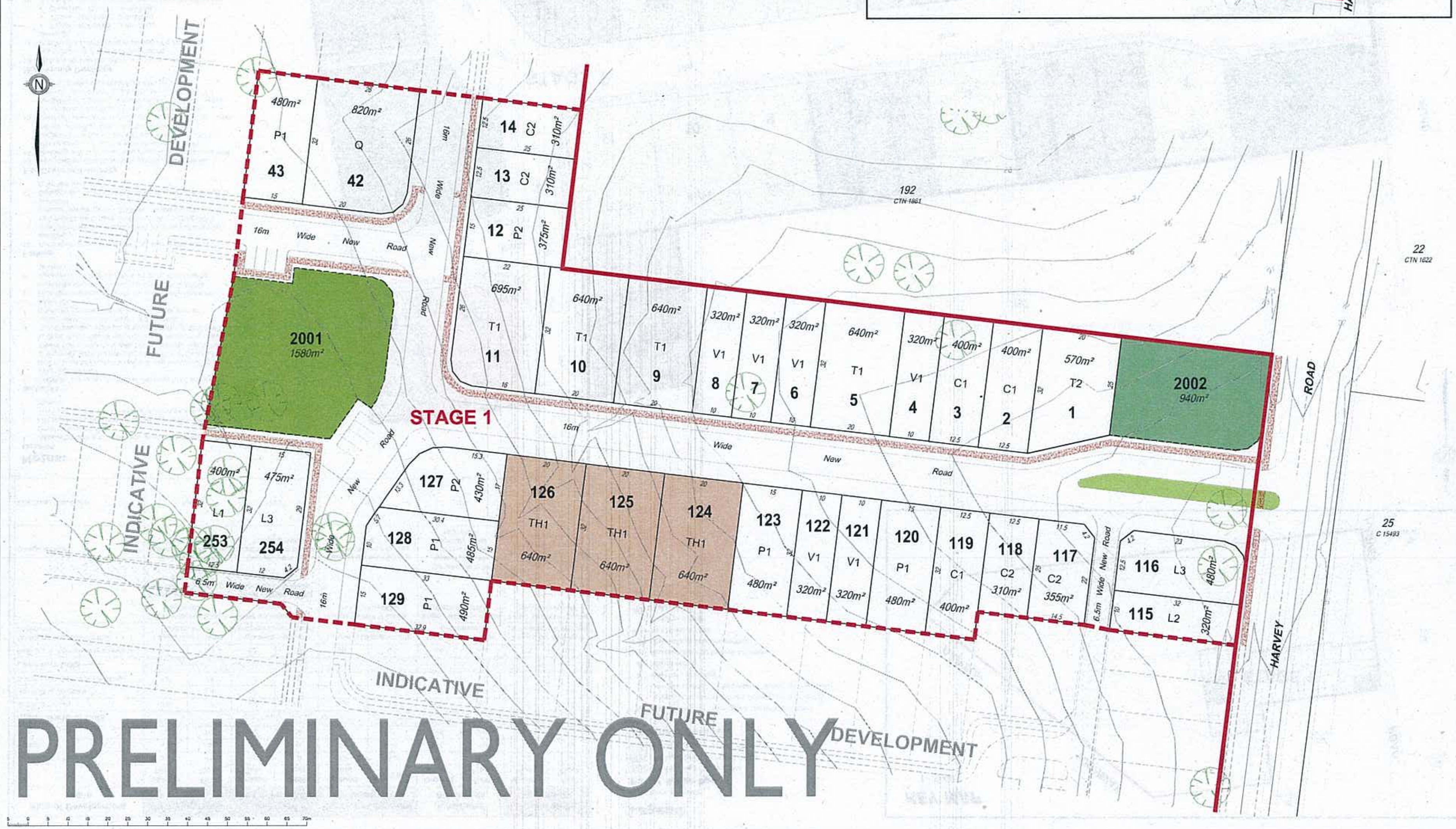
LAND BUDGET	Area (ha)	Pecentage
Area of Stage 1	2.499	100%
Open Space Area		
Park / Active Open Space	0.158	6%
Detention / Open Space	0.094	4%
Total Area of Open Space	0.252	10%
Total Area of Saleable Land	1.525	61%
Total Area of New Road	0.722	29%

Road Type	Length (m)
Total Length of New Road	465
4.0m Wide Pedestrian Lane	27
6.5m Wide Laneway	53
16m Wide New Road	385

DEVELOPMENT STATISTICS

Code	Dwelling Description	Minimum Dimension	Allotment Number	Allotment %	Dwelling Per Allotment	Dwelling Yield	Dwelling %
T1	Traditional - 600m²	20m x 32m	4	12.12%	1	4	10.26%
TH1	Traditional Hillside - 600m²	20m x 32m	3	9.09%	1	3	7.69%
T2	Traditional - 500m²	20m x 25m	1	3.03%	1	1	2.56%
P1	Premium Courtyard - 480m²	15m x 32m	5	15.15%	1	5	12.82%
P2	Premium Courtyard - 375m²	15m x 25m	2	6.06%	1	2	5.13%
L1	Laneway Courtyard - 400m²	12.5m x 32m	1	3.03%	2	2	5.13%
C1	Courtyard - 400m²	12.5m x 32m	3	9.09%	1	3	7.69%
C2	Courtyard - 310m²	12.5m x 25m	4	12.12%	1	4	10.26%
L2	Laneway Villa - 320m²	10m x 32m	1	3.03%	1	1	2.56%
V1	Villa - 320m²	10m x 32m	6	18.18%	1	6	15.38%
L3	Laneway Duplex - 480m²	15m x 32m	2	6.06%	2	4	10.26%
Q	Quadplex 750m²	24m x 32m	1	3.03%	4	4	10.26%
Total			33	100.00%		39	100.00%

Density Calculation	dw/ha
Net Residential Density	16



REVISION

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Trees supplied by supplied by Capricorn survey group.

Legend
- Stage Boundary
- Slope Affected Lots
- Laneways
- Indicative 1.5m Footpath

Park / Open Space
- Proposed Park / Open Space
- Proposed Detention / Open Space
- Pedestrian Linkage / Road Reserve

CLIENT
URBAN LAND DEVELOPMENT AUTHORITY

PROJECT
HARVEY ROAD GLADSTONE

PROPOSED LAYOUT
STAGE 1
OVER LOT 193 ON CTN1861
ALLOTMENT LAYOUT

Level Datum
Origin
Date: 08 JULY 2010
Comp By: WNW
DWG Name: 102361-PROP2-STAGE 1
Local Authority: URBAN LAND DEVELOPMENT AUTHORITY
Locality: CLINTON
Job Reference: 102361
Scale: 1 : 500
Sheet: A1
Plan Ref: **102361 - 25**
Rev

RPS

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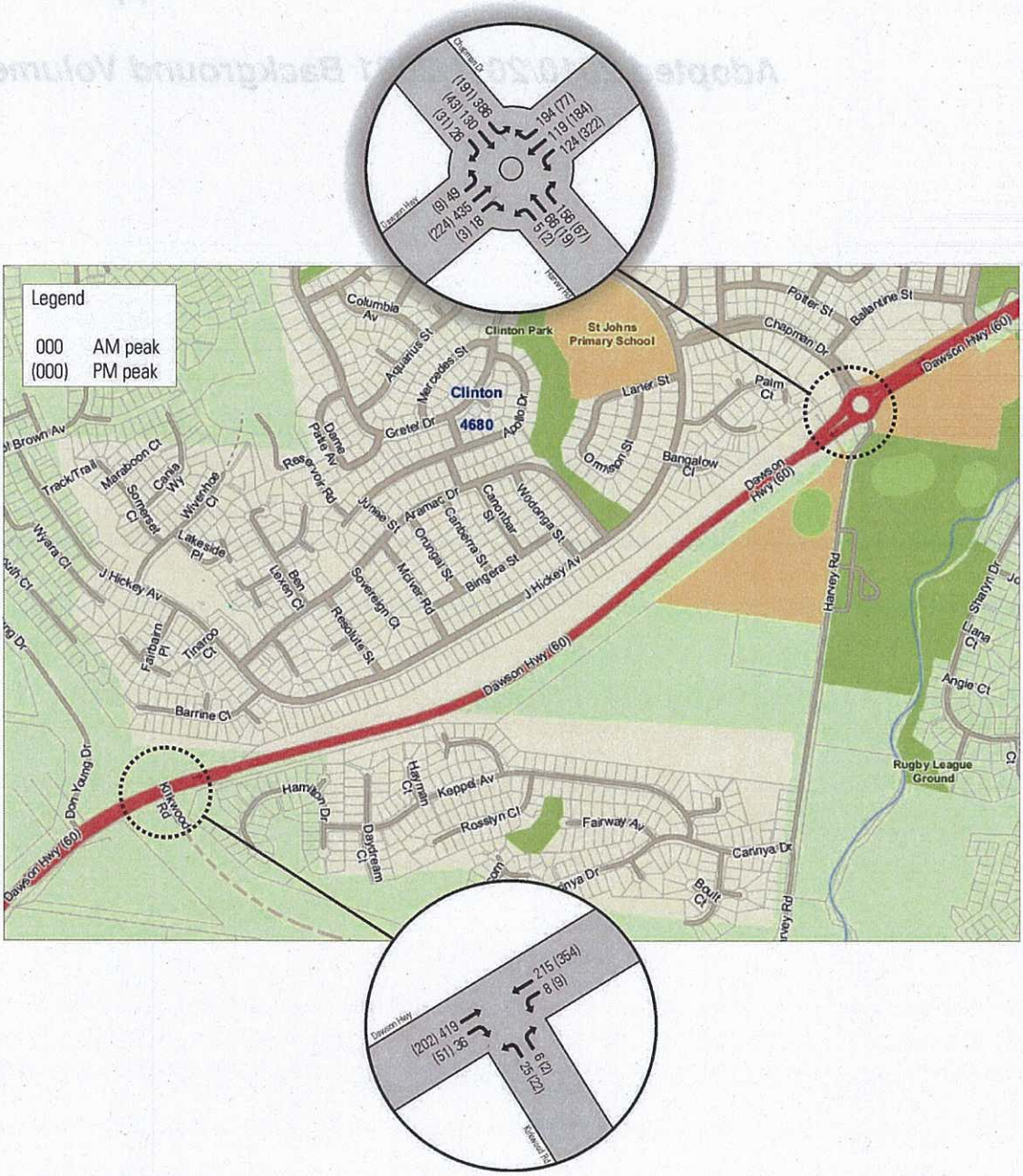
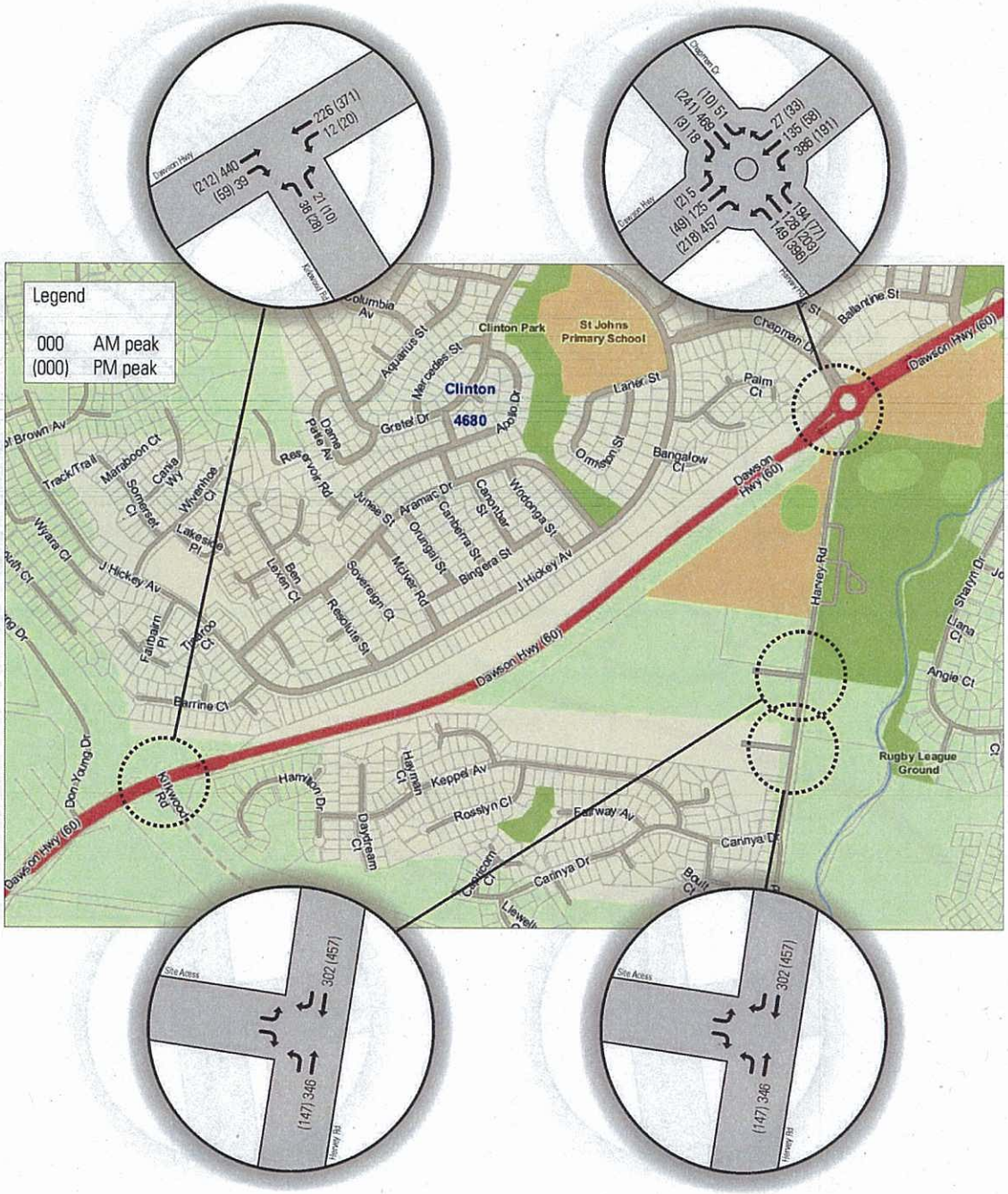
Appendix B

Adopted 2010/2011/2021 Background Volumes

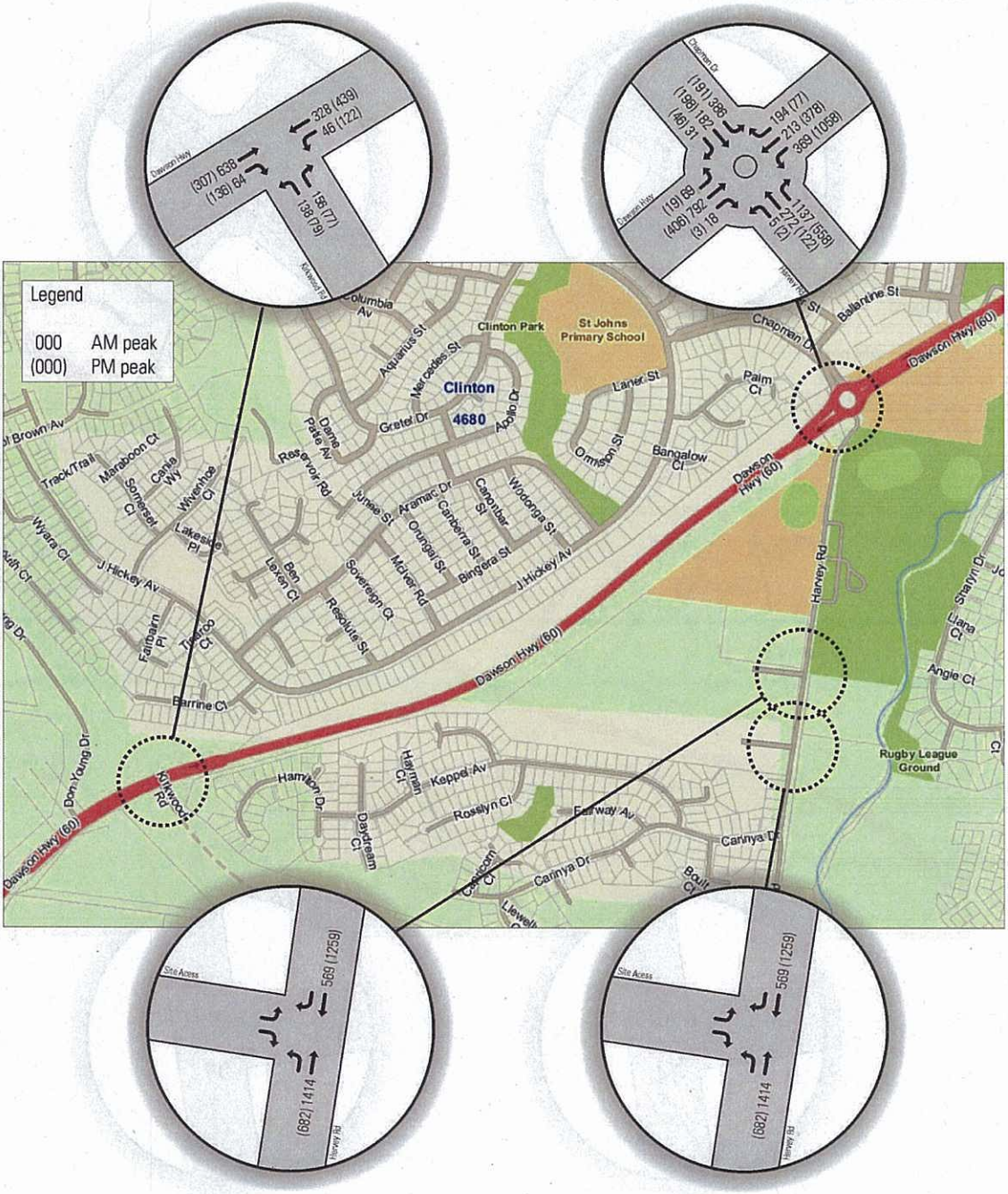
2010 Background Volumes



2011 Background Volumes

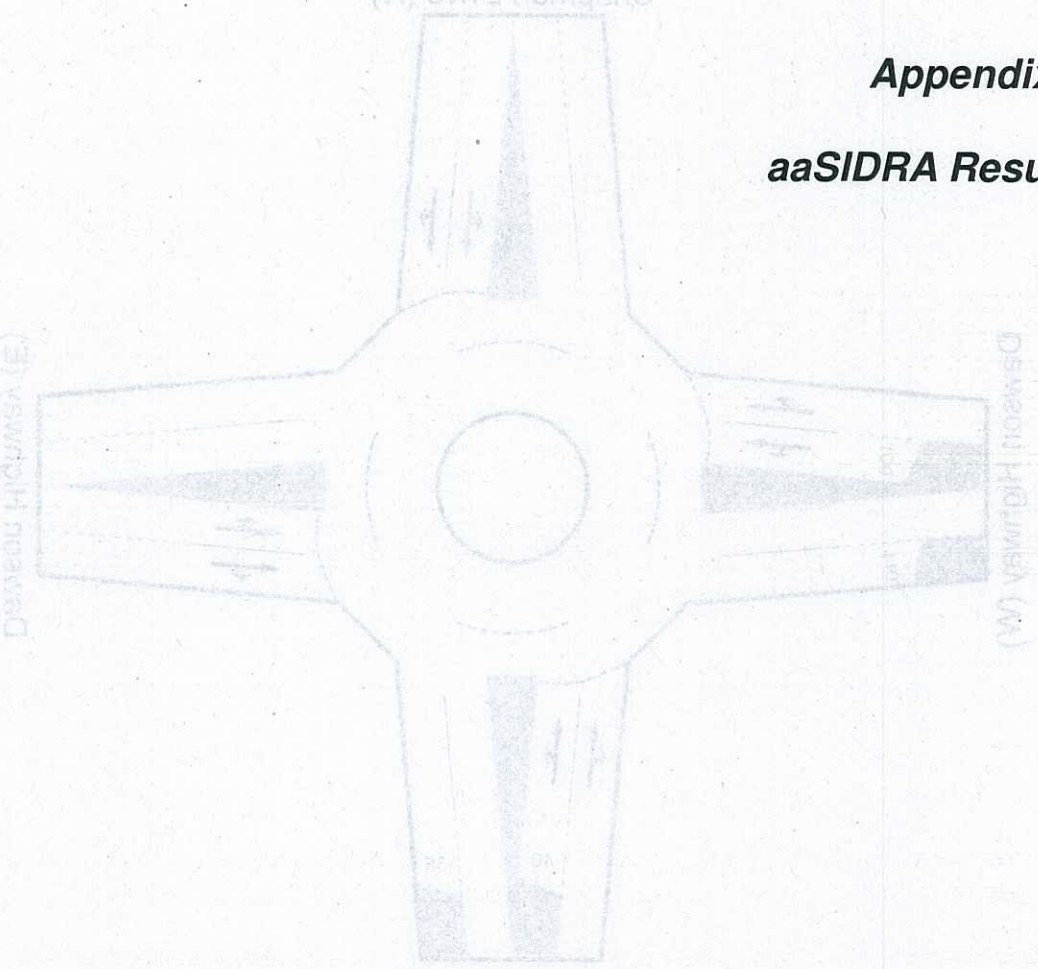


2021 Background Volumes



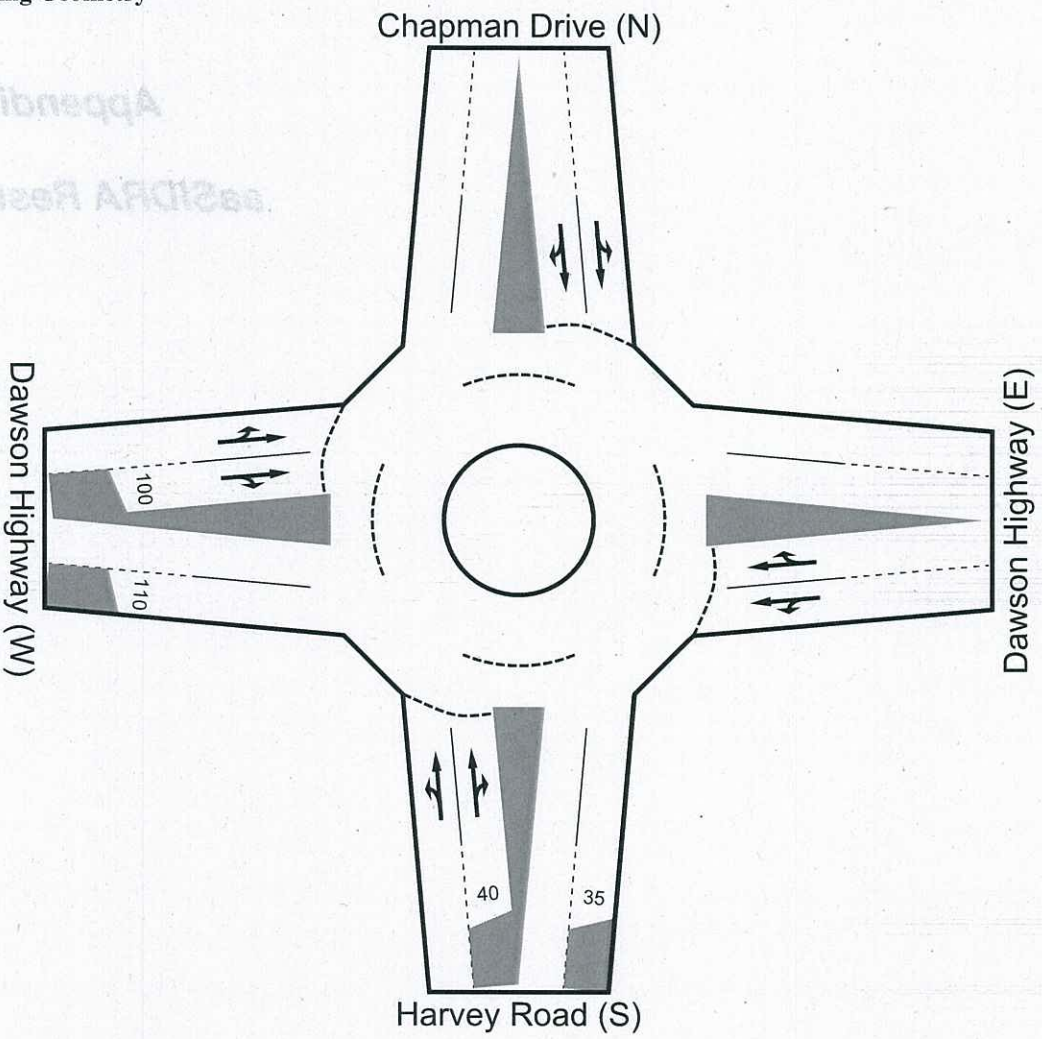
Appendix C

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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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	

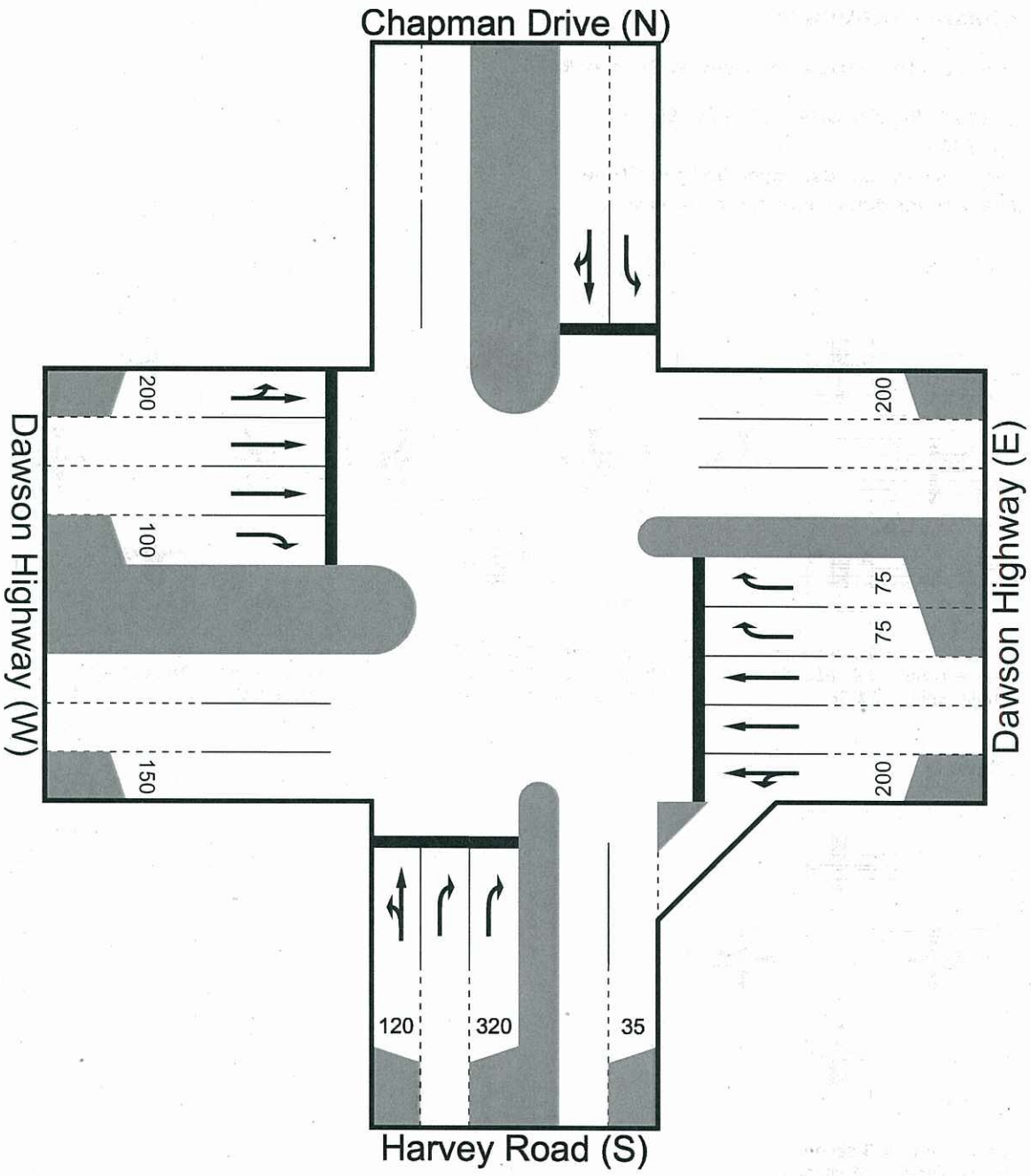
ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	1537	2	0.309	5.6	15

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

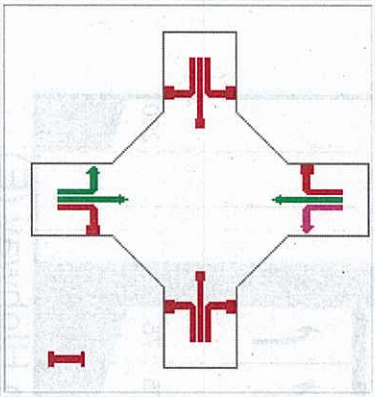
2021 AM BG+Sur wDev Volumes - Signals

C = **140** seconds

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

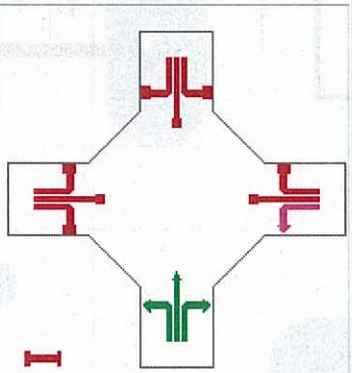
Phase times determined by the program.

Phase A



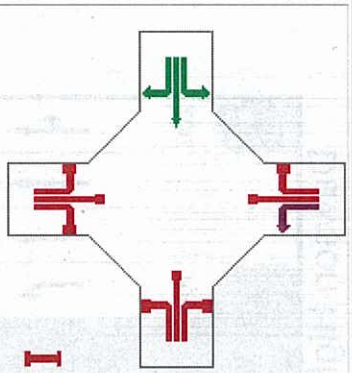
Green Time = **23** seconds
Phase Time = **29** seconds
Phase Split = **21** %

Phase B



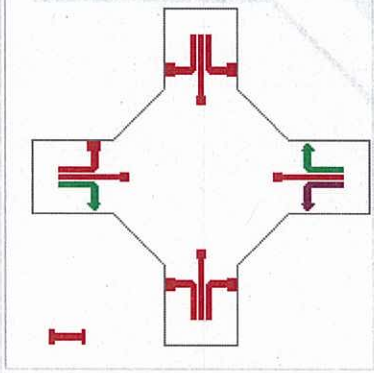
Green Time = **53** seconds
Phase Time = **59** seconds
Phase Split = **42** %

Phase C



Green Time = **32** seconds
Phase Time = **38** seconds
Phase Split = **27** %

Phase D



Green Time = **8** seconds
Phase Time = **14** seconds
Phase Split = **10** %

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

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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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

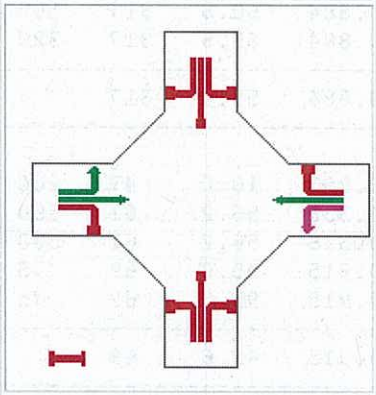
2021 PM BG+Sur wDev Volumes - Signals

C = **140** seconds

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

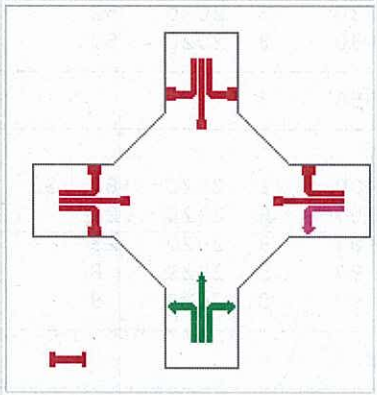
Phase times determined by the program.

Phase A



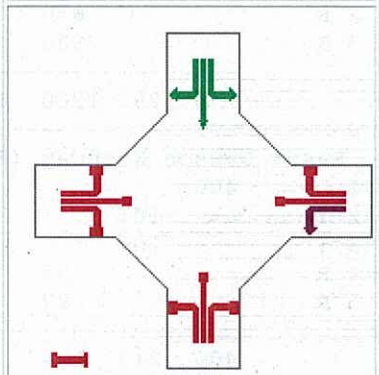
Green Time = **33** seconds
Phase Time = **39** seconds
Phase Split = **28** %

Phase B



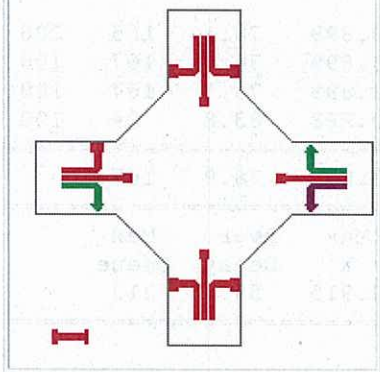
Green Time = **55** seconds
Phase Time = **61** seconds
Phase Split = **44** %

Phase C



Green Time = **22** seconds
Phase Time = **28** seconds
Phase Split = **20** %

Phase D



Green Time = **6** seconds
Phase Time = **12** seconds
Phase Split = **9** %

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

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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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

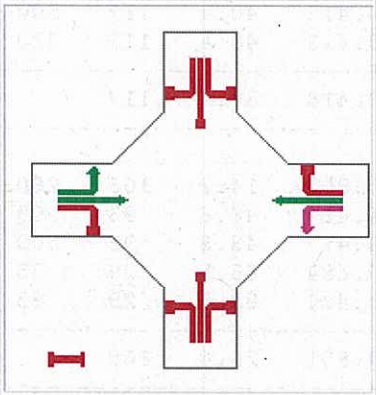
2021 AM BG+Sur Volumes - Signals

C = **140** seconds

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

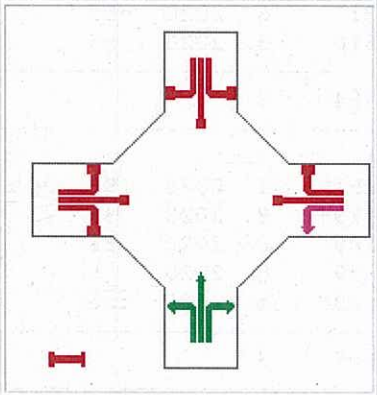
Phase times determined by the program.

Phase A



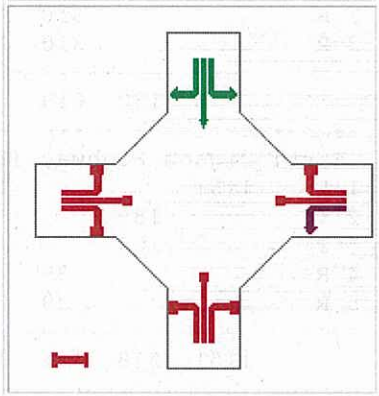
Green Time = **24** seconds
Phase Time = **30** seconds
Phase Split = **21** %

Phase B



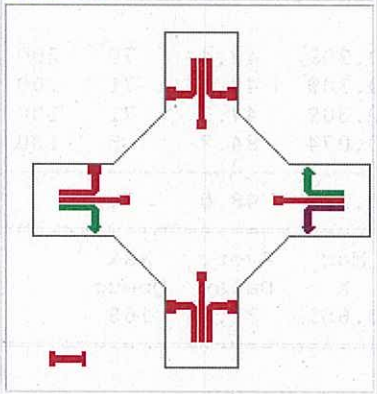
Green Time = **49** seconds
Phase Time = **55** seconds
Phase Split = **39** %

Phase C



Green Time = **34** seconds
Phase Time = **40** seconds
Phase Split = **29** %

Phase D



Green Time = **9** seconds
Phase Time = **15** seconds
Phase Split = **11** %

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

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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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

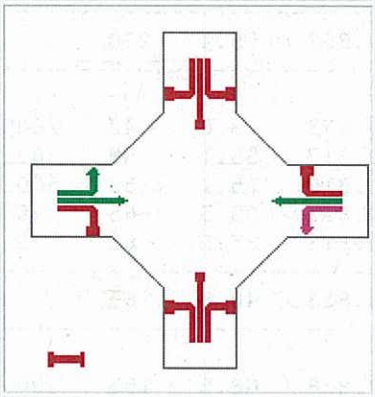
2021 PM BG+Sur Volumes - Signals

C = **140** seconds

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

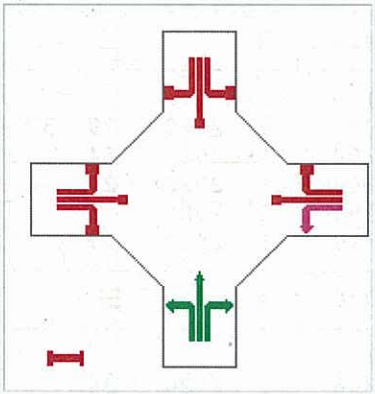
Phase times determined by the program.

Phase A



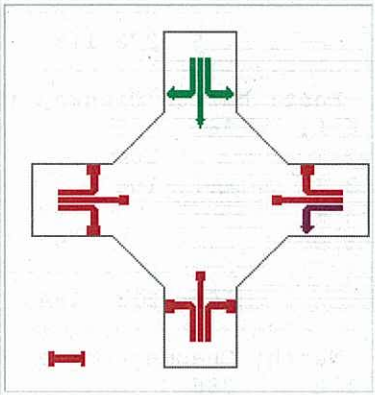
Green Time = **35** seconds
Phase Time = **41** seconds
Phase Split = **29** %

Phase B



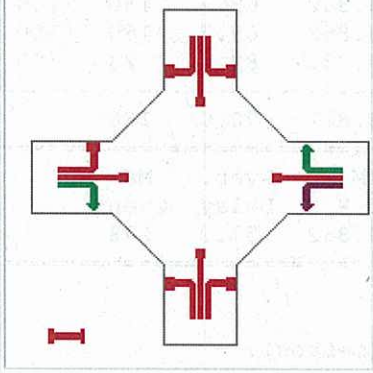
Green Time = **52** seconds
Phase Time = **58** seconds
Phase Split = **41** %

Phase C



Green Time = **23** seconds
Phase Time = **29** seconds
Phase Split = **21** %

Phase D



Green Time = **6** seconds
Phase Time = **12** seconds
Phase Split = **9** %

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

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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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

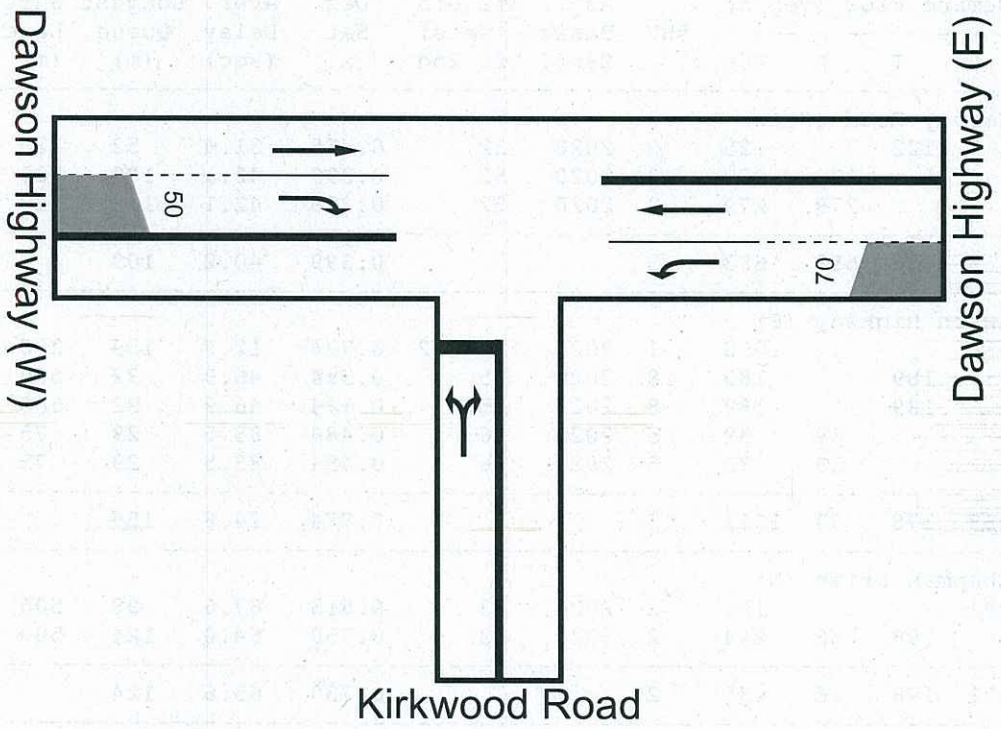
Peak flow period = 60 minutes.

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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
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.