Appendix K

Traffic Impact Assessment – Precinct 1 (State Controlled Roads)

Southern Thornlands – Precinct 1 (State-controlled Roads)

Traffic Impact Assessment

Urbex Pty Ltd

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Prepared by:

SLR Consulting Australia

Level 16, 175 Eagle Street, Brisbane QLD 4000, Australia

SLR Project No.: 620.040303.00004

23 June 2025

Revision: 1.0

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1.0	23 June 2025	Alex Moxon Taylor Beauchamp	Jess Peters	Brett McClurg

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Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Urbex Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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1.0 Introduction

1.1 Background

SLR Consulting Australia Pty Ltd (**SLR**) has been commissioned by Urbex Pty Ltd (**Urbex**) to prepare a Traffic Impact Assessment (**TIA**) for the proposed Precinct 1 development area which forms part of the Southern Thornlands Priority Development Area (**PDA**) at Springacre Road, Southern Thornlands.

This TIA has been prepared to consider the traffic and transport aspects of the proposed development to inform Economic Development Queensland (**EDQ**) as the approving authority and the Department of Transport and Main Roads (**TMR**) as a concurrency agency.

This TIA considers intersection impacts on the **State-controlled Road Network** only. All other transport aspects (including road safety, public transport and active transport networks) are included in a separate report: "Southern Thornlands – Precinct 1 Traffic Impact Assessment (Springacre Road)" prepared by SLR.

This report considers the first 800 residential dwellings and mixed use, referred to as 'the **Precinct 1'** (or '**the Subject Site**' herein). The Precinct 1 in its regional context is shown below on **Figure 1** with development plans included at **Appendix A**.

Figure 1 Site Location – Regional Context



1.2 Assessment Scope

This TIA report has been prepared to inform EDQ's and TMR's assessment of Precinct 1 by identifying the traffic impacts in relation to the state-controlled network. The following assessment has been undertaken in accordance with TMR's *Guide to Traffic Impact Assessment* (**GTIA**) and considers the impacts of the development on the state-controlled network.

2.0 Existing Conditions

2.1 Site Context

The subject site is located at Springacre Road, Thornlands and is located within the local government jurisdiction of Redlands City Council (**RCC**). As noted previously, the subject site is fully contained within the declared Southern Thornlands PDA.

The site is bound by Springacre Road to the west, rural residential properties to the north and south and low-density residential properties to the east. The site is shown in its local context in **Figure 2**.

Substantial vegetation constraints over the eastern part of the site mean that a road connection to the east is not proposed.

Figure 2 Site Location – Local Context



2.2 Road Network Planning

Of relevance to this area, TMR is currently undertaking two planning studies: *Mount Cotton Road, Duncan Road to Double Jump Road Planning Study* and the *Redland Bay Road Taylor Road to Cleveland Redland Bay Road Planning Study*. The studies commenced with community consultation in 2023. Phase 2 community consultation is now underway where TMR is seeking feedback on two upgraded intersections (see **Figure 3** and **Figure 4**) that would have a direct impact on the road network planning for the PDA. It assumed that EDQ and TMR are coordinating the design of these intersections given their proximity and importance to the PDA.

More broadly, TMR is also undertaking a multi-modal transport study *(Bayside and Redlands Transport and Mobility Study*) to investigate the transport challenges and mobility priorities relating to road, active transport and public transport modes. This will identify the communities' current and future mobility priorities when travelling to, from and within the

area, supported by desired outcomes and a high-level overview of the preferred 2046 transport networks. Again, it is assumed that EDQ and TMR are coordinating in this matter.

Figure 3 Double Jump Road and Mount Cotton Road Intersection Upgrade

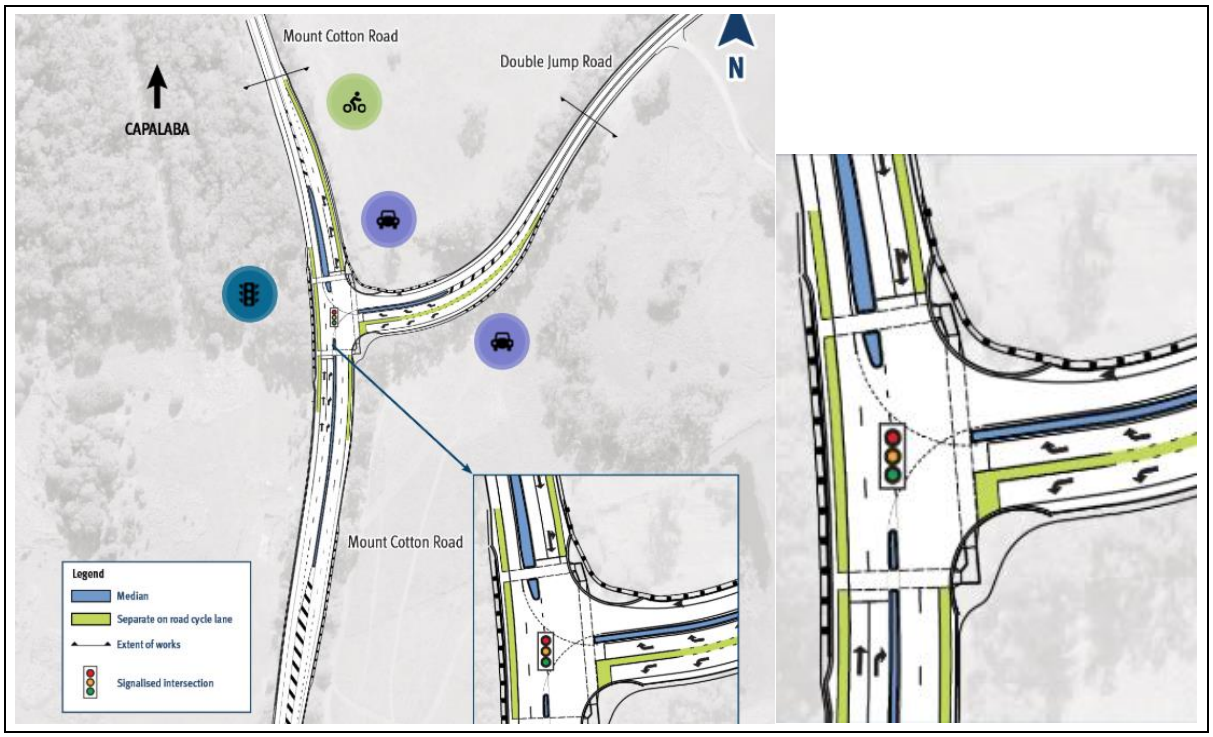
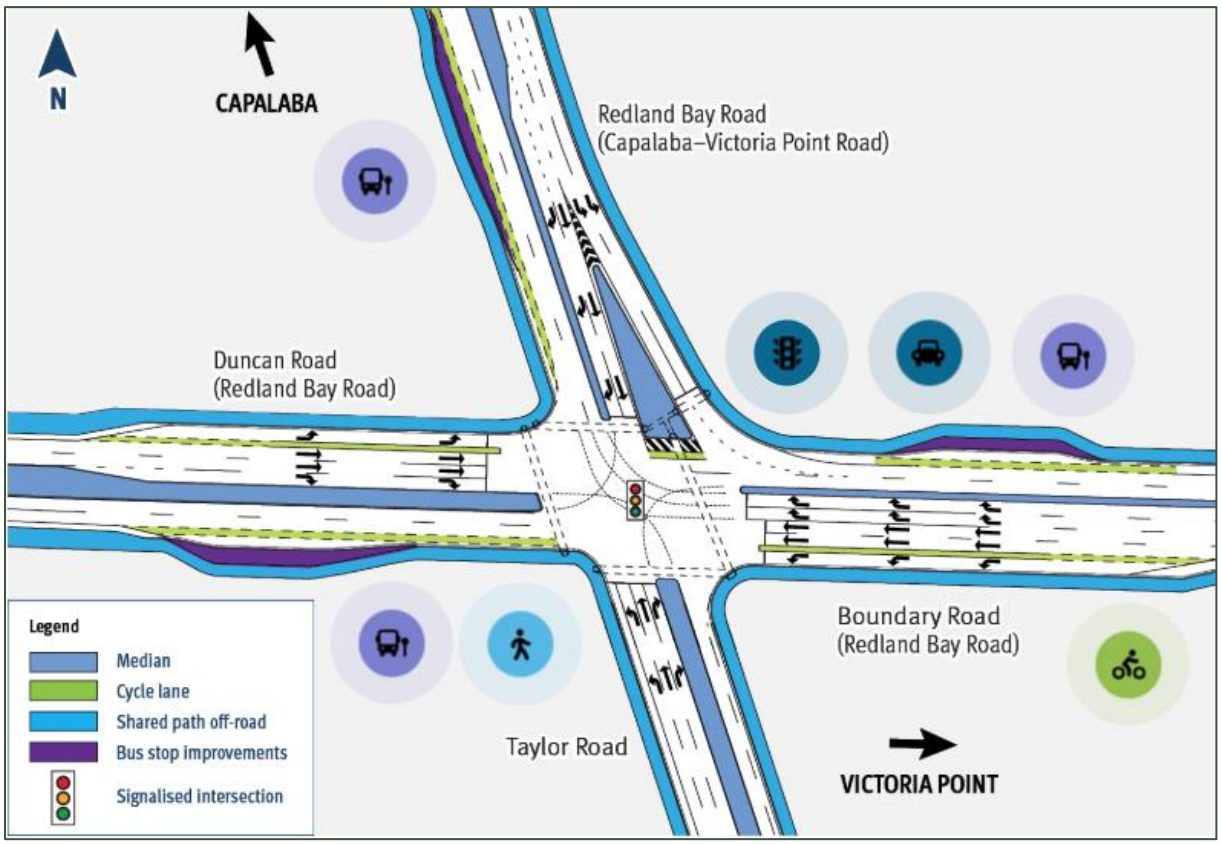


Figure 4 Taylor Road and Redland Bay Road Intersection Upgrade



3.0 Development Overview

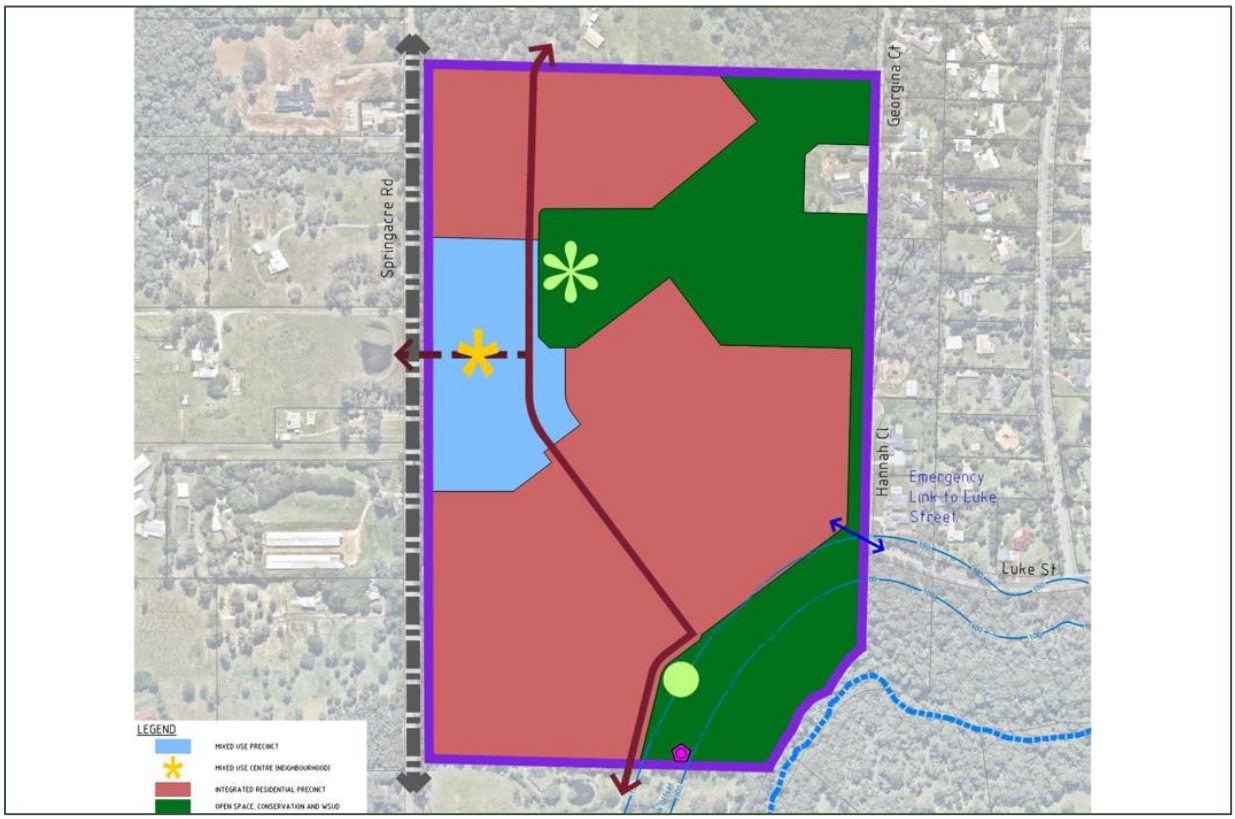
3.1 Proposed Development

Based on the development plans prepared by Urbex and reproduced at **Appendix A**, the proposed Precinct 1 development will be a residential community comprising the following nominal yields (for the purpose of traffic assessment):

- A total of 800 residential dwellings including:
  - Detached Dwelling Lots: 550 dwellings
  - Multiple Dwelling Lots: 250 dwellings
- A mixed-use development including:
  - Retail: 1,595 m^2
  - Community: 250 m^2
  - Commercial: 750 m^2
  - Medical: 400 m^2
  - Childcare Centre: 120 places

The proposed Precinct 1 land use plan is shown below in **Figure 5**.

Figure 5 Land Use Plan

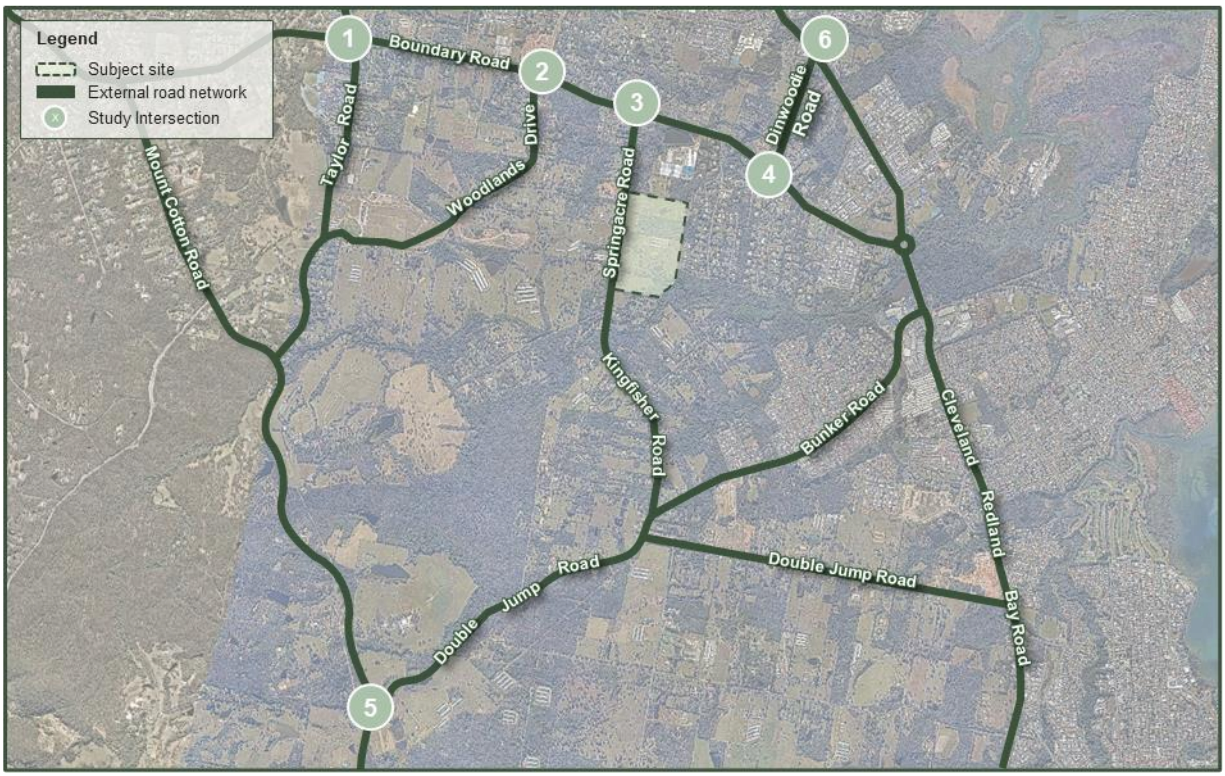


4.0 Operational Assessment

4.1 Study Scope

A detailed analysis of the forecast development traffic impact on the operation of the external state-controlled road network has been undertaken at six (6) intersection locations as shown in **Figure 6** below as requested by EDQ.

Figure 6 Study Intersections



The key intersections shown on **Figure 6** are summarised below in **Table 1**.

Table 1 Study Intersections Summary

ID	Intersection Name	Intersection Form
1	Boundary Rd / Redland Bay Rd / Duncan Rd / Taylor Rd	Roundabout
2	Boundary Rd / Woodlands Dr / Panorama Dr	Signalised 4-way Intersection
3	Boundary Rd / Springacre Rd	Signalised T-Intersection
4	Boundary Rd / Dinwoodie Rd	Signalised T-Intersection
5	Mount Cotton Rd / Double Jump Rd	Unsignalised T-Intersection
6	Cleveland-Redland Bay Rd / Dinwoodie Rd	Signalised 4-way Intersection

4.1.1 GTIA Scoping Assessment

A scoping assessment was conducted to determine the development traffic demand at each study intersection as a proportion of background traffic demand. The findings suggest that the additional traffic demand generated by the subject development comprises more than 5% of total traffic demand at the design horizon for any movement at each of the study intersections identified in **Table 1**. Therefore, each intersection has been included in the assessment.

4.2 Existing Traffic Demand

In order to ascertain the existing traffic conditions for the road network surrounding the site, SLR commissioned Austraffic Pty Ltd (**Austraffic**) to carry out surveys for typical weekday AM and PM peak periods at the intersections presented in **Table 1**.

The traffic surveys were undertaken on Tuesday 10 June 2025 and are included at **Appendix B**.

Traffic signal timing plan data for the signalised intersections was also sourced from TMR and reviewed to establish peak periods.

Based on both sources, the predominate peak-hour periods were determined as:

- AM Peak Hour: 7:30AM – 8:30AM
- PM Peak Hour: 3:30PM – 4:30PM

4.3 Background Traffic Growth

A linear growth rate of 3.0% per annum has been adopted for the surrounding road network. TMR traffic census data (for the adjacent Boundary Road) has recorded approximately 1% growth per annum over the last ten years. For conservatism, 3% has been adopted across the road network to estimate traffic volumes at the assessed future year horizons. It is important to recognise that this growth rate does not allow for the full potential future development in the PDA.

4.4 Development Traffic Demand

4.4.1 Traffic Generation

The following development traffic generation rates for detached dwellings were found to be applicable in accordance with the hierarchical approach outlined in TMR's GTIA and are informed by SLR traffic surveys and data published on the Queensland Open Data Portal.

- Weekday daily vehicle trips: 7.2 vehicles per dwelling
- AM and PM peak hours: 0.72 vehicles per dwelling.

However, for the Precinct 1 development, a conservative approach to traffic generation has been adopted (to provide a factor of safety) regarding the intersection operations. Therefore, a peak hour traffic generation rate of 0.8 vehicles per dwelling has been utilised for the assessment.

Given the mix of densities within the multiple dwelling lots, a rate of 0.5 vehicles per dwelling has been utilised during the peak hour periods, in line with the guidance in the RTA's '*Guide to Traffic Generating Developments (2002)*'.

For the non-residential land uses, the following traffic generation rates have been applied, taking into consideration the variation of uses listed below. The proposed generation rates also consider that a significant portion of traffic generation will occur from within the subject site, with only a portion of the non-residential traffic generating to/from Springacre Road.

Table 2 Non-Residential Traffic Generation Rates

Land Use	AM Peak Hour	PM Peak Hour	Source
Retail	2.5 vph per 100m² GFA (approx. 50% of the PM peak hour)	5 vph per 100m² GFA	QLD Open Data Summary Spreadsheet v1.7
Community	2 vph per 100m² GFA	2 vph per 100m² GFA	QLD Open Data Summary Spreadsheet v1.7
Commercial	9.7 vph per 100m² GFA	11.7 vph per 100m² GFA	DTMR Road Planning and Design Manual 1st Edition
Medical	2.5 vph per 100m² GFA	5 vph per 100m² GFA	DTMR Trip Generation Data – Medical Centres – Brisbane
Childcare Centre	2.5 vph per child	5 vph per child	DTMR Trip Generation Data – Childcare Centres – SEQ Sites

It is assumed that when traffic modelling is undertaken by EDQ, reduced traffic generation rates (to reflect the intent to encourage public and active transport trips) will be adopted.

4.4.2 Directional Split

Directional traffic assumptions (i.e. inbound, and outbound) were determined based on publicly available data and SLR's traffic engineering experience with similar large scale residential developments. The resultant directional split is shown in **Table 3**.

Table 3 Directional Split

Land Use	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Residential	40%	60%	60%	40%
Non-residential	50%	50%	50%	50%

The estimated development traffic demand forecasts are presented in **Table 4**.

Table 4 Development Traffic Demand

Land Use	Assessed Yield	AM Peak Hour Traffic Generation		PM Peak Hour Traffic Generation	
		In	Out	In	Out
Detached Dwelling	550 dwellings	176 vph	264 vph	264 vph	176vph
Multiple Dwelling	250 dwellings	50 vph	75 vph	75 vph	50 vph
Retail	1,595m² GFA	112 vph	110 vph	112 vph	112 vph
Commercial	750m² GFA	8 vph	8 vph	8 vph	8 vph
Community	250m² GFA	3 vph	3 vph	3 vph	3 vph
Medical Centre	400m² GFA	11 vph	11 vph	11 vph	11 vph
Childcare	120 places	39 vph	39 vph	29 vph	29 vph
Total		**398 vph**	**511 vph**	**501 vph**	**388 vph**

4.4.3 External Distribution

The development traffic generation was assigned to the external road network based on the percentages shown in **Table 5**. These directional distribution assumptions were informed by the traffic survey and SLR's professional experience. The resultant development traffic flows are presented graphically in **Appendix B**.

Table 5 External Traffic Distribution

Direction on Springacre	Broader Destination	AM Peak		PM Peak	
		In	Out	In	Out
North (70%)	Redland Bay Rd (north)	30%	30%	30%	30%
	Duncan Road (west)	20%	20%	20%	20%
	Dinwoodie Rd (north)	10%	10%	10%	10%
	Boundary Road (east)	5%	5%	5%	5%
	Panorama Dr (north)	5%	5%	5%	5%
South (30%)	Bunker Rd (east)	10%	10%	10%	10%
	Mount Cotton Rd (south)	15%	15%	15%	15%
	Double Jump Rd (south)	5%	5%	5%	5%
Total		**100%**	**100%**	**100%**	**100%**

4.5 Assessment Scenarios

For the purposes of the traffic assessment conducted herein, SLR has assumed that the proposed development would be completed and operational by 2029. Based on this, the operational performance of the impacted road network has been considered for the following scenarios:

- **2025 'Survey':** To establish existing operational conditions and baseline results in their existing built form.
- **2029 'Background':** To establish the year of opening background operating conditions in their existing built form in the absence of the proposed development.
- **2029 'With Development':** To identify the impact of development traffic under proposed operating conditions at the anticipated year of opening.

4.6 Impact Assessment and Mitigation

4.6.1 GTIA Intersection Delay Criteria

The GTIA introduces a 'no net worsening' approach to intersection delay, where the desired outcome is to ensure that the sum of intersection delays on base traffic within the defined impact assessment area does not significantly worsen. The case for being significantly worse is met when the additional delay to base traffic, as a consequence of traffic generated by the development, is greater than the 5% threshold in aggregate.

Where the 5% threshold is met, then the additional delays created as a result of the development traffic need to be mitigated by upgrades to intersections in the impact assessment area. Delays, in aggregate, should be reduced to at least the pre-development levels, calculated across the impact assessment area.

Intersection delay is calculated as shown in **Equation 2**.

Equation 2: Intersection Delay Calculation

$$\mathbf{ID} = \sum_{i=1}^{n} \boldsymbol{WD} - \sum_{i=1}^{n} \boldsymbol{BC}$$

Where:

ID is the aggregate intersection-delay impact vehicle-minutes;

WD is with development intersection vehicle-minutes for design peak periods. This is calculated by multiplying the with development average delay by movement to the base case volume on each movement, thus not counting the impact as delays to development traffic, only to pre-existing traffic that is affected by the additional delays;

BC is the base case intersection vehicle-minutes for design peak periods;

n is the number of intersections in the impact assessment area; and

i is each intersection within the impact assessment area.

It is noted that the GTIA states that where traffic generated by a development increases the delay to base traffic by less than 5% in aggregate, no mitigation treatments are required. Importantly, vehicle delays for multiple intersections are calculated network-wide (i.e. if a development has a delay impact at one intersection, its delay may be offset by providing significant improvements at a different intersection).

4.7 SIDRA Inputs

Default input parameters were utilised wherever possible as part of the assessment conducted herein in accordance with the GTIA except for those specified within

Table 6, where it was deemed that the adopted parameters would be more representative of existing and/or future traffic conditions.

Table 6 Adopted SIDRA Parameters

Parameter	Default Value	Adopted Value	Justification
Bunching	0%	#2 – 5% North, East and West #3 – West #5 - 10% North and 20% South #6 – 10% East, 15% West	Bunching >0% has been adopted on a select number of intersection approaches to account for the effect of adjacent signalised intersections on traffic flow. The adopted values vary depending on the separation between intersections and characteristics of midblock sections. The values have been selected with reference to Table 5.2.1 of the SIDRA User Guide and are considered conservative.
Gap Acceptance – Two Way Stop Control (TWSC)	TWSC = None	#5 TWSC = High (AM) and Low (PM)	The modified TWSC parameters were adopted based on site observations of driver behaviours to have modelled results better match observations.

4.8 Intersection Capacity Assessment

A detailed SIDRA operational assessment for each intersection is provided at **Appendix E**.

The results indicate that a number of the existing intersections on the state-controlled network are at or approaching capacity or will do so by the 2029 assessment year.

As outlined in the GTIA, it is becoming harder to provide improved road capacity at a rate to satisfy demand. In line with the GTIA, a net delay impact assessment has been undertaken in **Section 4.9** to determine the impact of the proposed development on the background traffic.

4.9 Network Delay Assessment

Intersection delay for the State-controlled Road network has been calculated in accordance with the GTIA 'no net worsening' methodology as described in **Section 4.6.1**. The results of the net worsening assessment are summarised within **Table 7**, with the full net worsening assessment table provided at **Appendix F**.

Table 7 Intersection Delay Results (Existing Intersection Forms)

Peak Period	ΣBC (Total Base Case Delays)	ΣWD (Total 'With Development' Delays)	ID = ΣWD - ΣBC	
			Δ	%
AM Peak	13,066 veh-min	22,907 veh-min	9,840 veh-min	75.3%
PM Peak	19,113 veh-min	30,794 veh-min	11,680 veh-min	61.1%
Total	**32,180 veh-min**	**53,700 veh-min**	**21,521 veh-min**	**66.9%**

As documented in **Table 7**, the proposed development traffic impact would increase delays over the assessed network by 66.9% (i.e. greater than 5% impact) on the vehicle-minute delay experienced on the state-controlled network in 2029.

4.10 Precinct 1 Assessment Discussion

This GTIA report has been prepared at the request of EDQ, noting that it has been prepared in advance of PDA-wide transport modelling, establishment of a transport infrastructure strategy and associated DCOP. As noted in Section 2.2, TMR are also concurrently undertaking significant investigations and preparing design concepts for two intersections within the study area (as described in **Section 2.2**).

With regards to the assessment undertaken in relation to road network impacts:

- Three of the six state-controlled intersections surrounding the site are currently operating at or over capacity (at a 2025 survey year).
- Four of the six state-controlled intersections are forecast to be at or over capacity with four years of the nominal background traffic growth.
- Within a net worsening assessment, the traffic impacts of Precinct 1 on these intersections increases disproportionately due to the known network capacity deficiencies without the development.
- While impacts on the state-controlled road network are acknowledged, any mitigation measures proposed at this time may become redundant or inconsistent with the outcomes of EDQ's forthcoming traffic modelling and DCOP, which will inform long-term infrastructure delivery.

Given the above, and the impact of Precinct 1 traffic, it is proposed that the development provides mitigation works that would not prejudice future infrastructure works determined by EDQ's further PDA-wide transport planning (i.e. DCOP). Therefore, to support early delivery of Precinct 1 under the ILUP, Urbex proposes the following works at Boundary Road / Springacre Road intersection:

- Extension of the existing right-turn lane from Boundary Road into Springacre Road.
- Extension of the existing left-turn from Springacre Road into Boundary Road

4.11 Boundary Road / Springacre Road Intersection

Noting the previous discussion that EDQ needs to consider holistic responses to road network impacts from a PDA-level perspective, SLR has reviewed the proposed upgrade works that can be provided at the Boundary Road/Springacre Road intersection.

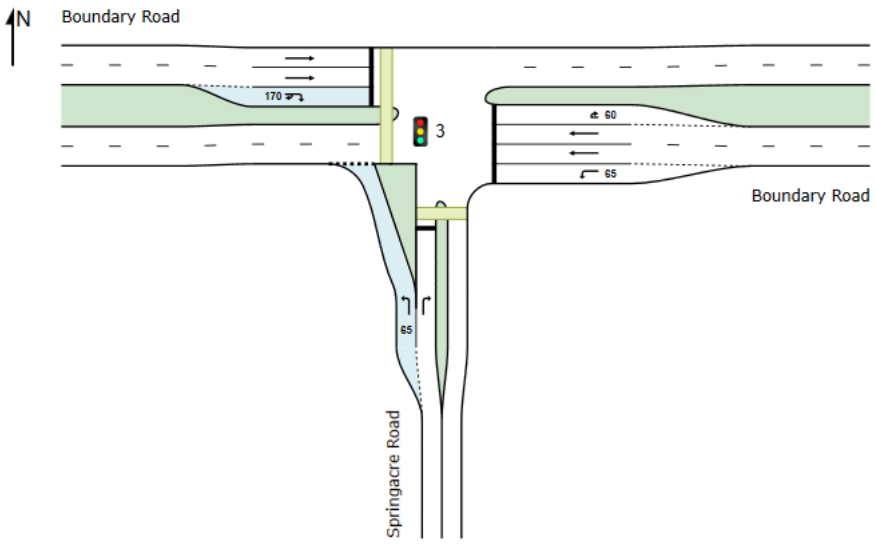
The proposed works, as follows, represent feasible works that can be readily accommodated without land resumptions:

- Extension of the existing right turn lane from Boundary Road into Springacre Road
- Extension of the existing left turn lane from Springacre Road into Boundary Road.

These works are nominal only and are shown schematically on **Figure 7,** with civil engineering concept plans included at **Appendix C**.

Figure 7 Boundary Road / Springacre Road – Proposed Form

Proposed Form



The results of the operational assessment of Boundary Road/Springacre Road are outlined in **Table 8**. The detailed SIDRA outputs can be found in **Appendix E**.

Table 8 Boundary Rd / Springacre Rd Opening Year – SIDRA Outputs

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Average Delay (sec)	95th %ile Queue (m)	DOS	Average Delay (sec)	95th %ile Queue (m)
Upgraded Intersection Form						
2029 Development	1.19	109	678	1.07	59.9	704

The upgraded intersection form provides improved capacity to accommodate Precinct 1; however, the works do not fully offset the impact of Precinct 1. In addition, the road network still requires future upgrading, subject to strategic level review and coordination between EDQ and TMR. Notwithstanding the latter findings, the proposed works are considered to reflect an appropriate interim contribution of works by Precinct 1 to improve the operation of the State-controlled Road network.

5.0 Summary

Assessment of the surrounding state-controlled road network identifies that several existing intersections are at or reaching capacity regardless of the Precinct 1 development. The net delay assessment confirms that without any mitigation measures, the development will have a significant impact on the state-controlled network.

While some allowance for broader PDA development has been included in the background growth rate, it is inefficient at this time to attempt to incorporate the specific traffic impact of PDA. This is better addressed by comprehensive traffic modelling to be undertaken by EDQ that would involve direct engagement with TMR to develop a cohesive transport infrastructure strategy and DCOP.

It is likely that this work (comprehensive traffic modelling by EDQ) will be completed prior to Precinct 1 being operational, therefore Urbex will ultimately have a mechanism to contribute to coordinated road network improvements (which should also include broader public transport and active transport improvements). Therefore, this assessment does not attempt to fully mitigate the net delay impacts of Precinct 1 with a series of ad-hoc or unfeasible works that may prejudice the delivery of more targeted network improvements.

Notwithstanding the above, upgrading works have been identified at the Boundary Road / Springacre Road intersection to facilitate the primary connection to Precinct 1. The proposed works are considered to reflect an appropriate interim contribution of works by Precinct 1 to improve the operation of the State-controlled Road network.

Sincerely,

SLR Consulting Australia





Jess Peters - RPEQ No: 17838
Principal Consultant - Transport Advisory

Brett McClurg – RPEQ No: 7628
Technical Director – Transport Advisory

Appendix A Precinct 1 Land Use and Context Plan

Southern Thornlands – Precinct 1 (State-controlled Roads)

Traffic Impact Assessment

Urbex Pty Ltd

SLR Project No.: 620.040303.00004

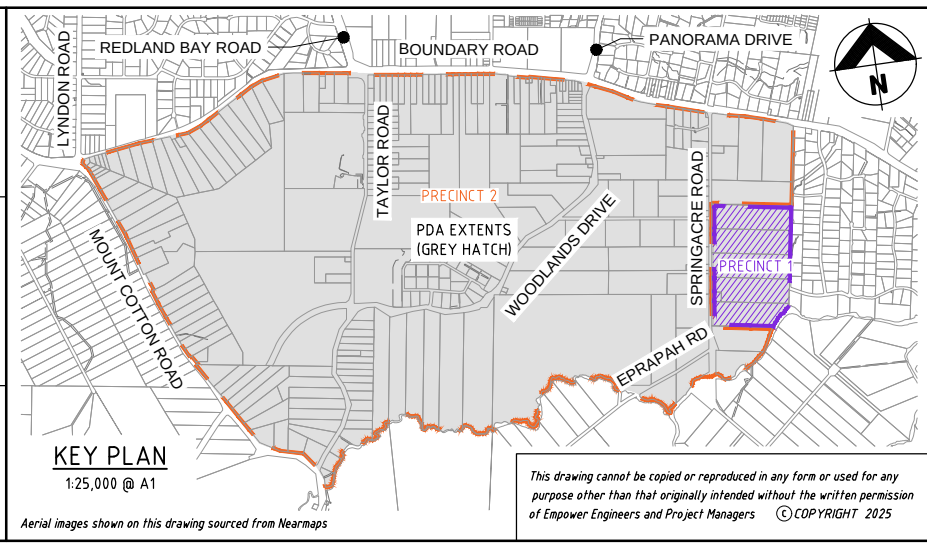
23 June 2025

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Springacre Rd
Georgina Ct
Hannah Cl
Emergency Link to Luke Street
Luke St
Eprapah Creek
150m Eprapah Creek Offset
100m Eprapah Creek Offset

LEGEND

- MIXED USE PRECINCT
- MIXED USE CENTRE (NEIGHBOURHOOD)
- INTEGRATED RESIDENTIAL PRECINCT
- OPEN SPACE, CONSERVATION AND WSUD
- NEIGHBOURHOOD RECREATION PARK
- LOCAL RECREATION PARK
- SUB ARTERIAL ROAD
- NEIGHBOURHOOD CONNECTOR STREET
- CENTRE CONNECTOR STREET
- PRECINCT 1 BOUNDARY
- 150 — 150m EPRAPAH CREEK OFFSET
- EPRAPAH CREEK
- SEWER PUMP STATION



KEY PLAN
1:25,000 @ A1

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URBEX

PlacePlan

EMPOWER

Client: URBEX PTY LTD

Project: SOUTHERN THORNLANDS PRECINCT 1

Title: LAND USE PLAN

Drawn	Design	Design Chk	Appd	Date	Project No.	Drawing No.	Rev
PDW	PDW	PI	PI	28/05/25	B00702	MC-LU01	A

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Boundary Rd
Korsman Dr
Trundle Rd
Woodlands Dr
Jessie Cl
Springacre Rd
Katie Pl
Bonnie St
Georgina Ct
Venn Pde
Hannah Cl
Luke St
Platres Dr
Eprapah Rd
Eprapah Creek
Kingfisher Rd

Nazarene Theological College
Rural Residential & Low Density Residential
Redlands Retirement Village
Rural Living, Nursery & Flower Farm
Rural Living & Home Enterprise
Advance Nursery
Conservation

150m Eprapah Creek Offset
100m Eprapah Creek Offset

LEGEND

- PDA BOUNDARY (REFER KEY PLAN FOR EXTENTS)
- PRECINCT 1 BOUNDARY
- PRECINCT 2 AREA (REFER KEY PLAN FOR EXTENTS)
- ARTERIAL ROADS (STATE CONTROLLED)
- ARTERIAL ROADS
- SUB ARTERIAL ROADS
- FUTURE POTENTIAL CONNECTOR ROADS (INDICATIVE ONLY)
- PRECINCT 1 CONNECTOR ROADS
- 150 — 150m EPRAPAH CREEK OFFSET
- EPRAPAH CREEK

KEY PLAN
1:25,000 @ A1

REDLAND BAY ROAD
BOUNDARY ROAD
PANORAMA DRIVE
LYNDON ROAD
TAYLOR ROAD
PRECINCT 2
PDA EXTENTS (GREY HATCH)
WOODLANDS DRIVE
SPRINGACRE ROAD
PRECINCT 1
MOUNT COTTON ROAD
EPRAPAH RD
N

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URBEX
PlacePlan
EMPOWER

Client: URBEX PTY LTD
Project: SOUTHERN THORNLANDS PRECINCT 1
Title: CONTEXT PLAN

Drawn	Design	Design Chk	Appd	Date	Project No.	Drawing No.	Rev
PDW	PDW	PI	PI	28/05/25	B00702	MC-CP01	A

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80 60 40 20
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DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

Appendix B Traffic Volume Diagrams

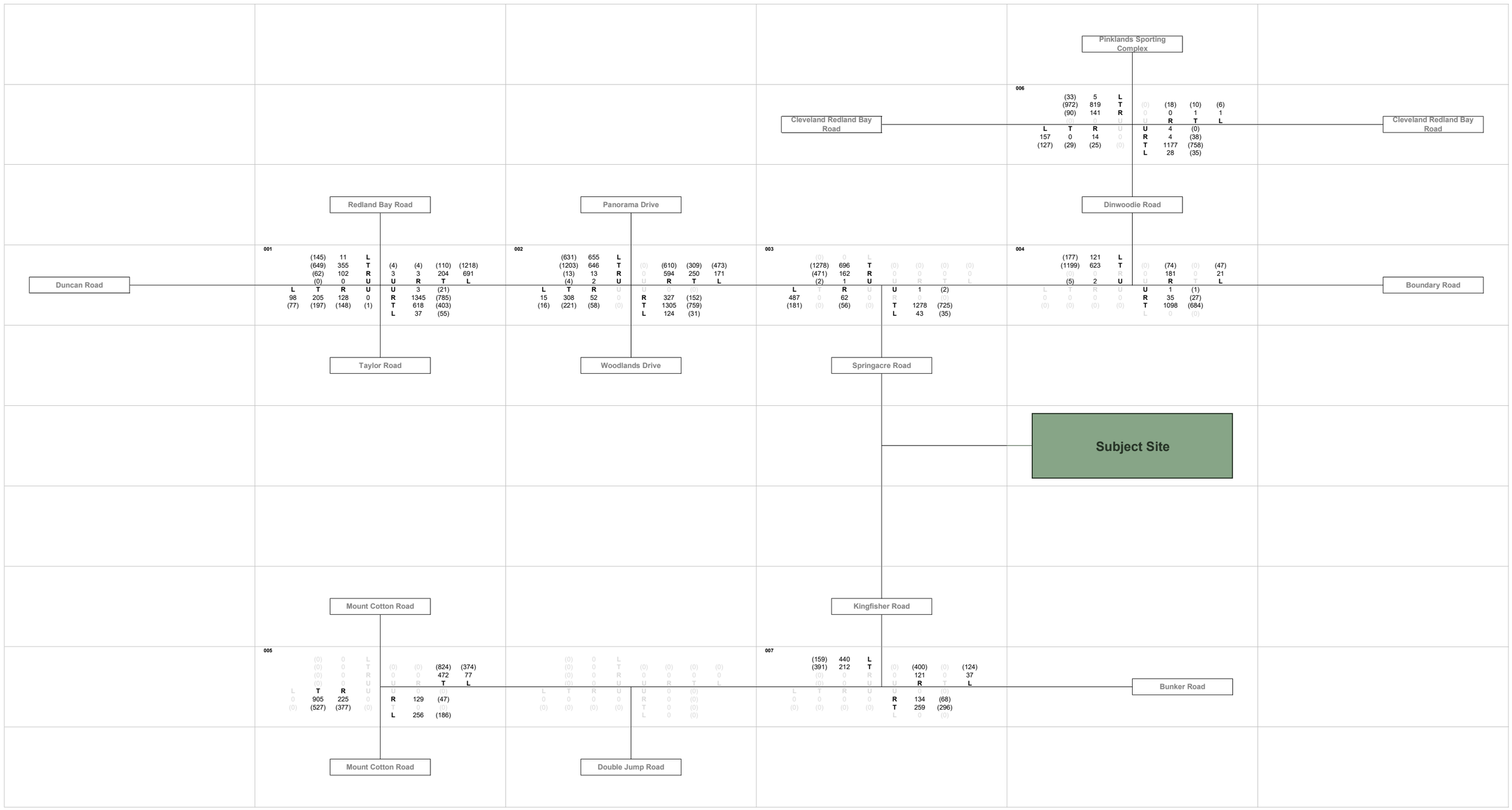
Southern Thornlands – Precinct 1 (State-controlled Roads)

Traffic Impact Assessment

Urbex Pty Ltd

SLR Project No.: 620.040303.00004

23 June 2025



B1

2025 Survey Traffic Volumes

620.040303.00000

Southern Thornlands Precinct 1

Legend

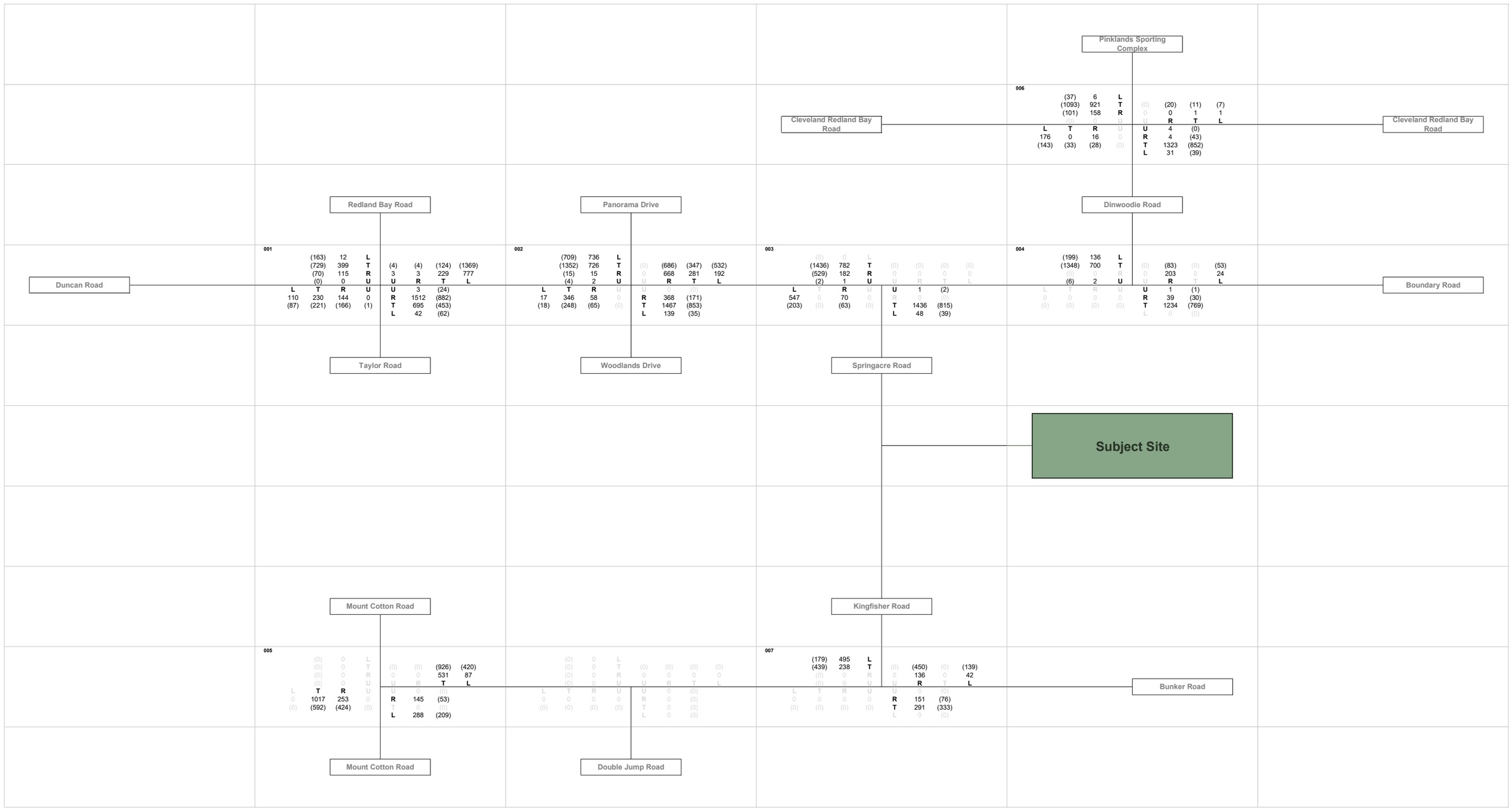
- **L** Left Turn
- **T** Through
- **R** Right Turn
- **U** U-Turn

00 Weekday AM Peak Hour Volumes

(00) Weekday PM Peak Hour Volumes

Subject Site

N



B2

2029 Background Traffic Volumes (Year of Opening)

620.040303.00000

Southern Thornlands Precinct 1

Legend

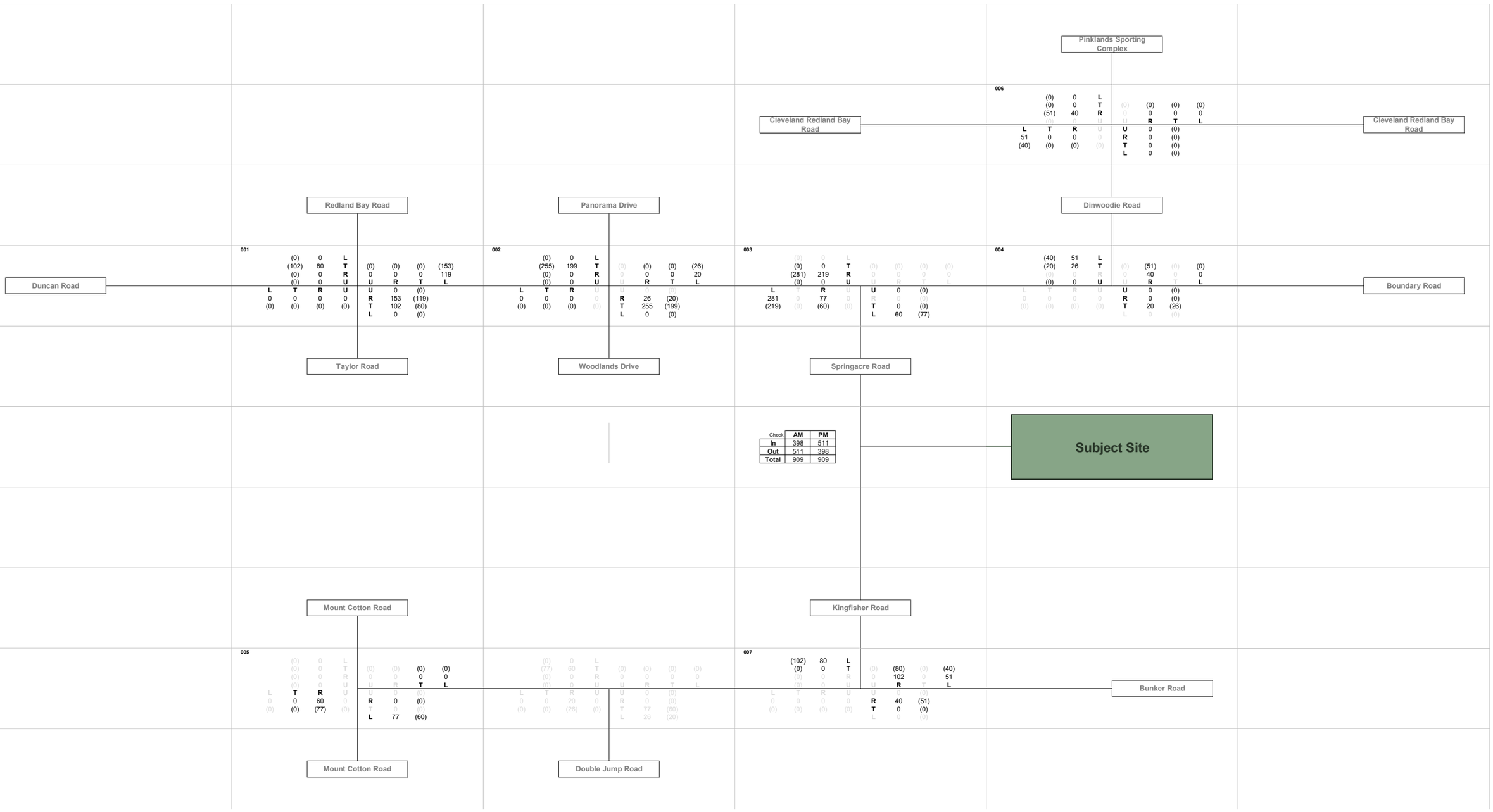
- **L** Left Turn
- **T** Through
- **R** Right Turn
- **U** U-Turn

00 Weekday AM Peak Hour Volumes

(00) Weekday PM Peak Hour Volumes

Subject Site

N



B3

Development Traffic Generation

620.040303.00000

Southern Thornlands Precinct 1

Legend

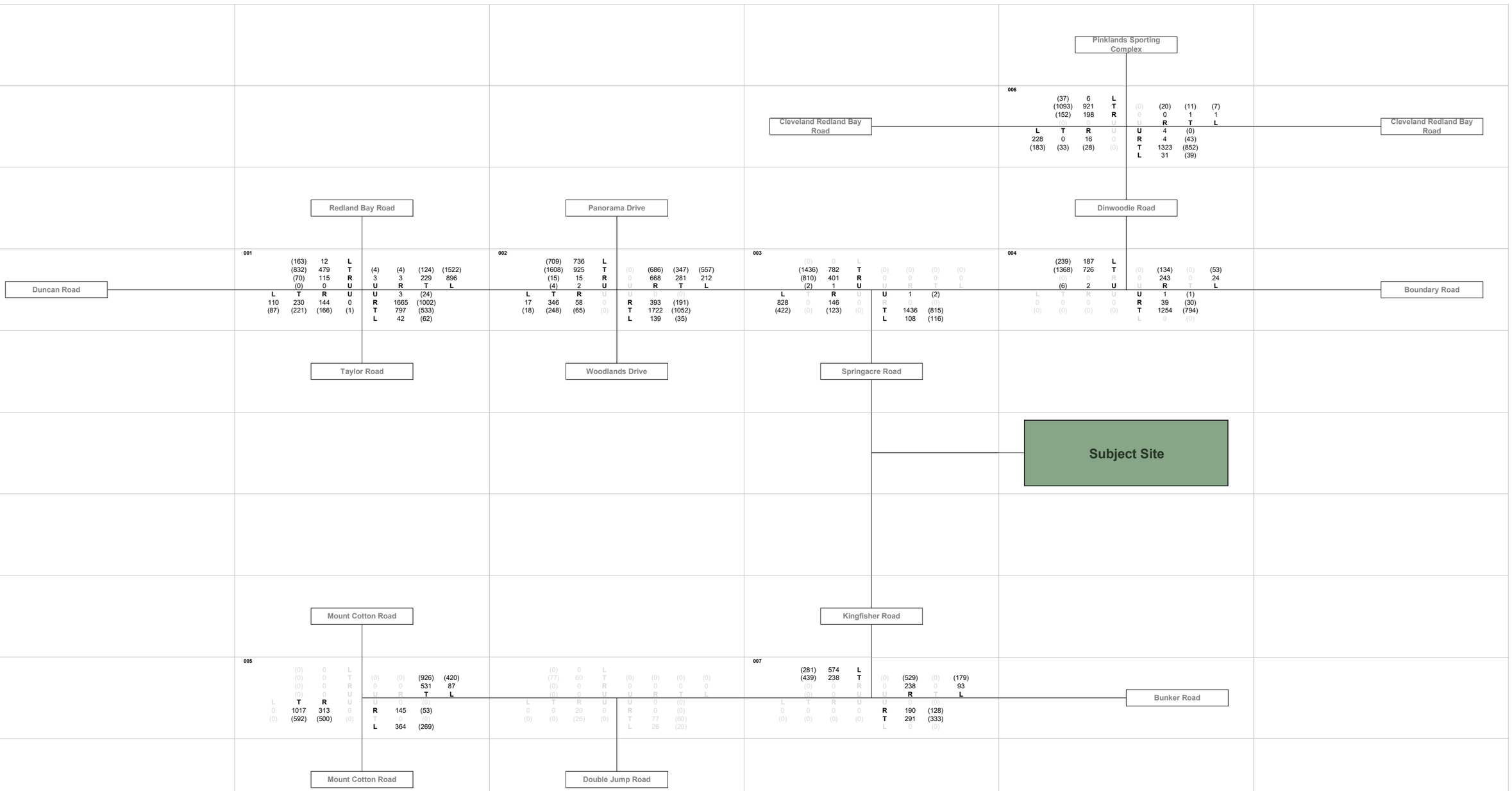
- **L** Left Turn
- **T** Through
- **R** Right Turn
- **U** U-Turn

00 Weekday AM Peak Hour Volumes

(00) Weekday PM Peak Hour Volumes

Subject Site

N



B4

2029 Background with Development Traffic Volumes (Year of Opening)

620.040303.00000

Southern Thornlands Precinct 1

Legend

- **L** Left Turn
- **T** Through
- **R** Right Turn
- **U** U-Turn

00 Weekday AM Peak Hour Volumes
(00) Weekday PM Peak Hour Volumes
Subject Site

N

Appendix C Concept Intersection Upgrade Plans

Southern Thornlands – Precinct 1 (State-controlled Roads)

Traffic Impact Assessment

Urbex Pty Ltd

SLR Project No.: 620.040303.00004

23 June 2025

ROAD LIGHTING POLE IN THE CENTRAL MEDIAN TO BE RELOCATED TO ROAD EDGES AS SHOWN

LIGHTING LAMP AND MAST RETROFIT ONTO EXISTING POWER POLE

170.000
STORAGE LENGTH

TYPE 10 KERB. LENGTH = 108m

NEW PAVEMENT REQUIRED FOR TURN LANE EXTENSION. AREA = 257m2

NEW STAMPED CONCRETE INFILL TO MEDIAN = 262m2

PROPOSED NEW ROAD LIGHTING LAMP LOCATOINS

BOUNDARY RD

EXISTING TABLE DRAIN COVERED OVER AND NEW PIT AND PIPE NETWORK TO BE INSTALLED. APPROX. LENGTH = 107m

TYPE 7 KERB AND CHANNEL. LENGTH = 93m

POTENTIALLY KEEP EXISTNG POWER POLE

NEW PAVEMENT REQUIRED FOR LEFT TURN LANE EXTENSION. AREA = 145m2

40.000
STORAGE LENGTH

SPRINGACRE RD

TIE INTO EXISTING KERB AND CHANNEL AT JESSIE COURT. EXISTING DRAINAGE ISSUE NOTED AT THIS CORNER, STORMWATER CONSIDERATIONS MAY INCREASE UPGRADE SCOPE.

JESSIE CL

DESIGN LEGEND

- PROPOSED RESUMPTION LINE
- PROPOSED KERB AND CHANNEL TYPE B1
- PROPOSED KERB TYPE SM3
- PROPOSED PAVEMENT WIDENING
- OHP — PROPOSED RELOCATION OF OVERHEAD POWER
- T — PROPOSED RELOCATION OPTIC FIBRE (OPTUS)
- PROPOSED TRAFFIC MEDIAN EXTENSION (HERRINGBONE STENCIL IN TERRACOTTA RED)
- SWD — PROPOSED STORMWATER PIPES
- PROPOSED STORMWATER PIT
- PROPOSED STORMWATER MANHOLE
- OHP — EXISTING OVERHEAD ELECTRICITY
- E — EXISTING UNDERGROUND ELECTRICITY
- T — EXISTING UNDERGROUND TELECOMMUNICATIONS
- W — EXISTING UNDERGROUND WATER MAIN
- SWD — EXISTING STORMWATER CULVERT

0 10 20 30 40 50m
10 7.5 5 2.5
SCALE 1:500 (A1) 1:1000 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	PDW	PDW	PI	PI	05/06/25

ENGINEERING CERTIFICATION
Registered Engineer
Date
Registered Accreditation

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URBEX

EMPOWER

Client: URBEX (SOUTHERN THORNLANDS PDA)
Project: EARLY RELEASE SPRINGACRE ROAD UPGRADE
Title: BOUNDARY ROAD AND SPRINGACRE ROAD INTERSECTION UPGRADE - INTERIM FORM 1

Datum: AHD
PSM 79006
RL 67.474
(MGA) COORD

NOT FOR CONSTRUCTION

Project No. B00703
Drawing No. SK041
Rev A

Plot Date: 5/06/2025 4:29:30 PM
User: PAUL DE WEGER
File Name: S:\12x5\data\MANUDS\YNN\B00703_24x24_CIVIL_3DRGS\4_1 SKETCHES\B00703-SK041

Appendix D Detailed Operational Assessment

Southern Thornlands – Precinct 1 (State-controlled Roads)

Traffic Impact Assessment

Urbex Pty Ltd

SLR Project No.: 620.040303.00004

23 June 2025

D.1 Detailed Intersection Operational Assessment

D.1.1 Boundary Road / Redland Bay Road / Duncan Road / Taylor Road

The Boundary Road / Redland Bay Road / Duncan Road / Taylor Road intersection is currently configured as a four-way roundabout. The existing layout and the assessed SIDRA intersection form are shown on **Figure D-1**. The results of the SIDRA assessment are presented in **Table D-1**. Detailed SIDRA outputs are provided in **Appendix E**.

Figure D-1: Boundary Rd / Redland Bay Rd / Duncan Rd / Taylor Rd – Intersection Form

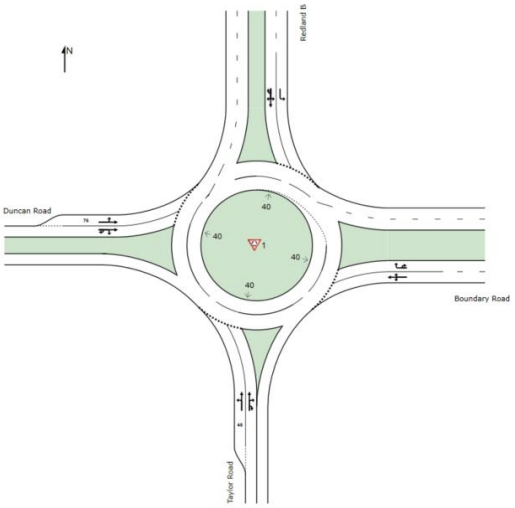
Existing Aerial Form	SIDRA Form
	

Table D-1: Boundary Rd / Redland Bay Rd / Duncan Rd / Taylor Rd – SIDRA Outputs

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Average Delay (sec)	95th %ile Queue (m)	DOS	Average Delay (sec)	95th %ile Queue (m)
Existing Intersection Form						
2025 Survey	0.87	28.8	115	0.84	23.1	73
2029 Background	1.01	63.6	361	1.04	78.7	316
2029 Development	1.13	140.8	902	1.27	263.6	1009

The SIDRA analysis summarised in **Table D-1** identifies that the existing intersection is already operating at/above the typically accepted performance threshold for a roundabout (i.e. DOS > 0.85). The results indicate the peak hour intersection performance continues to worsen regardless of development. The reported impact of the development traffic is heightened (i.e. increases exponentially) because of the poor performance of the intersection under background conditions. This intersection is currently under review by TMR to be upgraded to a signalised intersection form.

D.1.2 Boundary Road / Woodlands Drive / Panorama Drive

The Boundary Road / Woodlands Drive / Panorama Drive intersection is currently configured as a signalised four-way intersection. The existing layout and the assessed SIDRA intersection form are shown on **Figure D-2**. The results of the SIDRA assessment are presented in **Table D-2**. Detailed SIDRA outputs are provided in **Appendix E**.

Figure D-2: Boundary Road / Woodlands Drive / Panorama Drive – Intersection Form

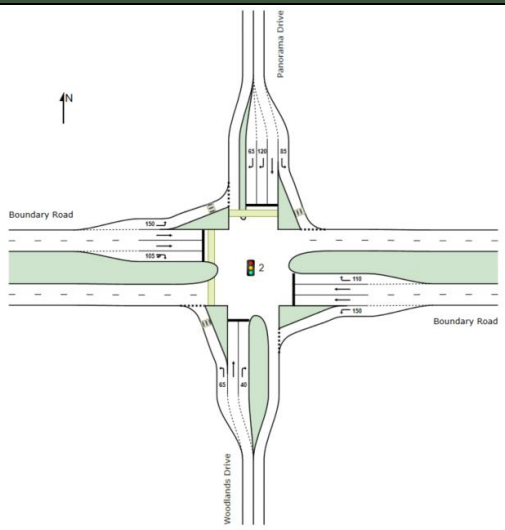
Existing Aerial Form	SIDRA Form
	

Table D-2: Boundary Rd / Woodlands Drive / Panorama Drive– SIDRA Outputs

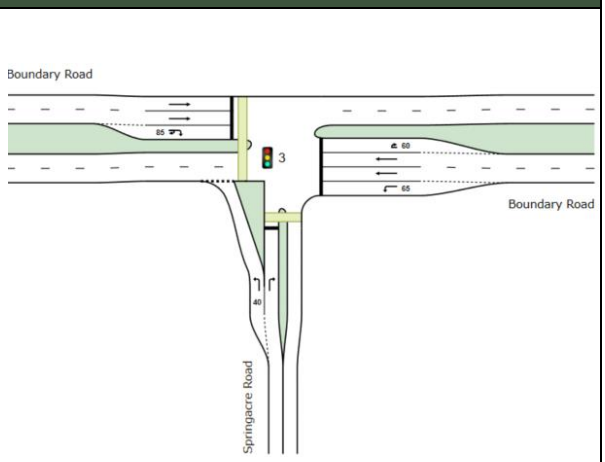
Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Average Delay (sec)	95th %ile Queue (m)	DOS	Average Delay (sec)	95th %ile Queue (m)
Existing Intersection Form						
2025 Survey	0.86	53.8	173	0.99	75.9	465
2029 Background	1.45	84.4	470	1.35	135.8	479
2029 Development	1.45	85.7	470	1.35	170.2	805

The SIDRA analysis summarised in **Table D-2** identifies that that the existing intersection is already operating at/above the typically accepted performance threshold for a signalised intersection (i.e., DOS > 0.90). The results indicate the peak hour intersection performance continues to worsen regardless of development. The reported impact of the development traffic is minor (notwithstanding that queue lengths increase exponentially because of the poor performance of the intersection under background conditions).

D.1.3 Boundary Road / Springacre Road

The Boundary Road / Springacre Road intersection is currently configured as a signalised T-intersection. The existing layout and the assessed SIDRA intersection form are shown on **Figure D-3**. The results of the SIDRA assessment are presented in **Table D-3**. Detailed SIDRA outputs are provided in **Appendix E**.

Figure D-3: Boundary Rd / Springacre Rd – Intersection Form

Existing Aerial Form	SIDRA Form
	

Upgrades to the intersection were determined separately to the net delay assessment to provide some external works that directly support Precinct 1. The upgraded intersection layout is included in **Figure D-4**.

Figure D-4: Boundary Rd / Springacre Rd

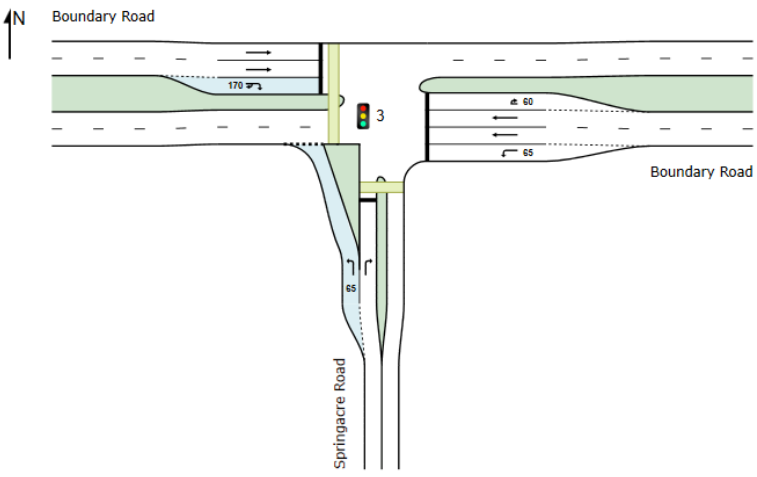
SIDRA Form


Table D-3: Boundary Rd / Springacre Rd – SIDRA Outputs

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Average Delay (sec)	95th %ile Queue (m)	DOS	Average Delay (sec)	95th %ile Queue (m)
Existing Intersection Form						
2025 Survey	0.71	22.4	188	1.31	86.4	563
2029 Background	0.87	30.4	277	0.94	39.0	352
2029 Development	1.74	184.9	912	1.28	102.0	960
Upgraded Intersection Form						
2029 Development	1.19	109	678	1.07	59.9	704

The SIDRA analysis summarised in **Table D-3** identifies that that the existing intersection is already operating at/above the typically accepted performance threshold for a signalised intersection (i.e., DOS > 0.90). The results indicate the peak hour intersection performance continues to worsen regardless of development. The reported impact of the development traffic is significant; therefore, this is an appropriate location for upgrading works by Precinct 1.

D.1.4 Boundary Road / Dinwoodie Road

The Boundary Road / Dinwoodie Road intersection is currently configured as a signalised T-intersection. The existing layout and the assessed SIDRA intersection form are shown on **Figure D-5**. The results of the SIDRA assessment are presented in **Table D-4**. Detailed SIDRA outputs are provided in **Appendix E**.

Figure D-5: Boundary Rd / Dinwoodie Rd – Intersection Form

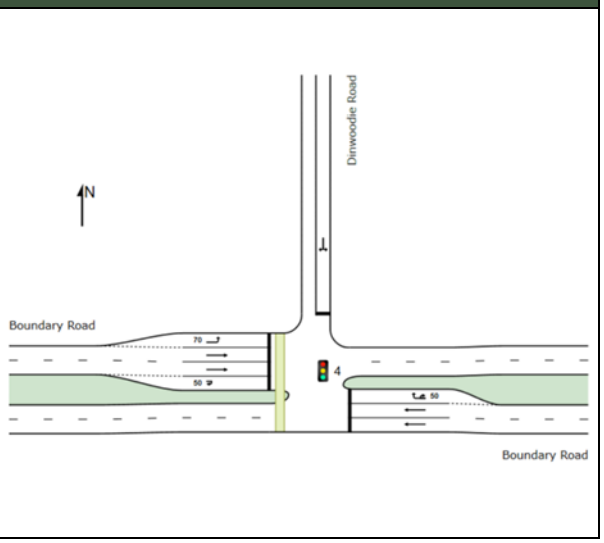
Existing Aerial Form	SIDRA Form
	

Table D-4: Boundary Rd / Dinwoodie Rd – SIDRA Outputs

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Average Delay (sec)	95th %ile Queue (m)	DOS	Average Delay (sec)	95th %ile Queue (m)
Existing Intersection Form						
2025 Survey	0.60	29.9	199	0.51	21.3	163
2029 Background	0.77	29.3	222	0.61	27.6	226
2029 Development	0.90	31.2	229	0.72	29.5	248

The SIDRA analysis summarised in **Table D-4** identifies that the intersection is currently operating within typically accepted performance thresholds for a signalised intersection (i.e. DOS < 0.90) at a 2029 year of opening. The reported impact of the development traffic is noticeable, but acceptable performance results (comparable with background conditions) are maintained at 2029 without the need for upgrading works.

D.1.5 Boundary Road / Redland Bay Road / Duncan Road / Taylor Road

The Mount Cotton Road / Double Jump Road intersection is currently configured as a unsignalised T-intersection. The existing layout and the assessed SIDRA intersection form are shown on **Figure D-6**. The results of the SIDRA assessment are presented in **Table D-5**. Detailed SIDRA outputs are provided in **Appendix E**.

Figure D-6: Mount Cotton Road / Double Jump Road – Intersection Form

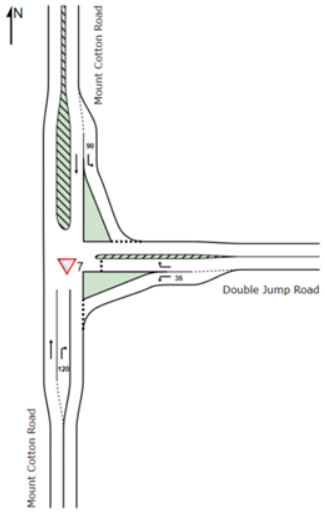
Existing Aerial Form	SIDRA Form
	

Table D-5: Mount Cotton Road / Double Jump Road – SIDRA Outputs

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Average Delay (sec)	95th %ile Queue (m)	DOS	Average Delay (sec)	95th %ile Queue (m)
Existing Intersection Form						
2025 Survey	0.71	43.9	23	0.66	85.4	25
2029 Background	1.06	147.5	85	1.24	369.1	71
2029 Development	1.10	175.4	103	1.35	463.3	98

The SIDRA analysis summarised in **Table D-5** identifies that the intersection is currently operating within the typically accepted performance thresholds for a priority-controlled intersection (i.e., DOS > 0.80). The results indicate the peak hour intersection performance will exceed these typically accepted performance thresholds by 2029 regardless of development. The reported impact of the development traffic is minor (noting that this is heightened (i.e. increases exponentially) because of the poor performance of the intersection under background conditions). This intersection is currently under review by TMR to be upgraded to a signalised intersection form.

D.1.6 Cleveland-Redland Bay Road / Dinwoodie Road / Pinklands Sporting Complex

The Cleveland-Redland Bay Road / Dinwoodie Road / Pinklands Sporting Complex intersection is currently configured as a signalised four-way intersection. The existing layout and the assessed SIDRA intersection form are shown on **Figure D-7**. The results of the SIDRA assessment are presented in **Table D-6**. Detailed SIDRA outputs are provided in **Appendix E**.

Figure D-7: Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Sporting Complex – Intersection Form

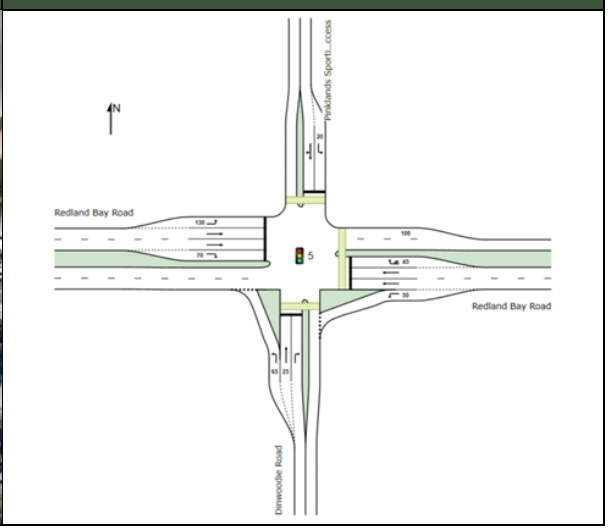
Existing Aerial Form	SIDRA Form
	

Table D-6: Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Sporting Complex – SIDRA Outputs

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Average Delay (sec)	95th %ile Queue (m)	DOS	Average Delay (sec)	95th %ile Queue (m)
Existing Intersection Form						
2025 Survey	0.55	19.0	142	0.60	20.1	159
2029 Background	0.62	21.2	170	0.64	19.1	174
2029 Development	0.65	24.2	182	0.69	22.6	192

The SIDRA analysis summarised in **Table D-6** identifies that the intersection is currently operating within typically accepted performance thresholds for a signalised intersection (i.e. DOS < 0.90). Acceptable operation is maintained to 2029 (and beyond) with the inclusion of the development traffic. The impact of development traffic is minor.Appendi

Appendix E Detailed SIDRA Outputs – GTIA Operational Assessment

Southern Thornlands – Precinct 1 (State-controlled Roads)

Traffic Impact Assessment

Urbex Pty Ltd

SLR Project No.: 620.040303.00004

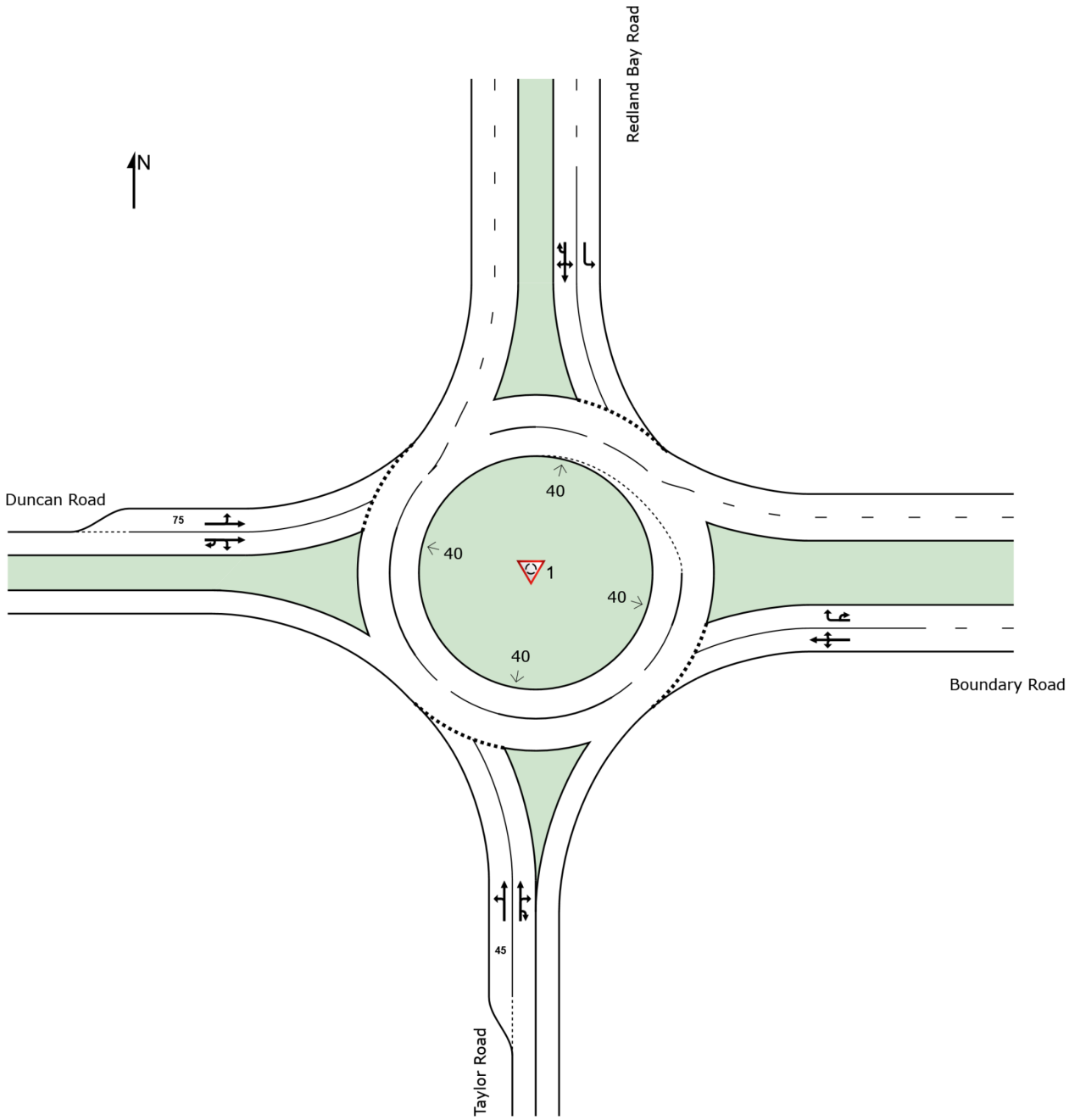
23 June 2025

SITE LAYOUT

Site: 1 [1. Boundary Rd / Duncan Rd / Redland Bay Rd / Taylor Rd - Survey AM (Site Folder: General)]

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 1 [1. Boundary Rd / Duncan Rd / Redland Bay Rd / Taylor Rd - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Taylor Road															
1	L2	All MCs	103	0.0	103	0.0	0.622	16.4	LOS B	4.9	34.2	1.00	1.03	1.31	49.3
2	T1	All MCs	216	0.0	216	0.0	0.622	16.8	LOS B	4.9	34.2	0.99	1.04	1.30	50.3
3	R2	All MCs	135	0.8	135	0.8	0.622	26.3	LOS C	3.9	27.5	0.94	1.06	1.26	45.5
3u	U	All MCs	1	0.0	1	0.0	0.622	28.8	LOS C	3.9	27.5	0.94	1.06	1.26	42.7
Approach			455	0.2	455	0.2	0.622	19.6	LOS B	4.9	34.2	0.98	1.04	1.29	48.5
East: Boundary Road															
4	L2	All MCs	39	0.0	39	0.0	0.871	9.8	LOS A	16.0	114.5	0.93	0.89	1.23	49.8
5	T1	All MCs	651	3.7	651	3.7	0.871	9.6	LOS A	16.0	114.5	0.93	0.89	1.23	52.6
6	R2	All MCs	1416	1.5	1416	1.5	0.871	17.1	LOS B	16.0	114.5	0.96	0.91	1.30	50.6
6u	U	All MCs	3	0.0	3	0.0	0.871	20.1	LOS C	15.8	111.9	0.97	0.92	1.33	46.4
Approach			2108	2.1	2108	2.1	0.871	14.7	LOS B	16.0	114.5	0.95	0.90	1.27	51.2
North: Redland Bay Road															
7	L2	All MCs	727	4.0	727	4.0	0.482	5.6	LOS A	3.0	22.0	0.68	0.67	0.73	57.5
8	T1	All MCs	215	1.9	215	1.9	0.482	5.7	LOS A	2.9	20.9	0.69	0.66	0.76	53.3
9	R2	All MCs	3	1.6	3	1.6	0.482	12.2	LOS B	2.9	20.9	0.69	0.66	0.76	54.7
9u	U	All MCs	3	0.0	3	0.0	0.482	14.7	LOS B	2.9	20.9	0.69	0.66	0.76	52.4
Approach			948	3.5	948	3.5	0.482	5.6	LOS A	3.0	22.0	0.69	0.67	0.74	56.5
West: Duncan Road															
10	L2	All MCs	12	5.6	12	5.6	0.567	13.7	LOS B	4.4	32.5	0.98	0.99	1.28	52.1
11	T1	All MCs	374	5.5	374	5.5	0.567	14.2	LOS B	4.4	32.5	0.97	1.00	1.27	51.5
12	R2	All MCs	107	2.3	107	2.3	0.567	23.0	LOS C	3.7	26.6	0.93	1.03	1.24	44.8
12u	U	All MCs	1	0.0	1	0.0	0.567	25.4	LOS C	3.7	26.6	0.93	1.03	1.24	44.8
Approach			494	4.8	494	4.8	0.567	16.1	LOS B	4.4	32.5	0.96	1.01	1.26	49.9
All Vehicles			4005	2.6	4005	2.6	0.871	13.3	LOS B	16.0	114.5	0.89	0.88	1.15	51.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [1. Boundary Rd / Duncan Rd / Redland Bay Rd / Taylor Rd - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Taylor Road															
1	L2	All MCs	81	0.0	81	0.0	0.285	5.9	LOS A	1.4	10.3	0.72	0.61	0.72	55.6
2	T1	All MCs	207	2.6	207	2.6	0.285	5.8	LOS A	1.4	10.3	0.72	0.65	0.72	57.2
3	R2	All MCs	156	0.8	156	0.8	0.285	13.2	LOS B	1.3	9.2	0.72	0.83	0.72	53.2
3u	U	All MCs	1	0.0	1	0.0	0.285	15.7	LOS B	1.3	9.2	0.72	0.83	0.72	49.3
Approach			445	1.5	445	1.5	0.285	8.4	LOS A	1.4	10.3	0.72	0.70	0.72	55.4
East: Boundary Road															
4	L2	All MCs	58	3.2	58	3.2	0.506	4.1	LOS A	3.8	27.6	0.47	0.48	0.47	52.8
5	T1	All MCs	424	5.2	424	5.2	0.506	3.8	LOS A	3.8	27.6	0.47	0.48	0.47	55.9
6	R2	All MCs	826	4.4	826	4.4	0.506	10.5	LOS B	3.8	27.6	0.49	0.57	0.49	53.6
6u	U	All MCs	22	0.0	22	0.0	0.506	13.0	LOS B	3.7	26.6	0.50	0.61	0.50	49.5
Approach			1331	4.5	1331	4.5	0.506	8.1	LOS A	3.8	27.6	0.48	0.54	0.48	54.2
North: Redland Bay Road															
7	L2	All MCs	1282	2.0	1282	2.0	0.840	12.9	LOS B	10.2	72.9	0.95	1.12	1.58	52.8
8	T1	All MCs	116	1.0	116	1.0	0.840	14.0	LOS B	9.3	65.9	0.95	1.14	1.62	48.3
9	R2	All MCs	4	14.3	4	14.3	0.840	21.3	LOS C	9.3	65.9	0.95	1.14	1.62	47.3
9u	U	All MCs	4	0.0	4	0.0	0.840	23.1	LOS C	9.3	65.9	0.95	1.14	1.62	47.6
Approach			1406	1.9	1406	1.9	0.840	13.1	LOS B	10.2	72.9	0.95	1.12	1.58	52.4
West: Duncan Road															
10	L2	All MCs	153	60.0	153	60.0	0.612	12.0	LOS B	4.6	37.6	0.84	0.94	1.15	45.9
11	T1	All MCs	683	2.8	683	2.8	0.612	10.1	LOS B	4.6	37.6	0.83	0.95	1.16	54.9
12	R2	All MCs	65	0.0	65	0.0	0.612	17.3	LOS B	4.3	30.7	0.83	0.96	1.16	49.4
12u	U	All MCs	1	0.0	1	0.0	0.612	19.9	LOS B	4.3	30.7	0.83	0.96	1.16	49.4
Approach			902	12.3	902	12.3	0.612	11.0	LOS B	4.6	37.6	0.83	0.95	1.16	52.7
All Vehicles			4084	5.0	4084	5.0	0.840	10.5	LOS B	10.2	72.9	0.75	0.85	1.04	53.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [1. Boundary Rd / Duncan Rd / Redland Bay Rd / Taylor Rd - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Taylor Road															
1	L2	All MCs	116	0.0	116	0.0	0.891	49.1	LOS D	10.5	73.3	1.00	1.39	2.19	34.5
2	T1	All MCs	243	0.0	243	0.0	0.891	49.9	LOS D	10.5	73.3	1.00	1.37	2.16	35.0
3	R2	All MCs	151	0.8	151	0.8	0.891	61.1	LOS E	7.7	53.9	0.99	1.32	2.05	32.4
3u	U	All MCs	1	0.0	1	0.0	0.891	63.6	LOS E	7.7	53.9	0.99	1.32	2.05	30.9
Approach			511	0.2	511	0.2	0.891	53.1	LOS E	10.5	73.3	0.99	1.36	2.14	34.0
East: Boundary Road															
4	L2	All MCs	44	0.0	44	0.0	1.013	38.7	LOS D	50.4	360.7	1.00	1.96	2.96	36.2
5	T1	All MCs	731	3.7	731	3.7	1.013	38.5	LOS D	50.4	360.7	1.00	1.96	2.96	37.7
6	R2	All MCs	1591	1.5	1591	1.5	1.013	47.3	LOS D	50.4	360.7	1.00	1.98	3.03	36.4
6u	U	All MCs	4	0.0	4	0.0	1.013	50.9	LOS E	46.2	327.6	1.00	1.99	3.07	34.0
Approach			2370	2.1	2370	2.1	1.013	44.4	LOS D	50.4	360.7	1.00	1.97	3.01	36.8
North: Redland Bay Road															
7	L2	All MCs	818	4.0	818	4.0	0.571	6.4	LOS A	4.1	29.7	0.75	0.76	0.87	57.2
8	T1	All MCs	241	1.9	241	1.9	0.571	6.6	LOS A	3.9	27.8	0.76	0.76	0.90	53.0
9	R2	All MCs	4	1.6	4	1.6	0.571	13.2	LOS B	3.9	27.8	0.76	0.76	0.90	54.4
9u	U	All MCs	4	0.0	4	0.0	0.571	15.7	LOS B	3.9	27.8	0.76	0.76	0.90	52.1
Approach			1066	3.5	1066	3.5	0.571	6.5	LOS A	4.1	29.7	0.76	0.76	0.88	56.1
West: Duncan Road															
10	L2	All MCs	13	5.6	13	5.6	0.775	28.2	LOS C	7.9	57.9	1.00	1.23	1.79	43.5
11	T1	All MCs	420	5.5	420	5.5	0.775	29.2	LOS C	7.9	57.9	1.00	1.22	1.77	42.8
12	R2	All MCs	121	2.3	121	2.3	0.775	39.8	LOS D	6.2	44.7	0.98	1.20	1.73	37.5
12u	U	All MCs	1	0.0	1	0.0	0.775	42.1	LOS D	6.2	44.7	0.98	1.20	1.73	37.5
Approach			555	4.8	555	4.8	0.775	31.5	LOS C	7.9	57.9	0.99	1.22	1.76	41.5
All Vehicles			4502	2.6	4502	2.6	1.013	34.8	LOS C	50.4	360.7	0.94	1.52	2.25	40.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [1. Boundary Rd / Duncan Rd / Redland Bay Rd / Taylor Rd - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Taylor Road															
1	L2	All MCs	91	0.0	91	0.0	0.359	6.5	LOS A	2.0	14.2	0.79	0.69	0.82	55.2
2	T1	All MCs	233	2.6	233	2.6	0.359	6.5	LOS A	2.0	14.2	0.79	0.72	0.83	56.8
3	R2	All MCs	175	0.8	175	0.8	0.359	14.3	LOS B	1.8	12.7	0.78	0.90	0.85	52.4
3u	U	All MCs	1	0.0	1	0.0	0.359	16.8	LOS B	1.8	12.7	0.78	0.90	0.85	48.7
Approach			500	1.5	500	1.5	0.359	9.3	LOS A	2.0	14.2	0.78	0.78	0.83	54.8
East: Boundary Road															
4	L2	All MCs	65	3.2	65	3.2	0.578	4.3	LOS A	4.7	34.6	0.54	0.49	0.54	52.5
5	T1	All MCs	477	5.2	477	5.2	0.578	4.0	LOS A	4.7	34.6	0.54	0.49	0.54	55.6
6	R2	All MCs	929	4.4	929	4.4	0.578	10.7	LOS B	4.7	34.6	0.56	0.58	0.56	53.3
6u	U	All MCs	25	0.0	25	0.0	0.578	13.3	LOS B	4.6	33.3	0.57	0.62	0.57	49.3
Approach			1496	4.5	1496	4.5	0.578	8.4	LOS A	4.7	34.6	0.55	0.55	0.55	53.9
North: Redland Bay Road															
7	L2	All MCs	1441	2.0	1441	2.0	1.045	67.2	LOS E	44.3	315.7	1.00	2.62	5.45	29.7
8	T1	All MCs	130	1.0	130	1.0	1.045	69.7	LOS E	35.9	255.7	1.00	2.50	5.30	28.0
9	R2	All MCs	5	14.3	5	14.3	1.045	77.1	LOS F	35.9	255.7	1.00	2.50	5.30	27.7
9u	U	All MCs	5	0.0	5	0.0	1.045	78.7	LOS F	35.9	255.7	1.00	2.50	5.30	27.8
Approach			1581	1.9	1581	1.9	1.045	67.5	LOS E	44.3	315.7	1.00	2.61	5.44	29.6
West: Duncan Road															
10	L2	All MCs	172	60.0	172	60.0	0.766	17.2	LOS B	7.5	61.4	0.93	1.15	1.60	43.3
11	T1	All MCs	768	2.8	768	2.8	0.766	15.4	LOS B	7.5	61.4	0.92	1.14	1.60	51.0
12	R2	All MCs	73	0.0	73	0.0	0.766	23.0	LOS C	6.8	48.8	0.91	1.14	1.60	46.0
12u	U	All MCs	1	0.0	1	0.0	0.766	25.6	LOS C	6.8	48.8	0.91	1.14	1.60	46.0
Approach			1014	12.3	1014	12.3	0.766	16.3	LOS B	7.5	61.4	0.92	1.14	1.60	49.1
All Vehicles			4591	5.0	4591	5.0	1.045	30.6	LOS C	44.3	315.7	0.81	1.42	2.50	41.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [1. Boundary Rd / Duncan Rd / Redland Bay Rd / Taylor Rd - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Taylor Road															
1	L2	All MCs	116	0.0	116	0.0	0.902	51.4	LOS E	10.8	75.6	1.00	1.41	2.27	33.8
2	T1	All MCs	243	0.0	243	0.0	0.902	52.2	LOS E	10.8	75.6	1.00	1.40	2.23	34.2
3	R2	All MCs	151	0.8	151	0.8	0.902	63.4	LOS E	7.9	55.4	0.99	1.34	2.11	31.8
3u	U	All MCs	1	0.0	1	0.0	0.902	65.9	LOS E	7.9	55.4	0.99	1.34	2.11	30.4
Approach			511	0.2	511	0.2	0.902	55.4	LOS E	10.8	75.6	1.00	1.38	2.20	33.4
East: Boundary Road															
4	L2	All MCs	44	0.0	44	0.0	1.131	130.1	LOS F	125.9	901.7	1.00	4.09	7.19	19.5
5	T1	All MCs	839	3.7	839	3.7	1.131	129.9	LOS F	125.9	901.7	1.00	4.09	7.19	19.9
6	R2	All MCs	1753	1.5	1753	1.5	1.131	137.7	LOS F	125.9	901.7	1.00	3.95	7.09	19.8
6u	U	All MCs	4	0.0	4	0.0	1.131	140.8	LOS F	109.9	779.0	1.00	3.88	7.05	19.1
Approach			2639	2.2	2639	2.2	1.131	135.1	LOS F	125.9	901.7	1.00	3.99	7.12	19.8
North: Redland Bay Road															
7	L2	All MCs	943	4.0	943	4.0	0.677	7.6	LOS A	5.6	40.6	0.83	0.87	1.05	56.7
8	T1	All MCs	241	1.9	241	1.9	0.677	8.1	LOS A	5.2	37.5	0.84	0.89	1.08	52.2
9	R2	All MCs	4	1.6	4	1.6	0.677	14.7	LOS B	5.2	37.5	0.84	0.89	1.08	53.6
9u	U	All MCs	4	0.0	4	0.0	0.677	17.1	LOS B	5.2	37.5	0.84	0.89	1.08	51.4
Approach			1192	3.6	1192	3.6	0.677	7.8	LOS A	5.6	40.6	0.83	0.88	1.06	55.7
West: Duncan Road															
10	L2	All MCs	13	5.6	13	5.6	0.888	42.5	LOS D	11.8	86.5	1.00	1.47	2.40	37.4
11	T1	All MCs	504	5.5	504	5.5	0.888	44.0	LOS D	11.8	86.5	1.00	1.45	2.37	36.8
12	R2	All MCs	121	2.3	121	2.3	0.888	55.3	LOS E	9.0	64.8	1.00	1.39	2.29	32.7
12u	U	All MCs	1	0.0	1	0.0	0.888	57.6	LOS E	9.0	64.8	1.00	1.39	2.29	32.7
Approach			639	4.9	639	4.9	0.888	46.1	LOS D	11.8	86.5	1.00	1.44	2.36	35.9
All Vehicles			4980	2.7	4980	2.7	1.131	85.0	LOS F	125.9	901.7	0.96	2.65	4.56	26.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [1. Boundary Rd / Duncan Rd / Redland Bay Rd / Taylor Rd - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Taylor Road															
1	L2	All MCs	91	0.0	91	0.0	0.403	7.6	LOS A	2.4	17.2	0.84	0.80	0.93	54.9
2	T1	All MCs	233	2.6	233	2.6	0.403	7.6	LOS A	2.4	17.2	0.84	0.81	0.93	56.4
3	R2	All MCs	175	0.8	175	0.8	0.403	15.8	LOS B	2.1	14.9	0.82	0.95	0.94	51.4
3u	U	All MCs	1	0.0	1	0.0	0.403	18.3	LOS B	2.1	14.9	0.82	0.95	0.94	47.8
Approach			500	1.5	500	1.5	0.403	10.5	LOS B	2.4	17.2	0.83	0.86	0.94	54.2
East: Boundary Road															
4	L2	All MCs	65	3.2	65	3.2	0.644	4.3	LOS A	5.8	42.3	0.56	0.49	0.56	52.4
5	T1	All MCs	561	5.2	561	5.2	0.644	4.0	LOS A	5.8	42.3	0.56	0.49	0.56	55.6
6	R2	All MCs	1054	4.4	1054	4.4	0.644	10.8	LOS B	5.8	42.3	0.58	0.58	0.58	53.2
6u	U	All MCs	25	0.0	25	0.0	0.644	13.3	LOS B	5.6	41.0	0.59	0.61	0.59	49.2
Approach			1705	4.6	1705	4.6	0.644	8.3	LOS A	5.8	42.3	0.57	0.55	0.57	53.9
North: Redland Bay Road															
7	L2	All MCs	1602	2.0	1602	2.0	1.268	253.4	LOS F	141.7	1008.6	1.00	5.91	14.79	11.9
8	T1	All MCs	130	1.0	130	1.0	1.268	254.5	LOS F	107.4	763.8	1.00	5.35	13.78	11.7
9	R2	All MCs	5	14.3	5	14.3	1.268	262.0	LOS F	107.4	763.8	1.00	5.35	13.78	11.6
9u	U	All MCs	5	0.0	5	0.0	1.268	263.6	LOS F	107.4	763.8	1.00	5.35	13.78	11.6
Approach			1742	1.9	1742	1.9	1.268	253.5	LOS F	141.7	1008.6	1.00	5.87	14.71	11.9
West: Duncan Road															
10	L2	All MCs	172	60.0	172	60.0	0.928	34.9	LOS C	15.9	128.6	1.00	1.67	2.91	36.1
11	T1	All MCs	875	2.8	875	2.8	0.928	33.7	LOS C	15.9	128.6	0.99	1.63	2.89	41.0
12	R2	All MCs	73	0.0	73	0.0	0.928	42.3	LOS D	13.8	98.4	0.98	1.59	2.86	37.4
12u	U	All MCs	1	0.0	1	0.0	0.928	44.8	LOS D	13.8	98.4	0.98	1.59	2.86	37.4
Approach			1121	11.4	1121	11.4	0.928	34.5	LOS C	15.9	128.6	0.99	1.64	2.89	39.9
All Vehicles			5069	4.9	5069	4.9	1.268	98.6	LOS F	141.7	1008.6	0.84	2.65	5.98	23.9

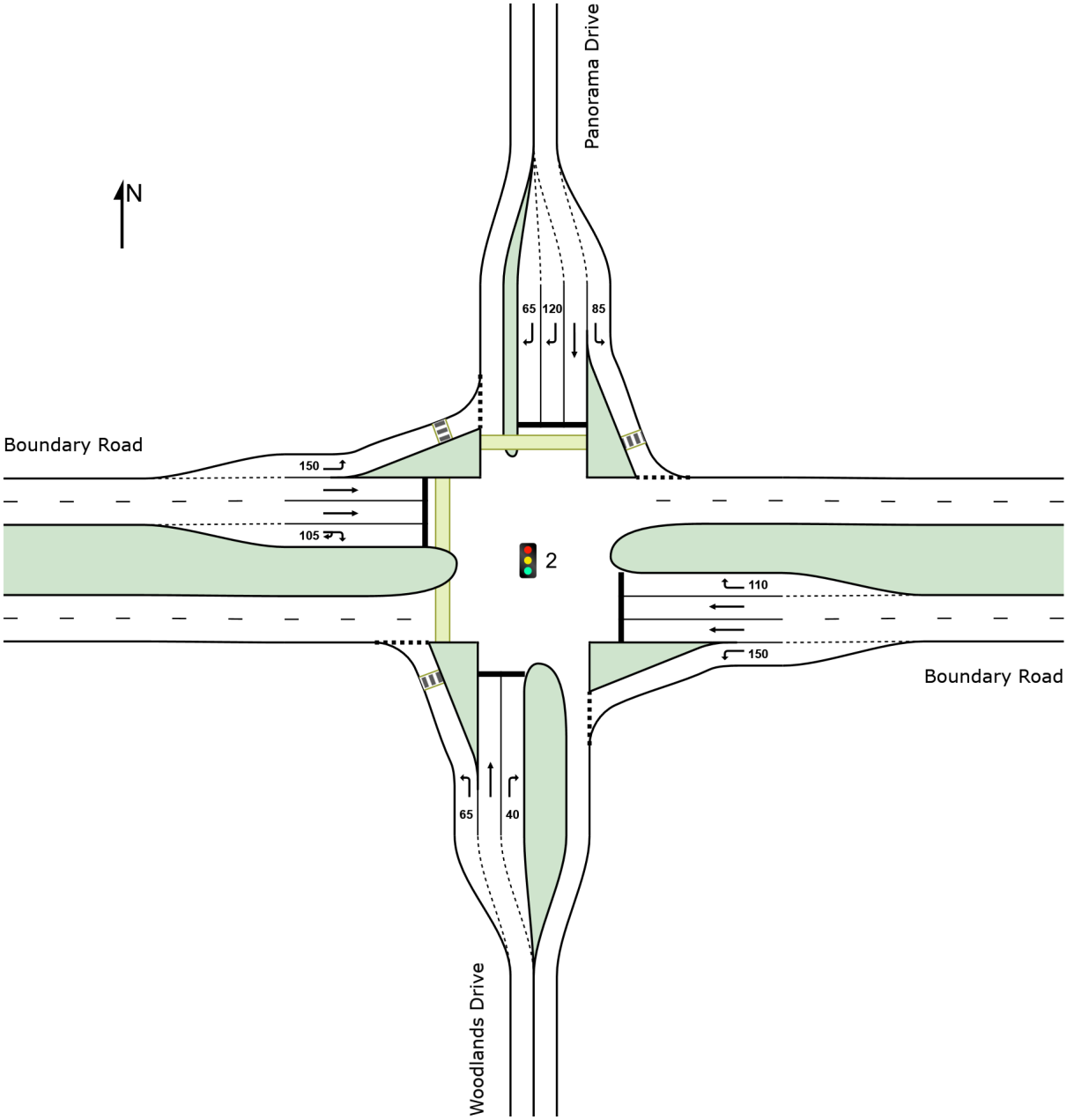
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - Survey AM (Site Folder: General)]

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Woodlands Drive															
1	L2	All MCs	16	5.0	16	5.0	0.031	67.1	LOS E	0.7	5.2	0.72	0.66	0.72	38.1
2	T1	All MCs	324	4.3	324	4.3	* 1.010	143.6	LOS F	30.7	222.8	1.00	1.28	1.54	21.3
3	R2	All MCs	55	2.0	55	2.0	0.161	88.8	LOS F	3.1	22.4	0.88	0.74	0.88	32.1
Approach			395	4.0	395	4.0	1.010	133.0	LOS F	30.7	222.8	0.97	1.18	1.42	22.8
East: Boundary Road															
4	L2	All MCs	131	1.5	131	1.5	0.092	30.3	LOS C	1.7	12.0	0.25	0.65	0.25	53.7
5	T1	All MCs	1374	2.4	1374	2.4	* 1.016	112.5	LOS F	69.8	499.2	1.00	1.33	1.44	24.5
6	R2	All MCs	344	6.0	344	6.0	0.846	83.2	LOS F	24.4	179.8	1.00	0.94	1.13	28.7
Approach			1848	3.0	1848	3.0	1.016	101.2	LOS F	69.8	499.2	0.95	1.21	1.30	26.3
North: Panorama Drive															
7	L2	All MCs	180	13.5	180	13.5	0.158	10.6	LOS B	3.2	25.1	0.33	0.64	0.33	51.2
8	T1	All MCs	263	6.0	263	6.0	0.677	55.5	LOS E	16.7	122.9	0.98	0.83	0.98	31.6
9	R2	All MCs	625	2.2	625	2.2	* 1.020	136.3	LOS F	30.5	217.3	1.00	1.21	1.59	20.3
Approach			1068	5.1	1068	5.1	1.020	95.2	LOS F	30.5	217.3	0.88	1.02	1.23	25.0
West: Boundary Road															
10	L2	All MCs	689	2.4	689	2.4	0.685	32.6	LOS C	25.3	180.4	0.79	0.95	0.79	41.6
11	T1	All MCs	680	4.2	680	4.2	0.864	66.2	LOS E	24.7	178.9	1.00	0.98	1.16	32.8
12	R2	All MCs	14	4.8	14	4.8	* 0.213	81.8	LOS F	1.1	8.0	1.00	0.69	1.00	26.8
12u	U	All MCs	2	0.0	2	0.0	0.213	83.0	LOS F	1.1	8.0	1.00	0.69	1.00	28.0
Approach			1385	3.3	1385	3.3	0.864	49.7	LOS D	25.3	180.4	0.90	0.96	0.97	36.6
All Vehicles			4697	3.7	4697	3.7	1.020	87.3	LOS F	69.8	499.2	0.92	1.09	1.20	27.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Panorama Drive												

P3 Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
West: Boundary Road											
P41 Stage 1	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
P42 Stage 2	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians	15	16	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F, F1
Output Phase Sequence: A, D, E, F, F1
Reference Phase: Phase A

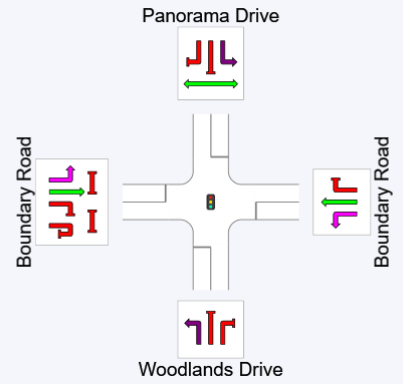
Phase Timing Summary

Phase	A	D	E	F	F1
Phase Change Time (sec)	0	35	70	102	114
Green Time (sec)	29	29	26	6	20
Phase Time (sec)	35	35	32	12	26
Phase Split	25%	25%	23%	9%	19%
Phase Frequency (%)	100.0	100.0	100.0	100.0	100.0

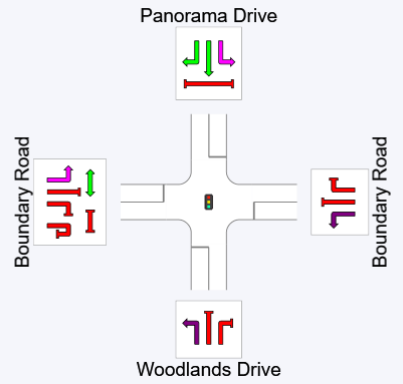
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Output Phase Sequence

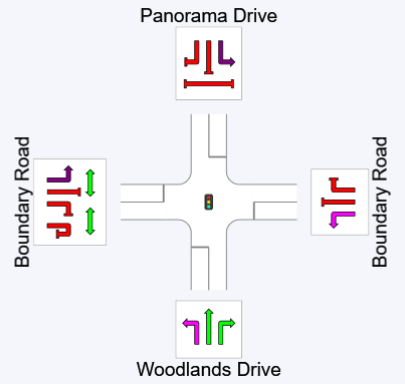
Phase A **REF**



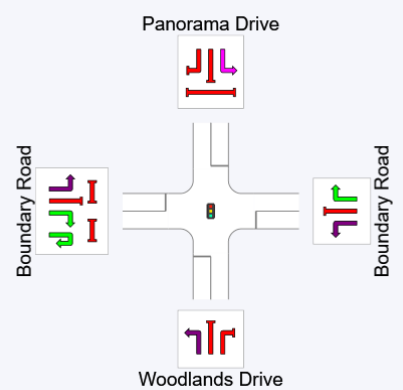
Phase D



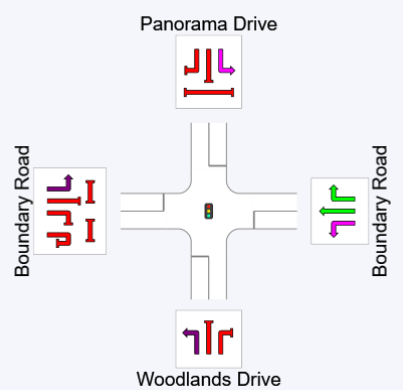
Phase E



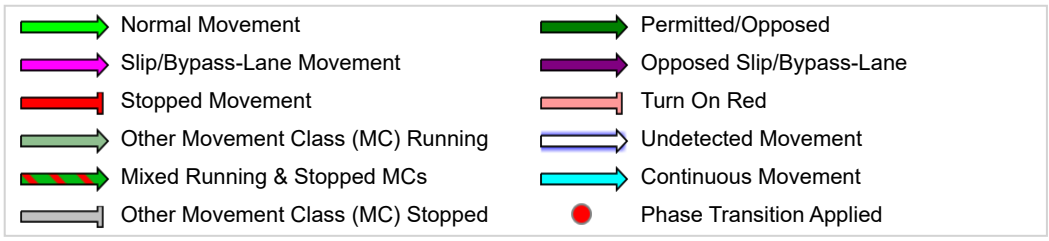
Phase F



Phase F1



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Woodlands Drive															
1	L2	All MCs	17	0.0	17	0.0	0.020	33.0	LOS C	0.5	3.6	0.48	0.64	0.48	47.5
2	T1	All MCs	233	11.0	233	11.0	*0.976	132.0	LOS F	21.7	166.1	1.00	1.17	1.46	22.4
3	R2	All MCs	61	2.4	61	2.4	0.228	95.6	LOS F	4.0	28.4	0.92	0.75	0.92	29.6
Approach			311	8.7	311	8.7	0.976	119.5	LOS F	21.7	166.1	0.96	1.06	1.30	24.3
East: Boundary Road															
4	L2	All MCs	33	4.1	33	4.1	0.026	11.9	LOS B	0.6	4.4	0.31	0.64	0.31	51.7
5	T1	All MCs	799	4.2	799	4.2	0.509	34.6	LOS C	21.4	155.1	0.80	0.70	0.80	43.7
6	R2	All MCs	160	9.2	160	9.2	*0.983	115.1	LOS F	15.0	113.0	1.00	1.08	1.53	21.2
Approach			992	5.0	992	5.0	0.983	46.9	LOS D	21.4	155.1	0.81	0.76	0.90	37.5
North: Panorama Drive															
7	L2	All MCs	498	5.6	498	5.6	0.572	35.7	LOS D	22.0	161.5	0.71	1.00	0.71	43.0
8	T1	All MCs	325	7.4	325	7.4	0.900	79.3	LOS E	26.5	197.3	1.00	1.16	1.22	27.2
9	R2	All MCs	642	3.0	642	3.0	*0.969	117.2	LOS F	30.0	215.5	1.00	1.10	1.39	23.0
Approach			1465	4.9	1465	4.9	0.969	81.1	LOS F	30.0	215.5	0.90	1.08	1.12	28.5
West: Boundary Road															
10	L2	All MCs	664	2.2	664	2.2	0.511	25.1	LOS C	16.9	120.5	0.51	0.85	0.51	49.5
11	T1	All MCs	1266	2.3	1266	2.3	*0.995	107.9	LOS F	65.2	465.3	1.00	1.23	1.35	26.3
12	R2	All MCs	14	12.5	14	12.5	0.276	111.1	LOS F	1.4	10.3	1.00	0.70	1.00	25.5
12u	U	All MCs	4	0.0	4	0.0	0.276	112.1	LOS F	1.4	10.3	1.00	0.70	1.00	26.7
Approach			1948	2.3	1948	2.3	0.995	79.7	LOS E	65.2	465.3	0.83	1.10	1.06	31.3
All Vehicles			4716	4.1	4716	4.1	0.995	75.9	LOS E	65.2	465.3	0.86	1.02	1.06	30.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Panorama Drive												

P3 Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
West: Boundary Road											
P41 Stage 1	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
P42 Stage 2	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians	15	16	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F, F1
Output Phase Sequence: A, D, E, F, F1
Reference Phase: Phase A

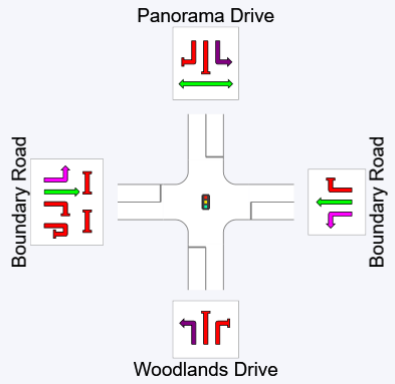
Phase Timing Summary

Phase	A	D	E	F	F1
Phase Change Time (sec)	0	60	102	130	142
Green Time (sec)	54	36	22	6	2
Phase Time (sec)	60	42	28	12	8
Phase Split	40%	28%	19%	8%	5%
Phase Frequency (%)	100.0	100.0	100.0	100.0	100.0

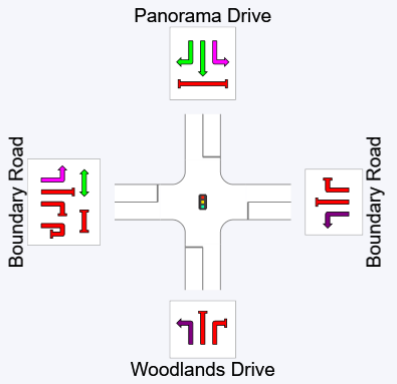
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence

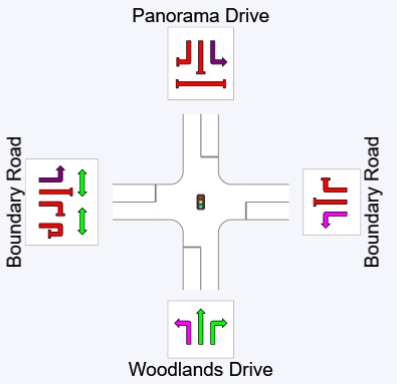
Phase A **REF**



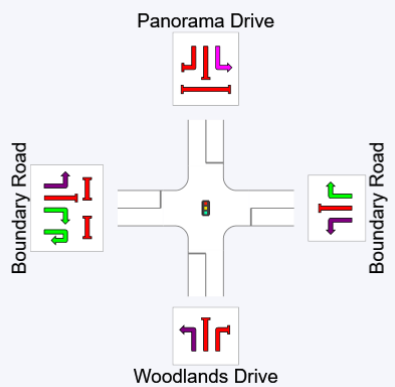
Phase D



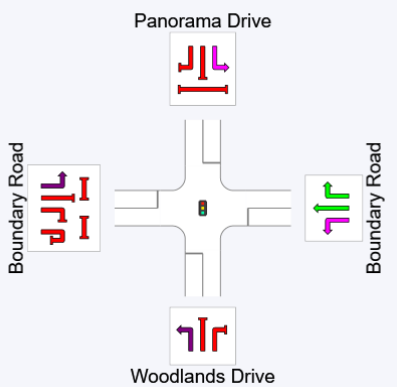
Phase E



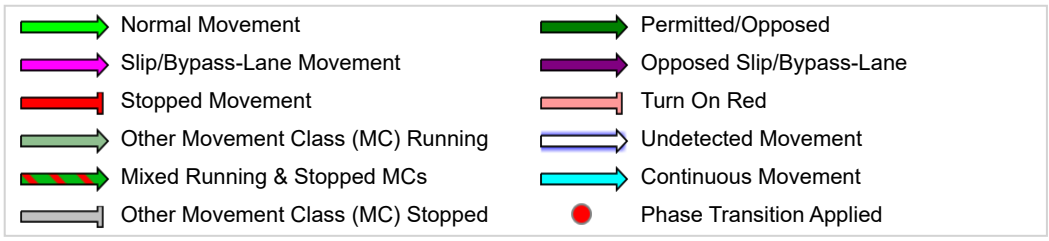
Phase F



Phase F1



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Woodlands Drive															
1	L2	All MCs	18	5.0	18	5.0	0.039	87.8	LOS F	0.8	6.0	0.73	0.68	0.73	37.5
2	T1	All MCs	364	4.3	364	4.3	* 1.448	514.1	LOS F	64.7	469.6	1.00	2.16	3.08	5.1
3	R2	All MCs	62	2.0	62	2.0	0.235	101.6	LOS F	3.8	26.9	0.93	0.75	0.93	30.4
Approach			444	4.0	444	4.0	1.448	439.9	LOS F	64.7	469.6	0.98	1.91	2.69	6.3
East: Boundary Road															
4	L2	All MCs	147	1.5	147	1.5	0.106	38.0	LOS D	2.1	14.8	0.27	0.65	0.27	53.3
5	T1	All MCs	1544	2.4	1544	2.4	* 1.066	146.1	LOS F	87.0	622.1	1.00	1.49	1.62	20.4
6	R2	All MCs	387	6.0	387	6.0	1.170	252.5	LOS F	49.0	360.6	1.00	1.40	2.13	9.4
Approach			2078	3.0	2078	3.0	1.170	158.3	LOS F	87.0	622.1	0.95	1.41	1.62	18.3
North: Panorama Drive															
7	L2	All MCs	202	13.5	202	13.5	0.191	11.3	LOS B	4.0	30.9	0.36	0.66	0.36	47.6
8	T1	All MCs	296	6.0	296	6.0	0.736	56.6	LOS E	19.2	141.6	0.99	0.86	1.02	26.2
9	R2	All MCs	703	2.2	703	2.2	* 0.897	76.2	LOS E	26.7	190.1	1.00	1.00	1.22	22.5
Approach			1201	5.1	1201	5.1	0.897	60.4	LOS E	26.7	190.1	0.89	0.91	1.02	25.7
West: Boundary Road															
10	L2	All MCs	775	2.4	775	2.4	0.692	28.5	LOS C	28.8	205.7	0.74	0.93	0.74	39.2
11	T1	All MCs	764	4.2	764	4.2	0.704	48.0	LOS D	23.3	168.9	0.96	0.83	0.96	39.2
12	R2	All MCs	15	4.8	15	4.8	* 0.239	82.0	LOS F	1.3	9.1	1.00	0.70	1.00	26.8
12u	U	All MCs	2	0.0	2	0.0	0.239	83.2	LOS F	1.3	9.1	1.00	0.70	1.00	28.0
Approach			1557	3.3	1557	3.3	0.704	38.7	LOS D	28.8	205.7	0.85	0.88	0.85	38.9
All Vehicles			5279	3.7	5279	3.7	1.448	124.4	LOS F	87.0	622.1	0.91	1.18	1.35	19.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Panorama Drive												

P3 Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
West: Boundary Road											
P41 Stage 1	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
P42 Stage 2	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians	15	16	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F, F1
Output Phase Sequence: A, D, E, F, F1
Reference Phase: Phase A

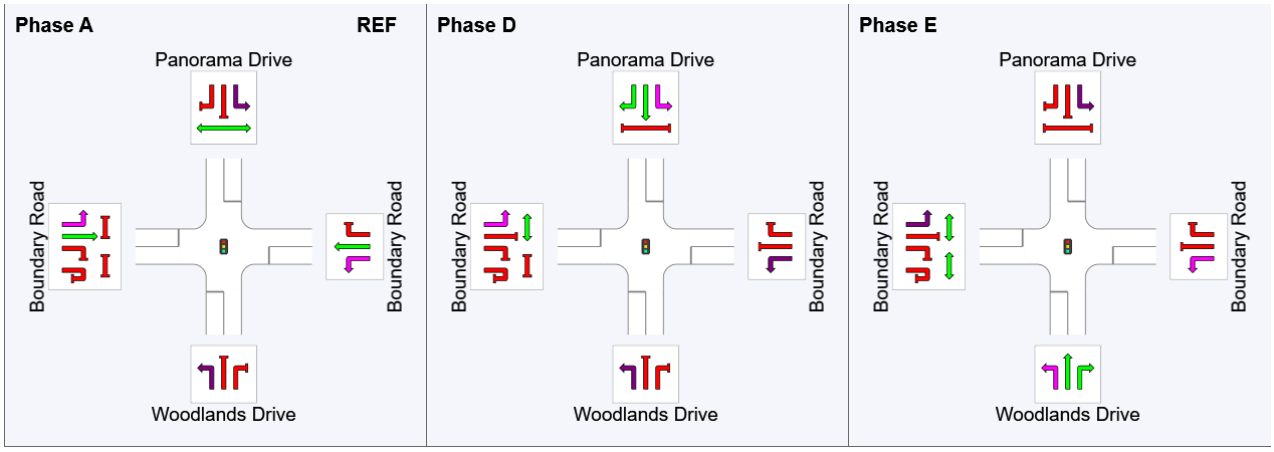
Phase Timing Summary

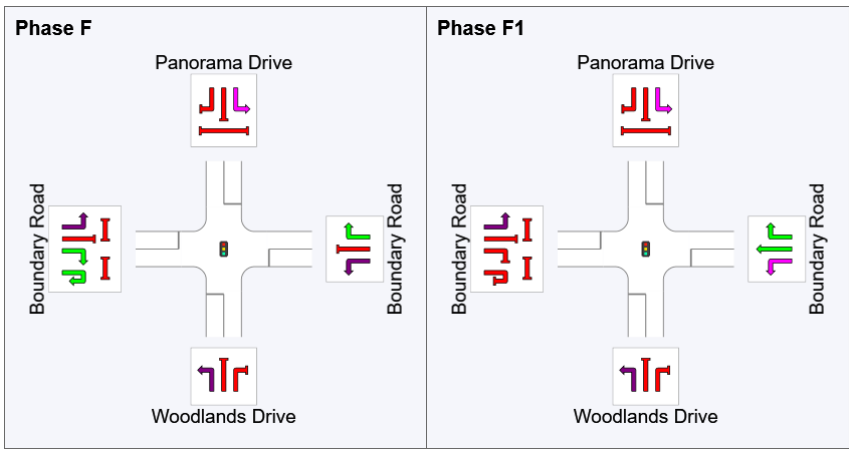
Phase	A	D	E	F	F1
Phase Change Time (sec)	0	46	82	108	120
Green Time (sec)	40	30	20	6	14
Phase Time (sec)	46	36	26	12	20
Phase Split	33%	26%	19%	9%	14%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

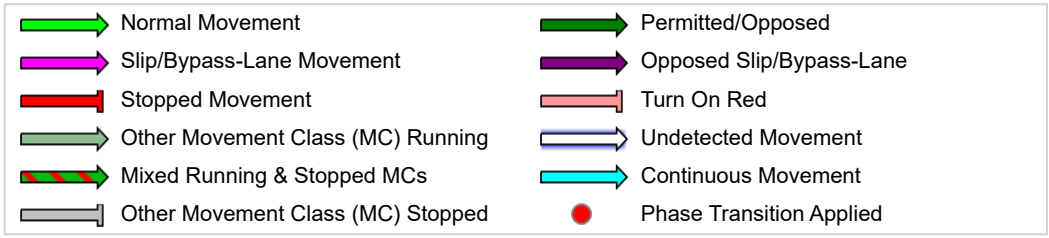
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Woodlands Drive															
1	L2	All MCs	19	0.0	19	0.0	0.019	40.6	LOS D	0.5	3.2	0.40	0.62	0.40	50.7
2	T1	All MCs	261	11.0	261	11.0	* 1.058	182.3	LOS F	28.2	216.1	1.00	1.34	1.70	13.6
3	R2	All MCs	69	2.4	69	2.4	0.245	98.9	LOS F	4.5	31.8	0.92	0.76	0.92	29.7
Approach			349	8.7	349	8.7	1.058	158.2	LOS F	28.2	216.1	0.95	1.19	1.48	16.7
East: Boundary Road															
4	L2	All MCs	37	4.1	37	4.1	0.027	9.8	LOS A	0.5	3.8	0.25	0.63	0.25	53.3
5	T1	All MCs	898	4.2	898	4.2	0.473	25.9	LOS C	21.1	152.9	0.70	0.63	0.70	48.8
6	R2	All MCs	180	9.2	180	9.2	* 1.032	140.4	LOS F	18.3	138.3	1.00	1.15	1.66	14.4
Approach			1115	5.0	1115	5.0	1.032	43.9	LOS D	21.1	152.9	0.74	0.71	0.84	38.0
North: Panorama Drive															
7	L2	All MCs	560	5.6	560	5.6	0.793	74.6	LOS E	33.1	242.8	0.93	0.88	0.94	33.3
8	T1	All MCs	366	7.4	366	7.4	1.340	403.4	LOS F	59.7	444.3	1.00	1.97	2.63	6.1
9	R2	All MCs	722	3.0	722	3.0	* 1.353	402.5	LOS F	59.8	429.5	1.00	1.73	2.67	5.9
Approach			1647	4.9	1647	4.9	1.353	291.3	LOS F	59.8	444.3	0.98	1.49	2.07	8.3
West: Boundary Road															
10	L2	All MCs	747	2.2	747	2.2	0.590	24.4	LOS C	21.8	155.3	0.58	0.92	0.58	43.9
11	T1	All MCs	1423	2.3	1423	2.3	* 0.953	81.1	LOS F	67.1	479.0	1.00	1.14	1.21	32.2
12	R2	All MCs	15	12.5	15	12.5	0.310	110.2	LOS F	1.5	11.6	1.00	0.71	1.00	25.5
12u	U	All MCs	5	0.0	5	0.0	0.310	111.2	LOS F	1.5	11.6	1.00	0.71	1.00	26.6
Approach			2190	2.3	2190	2.3	0.953	62.0	LOS E	67.1	479.0	0.86	1.06	0.99	34.6
All Vehicles			5301	4.1	5301	4.1	1.353	135.8	LOS F	67.1	479.0	0.88	1.13	1.33	18.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Panorama Drive												

P3 Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
West: Boundary Road											
P41 Stage 1	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
P42 Stage 2	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians	15	16	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F, F1
Output Phase Sequence: A, D, E, F, F1
Reference Phase: Phase A

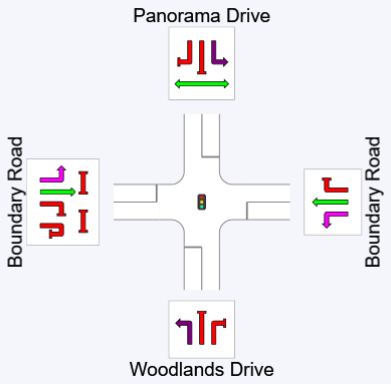
Phase Timing Summary

Phase	A	D	E	F	F1
Phase Change Time (sec)	0	72	100	129	141
Green Time (sec)	66	22	23	6	3
Phase Time (sec)	72	28	29	12	9
Phase Split	48%	19%	19%	8%	6%
Phase Frequency (%)	100.0	100.0	100.0	100.0	100.0

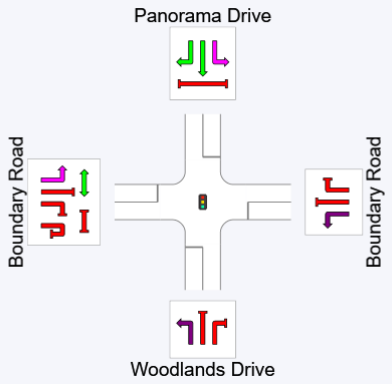
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence

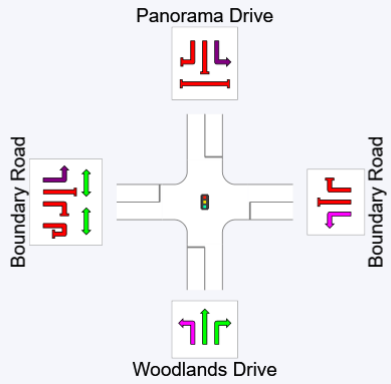
Phase A **REF**



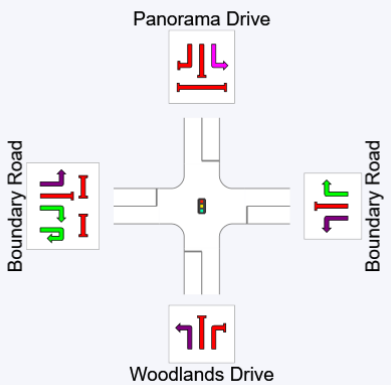
Phase D



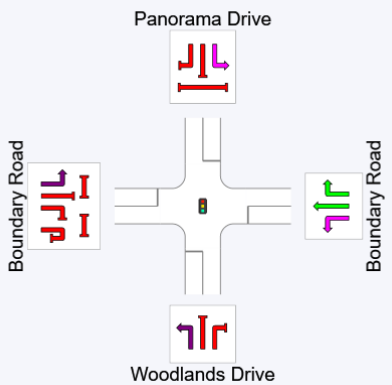
Phase E



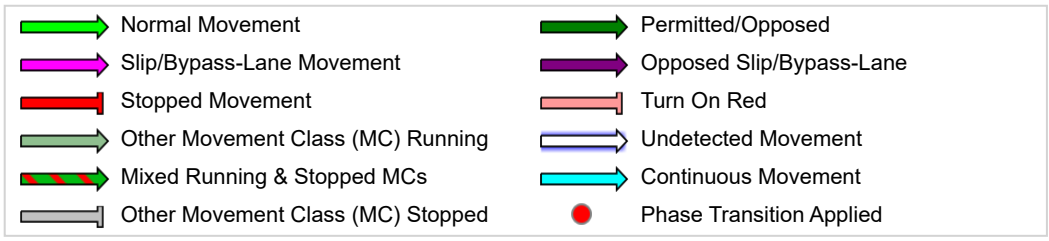
Phase F



Phase F1



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Woodlands Drive															
1	L2	All MCs	18	5.0	18	5.0	0.040	87.8	LOS F	0.8	6.0	0.74	0.68	0.74	37.5
2	T1	All MCs	364	4.3	364	4.3	* 1.448	514.1	LOS F	64.7	469.6	1.00	2.16	3.08	5.1
3	R2	All MCs	62	2.0	62	2.0	0.235	101.6	LOS F	3.8	26.9	0.93	0.75	0.93	30.4
Approach			444	4.0	444	4.0	1.448	439.9	LOS F	64.7	469.6	0.98	1.91	2.69	6.3
East: Boundary Road															
4	L2	All MCs	147	1.5	147	1.5	0.106	51.5	LOS D	2.1	14.8	0.27	0.65	0.27	53.3
5	T1	All MCs	1813	2.4	1813	2.4	* 1.244	296.9	LOS F	138.0	986.1	1.00	2.06	2.35	11.3
6	R2	All MCs	414	6.0	414	6.0	1.251	327.8	LOS F	59.3	436.2	1.00	1.53	2.43	7.5
Approach			2373	3.0	2373	3.0	1.251	287.2	LOS F	138.0	986.1	0.95	1.88	2.23	11.2
North: Panorama Drive															
7	L2	All MCs	223	13.5	223	13.5	0.222	14.5	LOS B	5.5	43.2	0.44	0.68	0.44	45.0
8	T1	All MCs	296	6.0	296	6.0	0.736	56.6	LOS E	19.2	141.6	0.99	0.86	1.02	26.2
9	R2	All MCs	703	2.2	703	2.2	* 0.897	76.2	LOS E	26.7	190.1	1.00	1.00	1.22	22.5
Approach			1222	5.2	1222	5.2	0.897	60.2	LOS E	26.7	190.1	0.90	0.91	1.03	25.7
West: Boundary Road															
10	L2	All MCs	775	2.4	775	2.4	0.692	28.5	LOS C	28.8	205.7	0.74	0.93	0.74	39.2
11	T1	All MCs	974	4.2	974	4.2	0.901	69.0	LOS E	36.5	264.5	1.00	1.02	1.17	33.5
12	R2	All MCs	15	4.8	15	4.8	* 0.239	91.6	LOS F	1.3	9.1	1.00	0.70	1.00	26.8
12u	U	All MCs	2	0.0	2	0.0	0.239	92.8	LOS F	1.3	9.1	1.00	0.70	1.00	28.0
Approach			1766	3.4	1766	3.4	0.901	51.4	LOS D	36.5	264.5	0.89	0.98	0.98	35.2
All Vehicles			5805	3.7	5805	3.7	1.448	179.3	LOS F	138.0	986.1	0.92	1.41	1.63	15.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Panorama Drive												

P3 Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
West: Boundary Road											
P41 Stage 1	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
P42 Stage 2	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians	15	16	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Organisation: SLR CONSULTING AUSTRALIA | Licence: NETWORK / 1PC | Processed: Tuesday, 17 June 2025 10:53:26 AM
Project: H:\Projects-SLR\620-BNE\620-BNE\620.040303.00001 Southern Thornlands, Initial R\02 Analysis\2025 06 - GTIA TIA\03 Sidra \620.040303-S02-v0.3 Sidra 20250612.sip9

PHASING SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F, F1
Output Phase Sequence: A, D, E, F, F1
Reference Phase: Phase A

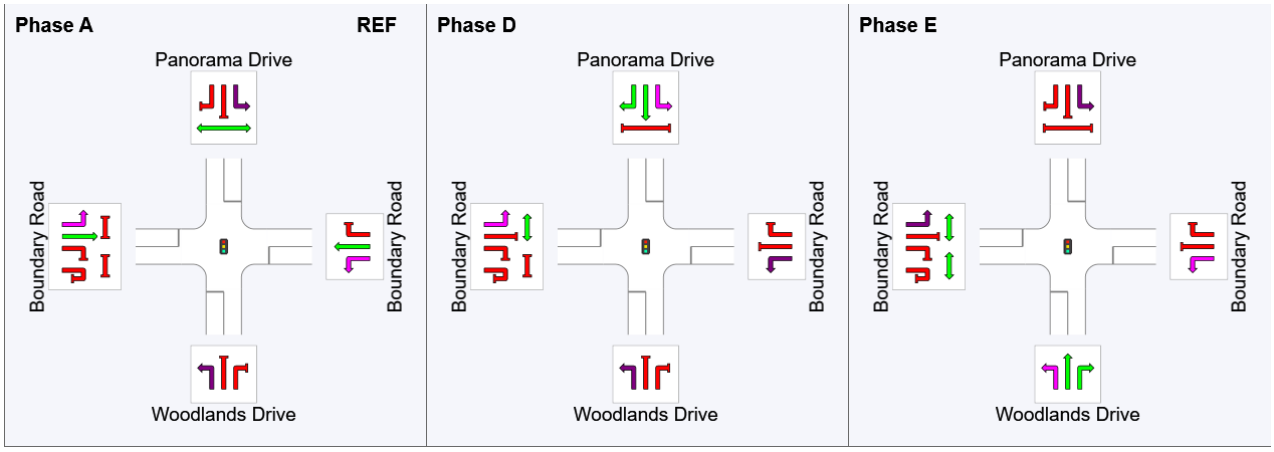
Phase Timing Summary

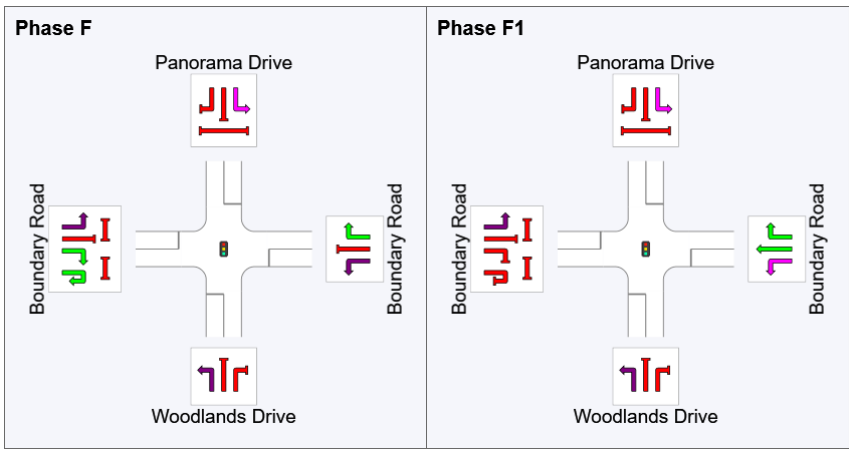
Phase	A	D	E	F	F1
Phase Change Time (sec)	0	46	82	108	120
Green Time (sec)	40	30	20	6	14
Phase Time (sec)	46	36	26	12	20
Phase Split	33%	26%	19%	9%	14%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

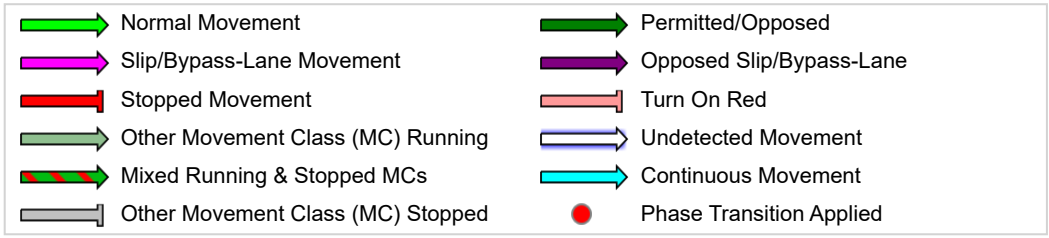
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Woodlands Drive															
1	L2	All MCs	19	0.0	19	0.0	0.021	43.8	LOS D	0.5	3.8	0.46	0.63	0.46	48.6
2	T1	All MCs	261	11.0	261	11.0	* 1.058	182.3	LOS F	28.2	216.1	1.00	1.34	1.70	13.6
3	R2	All MCs	69	2.4	69	2.4	0.245	98.9	LOS F	4.5	31.8	0.92	0.76	0.92	29.7
Approach			349	8.7	349	8.7	1.058	158.4	LOS F	28.2	216.1	0.95	1.19	1.48	16.7
East: Boundary Road															
4	L2	All MCs	37	4.1	37	4.1	0.027	9.8	LOS A	0.5	3.8	0.25	0.63	0.25	53.3
5	T1	All MCs	1107	4.2	1107	4.2	0.589	28.8	LOS C	28.4	206.1	0.76	0.69	0.76	47.5
6	R2	All MCs	201	9.1	201	9.1	* 1.152	233.7	LOS F	25.4	191.9	1.00	1.32	2.06	9.5
Approach			1345	4.9	1345	4.9	1.152	58.9	LOS E	28.4	206.1	0.79	0.78	0.94	33.0
North: Panorama Drive															
7	L2	All MCs	587	5.6	587	5.6	0.864	86.9	LOS F	38.4	281.3	0.98	0.96	1.06	28.8
8	T1	All MCs	366	7.4	366	7.4	1.340	403.4	LOS F	59.7	444.3	1.00	1.97	2.63	6.1
9	R2	All MCs	722	3.0	722	3.0	* 1.353	402.5	LOS F	59.8	429.5	1.00	1.73	2.67	5.9
Approach			1674	4.9	1674	4.9	1.353	292.1	LOS F	59.8	444.3	0.99	1.51	2.10	8.3
West: Boundary Road															
10	L2	All MCs	747	2.2	747	2.2	0.590	44.6	LOS D	21.8	155.3	0.58	0.85	0.58	43.9
11	T1	All MCs	1692	2.3	1692	2.3	* 1.123	196.6	LOS F	112.8	804.8	1.00	1.61	1.80	16.6
12	R2	All MCs	15	12.5	15	12.5	0.310	116.1	LOS F	1.5	11.6	1.00	0.71	1.00	25.5
12u	U	All MCs	5	0.0	5	0.0	0.310	117.2	LOS F	1.5	11.6	1.00	0.71	1.00	26.6
Approach			2459	2.3	2459	2.3	1.123	149.8	LOS F	112.8	804.8	0.87	1.37	1.42	19.5
All Vehicles			5827	4.0	5827	4.0	1.353	170.2	LOS F	112.8	804.8	0.89	1.26	1.51	15.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Panorama Drive												

P3 Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
West: Boundary Road											
P41 Stage 1	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
P42 Stage 2	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians	15	16	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 2 [2. Boundary Rd / Panorama Dr / Woodlands Dr - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F, F1
Output Phase Sequence: A, D, E, F, F1
Reference Phase: Phase A

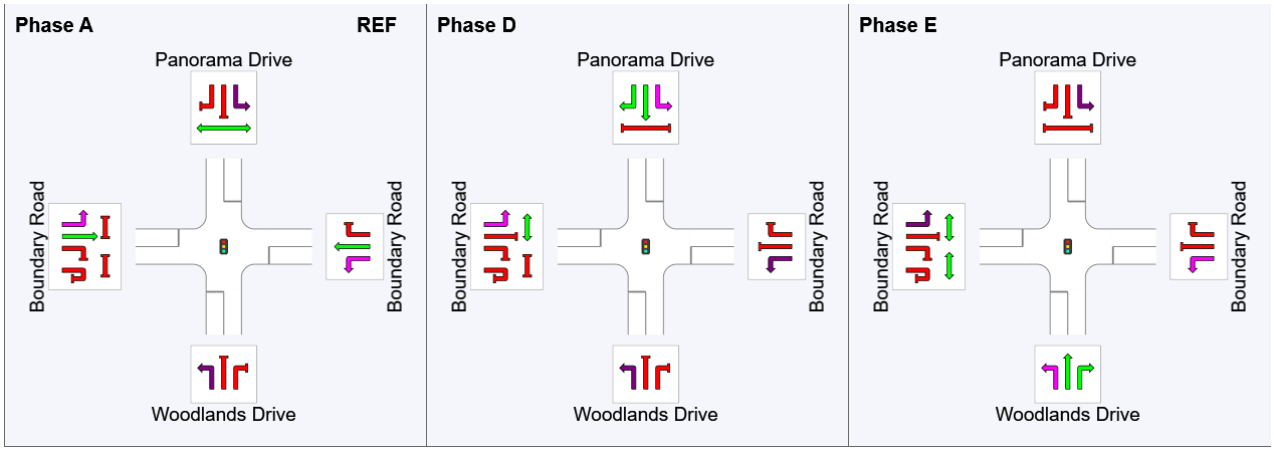
Phase Timing Summary

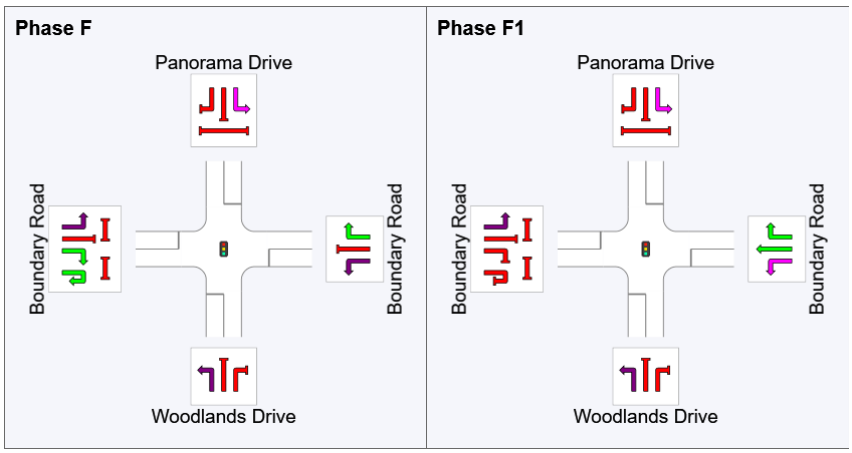
Phase	A	D	E	F	F1
Phase Change Time (sec)	0	72	100	129	141
Green Time (sec)	66	22	23	6	3
Phase Time (sec)	72	28	29	12	9
Phase Split	48%	19%	19%	8%	6%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

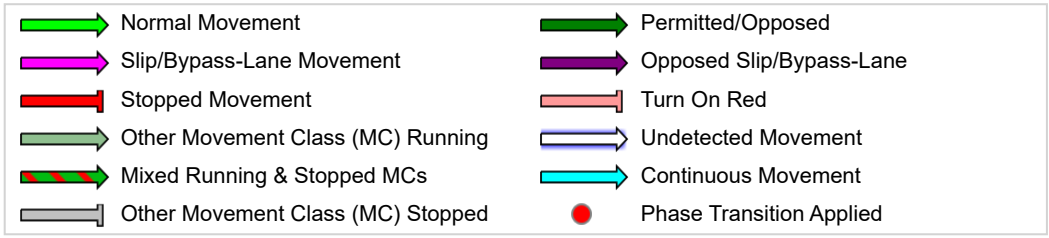
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



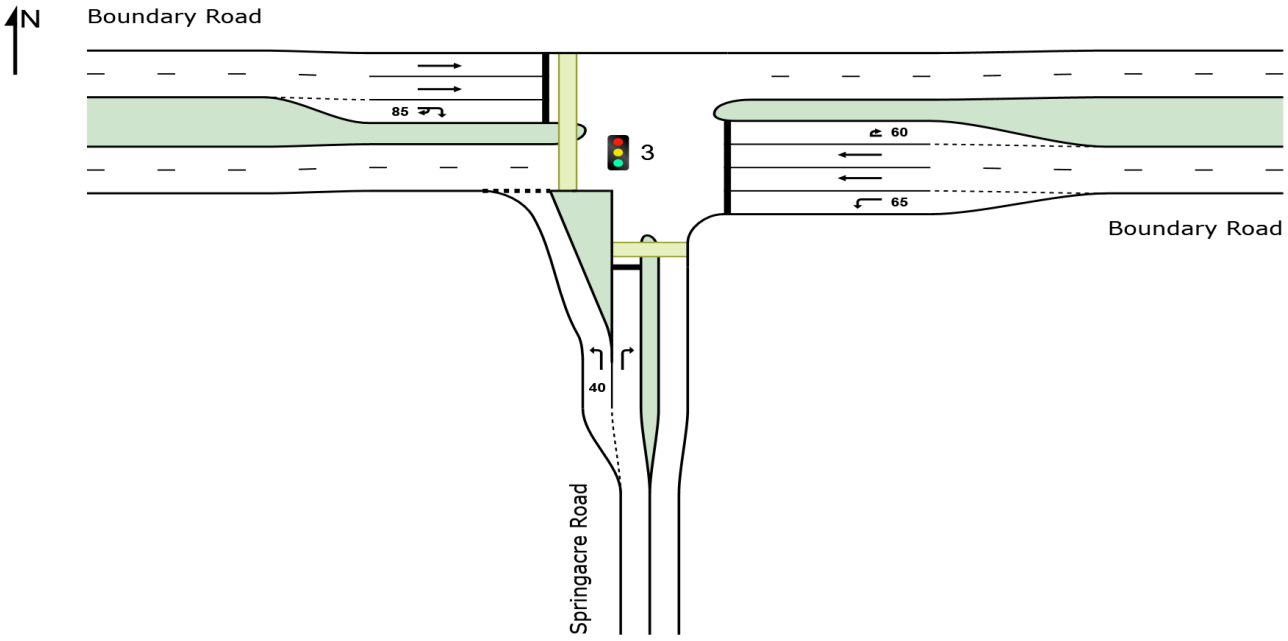
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SITE LAYOUT

Site: 3 [3. Boundary Rd / Springacre Rd - Survey AM (Site Folder: General)]

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springacre Road															
1	L2	All MCs	513	2.6	513	2.6	0.707	26.9	LOS C	21.8	156.2	0.74	0.82	0.74	47.4
3	R2	All MCs	65	1.5	65	1.5	* 0.355	78.4	LOS E	4.3	30.3	0.97	0.76	0.97	28.6
Approach			578	2.5	578	2.5	0.707	32.8	LOS C	21.8	156.2	0.76	0.81	0.76	44.1
East: Boundary Road															
4	L2	All MCs	45	4.7	45	4.7	0.040	23.1	LOS C	1.1	8.3	0.40	0.69	0.40	49.8
5	T1	All MCs	1345	2.8	1345	2.8	* 0.567	22.1	LOS C	26.3	188.3	0.63	0.57	0.63	59.5
6u	U	All MCs	1	0.0	1	0.0	0.106	105.8	LOS F	0.1	0.6	1.00	0.58	1.00	24.6
Approach			1392	2.8	1392	2.8	0.567	22.1	LOS C	26.3	188.3	0.62	0.57	0.62	59.0
West: Boundary Road															
11	T1	All MCs	733	4.6	733	4.6	0.240	3.4	LOS A	5.8	42.2	0.26	0.23	0.26	74.5
12	R2	All MCs	171	12.6	171	12.6	* 0.706	71.6	LOS E	11.6	90.2	1.00	0.84	1.05	28.7
12u	U	All MCs	1	0.0	1	0.0	0.706	72.5	LOS E	11.6	90.2	1.00	0.84	1.05	30.2
Approach			904	6.1	904	6.1	0.706	16.3	LOS B	11.6	90.2	0.40	0.34	0.41	57.1
All Vehicles			2874	3.8	2874	3.8	0.707	22.4	LOS C	26.3	188.3	0.58	0.55	0.58	54.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Springacre Road												
P1	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
West: Boundary Road												
P4	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians		10	11	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

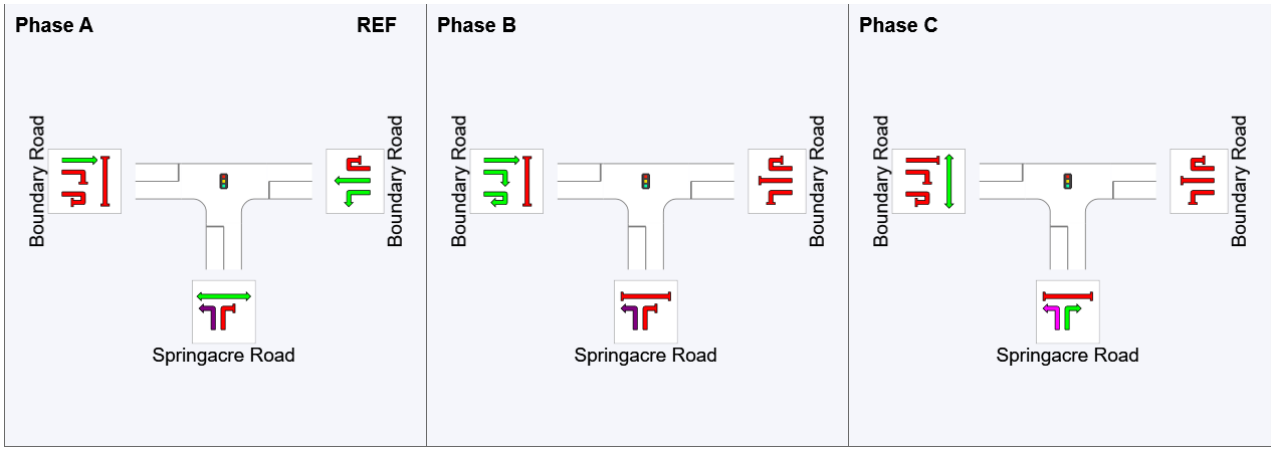
Phase Timing Summary

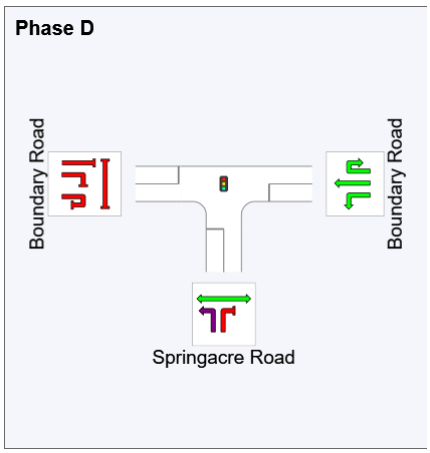
Phase	A	B	C	D
Phase Change Time (sec)	0	87	113	133
Green Time (sec)	87	20	14	1
Phase Time (sec)	93	26	20	1
Phase Split	66%	19%	14%	1%
Phase Frequency (%)	100.0	100.0	100.0	3.8[3]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

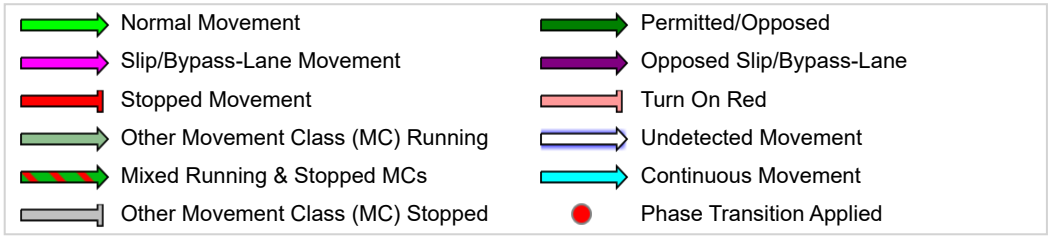
3 Phase Frequency has been estimated from actuated movement movement probabilities.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springacre Road															
1	L2	All MCs	191	8.0	191	8.0	0.285	13.3	LOS B	3.8	28.7	0.49	0.69	0.49	50.3
3	R2	All MCs	59	3.2	59	3.2	* 0.379	73.1	LOS E	3.9	28.4	0.98	0.76	0.98	28.0
Approach			249	6.9	249	6.9	0.379	27.5	LOS C	3.9	28.7	0.61	0.70	0.61	42.3
East: Boundary Road															
4	L2	All MCs	37	4.5	37	4.5	0.036	21.2	LOS C	1.1	7.9	0.47	0.69	0.47	47.4
5	T1	All MCs	763	4.1	763	4.1	* 0.356	17.5	LOS B	13.9	100.7	0.59	0.52	0.59	57.8
6u	U	All MCs	2	0.0	2	0.0	0.013	67.9	LOS E	0.1	0.9	0.91	0.64	0.91	31.1
Approach			802	4.1	802	4.1	0.356	17.8	LOS B	13.9	100.7	0.58	0.52	0.58	57.1
West: Boundary Road															
11	T1	All MCs	1345	2.0	1345	2.0	0.661	31.5	LOS C	33.6	239.1	0.75	0.69	0.75	54.2
12	R2	All MCs	496	4.9	496	4.9	* 1.309	374.8	LOS F	77.2	562.9	1.00	1.54	2.63	9.0
12u	U	All MCs	2	0.0	2	0.0	1.309	375.9	LOS F	77.2	562.9	1.00	1.54	2.63	9.1
Approach			1843	2.8	1843	2.8	1.309	124.2	LOS F	77.2	562.9	0.81	0.92	1.25	22.9
All Vehicles			2895	3.5	2895	3.5	1.309	86.4	LOS F	77.2	562.9	0.73	0.79	1.01	28.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Springacre Road												
P1	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
West: Boundary Road												
P4	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians		10	11	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, C, B
Output Phase Sequence: A, D, C, B
Reference Phase: Phase A

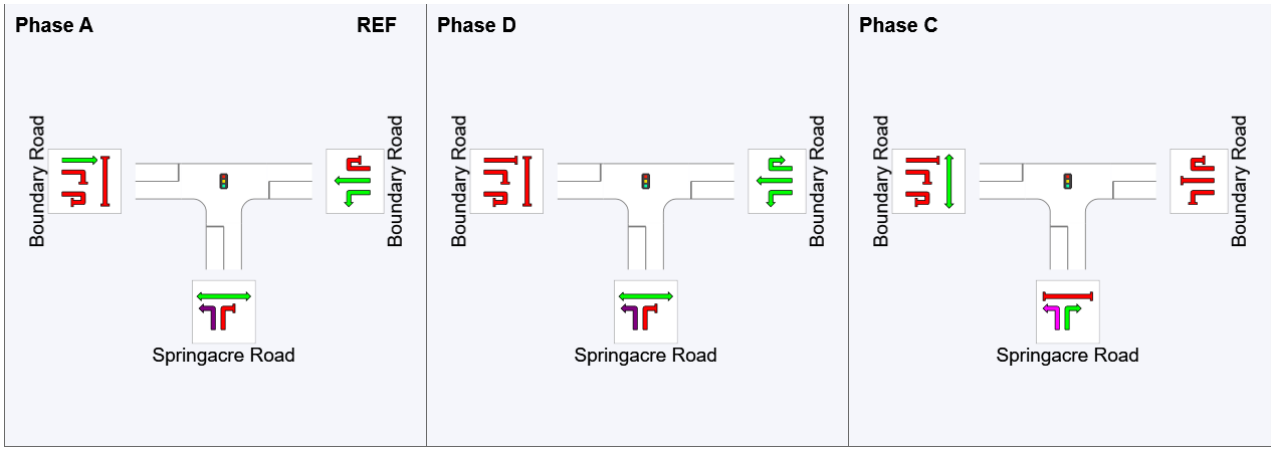
Phase Timing Summary

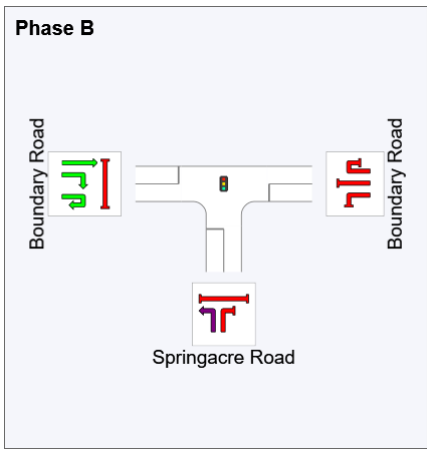
Phase	A	D	C	B
Phase Change Time (sec)	0	63	85	97
Green Time (sec)	57	16	12	37
Phase Time (sec)	63	16	18	43
Phase Split	45%	11%	13%	31%
Phase Frequency (%)	100.0	7.5[3]	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

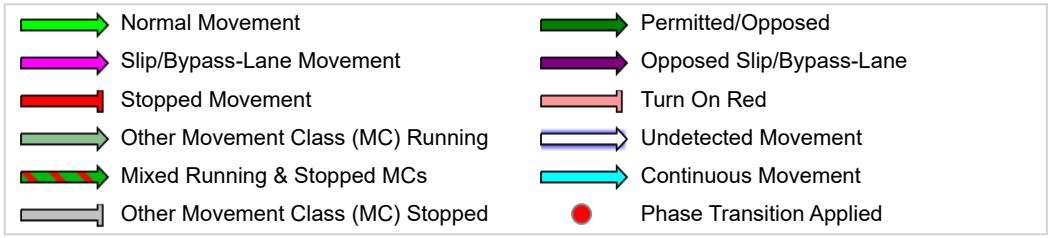
3 Phase Frequency has been estimated from actuated movement movement probabilities.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springacre Road															
1	L2	All MCs	576	2.6	576	2.6	0.867	57.1	LOS E	38.7	276.9	1.00	0.98	1.10	37.3
3	R2	All MCs	73	1.5	73	1.5	* 0.373	86.4	LOS F	4.8	33.9	0.97	0.77	0.97	28.8
Approach			650	2.5	650	2.5	0.867	60.4	LOS E	38.7	276.9	1.00	0.95	1.08	36.1
East: Boundary Road															
4	L2	All MCs	51	4.7	51	4.7	0.046	26.1	LOS C	1.3	9.5	0.41	0.69	0.41	49.5
5	T1	All MCs	1512	2.8	1512	2.8	* 0.647	26.5	LOS C	32.6	233.4	0.69	0.63	0.69	57.7
6u	U	All MCs	1	0.0	1	0.0	0.119	108.6	LOS F	0.1	0.7	1.00	0.58	1.00	24.6
Approach			1564	2.8	1564	2.8	0.647	26.5	LOS C	32.6	233.4	0.68	0.63	0.68	57.3
West: Boundary Road															
11	T1	All MCs	823	4.6	823	4.6	0.272	3.7	LOS A	7.0	50.8	0.28	0.25	0.28	73.9
12	R2	All MCs	192	12.6	192	12.6	* 0.793	75.2	LOS E	13.6	105.8	1.00	0.89	1.13	27.9
12u	U	All MCs	1	0.0	1	0.0	0.793	76.2	LOS E	13.6	105.8	1.00	0.89	1.13	29.3
Approach			1016	6.1	1016	6.1	0.793	17.3	LOS B	13.6	105.8	0.41	0.37	0.44	56.3
All Vehicles			3230	3.8	3230	3.8	0.867	30.4	LOS C	38.7	276.9	0.66	0.61	0.68	50.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Springacre Road												
P1	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
West: Boundary Road												
P4	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians		10	11	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

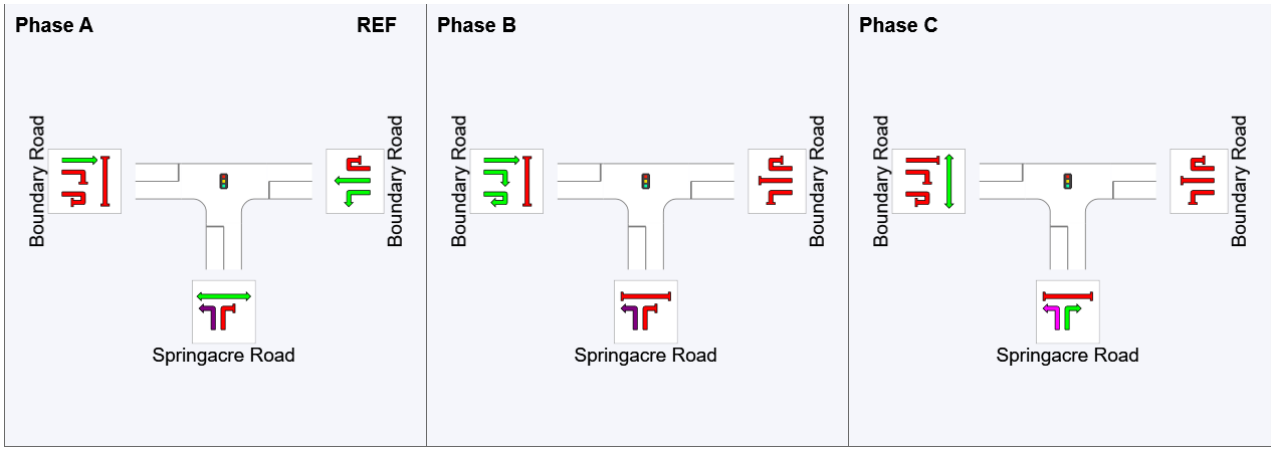
Phase Timing Summary

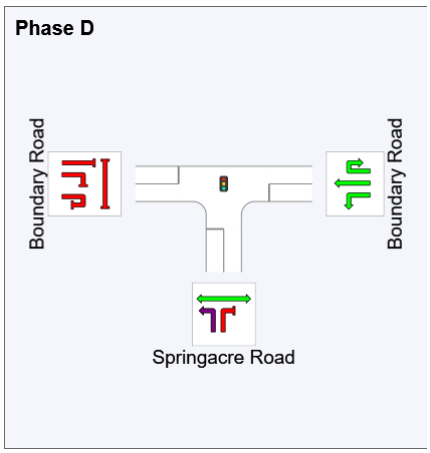
Phase	A	B	C	D
Phase Change Time (sec)	0	86	112	133
Green Time (sec)	86	20	15	1
Phase Time (sec)	92	26	21	1
Phase Split	66%	19%	15%	1%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	4.4[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

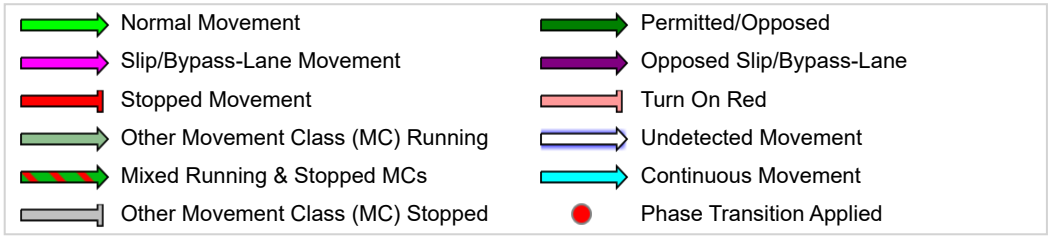
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springacre Road															
1	L2	All MCs	214	8.0	214	8.0	0.128	5.9	LOS A	0.8	6.0	0.06	0.56	0.06	56.0
3	R2	All MCs	66	3.2	66	3.2	* 0.547	82.1	LOS F	4.9	35.4	1.00	0.77	1.00	26.2
Approach			280	6.9	280	6.9	0.547	23.9	LOS C	4.9	35.4	0.28	0.61	0.28	44.1
East: Boundary Road															
4	L2	All MCs	41	4.5	41	4.5	0.077	67.4	LOS E	2.1	15.5	0.75	0.73	0.75	35.6
5	T1	All MCs	858	4.1	858	4.1	* 0.771	74.2	LOS E	29.3	212.2	0.98	0.87	0.99	37.4
6u	U	All MCs	2	0.0	2	0.0	0.255	131.5	LOS F	0.2	1.5	1.00	0.61	1.00	23.3
Approach			902	4.1	902	4.1	0.771	74.1	LOS E	29.3	212.2	0.97	0.86	0.98	37.3
West: Boundary Road															
11	T1	All MCs	1512	2.0	1512	2.0	0.464	6.6	LOS A	13.6	96.5	0.27	0.33	0.27	75.0
12	R2	All MCs	557	4.9	557	4.9	* 0.941	77.7	LOS E	48.3	352.4	1.00	1.08	1.23	29.0
12u	U	All MCs	2	0.0	2	0.0	0.941	78.7	LOS E	48.3	352.4	1.00	1.08	1.23	30.5
Approach			2072	2.8	2072	2.8	0.941	25.8	LOS C	48.3	352.4	0.47	0.53	0.53	52.5
All Vehicles			3254	3.5	3254	3.5	0.941	39.0	LOS D	48.3	352.4	0.59	0.63	0.63	46.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Springacre Road												
P1	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
West: Boundary Road												
P4	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		10	11	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, C, B
Output Phase Sequence: A, D, C, B
Reference Phase: Phase A

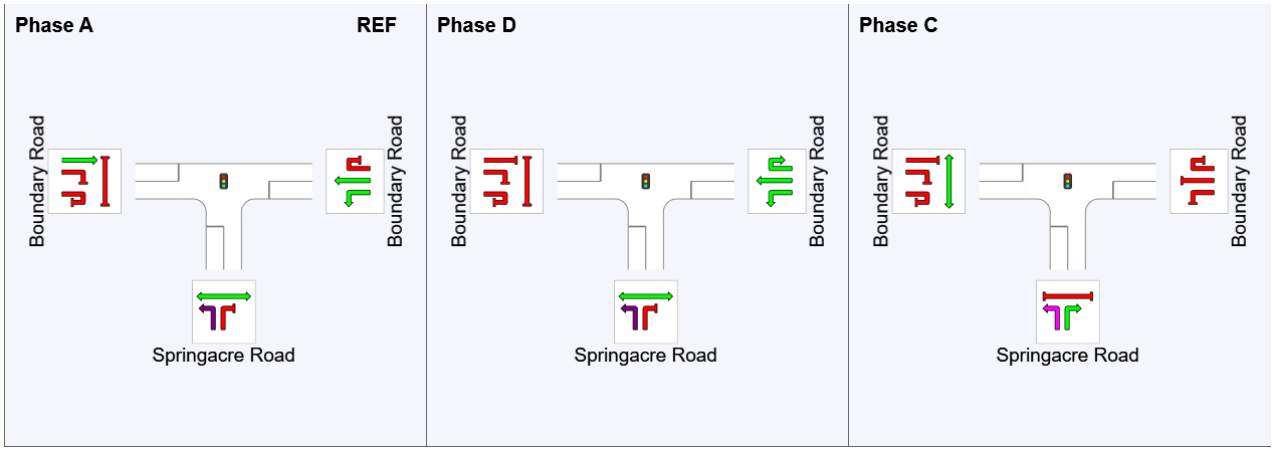
Phase Timing Summary

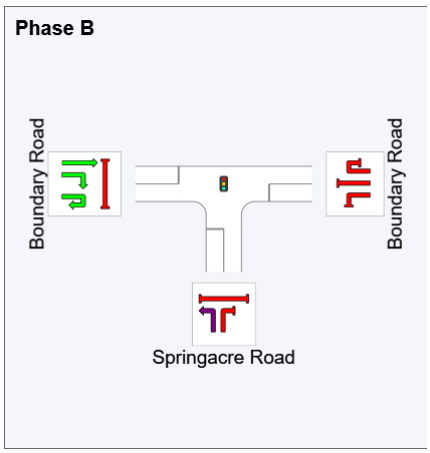
Phase	A	D	C	B
Phase Change Time (sec)	0	44	51	61
Green Time (sec)	38	1	10	83
Phase Time (sec)	44	1	16	89
Phase Split	29%	1%	11%	59%
Phase Frequency (%)	100.0[1]	4.4[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

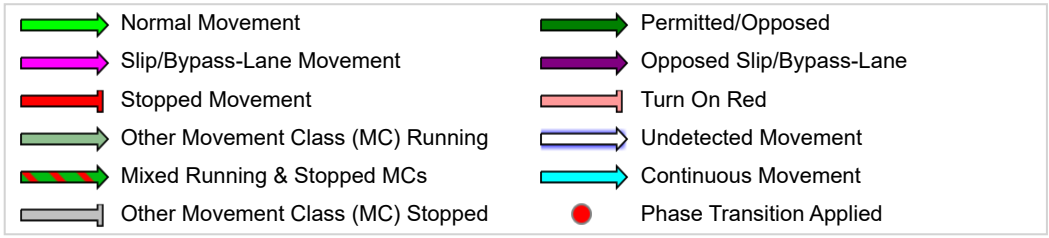
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springacre Road															
1	L2	All MCs	872	2.6	872	2.6	1.328	362.2	LOS F	127.4	911.5	1.00	1.77	2.66	9.1
3	R2	All MCs	154	1.5	154	1.5	* 1.008	144.6	LOS F	14.4	102.2	1.00	1.31	1.66	20.5
Approach			1026	2.4	1026	2.4	1.328	329.5	LOS F	127.4	911.5	1.00	1.70	2.51	9.9
East: Boundary Road															
4	L2	All MCs	114	4.7	114	4.7	0.102	26.3	LOS C	3.1	22.2	0.43	0.71	0.43	49.2
5	T1	All MCs	1512	2.8	1512	2.8	* 0.661	26.9	LOS C	33.8	241.9	0.70	0.64	0.70	57.4
6u	U	All MCs	1	0.0	1	0.0	0.119	109.0	LOS F	0.1	0.7	1.00	0.58	1.00	24.6
Approach			1627	2.9	1627	2.9	0.661	26.9	LOS C	33.8	241.9	0.68	0.65	0.68	56.7
West: Boundary Road															
11	T1	All MCs	823	4.6	823	4.6	0.272	16.2	LOS B	7.0	50.8	0.28	0.25	0.28	73.9
12	R2	All MCs	422	12.6	422	12.6	* 1.739	769.5	LOS F	91.3	707.9	1.00	1.86	3.78	4.6
12u	U	All MCs	1	0.0	1	0.0	1.739	770.4	LOS F	91.3	707.9	1.00	1.86	3.78	4.6
Approach			1247	7.3	1247	7.3	1.739	271.9	LOS F	91.3	707.9	0.52	0.79	1.47	12.0
All Vehicles			3900	4.2	3900	4.2	1.739	184.9	LOS F	127.4	911.5	0.71	0.97	1.41	16.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Springacre Road												
P1	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
West: Boundary Road												
P4	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians		10	11	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

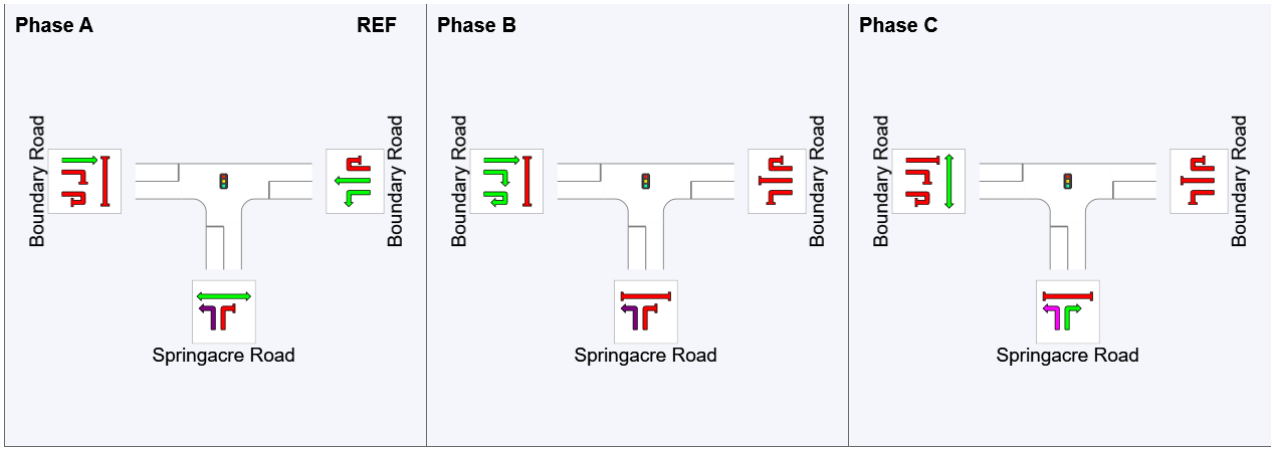
Phase Timing Summary

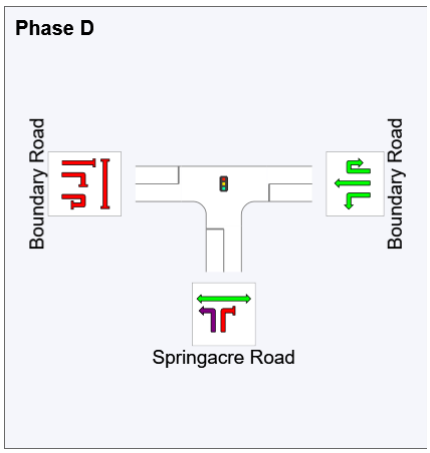
Phase	A	B	C	D
Phase Change Time (sec)	0	86	112	133
Green Time (sec)	86	20	15	1
Phase Time (sec)	92	26	21	1
Phase Split	66%	19%	15%	1%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	4.4[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

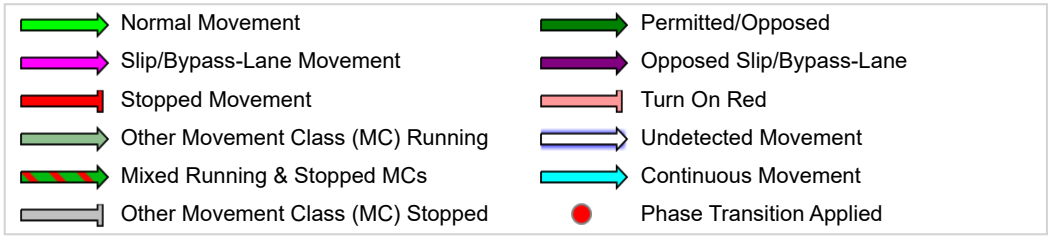
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springacre Road															
1	L2	All MCs	444	8.0	444	8.0	0.265	5.9	LOS A	2.0	14.7	0.07	0.57	0.07	55.9
3	R2	All MCs	129	3.2	129	3.2	* 1.067	164.1	LOS F	13.9	99.9	1.00	1.20	1.82	16.6
Approach			574	7.0	574	7.0	1.067	41.5	LOS D	13.9	99.9	0.28	0.71	0.46	36.4
East: Boundary Road															
4	L2	All MCs	122	4.5	122	4.5	0.226	68.3	LOS E	6.6	48.2	0.79	0.78	0.79	34.8
5	T1	All MCs	858	4.1	858	4.1	* 0.802	76.8	LOS E	31.4	227.4	0.99	0.89	1.03	36.6
6u	U	All MCs	2	0.0	2	0.0	0.255	133.0	LOS F	0.2	1.5	1.00	0.61	1.00	23.3
Approach			982	4.2	982	4.2	0.802	75.9	LOS E	31.4	227.4	0.96	0.88	1.00	36.3
West: Boundary Road															
11	T1	All MCs	1512	2.0	1512	2.0	0.464	13.4	LOS B	13.6	96.5	0.27	0.25	0.27	75.0
12	R2	All MCs	853	4.9	853	4.9	* 1.276	329.0	LOS F	131.6	960.2	1.00	1.48	2.38	10.1
12u	U	All MCs	2	0.0	2	0.0	1.276	330.1	LOS F	131.6	960.2	1.00	1.48	2.38	10.2
Approach			2367	3.1	2367	3.1	1.276	127.4	LOS F	131.6	960.2	0.54	0.70	1.03	22.5
All Vehicles			3923	3.9	3923	3.9	1.276	102.0	LOS F	131.6	960.2	0.61	0.74	0.94	26.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Springacre Road												
P1	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
West: Boundary Road												
P4	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		10	11	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, C, B
Output Phase Sequence: A, D, C, B
Reference Phase: Phase A

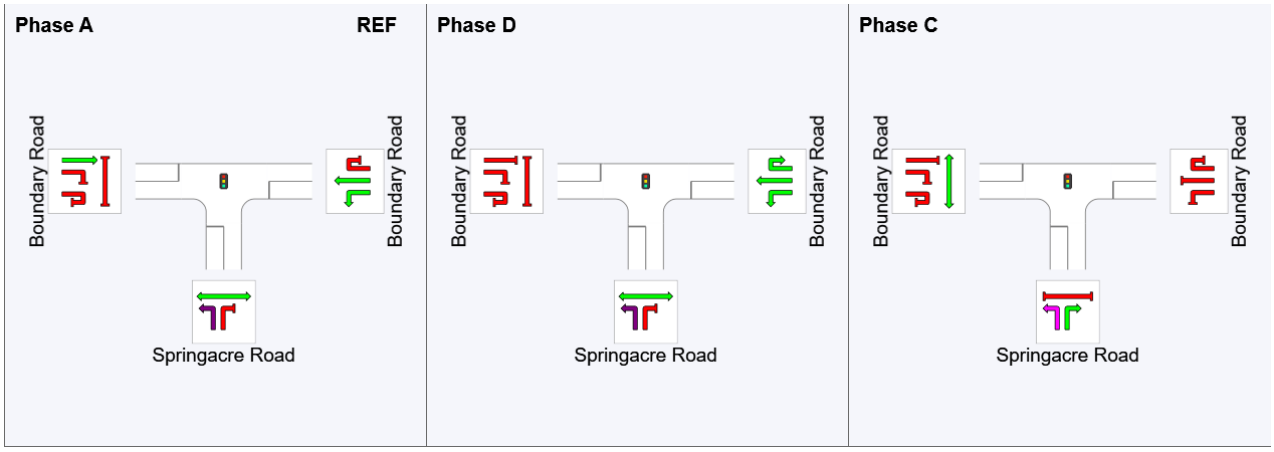
Phase Timing Summary

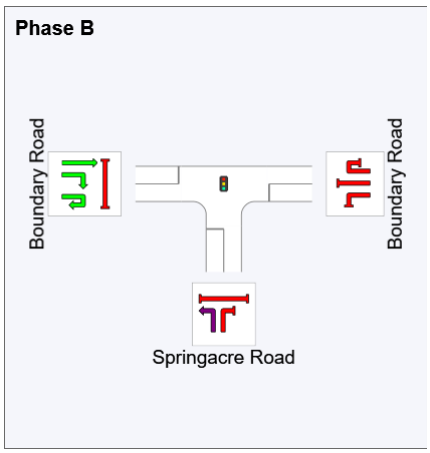
Phase	A	D	C	B
Phase Change Time (sec)	0	44	51	61
Green Time (sec)	38	1	10	83
Phase Time (sec)	44	1	16	89
Phase Split	29%	1%	11%	59%
Phase Frequency (%)	100.0[1]	4.4[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

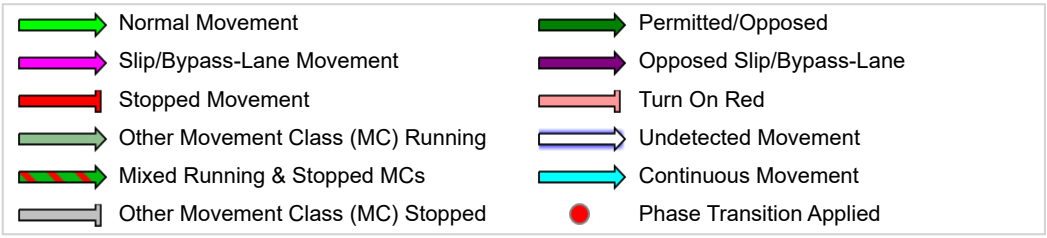
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase

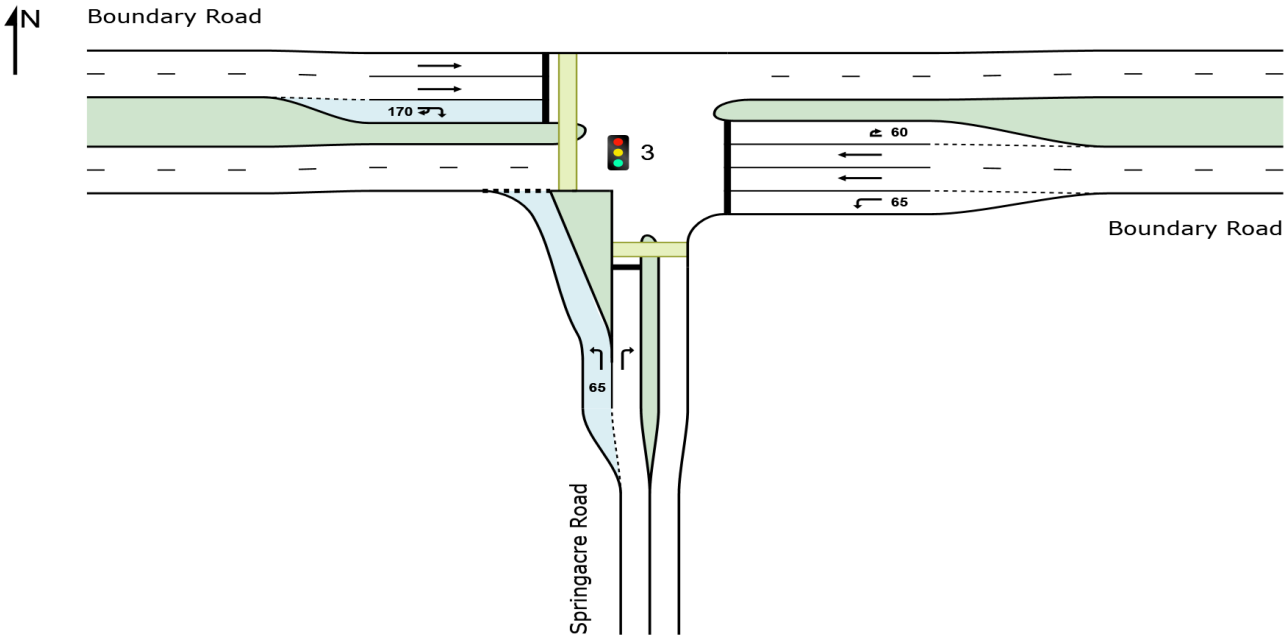


SITE LAYOUT

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D AM Upgraded (Site Folder: General)]

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D AM Upgraded (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springacre Road															
1	L2	All MCs	1	0.0	1	0.0	0.001	10.3	LOS B	0.0	0.1	0.30	0.57	0.30	54.2
3	R2	All MCs	1	0.0	1	0.0	* 0.005	65.2	LOS E	0.1	0.4	0.91	0.59	0.91	30.0
Approach			2	0.0	2	0.0	0.005	37.8	LOS D	0.1	0.4	0.61	0.58	0.61	38.6
East: Boundary Road															
4	L2	All MCs	1	0.0	1	0.0	0.001	20.9	LOS C	0.0	0.2	0.39	0.63	0.39	50.0
5	T1	All MCs	1156	2.8	1156	2.8	* 0.486	19.2	LOS B	20.9	150.0	0.59	0.53	0.59	60.1
6u	U	All MCs	1	0.0	1	0.0	0.106	103.5	LOS F	0.1	0.6	1.00	0.58	1.00	24.6
Approach			1158	2.8	1158	2.8	0.486	19.3	LOS B	20.9	150.0	0.59	0.53	0.59	60.0
West: Boundary Road															
11	T1	All MCs	656	4.6	656	4.6	0.217	3.5	LOS A	5.3	38.2	0.26	0.23	0.26	74.3
12	R2	All MCs	1	0.0	1	0.0	* 0.015	62.5	LOS E	0.2	1.3	0.88	0.65	0.88	30.8
12u	U	All MCs	2	0.0	2	0.0	0.015	63.6	LOS E	0.2	1.3	0.88	0.65	0.88	32.4
Approach			659	4.6	659	4.6	0.217	3.8	LOS A	5.3	38.2	0.26	0.23	0.26	73.8
All Vehicles			1819	3.4	1819	3.4	0.486	13.7	LOS B	20.9	150.0	0.47	0.42	0.47	64.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Springacre Road												
P1	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
West: Boundary Road												
P4	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians		10	11	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D AM Upgraded (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

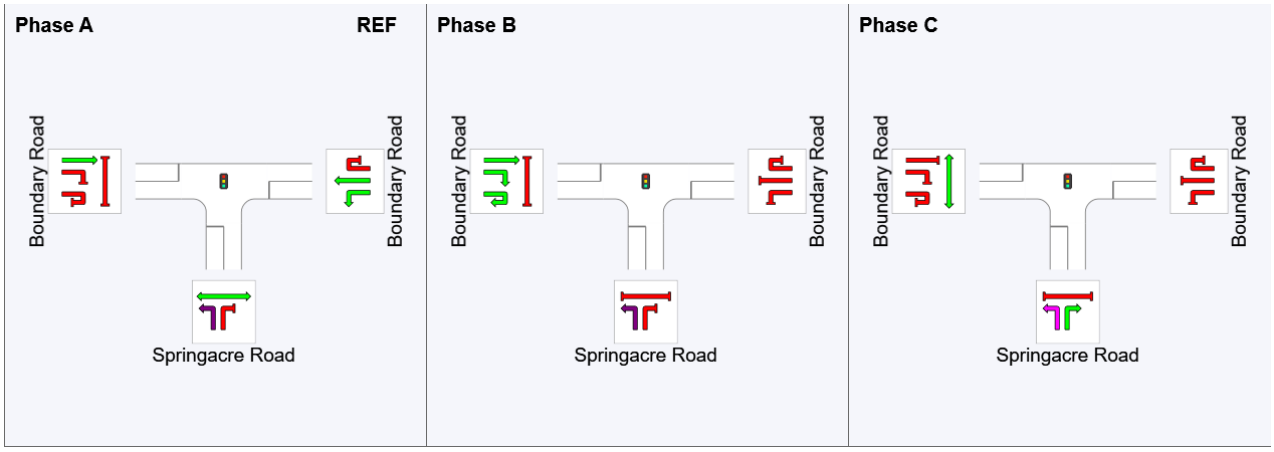
Phase Timing Summary

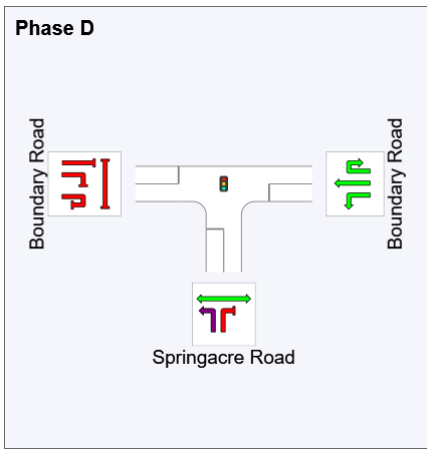
Phase	A	B	C	D
Phase Change Time (sec)	0	86	112	133
Green Time (sec)	86	20	15	1
Phase Time (sec)	92	26	21	1
Phase Split	66%	19%	15%	1%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	4.4[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

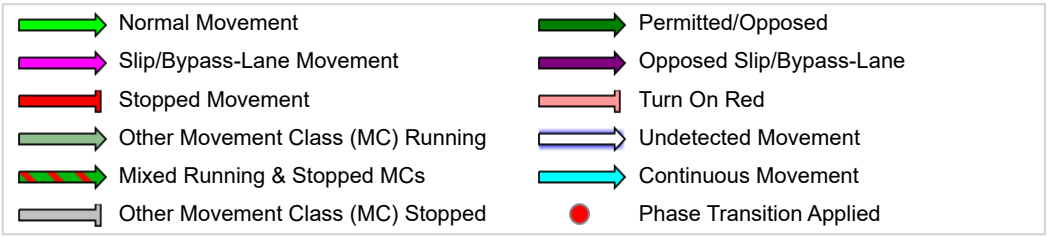
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D PM Upgraded (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springacre Road															
1	L2	All MCs	1	0.0	1	0.0	0.001	5.8	LOS A	0.0	0.0	0.05	0.55	0.05	58.0
3	R2	All MCs	1	0.0	1	0.0	* 0.009	76.4	LOS E	0.1	0.5	0.95	0.59	0.95	27.5
Approach			2	0.0	2	0.0	0.009	41.1	LOS D	0.1	0.5	0.50	0.57	0.50	37.3
East: Boundary Road															
4	L2	All MCs	1	0.0	1	0.0	0.002	59.1	LOS E	0.1	0.4	0.72	0.62	0.72	36.2
5	T1	All MCs	720	4.1	720	4.1	0.633	63.7	LOS E	22.6	164.0	0.92	0.80	0.92	38.8
6u	U	All MCs	1	0.0	1	0.0	* 0.113	121.9	LOS F	0.1	0.7	1.00	0.58	1.00	23.6
Approach			722	4.1	722	4.1	0.633	63.8	LOS E	22.6	164.0	0.92	0.80	0.92	38.8
West: Boundary Road															
11	T1	All MCs	1262	2.0	1262	2.0	* 0.387	2.7	LOS A	10.2	72.7	0.25	0.23	0.25	75.5
12	R2	All MCs	1	0.0	1	0.0	0.008	22.8	LOS C	0.2	1.4	0.46	0.69	0.46	46.2
12u	U	All MCs	5	0.0	5	0.0	0.008	23.9	LOS C	0.2	1.4	0.46	0.69	0.46	49.8
Approach			1268	2.0	1268	2.0	0.387	2.8	LOS A	10.2	72.7	0.25	0.23	0.25	75.3
All Vehicles			1993	2.8	1993	2.8	0.633	25.0	LOS C	22.6	164.0	0.49	0.44	0.49	56.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Springacre Road												
P1	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
West: Boundary Road												
P4	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		10	11	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 3 [3. Boundary Rd / Springacre Rd - 2029 BG+D PM Upgraded (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, C, B
Output Phase Sequence: A, D, C, B
Reference Phase: Phase A

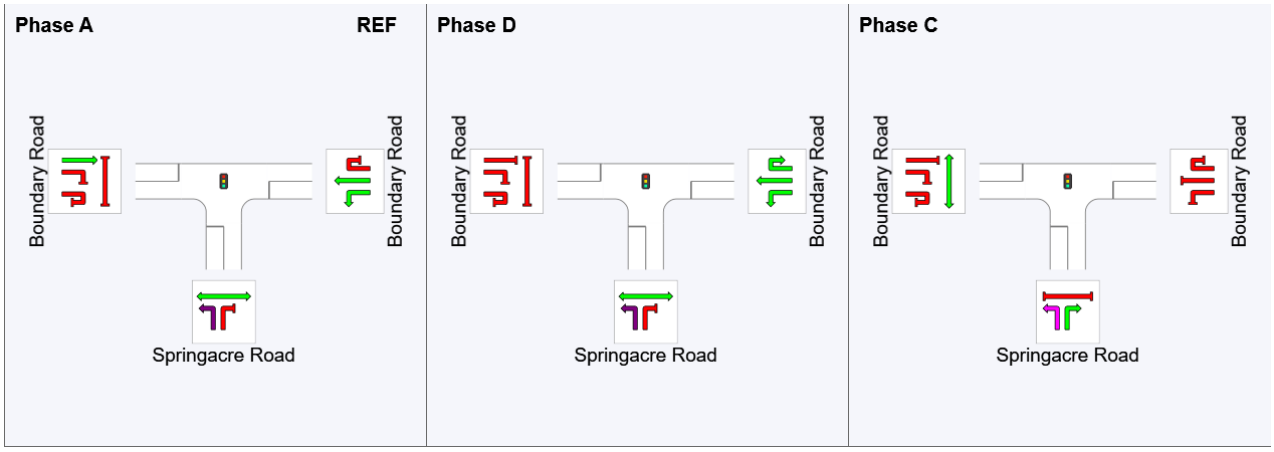
Phase Timing Summary

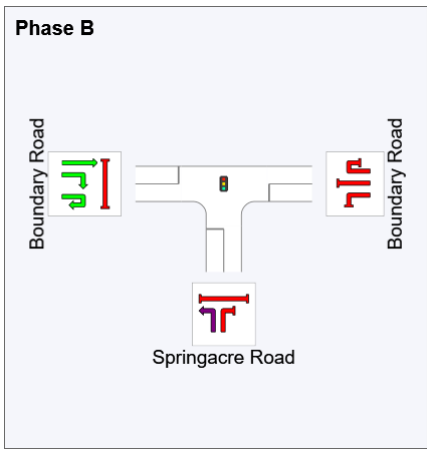
Phase	A	D	C	B
Phase Change Time (sec)	0	44	51	61
Green Time (sec)	38	1	10	83
Phase Time (sec)	44	1	16	89
Phase Split	29%	1%	11%	59%
Phase Frequency (%)	100.0[1]	4.4[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

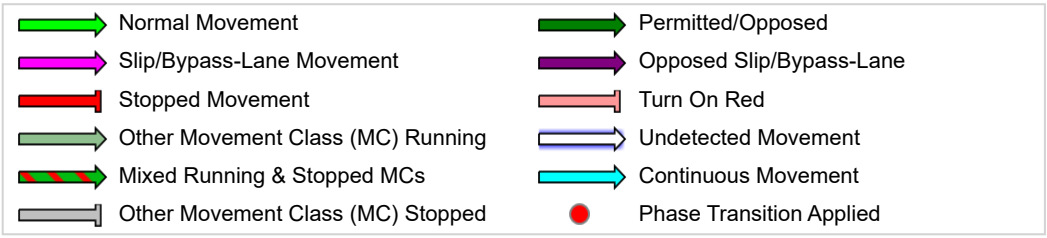
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



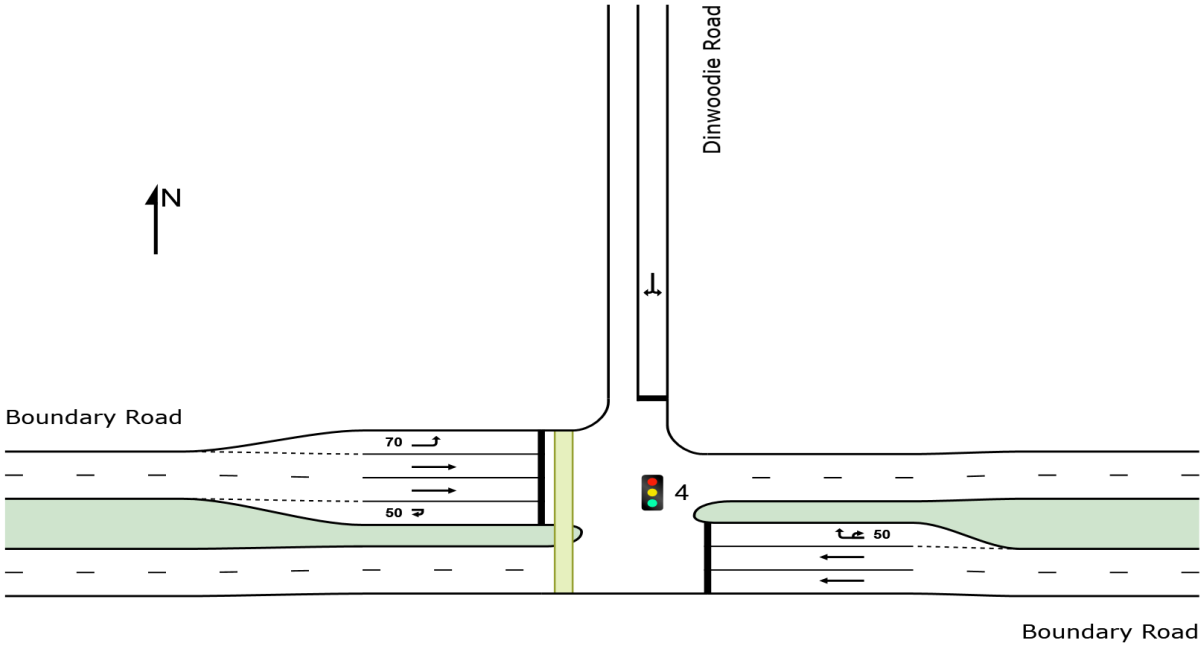
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SITE LAYOUT

Site: 4 [4. Boundary Rd / Dinwoodie Rd - Survey AM (Site Folder: General)]

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Boundary Road															
11	T1	All MCs	1156	2.6	1156	2.6	*0.598	31.5	LOS C	27.7	198.5	0.76	0.68	0.76	51.5
12	R2	All MCs	37	9.7	37	9.7	*0.307	89.4	LOS F	2.6	19.4	0.99	0.74	0.99	27.5
12u	U	All MCs	1	0.0	1	0.0	0.307	90.6	LOS F	2.6	19.4	0.99	0.74	0.99	29.0
Approach			1194	2.8	1194	2.8	0.598	33.4	LOS C	27.7	198.5	0.76	0.68	0.76	50.1
North: Dinwoodie Road															
1	L2	All MCs	22	14.3	22	14.3	0.584	60.8	LOS E	13.3	95.1	0.96	0.82	0.96	30.0
3	R2	All MCs	191	1.4	191	1.4	*0.584	60.7	LOS E	13.3	95.1	0.96	0.82	0.96	31.0
Approach			213	2.7	213	2.7	0.584	60.7	LOS E	13.3	95.1	0.96	0.82	0.96	30.9
West: Boundary Road															
4	L2	All MCs	127	2.2	127	2.2	0.135	25.6	LOS C	4.4	31.6	0.55	0.74	0.55	44.8
5	T1	All MCs	656	5.3	656	5.3	0.290	14.2	LOS B	10.6	77.4	0.52	0.45	0.52	60.9
6u	U	All MCs	2	0.0	2	0.0	*0.035	81.3	LOS F	0.1	1.0	0.98	0.62	0.98	28.0
Approach			785	4.7	785	4.7	0.290	16.3	LOS B	10.6	77.4	0.53	0.50	0.53	57.4
All Vehicles			2192	3.5	2192	3.5	0.598	29.9	LOS C	27.7	198.5	0.70	0.63	0.70	49.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
West: Boundary Road												
P2	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians		5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

Phase Timing Summary

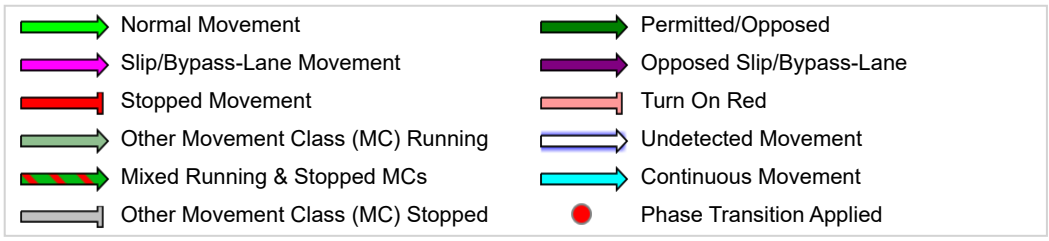
Phase	A	B	C	D
Phase Change Time (sec)	0	78	90	124
Green Time (sec)	72	6	28	10
Phase Time (sec)	78	12	34	16
Phase Split	56%	9%	24%	11%
Phase Frequency (%)	100.0	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Boundary Road															
11	T1	All MCs	720	3.9	720	3.9	0.320	16.7	LOS B	12.9	93.6	0.54	0.47	0.54	59.1
12	R2	All MCs	28	7.8	28	7.8	* 0.254	82.8	LOS F	2.1	15.9	0.98	0.73	0.98	26.6
12u	U	All MCs	1	0.0	1	0.0	0.254	84.0	LOS F	2.1	15.9	0.98	0.73	0.98	27.8
Approach			749	4.1	749	4.1	0.320	19.3	LOS B	12.9	93.6	0.56	0.48	0.56	56.4
North: Dinwoodie Road															
1	L2	All MCs	49	7.7	49	7.7	0.513	71.1	LOS E	8.8	65.0	0.97	0.80	0.97	28.0
3	R2	All MCs	78	5.9	78	5.9	* 0.513	71.1	LOS E	8.8	65.0	0.97	0.80	0.97	28.2
Approach			127	6.6	127	6.6	0.513	71.1	LOS E	8.8	65.0	0.97	0.80	0.97	28.1
West: Boundary Road															
4	L2	All MCs	186	1.7	186	1.7	0.171	23.8	LOS C	6.0	42.7	0.48	0.73	0.48	47.3
5	T1	All MCs	1262	2.0	1262	2.0	* 0.504	16.8	LOS B	22.9	163.2	0.54	0.49	0.54	62.5
6u	U	All MCs	5	0.0	5	0.0	0.094	93.8	LOS F	0.4	2.8	0.99	0.66	0.99	26.6
Approach			1454	1.9	1454	1.9	0.504	18.0	LOS B	22.9	163.2	0.53	0.52	0.53	59.7
All Vehicles			2331	2.9	2331	2.9	0.513	21.3	LOS C	22.9	163.2	0.56	0.52	0.56	55.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
West: Boundary Road												
P2	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

Phase Timing Summary

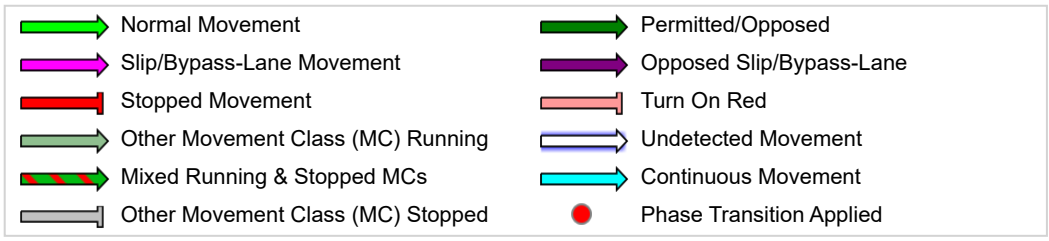
Phase	A	B	C	D
Phase Change Time (sec)	0	95	107	134
Green Time (sec)	89	6	21	10
Phase Time (sec)	95	12	27	16
Phase Split	63%	8%	18%	11%
Phase Frequency (%)	100.0	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Boundary Road															
11	T1	All MCs	1299	2.6	1299	2.6	*0.638	30.1	LOS C	31.1	222.6	0.76	0.69	0.76	52.6
12	R2	All MCs	41	9.7	41	9.7	*0.346	90.0	LOS F	2.9	21.9	0.99	0.74	0.99	27.5
12u	U	All MCs	1	0.0	1	0.0	0.346	91.1	LOS F	2.9	21.9	0.99	0.74	0.99	28.9
Approach			1342	2.8	1342	2.8	0.638	32.0	LOS C	31.1	222.6	0.76	0.69	0.76	51.1
North: Dinwoodie Road															
1	L2	All MCs	25	14.3	25	14.3	0.765	68.6	LOS E	16.3	116.8	1.00	0.88	1.08	28.2
3	R2	All MCs	214	1.4	214	1.4	*0.765	68.5	LOS E	16.3	116.8	1.00	0.88	1.08	29.1
Approach			239	2.7	239	2.7	0.765	68.5	LOS E	16.3	116.8	1.00	0.88	1.08	29.0
West: Boundary Road															
4	L2	All MCs	143	2.2	143	2.2	0.144	23.6	LOS C	4.7	33.7	0.53	0.74	0.53	46.0
5	T1	All MCs	737	5.3	737	5.3	0.311	12.6	LOS B	11.3	83.0	0.50	0.44	0.50	62.6
6u	U	All MCs	2	0.0	2	0.0	*0.040	81.4	LOS F	0.2	1.1	0.98	0.63	0.98	27.9
Approach			883	4.7	883	4.7	0.311	14.6	LOS B	11.3	83.0	0.50	0.49	0.50	58.9
All Vehicles			2463	3.5	2463	3.5	0.765	29.3	LOS C	31.1	222.6	0.69	0.63	0.70	49.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
West: Boundary Road												
P2	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians		5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

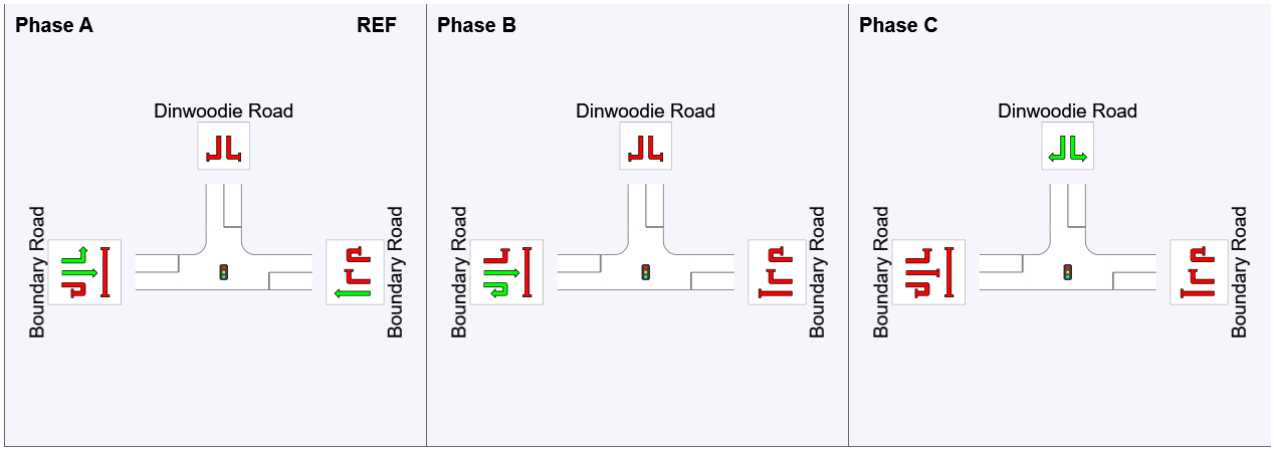
Phase Timing Summary

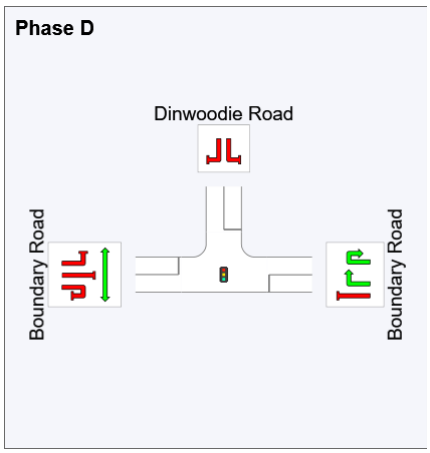
Phase	A	B	C	D
Phase Change Time (sec)	0	82	94	124
Green Time (sec)	76	6	24	10
Phase Time (sec)	82	12	30	16
Phase Split	59%	9%	21%	11%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

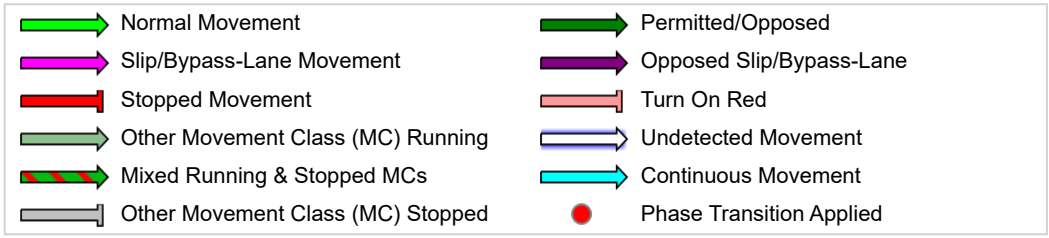
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Boundary Road															
11	T1	All MCs	809	3.9	809	3.9	0.384	21.8	LOS C	16.4	118.7	0.60	0.53	0.60	56.0
12	R2	All MCs	32	7.8	32	7.8	* 0.219	82.5	LOS F	2.3	17.3	0.97	0.73	0.97	27.3
12u	U	All MCs	1	0.0	1	0.0	0.219	83.6	LOS F	2.3	17.3	0.97	0.73	0.97	28.7
Approach			842	4.1	842	4.1	0.384	24.2	LOS C	16.4	118.7	0.62	0.54	0.62	53.8
North: Dinwoodie Road															
1	L2	All MCs	56	7.7	56	7.7	0.526	69.5	LOS E	9.8	72.5	0.97	0.80	0.97	28.4
3	R2	All MCs	88	5.9	88	5.9	* 0.526	69.6	LOS E	9.8	72.5	0.97	0.80	0.97	28.5
Approach			143	6.6	143	6.6	0.526	69.5	LOS E	9.8	72.5	0.97	0.80	0.97	28.5
West: Boundary Road															
4	L2	All MCs	209	1.7	209	1.7	0.204	29.9	LOS C	7.4	52.7	0.53	0.75	0.53	45.7
5	T1	All MCs	1419	1.9	1419	1.9	* 0.613	24.7	LOS C	31.7	225.9	0.64	0.59	0.64	58.4
6u	U	All MCs	6	0.0	6	0.0	0.106	98.1	LOS F	0.4	3.1	0.99	0.66	0.99	26.6
Approach			1634	1.9	1634	1.9	0.613	25.7	LOS C	31.7	225.9	0.63	0.61	0.63	56.1
All Vehicles			2620	2.9	2620	2.9	0.613	27.6	LOS C	31.7	225.9	0.64	0.60	0.64	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
West: Boundary Road												
P2	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

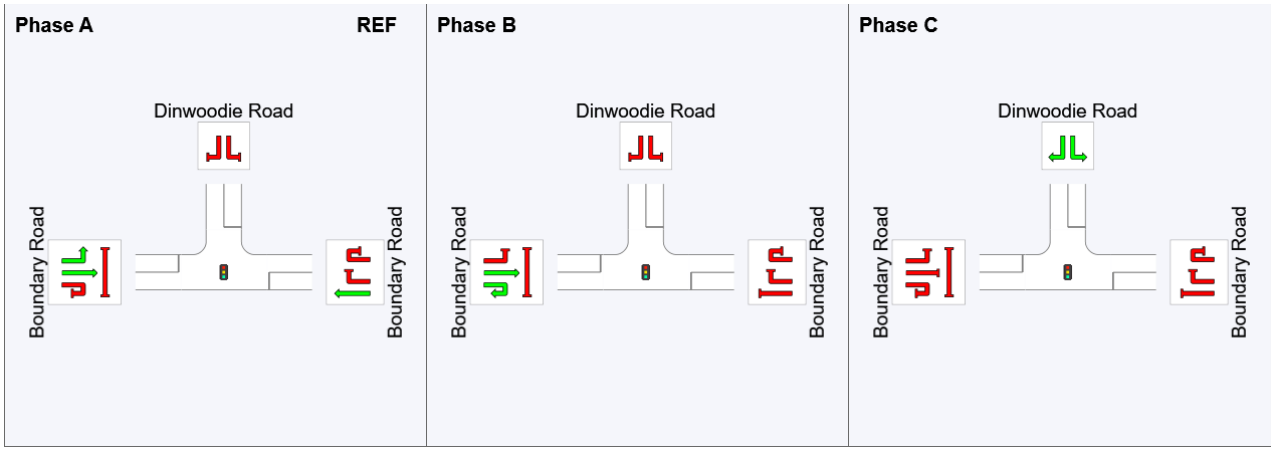
Phase Timing Summary

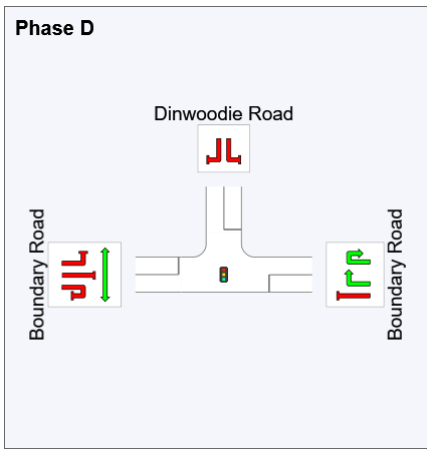
Phase	A	B	C	D
Phase Change Time (sec)	0	90	102	131
Green Time (sec)	84	6	23	13
Phase Time (sec)	90	12	29	19
Phase Split	60%	8%	19%	13%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Boundary Road															
11	T1	All MCs	1320	2.6	1320	2.6	*0.648	30.4	LOS C	31.9	228.2	0.76	0.69	0.76	52.5
12	R2	All MCs	41	9.7	41	9.7	*0.346	90.3	LOS F	2.9	21.9	0.99	0.74	0.99	27.5
12u	U	All MCs	1	0.0	1	0.0	0.346	91.4	LOS F	2.9	21.9	0.99	0.74	0.99	28.9
Approach			1363	2.8	1363	2.8	0.648	32.3	LOS C	31.9	228.2	0.77	0.70	0.77	51.0
North: Dinwoodie Road															
1	L2	All MCs	25	14.3	25	14.3	0.898	80.3	LOS F	21.5	153.9	1.00	0.99	1.25	25.9
3	R2	All MCs	256	1.4	256	1.4	*0.898	80.2	LOS F	21.5	153.9	1.00	0.99	1.25	26.6
Approach			281	2.5	281	2.5	0.898	80.2	LOS F	21.5	153.9	1.00	0.99	1.25	26.6
West: Boundary Road															
4	L2	All MCs	197	2.2	197	2.2	0.198	24.2	LOS C	6.7	48.0	0.55	0.75	0.55	45.6
5	T1	All MCs	764	5.3	764	5.3	0.322	12.8	LOS B	11.9	86.8	0.50	0.44	0.50	62.5
6u	U	All MCs	2	0.0	2	0.0	*0.040	81.6	LOS F	0.2	1.1	0.98	0.63	0.98	27.9
Approach			963	4.6	963	4.6	0.322	15.3	LOS B	11.9	86.8	0.51	0.51	0.51	57.9
All Vehicles			2607	3.5	2607	3.5	0.898	31.2	LOS C	31.9	228.2	0.70	0.66	0.73	48.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
West: Boundary Road												
P2	Full	5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92
All Pedestrians		5	5	64.1	LOS F	0.0	0.0	0.96	0.96	218.0	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

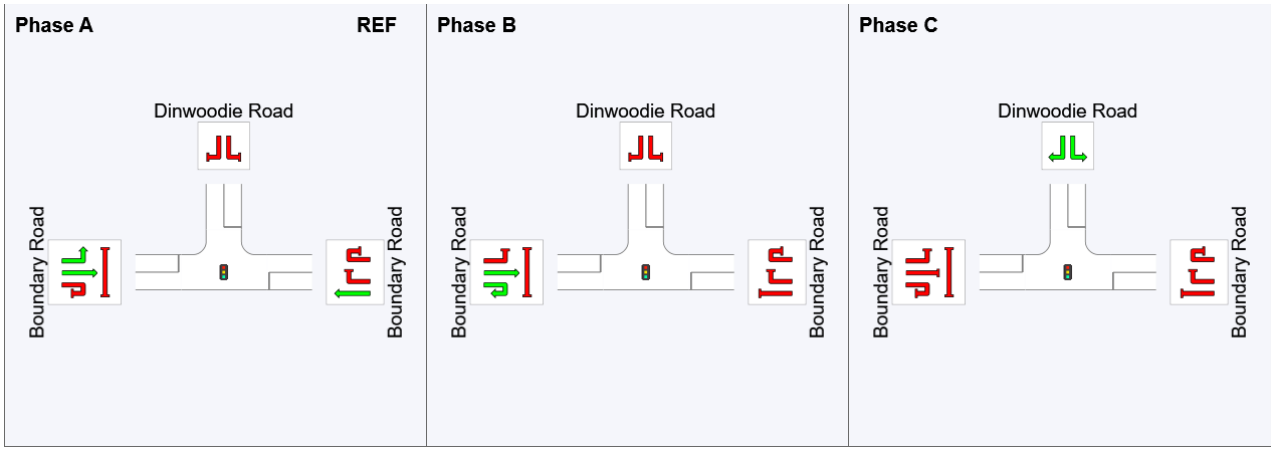
Phase Timing Summary

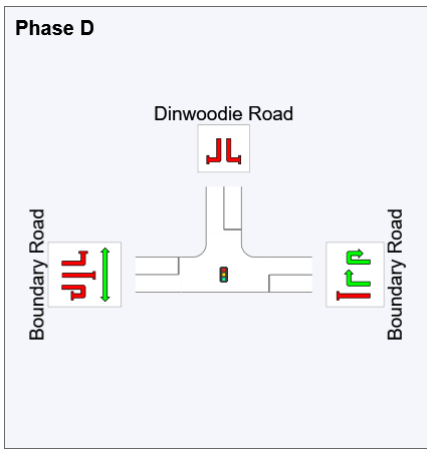
Phase	A	B	C	D
Phase Change Time (sec)	0	82	94	124
Green Time (sec)	76	6	24	10
Phase Time (sec)	82	12	30	16
Phase Split	59%	9%	21%	11%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Boundary Road															
11	T1	All MCs	836	2.6	836	2.6	0.394	22.1	LOS C	17.1	122.2	0.61	0.54	0.61	55.9
12	R2	All MCs	32	9.7	32	9.7	* 0.222	83.0	LOS F	2.3	17.6	0.97	0.73	0.97	27.3
12u	U	All MCs	1	0.0	1	0.0	0.222	84.1	LOS F	2.3	17.6	0.97	0.73	0.97	28.7
Approach			869	2.9	869	2.9	0.394	24.4	LOS C	17.1	122.2	0.62	0.55	0.62	53.8
North: Dinwoodie Road															
1	L2	All MCs	56	14.3	56	14.3	0.716	72.9	LOS E	14.1	103.3	1.00	0.85	1.04	27.3
3	R2	All MCs	141	1.4	141	1.4	* 0.716	72.8	LOS E	14.1	103.3	1.00	0.85	1.04	28.1
Approach			197	5.0	197	5.0	0.716	72.9	LOS E	14.1	103.3	1.00	0.85	1.04	27.9
West: Boundary Road															
4	L2	All MCs	251	2.2	251	2.2	0.245	31.0	LOS C	9.2	65.3	0.55	0.76	0.55	45.4
5	T1	All MCs	1440	5.3	1440	5.3	* 0.644	26.1	LOS C	33.8	247.5	0.67	0.61	0.67	57.9
6u	U	All MCs	6	0.0	6	0.0	0.106	99.0	LOS F	0.4	3.1	0.99	0.66	0.99	26.6
Approach			1697	4.8	1697	4.8	0.644	27.1	LOS C	33.8	247.5	0.65	0.63	0.65	55.4
All Vehicles			2763	4.2	2763	4.2	0.716	29.5	LOS C	33.8	247.5	0.66	0.62	0.67	51.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
West: Boundary Road												
P2	Full	5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		5	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 4 [4. Boundary Rd / Dinwoodie Rd - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: TMR Phasing
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

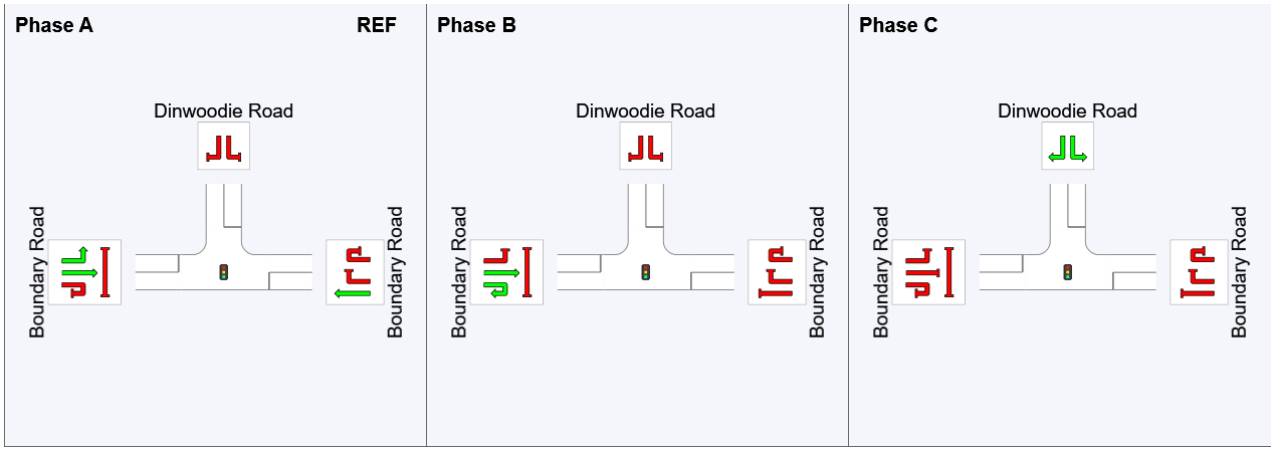
Phase Timing Summary

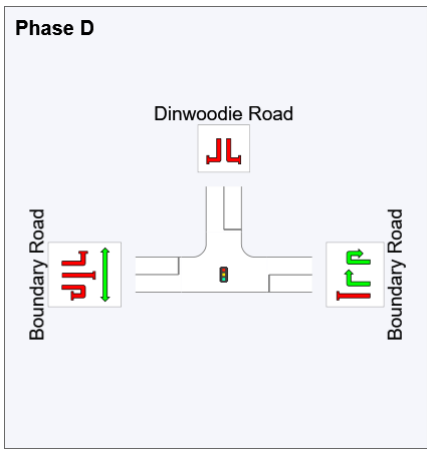
Phase	A	B	C	D
Phase Change Time (sec)	0	90	102	131
Green Time (sec)	84	6	23	13
Phase Time (sec)	90	12	29	19
Phase Split	60%	8%	19%	13%
Phase Frequency (%)	100.0[1]	100.0[1]	100.0[1]	100.0[1]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

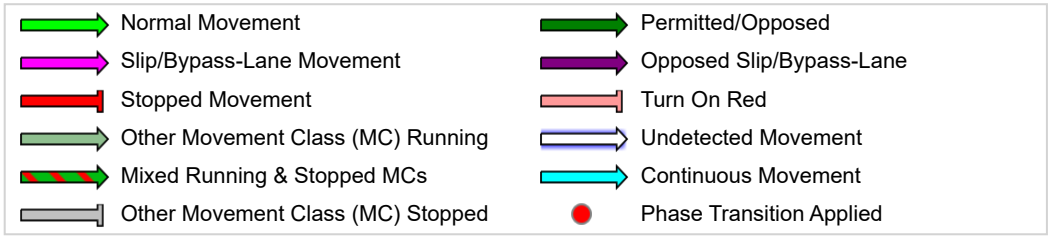
1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



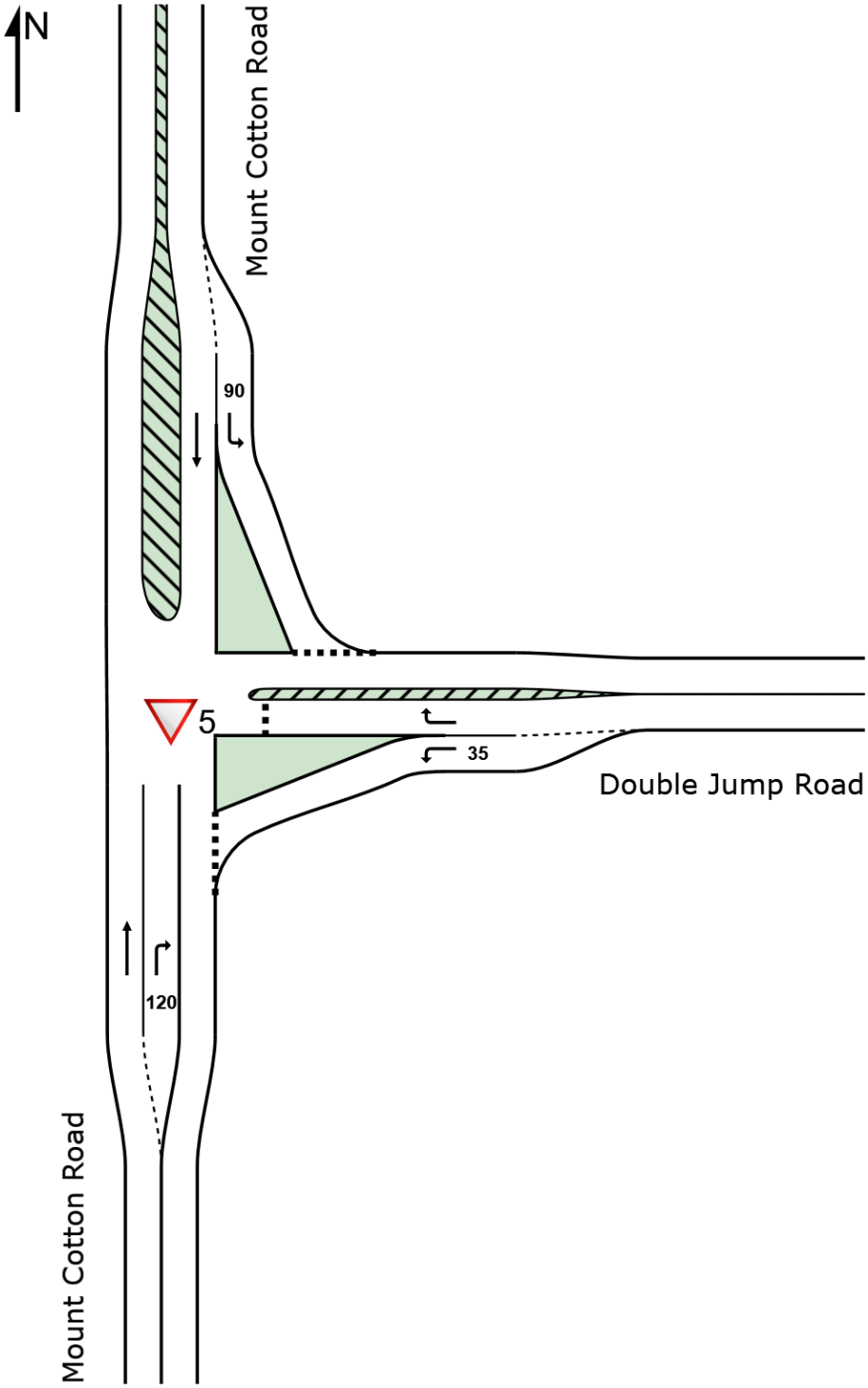
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SITE LAYOUT

Site: 5 [5. Mount Cotton Rd / Double Jump Rd - Survey AM (Site Folder: General)]

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 5 [5. Mount Cotton Rd / Double Jump Rd - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mount Cotton Road															
8	T1	All MCs	953	5.9	953	5.9	0.507	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.5
9	R2	All MCs	237	5.9	237	5.9	0.209	9.2	LOS A	0.8	6.2	0.44	0.72	0.44	60.4
Approach			1189	5.9	1189	5.9	0.507	1.9	NA	0.8	6.2	0.09	0.14	0.09	74.8
East: Double Jump Road															
10	L2	All MCs	269	4.5	269	4.5	0.255	9.6	LOS A	1.1	8.2	0.53	0.73	0.53	60.6
12	R2	All MCs	136	4.3	136	4.3	0.710	43.9	LOS E	3.2	23.2	0.96	1.14	1.72	38.6
Approach			405	4.4	405	4.4	0.710	21.1	LOS C	3.2	23.2	0.67	0.87	0.93	50.9
North: Mount Cotton Road															
1	L2	All MCs	81	10.0	81	10.0	0.062	8.3	LOS A	0.3	2.0	0.29	0.59	0.29	60.1
2	T1	All MCs	497	8.5	497	8.5	0.269	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach			578	8.7	578	8.7	0.269	1.2	LOS A	0.3	2.0	0.04	0.08	0.04	76.3
All Vehicles			2173	6.4	2173	6.4	0.710	5.3	NA	3.2	23.2	0.19	0.26	0.23	69.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 5 [5. Mount Cotton Rd / Double Jump Rd - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mount Cotton Road															
8	T1	All MCs	555	8.5	555	8.5	0.300	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
9	R2	All MCs	397	4.1	397	4.1	0.593	15.6	LOS C	3.4	24.8	0.81	1.05	1.30	54.9
Approach			952	6.7	952	6.7	0.593	6.6	NA	3.4	24.8	0.34	0.44	0.54	67.1
East: Double Jump Road															
10	L2	All MCs	196	5.5	196	5.5	0.320	13.8	LOS B	1.4	10.2	0.71	0.93	0.87	56.6
12	R2	All MCs	49	7.0	49	7.0	0.663	85.4	LOS F	2.0	15.0	0.98	1.07	1.42	26.7
Approach			245	5.8	245	5.8	0.663	28.2	LOS D	2.0	15.0	0.77	0.96	0.98	46.2
North: Mount Cotton Road															
1	L2	All MCs	394	3.3	394	3.3	0.339	9.3	LOS A	1.7	12.1	0.46	0.70	0.47	61.2
2	T1	All MCs	867	5.0	867	5.0	0.459	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.6
Approach			1261	4.4	1261	4.4	0.459	3.0	LOS A	1.7	12.1	0.14	0.22	0.15	72.7
All Vehicles			2458	5.4	2458	5.4	0.663	6.9	NA	3.4	24.8	0.28	0.38	0.38	66.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 5 [5. Mount Cotton Rd / Double Jump Rd - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mount Cotton Road															
8	T1	All MCs	1071	5.9	1071	5.9	0.570	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.3
9	R2	All MCs	266	5.9	266	5.9	0.251	9.6	LOS A	1.0	7.4	0.50	0.76	0.50	59.9
Approach			1337	5.9	1337	5.9	0.570	2.1	NA	1.0	7.4	0.10	0.15	0.10	74.5
East: Double Jump Road															
10	L2	All MCs	303	4.5	303	4.5	0.305	10.3	LOS B	1.5	10.7	0.57	0.79	0.63	60.1
12	R2	All MCs	153	4.4	153	4.4	1.056	147.5	LOS F	11.7	85.2	1.00	1.75	4.83	18.5
Approach			456	4.4	456	4.4	1.056	56.2	LOS F	11.7	85.2	0.72	1.11	2.04	34.3
North: Mount Cotton Road															
1	L2	All MCs	91	10.0	91	10.0	0.071	8.4	LOS A	0.3	2.2	0.32	0.60	0.32	60.0
2	T1	All MCs	558	8.5	558	8.5	0.302	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach			650	8.7	650	8.7	0.302	1.2	LOS A	0.3	2.2	0.04	0.08	0.04	76.2
All Vehicles			2442	6.4	2442	6.4	1.056	12.0	NA	11.7	85.2	0.20	0.31	0.45	61.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 5 [5. Mount Cotton Rd / Double Jump Rd - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mount Cotton Road															
8	T1	All MCs	624	8.5	624	8.5	0.337	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
9	R2	All MCs	446	4.1	446	4.1	0.804	22.9	LOS C	6.1	44.1	0.92	1.27	2.16	49.5
Approach			1070	6.7	1070	6.7	0.804	9.6	NA	6.1	44.1	0.38	0.53	0.90	63.6
East: Double Jump Road															
10	L2	All MCs	220	5.5	220	5.5	0.434	16.6	LOS C	2.0	14.6	0.80	1.00	1.12	54.3
12	R2	All MCs	56	7.0	56	7.0	1.238	369.1	LOS F	9.5	70.6	1.00	1.61	4.34	8.7
Approach			276	5.8	276	5.8	1.238	87.7	LOS F	9.5	70.6	0.84	1.12	1.77	26.5
North: Mount Cotton Road															
1	L2	All MCs	443	3.3	443	3.3	0.399	10.1	LOS B	2.4	17.2	0.51	0.76	0.60	60.6
2	T1	All MCs	975	5.0	975	5.0	0.516	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.5
Approach			1417	4.4	1417	4.4	0.516	3.3	LOS A	2.4	17.2	0.16	0.24	0.19	72.4
All Vehicles			2763	5.4	2763	5.4	1.238	14.1	NA	9.5	70.6	0.31	0.44	0.62	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 5 [5. Mount Cotton Rd / Double Jump Rd - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mount Cotton Road															
8	T1	All MCs	1071	5.9	1071	5.9	0.570	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.3
9	R2	All MCs	329	5.9	329	5.9	0.310	9.9	LOS A	1.4	10.4	0.52	0.79	0.56	59.7
Approach			1400	5.9	1400	5.9	0.570	2.5	NA	1.4	10.4	0.12	0.19	0.13	73.6
East: Double Jump Road															
10	L2	All MCs	384	4.5	384	4.5	0.386	10.8	LOS B	2.2	16.1	0.60	0.83	0.75	59.6
12	R2	All MCs	153	4.4	153	4.4	1.097	175.4	LOS F	14.1	102.5	1.00	1.88	5.53	16.2
Approach			536	4.4	536	4.4	1.097	57.7	LOS F	14.1	102.5	0.72	1.13	2.11	33.9
North: Mount Cotton Road															
1	L2	All MCs	91	10.0	91	10.0	0.075	8.7	LOS A	0.3	2.3	0.35	0.62	0.35	59.8
2	T1	All MCs	558	8.5	558	8.5	0.302	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach			650	8.7	650	8.7	0.302	1.3	LOS A	0.3	2.3	0.05	0.09	0.05	76.2
All Vehicles			2586	6.3	2586	6.3	1.097	13.6	NA	14.1	102.5	0.23	0.36	0.52	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 5 [5. Mount Cotton Rd / Double Jump Rd - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mount Cotton Road															
8	T1	All MCs	624	8.5	624	8.5	0.337	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
9	R2	All MCs	527	4.1	527	4.1	0.949	38.5	LOS E	13.6	98.3	0.98	1.74	4.15	40.9
Approach			1150	6.5	1150	6.5	0.949	17.7	NA	13.6	98.3	0.45	0.80	1.90	55.6
East: Double Jump Road															
10	L2	All MCs	283	5.5	283	5.5	0.558	18.2	LOS C	2.9	21.5	0.83	1.06	1.36	53.0
12	R2	All MCs	56	7.0	56	7.0	1.350	463.3	LOS F	11.6	85.9	1.00	1.71	4.93	7.1
Approach			338	5.8	338	5.8	1.350	91.3	LOS F	11.6	85.9	0.86	1.17	1.95	25.8
North: Mount Cotton Road															
1	L2	All MCs	443	3.3	443	3.3	0.433	11.0	LOS B	2.7	19.8	0.55	0.83	0.72	59.8
2	T1	All MCs	975	5.0	975	5.0	0.516	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.5
Approach			1417	4.4	1417	4.4	0.516	3.5	LOS A	2.7	19.8	0.17	0.26	0.22	72.0
All Vehicles			2906	5.4	2906	5.4	1.350	19.4	NA	13.6	98.3	0.36	0.58	1.09	54.3

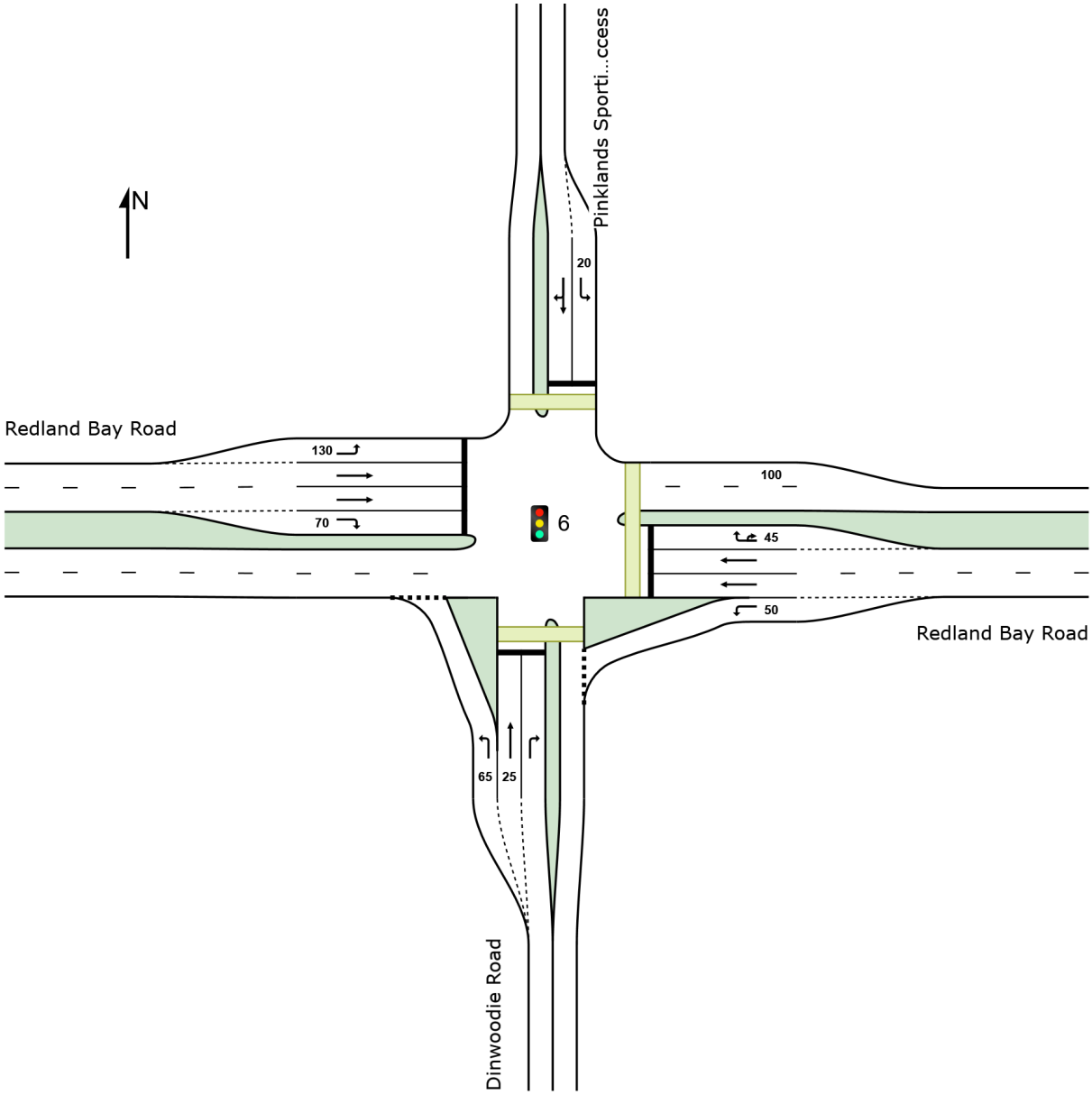
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - Survey AM (Site Folder: General)]

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Dinwoodie Road															
1	L2	All MCs	165	2.4	165	2.4	0.168	9.9	LOS A	2.5	18.1	0.31	0.64	0.31	50.7
2	T1	All MCs	1	0.0	1	0.0	0.008	59.6	LOS E	0.1	0.4	0.95	0.59	0.95	20.6
3	R2	All MCs	15	0.0	15	0.0	*0.125	60.6	LOS E	0.8	5.5	0.97	0.69	0.97	30.5
Approach			181	2.2	181	2.2	0.168	14.4	LOS B	2.5	18.1	0.37	0.65	0.37	47.6
East: Redland Bay Road															
4	L2	All MCs	29	6.7	29	6.7	0.020	17.6	LOS B	0.2	1.5	0.19	0.62	0.19	54.7
5	T1	All MCs	1239	3.4	1239	3.4	*0.548	19.3	LOS B	19.6	141.5	0.64	0.58	0.64	54.1
6	R2	All MCs	4	0.0	4	0.0	0.036	56.6	LOS E	0.4	2.8	0.88	0.68	0.88	23.1
6u	U	All MCs	4	0.0	4	0.0	0.036	57.5	LOS E	0.4	2.8	0.88	0.68	0.88	34.2
Approach			1277	3.4	1277	3.4	0.548	19.5	LOS B	19.6	141.5	0.63	0.58	0.63	53.8
North: Pinklands Sporting Access															
7	L2	All MCs	1	0.0	1	0.0	0.031	63.1	LOS E	0.1	0.4	1.00	0.57	1.00	19.6
8	T1	All MCs	1	0.0	1	0.0	0.061	63.5	LOS E	0.1	0.9	1.00	0.60	1.00	19.0
9	R2	All MCs	1	0.0	1	0.0	0.061	63.5	LOS E	0.1	0.9	1.00	0.60	1.00	17.3
Approach			3	0.0	3	0.0	0.061	63.4	LOS E	0.1	0.9	1.00	0.59	1.00	18.6
West: Redland Bay Road															
10	L2	All MCs	5	0.0	5	0.0	*0.156	71.2	LOS E	0.3	2.2	1.00	0.64	1.00	16.9
11	T1	All MCs	862	3.6	862	3.6	0.482	12.5	LOS B	16.4	118.2	0.57	0.51	0.57	55.5
12	R2	All MCs	148	0.9	148	0.9	*0.553	55.0	LOS D	7.6	53.8	0.98	0.80	0.98	30.4
Approach			1016	3.2	1016	3.2	0.553	19.0	LOS B	16.4	118.2	0.63	0.55	0.63	49.2
All Vehicles			2477	3.2	2477	3.2	0.553	19.0	LOS B	19.6	141.5	0.62	0.57	0.62	51.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Dinwoodie Road												

P1	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Redland Bay Road												
P2	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Pinklands Sporting Access												
P3	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		60	63	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - Survey AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F
Reference Phase: Phase A

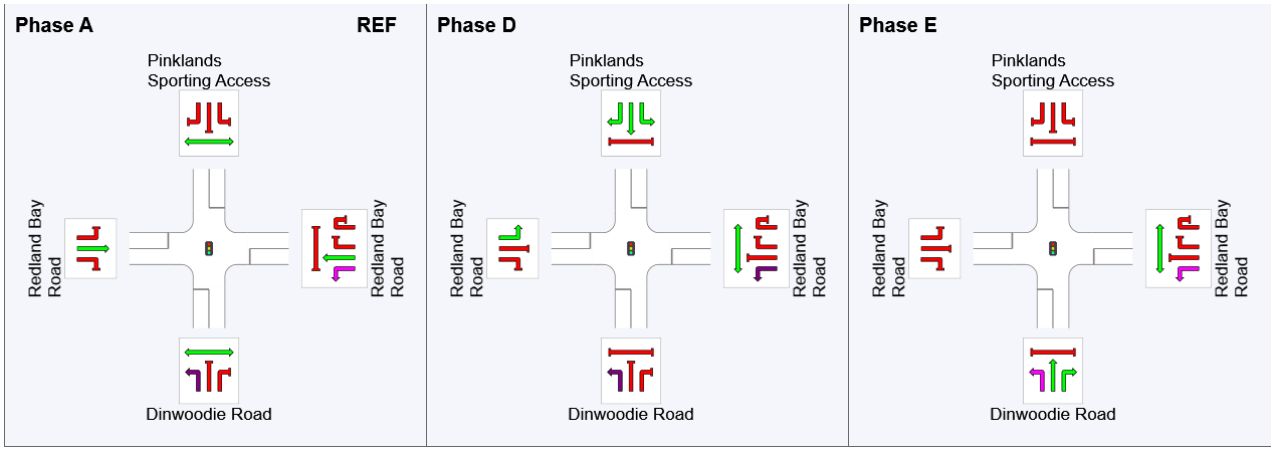
Phase Timing Summary

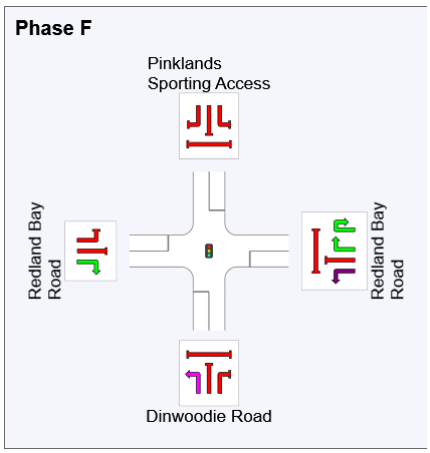
Phase	A	D	E	F
Phase Change Time (sec)	0	72	80	88
Green Time (sec)	66	2	7	16
Phase Time (sec)	72	3	13	22
Phase Split	65%	3%	12%	20%
Phase Frequency (%)	100.0	21.6[3]	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

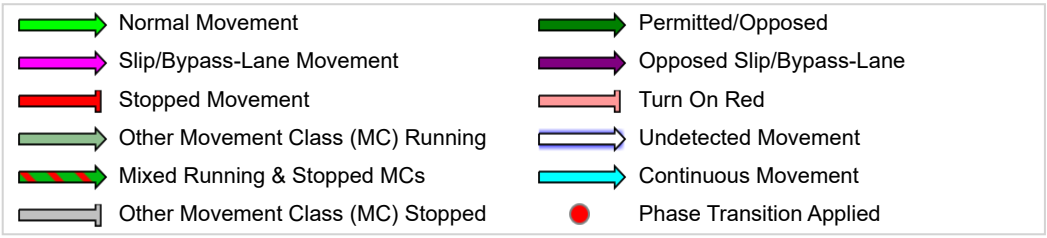
3 Phase Frequency has been estimated from actuated movement movement probabilities.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Dinwoodie Road															
1	L2	All MCs	134	2.9	134	2.9	0.124	7.7	LOS A	1.4	9.9	0.26	0.62	0.26	52.3
2	T1	All MCs	31	0.0	31	0.0	*0.246	62.3	LOS E	1.6	11.5	0.98	0.72	0.98	20.1
3	R2	All MCs	26	2.7	26	2.7	0.227	61.5	LOS E	1.4	10.2	0.98	0.71	0.98	30.1
Approach			191	2.4	191	2.4	0.246	23.9	LOS C	1.6	11.5	0.47	0.65	0.47	40.2
East: Redland Bay Road															
4	L2	All MCs	37	2.4	37	2.4	0.024	7.5	LOS A	0.2	1.6	0.17	0.62	0.17	55.1
5	T1	All MCs	798	3.1	798	3.1	0.359	13.0	LOS B	11.1	80.1	0.57	0.50	0.57	55.0
6	R2	All MCs	40	0.0	40	0.0	0.245	59.2	LOS E	2.1	14.9	0.97	0.74	0.97	21.5
6u	U	All MCs	1	0.0	1	0.0	0.245	60.2	LOS E	2.1	14.9	0.97	0.74	0.97	31.9
Approach			876	2.9	876	2.9	0.359	15.0	LOS B	11.1	80.1	0.57	0.51	0.57	52.3
North: Pinklands Sporting Access															
7	L2	All MCs	6	0.0	6	0.0	0.062	56.1	LOS E	0.3	2.4	0.97	0.64	0.97	20.9
8	T1	All MCs	11	0.0	11	0.0	0.319	58.0	LOS E	1.6	13.1	1.00	0.72	1.00	19.9
9	R2	All MCs	19	25.0	19	25.0	0.319	58.0	LOS E	1.6	13.1	1.00	0.72	1.00	17.1
Approach			36	13.2	36	13.2	0.319	57.6	LOS E	1.6	13.1	0.99	0.70	0.99	18.6
West: Redland Bay Road															
10	L2	All MCs	35	0.0	35	0.0	*0.343	64.1	LOS E	1.9	13.5	1.00	0.72	1.00	18.0
11	T1	All MCs	1023	3.6	1023	3.6	*0.602	16.9	LOS B	22.0	158.7	0.64	0.58	0.64	53.5
12	R2	All MCs	95	8.1	95	8.1	*0.593	64.7	LOS E	5.2	38.7	1.00	0.80	1.03	28.7
Approach			1153	3.8	1153	3.8	0.602	22.3	LOS C	22.0	158.7	0.68	0.60	0.69	48.3
All Vehicles			2255	3.5	2255	3.5	0.602	20.1	LOS C	22.0	158.7	0.63	0.57	0.63	48.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Dinwoodie Road												

P1	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Redland Bay Road												
P2	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Pinklands Sporting Access												
P3	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		60	63	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - Survey PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F
Reference Phase: Phase A

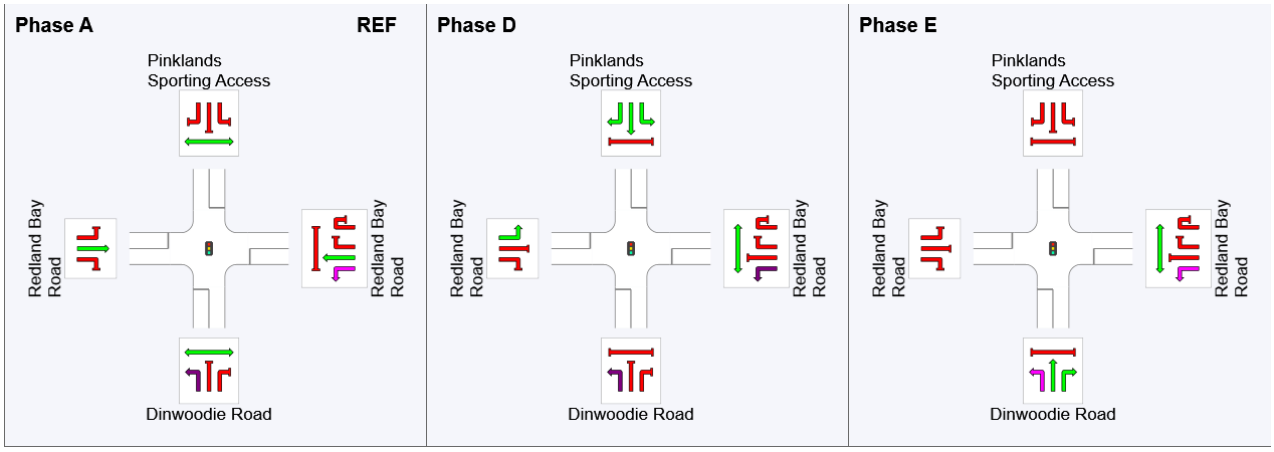
Phase Timing Summary

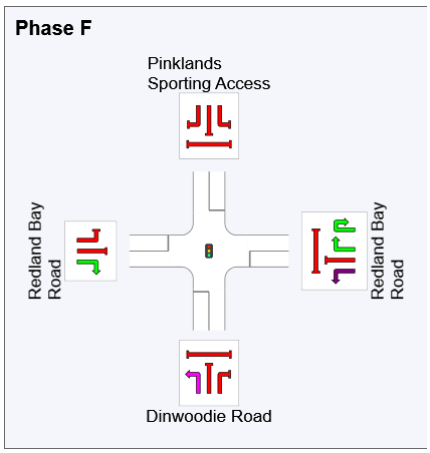
Phase	A	D	E	F
Phase Change Time (sec)	0	70	82	94
Green Time (sec)	64	6	7	10
Phase Time (sec)	70	11	13	16
Phase Split	64%	10%	12%	15%
Phase Frequency (%)	100.0	87.0[3]	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

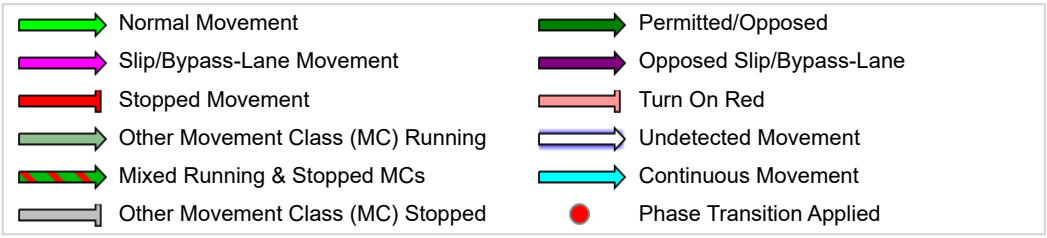
3 Phase Frequency has been estimated from actuated movement movement probabilities.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Dinwoodie Road															
1	L2	All MCs	186	2.4	186	2.4	0.204	11.9	LOS B	3.6	25.7	0.40	0.67	0.40	49.2
2	T1	All MCs	1	0.0	1	0.0	0.010	61.0	LOS E	0.1	0.4	0.96	0.59	0.96	20.3
3	R2	All MCs	17	0.0	17	0.0	*0.164	62.4	LOS E	0.9	6.3	0.98	0.69	0.98	30.1
Approach			203	2.2	203	2.2	0.204	16.2	LOS B	3.6	25.7	0.45	0.67	0.45	46.4
East: Redland Bay Road															
4	L2	All MCs	33	6.7	33	6.7	0.023	21.3	LOS C	0.2	1.8	0.20	0.62	0.20	54.6
5	T1	All MCs	1393	3.4	1393	3.4	*0.618	21.9	LOS C	23.6	170.1	0.69	0.63	0.69	53.3
6	R2	All MCs	5	0.0	5	0.0	0.041	58.4	LOS E	0.4	3.1	0.89	0.68	0.89	23.1
6u	U	All MCs	5	0.0	5	0.0	0.041	59.3	LOS E	0.4	3.1	0.89	0.68	0.89	34.2
Approach			1435	3.4	1435	3.4	0.618	22.2	LOS C	23.6	170.1	0.68	0.63	0.68	53.0
North: Pinklands Sporting Access															
7	L2	All MCs	1	0.0	1	0.0	0.035	63.4	LOS E	0.1	0.5	1.00	0.58	1.00	19.6
8	T1	All MCs	1	0.0	1	0.0	0.065	63.6	LOS E	0.1	0.9	1.00	0.60	1.00	19.0
9	R2	All MCs	1	0.0	1	0.0	0.065	63.6	LOS E	0.1	0.9	1.00	0.60	1.00	17.2
Approach			3	0.0	3	0.0	0.065	63.5	LOS E	0.1	0.9	1.00	0.59	1.00	18.7
West: Redland Bay Road															
10	L2	All MCs	6	0.0	6	0.0	*0.175	71.4	LOS E	0.4	2.5	1.00	0.64	1.00	16.9
11	T1	All MCs	969	3.6	969	3.6	0.552	14.2	LOS B	19.4	139.8	0.60	0.54	0.60	54.9
12	R2	All MCs	167	0.9	167	0.9	*0.622	57.2	LOS E	8.7	61.3	0.99	0.81	1.00	30.2
Approach			1142	3.2	1142	3.2	0.622	20.8	LOS C	19.4	139.8	0.66	0.58	0.66	48.7
All Vehicles			2784	3.2	2784	3.2	0.622	21.2	LOS C	23.6	170.1	0.65	0.61	0.66	50.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Dinwoodie Road												

P1	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Redland Bay Road												
P2	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Pinklands Sporting Access												
P3	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		60	63	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - 2029 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F
Reference Phase: Phase A

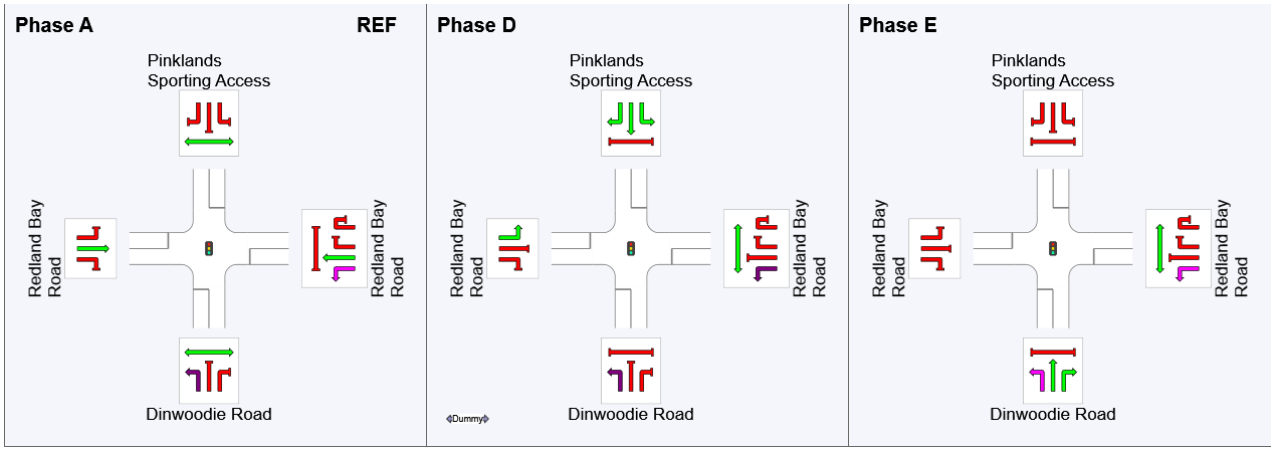
Phase Timing Summary

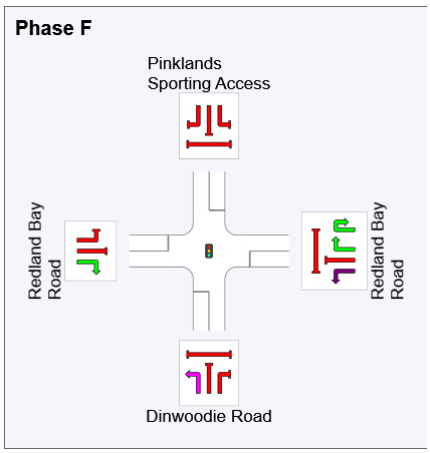
Phase	A	D	E	F
Phase Change Time (sec)	0	72	80	88
Green Time (sec)	66	2	6	16
Phase Time (sec)	72	4	12	22
Phase Split	65%	4%	11%	20%
Phase Frequency (%)	100.0	32.0[4]	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

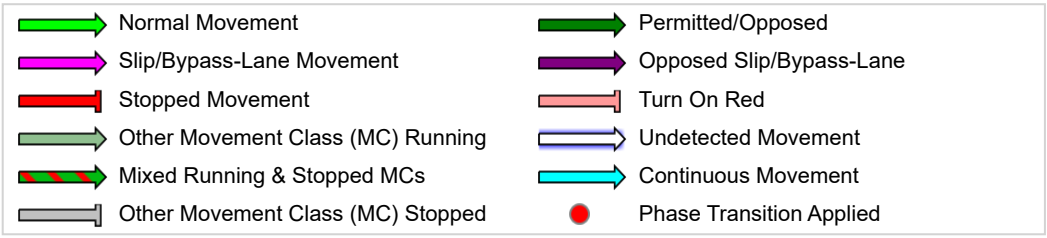
4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Dinwoodie Road															
1	L2	All MCs	150	2.9	150	2.9	0.140	7.9	LOS A	1.7	12.0	0.24	0.62	0.24	52.2
2	T1	All MCs	34	0.0	34	0.0	*0.277	62.5	LOS E	1.9	13.0	0.99	0.72	0.99	20.1
3	R2	All MCs	30	2.7	30	2.7	0.255	61.7	LOS E	1.6	11.5	0.98	0.72	0.98	30.1
Approach			214	2.4	214	2.4	0.277	24.1	LOS C	1.9	13.0	0.46	0.65	0.46	40.1
East: Redland Bay Road															
4	L2	All MCs	41	2.4	41	2.4	0.027	7.6	LOS A	0.3	1.9	0.18	0.62	0.18	55.0
5	T1	All MCs	897	3.1	897	3.1	0.381	11.5	LOS B	11.9	85.2	0.54	0.48	0.54	56.7
6	R2	All MCs	45	0.0	45	0.0	0.250	58.6	LOS E	2.4	16.6	0.96	0.74	0.96	21.7
6u	U	All MCs	1	0.0	1	0.0	0.250	59.6	LOS E	2.4	16.6	0.96	0.74	0.96	32.2
Approach			984	2.9	984	2.9	0.381	13.5	LOS B	11.9	85.2	0.54	0.49	0.54	53.8
North: Pinklands Sporting Access															
7	L2	All MCs	7	0.0	7	0.0	0.105	60.1	LOS E	0.4	2.8	0.99	0.65	0.99	20.2
8	T1	All MCs	12	0.0	12	0.0	0.538	62.5	LOS E	1.9	15.5	1.00	0.78	1.07	19.1
9	R2	All MCs	21	25.0	21	25.0	0.538	62.5	LOS E	1.9	15.5	1.00	0.78	1.07	16.5
Approach			40	13.2	40	13.2	0.538	62.1	LOS E	1.9	15.5	1.00	0.76	1.05	17.9
West: Redland Bay Road															
10	L2	All MCs	39	0.0	39	0.0	*0.578	68.7	LOS E	2.3	16.0	1.00	0.76	1.09	17.3
11	T1	All MCs	1150	3.6	1150	3.6	*0.640	15.7	LOS B	24.2	174.4	0.63	0.57	0.63	55.0
12	R2	All MCs	106	8.1	106	8.1	*0.606	64.3	LOS E	5.8	43.3	1.00	0.80	1.03	28.9
Approach			1296	3.8	1296	3.8	0.640	21.3	LOS C	24.2	174.4	0.67	0.59	0.67	49.3
All Vehicles			2534	3.5	2534	3.5	0.640	19.1	LOS B	24.2	174.4	0.61	0.56	0.61	49.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Dinwoodie Road												

P1	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Redland Bay Road												
P2	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Pinklands Sporting Access												
P3	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		60	63	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - 2029 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F
Reference Phase: Phase A

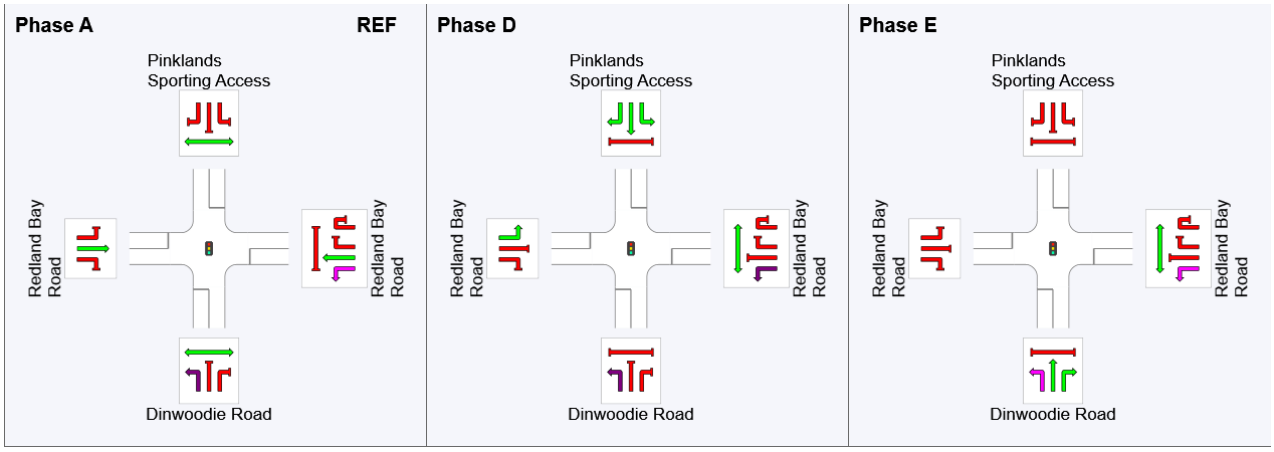
Phase Timing Summary

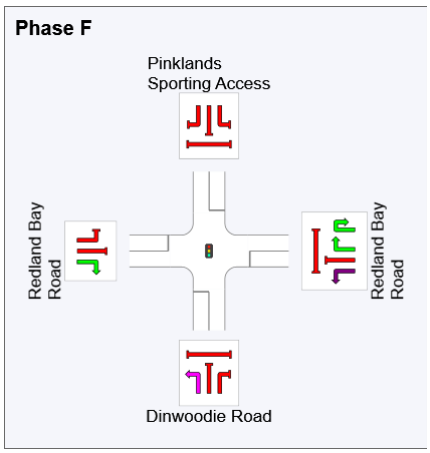
Phase	A	D	E	F
Phase Change Time (sec)	0	74	84	93
Green Time (sec)	68	4	7	11
Phase Time (sec)	74	6	13	17
Phase Split	67%	5%	12%	15%
Phase Frequency (%)	100.0[4]	38.8[4]	100.0[4]	100.0[4]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

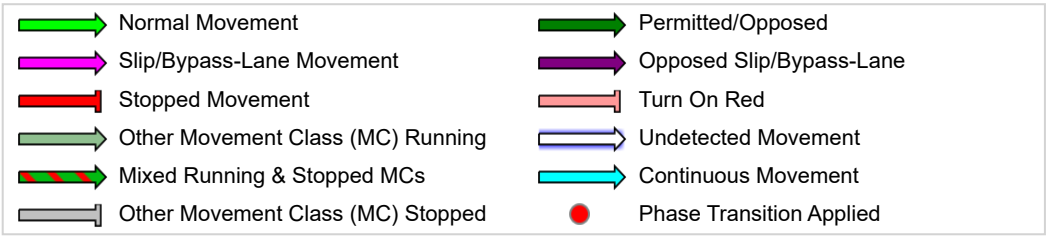
4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Dinwoodie Road															
1	L2	All MCs	240	2.4	240	2.4	0.253	12.4	LOS B	4.8	34.0	0.40	0.68	0.40	48.9
2	T1	All MCs	1	0.0	1	0.0	0.008	59.6	LOS E	0.1	0.4	0.95	0.59	0.95	20.6
3	R2	All MCs	17	0.0	17	0.0	* 0.140	60.8	LOS E	0.9	6.2	0.97	0.69	0.97	30.5
Approach			257	2.3	257	2.3	0.253	15.7	LOS B	4.8	34.0	0.44	0.68	0.44	46.7
East: Redland Bay Road															
4	L2	All MCs	33	6.7	33	6.7	0.024	24.5	LOS C	0.3	2.1	0.22	0.62	0.22	54.4
5	T1	All MCs	1393	3.4	1393	3.4	* 0.648	25.6	LOS C	25.3	182.2	0.73	0.67	0.73	51.5
6	R2	All MCs	5	0.0	5	0.0	0.034	56.9	LOS E	0.4	3.0	0.86	0.69	0.86	23.8
6u	U	All MCs	5	0.0	5	0.0	0.034	57.8	LOS E	0.4	3.0	0.86	0.69	0.86	35.2
Approach			1435	3.4	1435	3.4	0.648	25.8	LOS C	25.3	182.2	0.72	0.67	0.72	51.3
North: Pinklands Sporting Access															
7	L2	All MCs	1	0.0	1	0.0	0.035	63.4	LOS E	0.1	0.5	1.00	0.58	1.00	19.6
8	T1	All MCs	1	0.0	1	0.0	0.065	63.6	LOS E	0.1	0.9	1.00	0.60	1.00	19.0
9	R2	All MCs	1	0.0	1	0.0	0.065	63.6	LOS E	0.1	0.9	1.00	0.60	1.00	17.2
Approach			3	0.0	3	0.0	0.065	63.5	LOS E	0.1	0.9	1.00	0.59	1.00	18.7
West: Redland Bay Road															
10	L2	All MCs	6	0.0	6	0.0	* 0.175	71.4	LOS E	0.4	2.5	1.00	0.64	1.00	16.9
11	T1	All MCs	969	3.6	969	3.6	0.586	16.7	LOS B	20.7	149.3	0.65	0.58	0.65	53.2
12	R2	All MCs	209	0.9	209	0.9	* 0.655	56.2	LOS E	10.8	75.9	0.99	0.83	1.00	30.8
Approach			1184	3.1	1184	3.1	0.655	24.0	LOS C	20.7	149.3	0.71	0.62	0.71	46.8
All Vehicles			2879	3.2	2879	3.2	0.655	24.2	LOS C	25.3	182.2	0.69	0.65	0.69	48.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Dinwoodie Road												

P1	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Redland Bay Road												
P2	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Pinklands Sporting Access												
P3	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		60	63	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - 2029 BG+D AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F
Reference Phase: Phase A

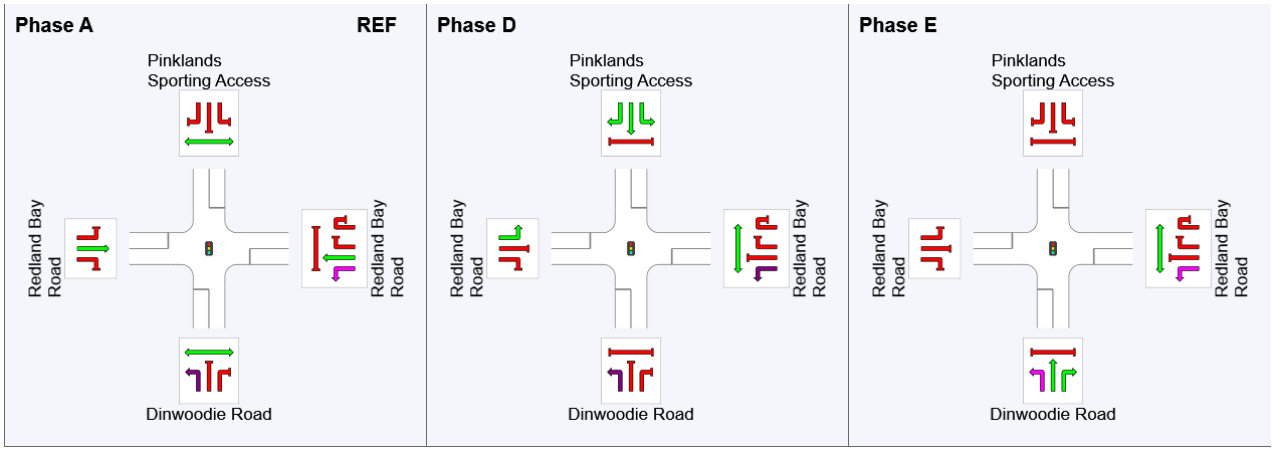
Phase Timing Summary

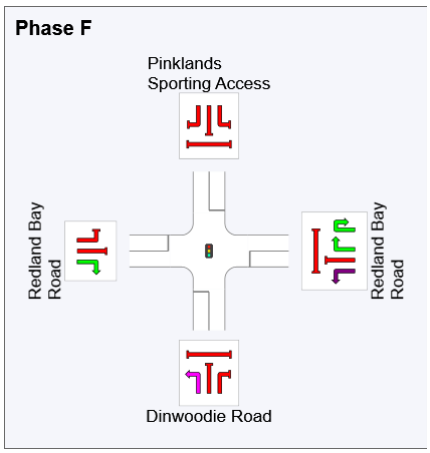
Phase	A	D	E	F
Phase Change Time (sec)	0	69	77	85
Green Time (sec)	63	2	7	19
Phase Time (sec)	69	3	13	25
Phase Split	63%	3%	12%	23%
Phase Frequency (%)	100.0	23.6[3]	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

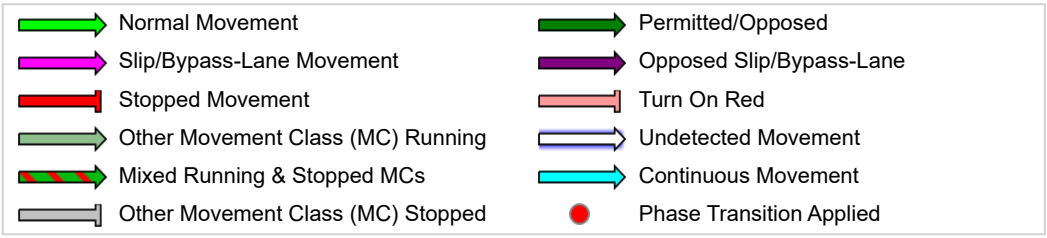
3 Phase Frequency has been estimated from actuated movement movement probabilities.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Dinwoodie Road															
1	L2	All MCs	192	2.9	192	2.9	0.176	8.2	LOS A	2.4	16.9	0.27	0.63	0.27	51.9
2	T1	All MCs	34	0.0	34	0.0	*0.277	62.5	LOS E	1.9	13.0	0.99	0.72	0.99	20.1
3	R2	All MCs	30	2.7	30	2.7	0.255	61.7	LOS E	1.6	11.5	0.98	0.72	0.98	30.1
Approach			256	2.5	256	2.5	0.277	21.7	LOS C	2.4	16.9	0.44	0.65	0.44	41.6
East: Redland Bay Road															
4	L2	All MCs	41	2.4	41	2.4	0.028	10.0	LOS A	0.3	2.4	0.21	0.62	0.21	54.7
5	T1	All MCs	897	3.1	897	3.1	0.408	14.8	LOS B	13.0	93.7	0.59	0.52	0.59	54.6
6	R2	All MCs	45	0.0	45	0.0	0.183	55.0	LOS E	2.2	15.6	0.92	0.74	0.92	22.7
6u	U	All MCs	1	0.0	1	0.0	0.183	56.0	LOS E	2.2	15.6	0.92	0.74	0.92	33.6
Approach			984	2.9	984	2.9	0.408	16.5	LOS B	13.0	93.7	0.59	0.54	0.59	52.2
North: Pinklands Sporting Access															
7	L2	All MCs	7	0.0	7	0.0	0.105	60.1	LOS E	0.4	2.8	0.99	0.65	0.99	20.2
8	T1	All MCs	12	0.0	12	0.0	0.538	62.5	LOS E	1.9	15.5	1.00	0.78	1.07	19.1
9	R2	All MCs	21	25.0	21	25.0	0.538	62.5	LOS E	1.9	15.5	1.00	0.78	1.07	16.5
Approach			40	13.2	40	13.2	0.538	62.1	LOS E	1.9	15.5	1.00	0.76	1.05	17.9
West: Redland Bay Road															
10	L2	All MCs	39	0.0	39	0.0	*0.578	68.7	LOS E	2.3	16.0	1.00	0.76	1.09	17.3
11	T1	All MCs	1150	3.6	1150	3.6	*0.694	19.4	LOS B	26.6	191.6	0.69	0.62	0.69	52.6
12	R2	All MCs	160	8.1	160	8.1	*0.669	63.2	LOS E	8.6	64.3	1.00	0.83	1.05	29.6
Approach			1349	4.0	1349	4.0	0.694	26.0	LOS C	26.6	191.6	0.74	0.65	0.75	46.6
All Vehicles			2630	3.6	2630	3.6	0.694	22.6	LOS C	26.6	191.6	0.66	0.61	0.66	47.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Dinwoodie Road												

P1	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Redland Bay Road												
P2	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Pinklands Sporting Access												
P3	Full	20	21	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians		60	63	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 6 [6. Cleveland-Redland Bay Rd / Dinwoodie Rd / Pinklands Access - 2029 BG+D PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Project Number: 620.040303
Project: Southern Thornlands, Initial Release
Prepared by: SJ
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: TMR Phasing
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F
Reference Phase: Phase A

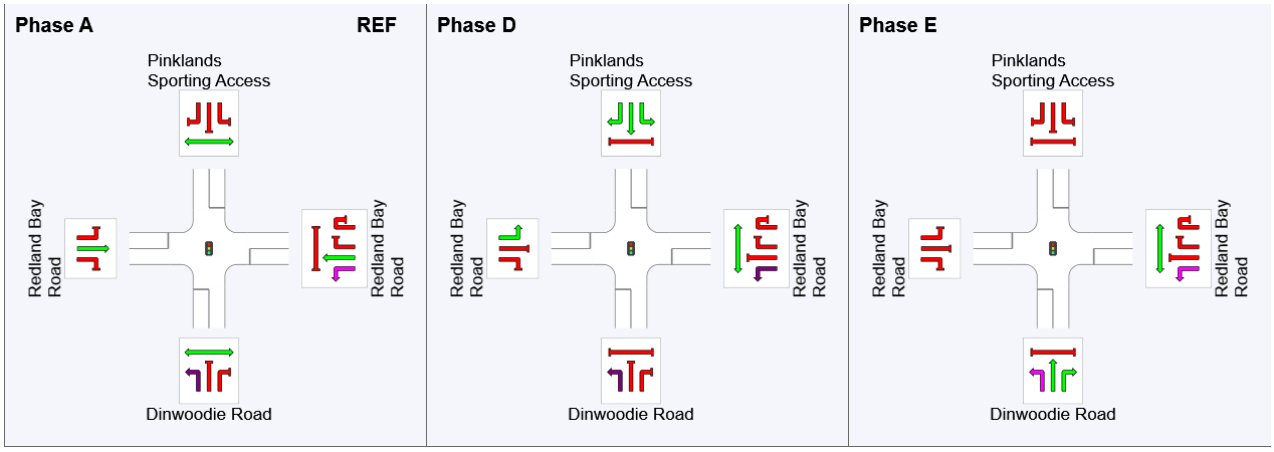
Phase Timing Summary

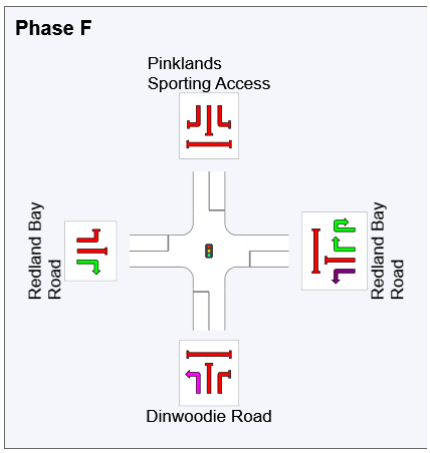
Phase	A	D	E	F
Phase Change Time (sec)	0	70	80	89
Green Time (sec)	64	4	7	15
Phase Time (sec)	70	6	13	21
Phase Split	64%	5%	12%	19%
Phase Frequency (%)	100.0[4]	38.8[4]	100.0[4]	100.0[4]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

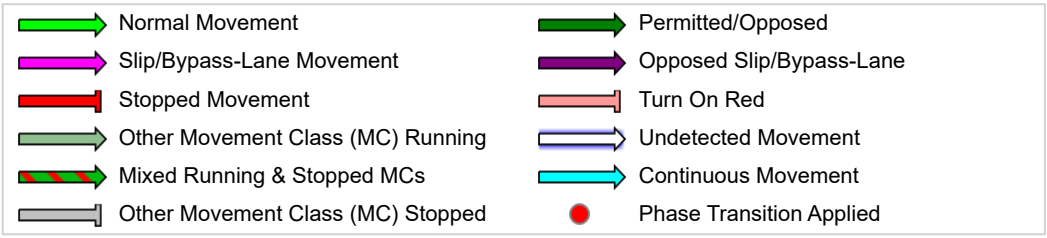
4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



Appendix F Net Delay Assessment

Southern Thornlands – Precinct 1 (State-controlled Roads)

Traffic Impact Assessment

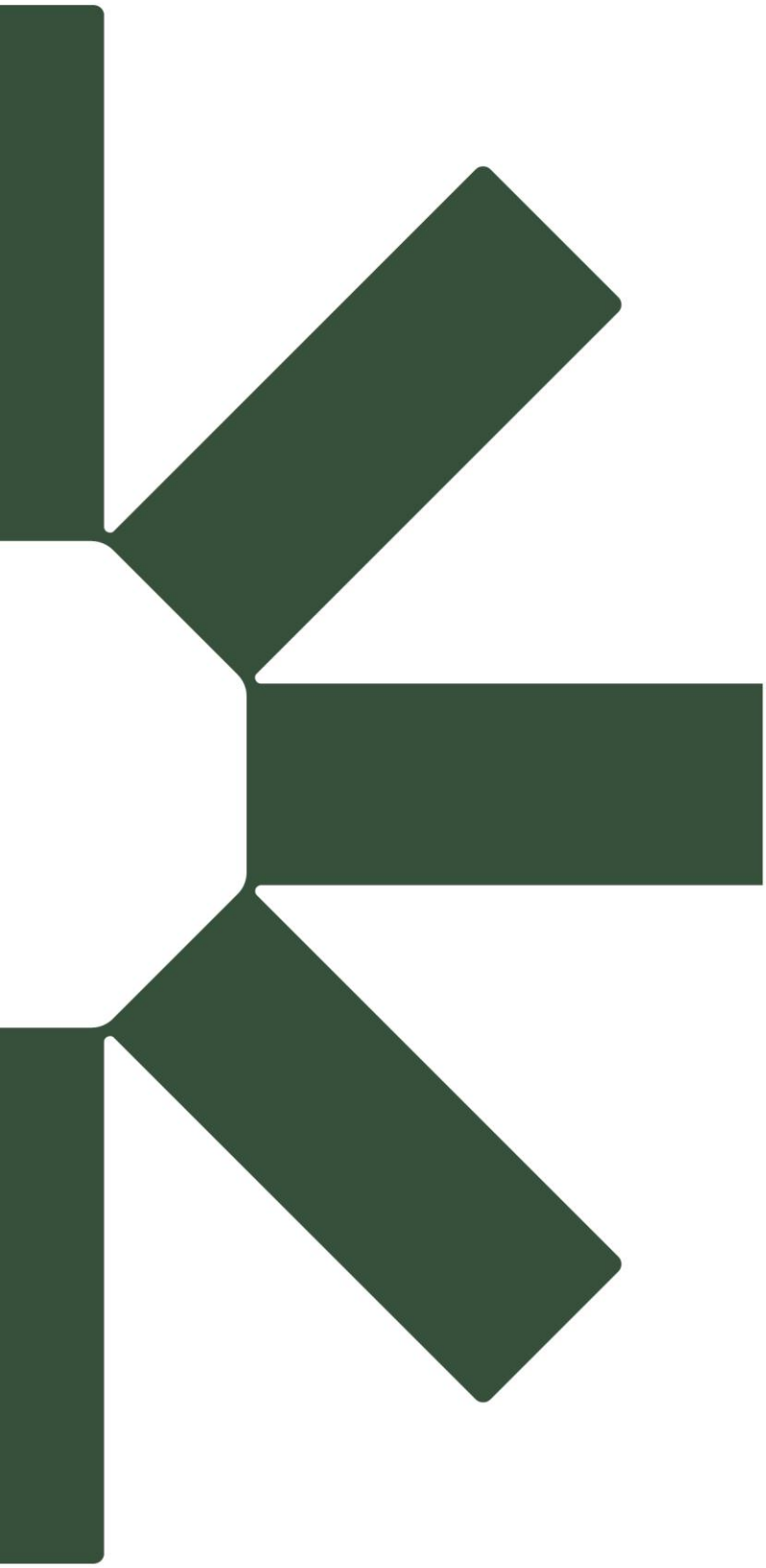
Urbex Pty Ltd

SLR Project No.: 620.040303.00004

23 June 2025

Table F-1: Detailed Intersection Delay Results (Existing Intersection Forms)

Intersection	ΣBC (Total Base Case Delays - min)	ΣWD (Total 'With Development' Delays - min)	ID = ΣWD - ΣBC	
			Δ	%
AM Peak				
1	2,614	6,378	3,764	144.0%
2	6,140	6,544	404	6.6%
3	1,639	7,053	5,414	330.3%
4	1,202	1,261	59	4.9%
5	486	562	75	15.5%
6	985	1,110	125	12.7%
Total	**13,066**	**22,907**	**9,840**	**75.3%**
PM Peak				
1	2,339	7,559	5,220	223.2%
2	11,994	15,428	3,434	28.6%
3	2,116	4,759	2,643	124.9%
4	1,205	1,253	49	4.0%
5	651	866	216	33.1%
6	809	927	119	14.7%
Total	**19,113**	**30,794**	**11,680**	**61.1%**
Combined Peaks				
1	4,954	13,938	8,984	181.4%
2	18,134	21,971	3,838	21.2%
3	3,755	11,812	8,057	214.6%
4	2,406	2,514	107	4.5%
5	1,137	1,428	291	25.6%
6	1,794	2,037	243	13.6%
Total	**32,180**	**53,700**	**21,521**	**66.9%**



Making Sustainability Happen