Technical Appendix F – TIA

As required by the Western Australian Planning Commission, all references in the TIA to 'Forrestfield North' and in this Structure Plan report (i.e. Figures 25, 26, 40, 41, 42) are **to be read as 'High Wycombe South'**.

TRANSPORT IMPACT ASSESSMENT

Forrestfield North

Residential Precinct

December 2022

Final

HISTORY AND STATUS OF THE DOCUMENT

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Rev A Draft	27.10.2017	M Kleyweg	M Kleyweg	27.10.2017	Issued for Review
Rev B	13.04.2018	M Kleyweg	M Kleyweg	13.04.2018	Proposed layout amended
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FINAL 3	12.12.2022	M Kleyweg	M Kleyweg	14.12.2022	Amended to align to LSP modifications.

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Appendices

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1 Executive Summary

GENERAL

- The Local Structure Plan Area for Residential Precinct is located within the City of Kalamunda, approximately 12km from the Perth CBD. Roe Highway bounds it to the east, part of the existing Maida Vale Residential area to the north, Milner Road to the west and Sultana Road West to the south.

- According to the LPS, the subject lots are historically zoned rural living with approximately fifty rural single houses within the proposed area. The LSP area for the Residential Precinct is surrounded by complimentary residential uses to the north and industrial and commercial uses to the south and west.

- This iteration of the Transport Impact Assessment addresses the reduced projected yields in both – Residential Precinct and the TOD Precinct. The previous reporting assessed a maximum build-out option, while this report will assess what is deemed to be a realistic development projection.

- High Wycombe Train Station is under construction currently. Once completed, this station will be the terminus of the extended Bayswater line providing direct connectivity to the airport and CBD.

- Proposed Land Uses within the subject LSP area are residential (total of 2,417dwellings), primary school (estimated for 540 students) and recreational areas inclusive of District and Local Open Space. Please refer to Section 2.3. Land Uses for details.

- Following authorities were consulted (outside of TAG group meetings):-

  - Main Roads WA – for new road alignments, ROM modelling, planned road and intersection upgrades in the immediate network;
  - PTA – for known proposed public transportation expansion routes;
  - Department of Transport – for sustainable initiatives inclusive of but not limited to Safe Active Streets, autonomous vehicles etc.
  - Metronet – for planned development in and around the High Wycombe Train Station.

- In all projections, three horizon years were considered:

  - 2031 – it is assumed that 15% of Forrestfield North Residential Precinct will be constructed
  - 2041 – it is assumed that 65% of Forrestfield North Residential Precinct will be constructed
  - 2050 – it is assumed that 100% of Forrestfield North Residential Precinct will be constructed.

ROAD NETWORK

- Within the LSP area, there are 6 existing roads where some of the roads are still unconstructed. Most notable changes to the existing road network include:

  - Addition of TOD Connector;
  - Extension of Raven Street
  - Realignment of part of Brae Road;
  - Milner Road upgrade; and
  - Maida Vale Road upgrade.

Note: Overpass connecting Forrestfield North and Maida Vale South over Roe Highway is planned after 2050; therefore it was not included in traffic distribution for for the purposes of this report.

Some of the existing intersections will require and upgrade, while new intesections will be created. Key intersections in the LSP area are:

- Maida Vale Road / Milner Road intersection will be reconfigured from sign controlled to a roundabout;
- Milner Road / Raven Street and Milner Road / Stewart Road will also be configured to a roundabout;
- Milner Road / TOD Connector will be ultimately configured as a sign controlled intersection.

Please refer to Section 2.20 Proposed Internal Road Network for proposed cross-sections of existing and proposed roads.

PUBLIC TRANSPORT

- Since the surrounding area is about to go through significant changes, it is expected that public transport services will be adjusted to suit (frequency and distribution). It is expected that buses will operate along Berkshire Road, Dundas Road, Maida Vale Road (feeder routes to High Wycombe Train Station) and along the future overpass connecting the TOD Connector and Ravenswood Road, when constructed. After completion of the overpass, new routes will likely be introduced connecting Maida Vale South and other suburbs east of the Roe Highway with the High Wycombe Train Station primarily. However it should be noted that the overpass will be constructed some time after 2050; therefore it is beyond the scope of this LSP.

- A driverless shuttle servicing the residential area and providing a direct connection to the railway station should be considered. The potential route would include Stewart Road, Brand Road and TOD connector. Once the overpass is constructed, the service can be expanded further into Maida Vale South (after 2050).

CYCLING NETWORK

- Every major road within the LSP area will have either a shared or a separate cycling path, while all minor roads will have pedestrian paths.

- Separate Cycle Lanes are proposed for:
    - TOD Connector
    - Stewart Road
    - Milner Road (north of Sultana Road West)
    - Maida Vale Road
- Bicycle parking should be provided in the proposed school, district open space, and commercial areas to further encourage cycling. Safe bicycle storage should be ample at the High Wycombe Train Station. This will allow residents to use sustainable modes of transport and create a fully integrated transportation system. There is potential to consider a smart bike network within the City of Kalamunda that would complement the new Cycling Plan for the City of Kalamunda.

PARKING

- On-street parking will be provided through each of the main linkages in the overall Forrestfield North project area and the LSP area specifically. The following streets, as a minimum, will have some form of on-street parking:
    - Brae Road

  - Brand Road
  - Milner Road (north of Sultana Road West)
  - TOD Connector
  - Stewart Road
  - Some lower-order roads
- Well-designed on-street parking will contribute to overall street amenity and will help reduce average operating speeds on the road.
- In general, when providing on-street parking, no more than 4 (four) consecutive bays should be provided. Parking lanes will have to be broken with mature vegetation maintained appropriately to ensure appropriate sight distances are maintained.
- Parking/charging points for electric vehicles should be provided at a minimum rate of 1 in 20 standard parking bays (5% as prescribed in Green Star - Design and As Built), preferably 1 in 10. This requirement should be applied to all public parking areas and parking in multi-dwelling complexes.
- The use of electric vehicles is on the rise, and given the reduction in the pollution they provide, the use should be further encouraged. While in individual dwellings, private owners/developers can choose to implement charging points for electric vehicles, in multiple dwelling complexes and non-residential buildings, it is important to provide charging points so that the residents can use electric vehicles. The mandatory rate should be reviewed and revised every 5 years given the technology leaps.

- It is expected that delivery and service vehicles (such as waste removal vehicles) servicing the residential area will not require designated parking spaces, given that they can operate safely within the road reserve.

TRANSPORT IMPACT

- Currently at the LSP area, there are approximately 50 single residences. This equates to a 450 VPD generated from the Residential Precinct.

- Given that a primary school and a district open space will be constructed within the Residential Precinct, there will be some degree of reciprocity of traffic generation and attraction between the uses. The total traffic generated by the Residential Precinct is expected to be approximately 17,914 vehicular trips per day (VPD), with 16,978 VPD being discharged on the external network. The Residential Precinct is likely to generate 2,212 vehicular trips in the AM peak hour and 2,250 vehicular trips in the PM peak hour, with approximately 80% of traffic discharged onto the external road network. While the reporting focuses on the Residential Precinct, the modelling includes residential and all other precincts traffic, inclusive of the future TOD and Activity Precincts. Refer to Appendix 4 for more details on traffic modelling. All proposed roads are sized to cater for the additional traffic volumes successfully.

- Appendix 3 details the performance of the key intersections. Since forecasting was completed for horizon years 2031 and 2050, modelling should be taken with caution, particularly for 2050. ROM model supplied by MRWA shows quite strong growth of passing traffic in this period; however, in reality, the traffic growth will depend on several factors such as:

  - Economic outlook and population growth - ROM model supplied relies on the optimistic outlook and accounts for several approved projects and structure plans. The long term economic trends are difficult to predict in the aftermath of the COVID-19 pandemic.
  - Government policies, development of public transport and other sustainable transportation options - If the development of the state is treated as “business as usual”, unsustainable dependence on the personal vehicle will continue. Suppose all government levels effectively

promote and enable sustainable transportation methods (cycling, public transport, etc.); we can expect a notable mode shift in Western Australia, resulting in a slowdown of traffic growth rates.
    - Technology advancement. Given the rapid development of technology, realistic possibility of work from home, active use of online shopping and novel transportation modes, it can be anticipated that by 2050 the way people use space might change drastically. This will naturally affect passing traffic volumes.

- All of the key roads are of the same or lower Liveable Neighbourhoods hierarchy when compared to the previous revisions of this report. (please refer to sections 2.20, 2.22 and 2.22)
- Based on the development yield discussed in this report, the overpass connecting Forrestfield North and Maida Vale South will not be required by 2050.
- In summary, traffic growth on all corridors should be carefully monitored, and requirements for upgrades of the existing network should be regularly reassessed to avoid over-commitment to land-take required to facilitate adequate infrastructure.

2 Transport Impact Assessment

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2.1 Location

Structure Plan	Forrestfield North Residential Precinct – Local Structure Plan.
Street Number	n/a
Road Name/s	n/a
Suburb	City of Kalamunda
Description of Site	

The Local Structure Plan Area for Residential Precinct is located within the City of Kalamunda, approximately 12km from the Perth CBD. Roe Highway bounds it to the east, part of the existing Maida Vale Residential area to the north, Milner Road to the west and Sultana Road West to the south.

Subject lots are currently zoned for rural living, with approximately fifty rural single houses within the subject area.

2.2 Technical Literature Used

Local Government Authority	City of Kalamunda
Type of Development	Primarily Residential; with additional land uses: Primary School; Recreational areas inclusive of District and Local Open Space
Are the R-Codes referenced?	YES
If YES, nominate which:	State Planning Policy 7.3 Residential Design Codes Volume 1 - 2019 R-Codes (incorporating amendments gazetted on 2/8/2013, 23/10/15 and 2/3/2018 and 24/5/2019)
Name other Relevant Documents referenced?	Guide to Traffic Management – Part 3: Traffic Studies and Analysis, Austroads, 2008 Guide to Traffic Management – Part 11: Parking, Austroads, 2008 Guide to Traffic Management – Part 12: Traffic Impacts of Developments, Austroads, 2008
Is the NSW RTA Guide to Traffic Generating Developments Version 2.2 October 2002 (referenced to determine trip generation/attraction rates for various land uses) referenced?	YES

Which WAPC Transport Impact Assessment Guideline should be referenced?	Transport Assessment Guidelines for Developments Volume 2 - Structure Plans and Volume 5 - Technical Appendix
Are there applicable LGA schemes for this type of development?	YES
Number of Scheme	No 3
Name of Scheme	City of Kalamunda Local Planning Scheme
Are Austroads documents referenced?	YES
Is the Perth Transport Plan for 3.5 million and beyond referenced?	YES
List of other documents:	Restricted Access Vehicles: Prime Mover, Trailer Combinations – Operating Conditions, Main Roads WA, 2012 Forrestfield Station Access Strategy and Concept Design of Dundas Road, Worley Parsons, 2014 Disability Access and Inclusion Plan 2017-2022, City of Kalamunda

2.3 Land Uses

Are there any existing Land Uses within the Structure Plan Area?	YES
If YES, nominate:	Approximately fifty (50) single residences and associated outbuildings on separate lots
According to the Metropolitan Region Scheme and LPS / TPS, what zone is the Structure Plan Area?	The proposed land is currently zoned Rural – Special Rural (between Roe Highway, Sultana Road West, Milner Road, Raven Street and Poison Gully Creek). Under the Metropolitan Region Scheme (MRS), all the subject properties are zoned Urban.

Proposed Land Uses

How many types of land uses are proposed?	Four (4)
Nominate land use type and yield	Residential; Primary School; Recreational areas inclusive of District and Local Open Space;

Development Type	Single and Grouped Dwellings	Multiple Dwellings	Total Number of Dwellings
Residential	2,267	150	2,417

	Total Area	Estimated No. of Students
Primary School	App 4 ha	540 (Ultimate Scenario)

	Total Area
District Open Space	App 7 ha

Are the proposed land uses complementary with the surrounding land-uses?	The LSP area for Residential Precinct is surrounded by complementary residential uses to the north and industrial and commercial uses to the south and west.

Forrestfield North LSP area consists of a Residential Precinct, TOD Precinct and an Activity Centre Precinct. While this report will focus on a more detailed analysis of the residential precinct, traffic modelling has considered the entire Forrestfield North District Area.

2.4 Local Road Network Information

How many existing roads are there within the Structure Plan Area?	6 (six) roads Parts of some of the roads are still unconstructed

Name of Roads within the Structure Plan Area / Road Classification and Description:

Road 1

Road Name	**Milner Road**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	7.5m
Classification	Local Distributor
Speed Limit	70 km/h
Bus Route	NO
On-street parking	NO
RAV Network	RAV 2; South of Nardine Close only

Road 2

Road Name	**Sultana Road West**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	6m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
RAV Network	NO

Road 3

Road Name	**Brand Road**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	8m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
RAV Network	NO

Road 4

Road Name	**Brae Road**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	6m
Classification	Access Road

Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
RAV Network	NO

Road 5

Road Name	**Stewart Road**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	6.5m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
RAV Network	NO

Road 6

Road Name	**Smokebush Place**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	7m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
Note*	Road partly unconstructed
RAV Network	NO

Name of Other Roads within 2km radius of site, or roads likely to take increased traffic due to the development:

Road 1

Road Name	**Berkshire Road**
Number of Lanes	one lane per direction
Road Reservation Width	approximately 20m
Road Pavement Width	9m (4.5m per lane)
Classification	Distributor B
Speed Limit	70 km/h
Bus Route	286 - Perth - Maida Vale via Belmont Forum 287 - Perth – Forrestfield via Belmont Forum 288 - Perth - Maida Vale via Belmont Forum & Forrestfield 294 - Midland Station - Westfield Carousel via Forrestfield & High Wycombe These bus routes operate east of Roe Highway
On-street parking	NO
RAV Network	RAV 7

Road 2

Road Name	**Dundas Road**
Number of Lanes	one lane per direction
Road Reservation Width	approximately 20m
Road Pavement Width	7m (3.5m per lane)
Classification	Distributor B
Speed Limit	70 km/h
Bus Route	NO
On-street parking	NO
RAV Network	RAV 6 north of Berkshire, RAV 7 south of Berkshiure

Road 3

Road Name	**Maida Vale Road**
Number of Lanes	one lane per direction
Road Reservation Width	approximately 20m
Road Pavement Width	9m (4.5m per lane)
Classification	Distributor B
Speed Limit	60 km/h
Bus Route	YES
If YES Nominate Bus Routes	294 - Midland Station - Westfield Carousel via Forrestfield & High Wycombe
	296 - Perth – Kalamunda via Gooseberry Hill Road
	298 - Perth - Maida Vale via Belmont Forum & Abernethy Road
On-street parking	NO
RAV Network	NO

Road 5

Road Name	**Roe Highway**
Number of Lanes	two lanes per direction, with central median
Road Reservation Width	approximately 100 m
Road Pavement Width	7m pavement each direction (3.5m lanes) with 12.5m median
Classification	Primary Distributor
Speed Limit	100 km/h - SLK [28.81 - 34.50]
Bus Route	NO
On-street parking	NO
RAV Network	RAV 7

Road 7

Road Name	**Imperial Street**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	6m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
RAV Network	NO

Road 8

Road Name	**Nardine Close**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	10m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
RAV Network	RAV 7

Road 9

Road Name	**Ibis Place**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	6.5m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
Note*	Road still under construction
RAV Network	NO

Road 10

Road Name	**Raven Street**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 20m
Road Pavement Width	6m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
RAV Network	NO

Road 11

Road Name	**Ashby Close**
Number of Lanes	two-way one lane
Road Reservation Width	approximately 18m
Road Pavement Width	6.5m
Classification	Access Road
Speed Limit	50 km/h
Bus Route	NO
On-street parking	NO
RAV Network	RAV 7

2.5 Traffic Volumes

Road Name	Location of Traffic Count	Vehicles Per Day (VPD)	Vehicles per Peak Hour (VPH)				Heavy Vehicle %	Year	
			AM Peak VPH	AM Peak Time	PM Peak VPH	PM Peak Time	*If HV count is Not Available, are HV likely to be in higher volumes than generally expected?*	Date of Traffic Count	*If older than 3 years multiply with a growth rate (3% growth rate per annuum)*
Berkshire Road	West of Roe Highway (SLK 0.75)	6,531	552	06:45	564	15:15	26.8%	2019/ 2020	5,035
	East of Roe Highway (SLK 1.58)	5,829	460	07:45	468	14:45	11.2%	Dec 2015	6,757
	40m East of Milner Road *	5,054	383	07:00	463	16:00	15.9%	Aug 2016	5,688
	West of Roe Highway Ramp (Northbound)**	7,919	511	08:00	748	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	East of Roe Highway Ramp (Northbound)**	7,101	522	08:00	640	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	Ramp on to Roe Highway (Northbound) North of Berkshire Road**	2,487	250	08:00	183	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	West of Roe Highway Ramp (Southbound)**	11,569	849	08:00	1,076	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	East of Roe Highway Ramp (Southbound)**	11,292	928	08:00	1,047	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	Ramp on to Roe Highway (Southbound) South of Berkshire Road**	2,551	142	08:00	260	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
Roe Highway	South of Kalamunda Road (SLK 33.94)	44,657	3,624	07:00	3,823	16:15	12.7%	2018/ 2019	-
	North of Berkshire Road	53,578	4,285	07:15	4,848	16:00	17.1%	2019/ 2020	-
	Ramp off to Maida Vale Road (Northbound) South of Maida Vale Road (SLK 0.26)	4,946	293	11:30	480	16:00	11.7%	Dec 2015	5,733
	Ramp off to Berkshire Road (Northbound) South of	6,180	457	08:00	527	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-

	Berkshire Road**								
	Ramp off to Berkshire Road (Southbound) North of Berkshire Road**	2,940	248	08:00	241	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
Newburn Road	South of Kalamunda Road (SLK 0.08)	5,882	462	08:15	555	16:00	4.8%	2018/ 2019	-
Hawtin Road	South of Maud Road (SLK 1.98)	7,025	592	08:00	668	15:15	8.3%	2019/ 2020	-
	South of Kalamunda Road**	8,944	828	08:00	868	17:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
Maida Vale Road	30m West of Myerson Crescent*	5,968	582	08:00	625	17:00	6.1%	Sep 2016	6,717
	166 m West of Butcher Road*	1,994	137	07:00	220	16:00	9.1%	Jun 2019	-
	67m East of Milner Road*	3,711	278	07:00	359	16:00	8.0%	Mar 2018	-
	20m West of Littlefield Street*	6,162	675	08:00	778	16:00	7.3%	Nov 2018	-
	170m East of Dundas Road*	2,430	187	07:00	254	17:00	7.0%	Mar 2018	-
	78m West of Milner Road*	3,062	211	08:00	299	16:00	7.3%	Apr 2018	-
	65m East of Plover Road*	8,851	659	08:00	971	16:00	7.6%	Sep 2019	-
	100m West of Jaeger Court*	3,870	276	08:00	411	16:00	8.3%	Nov 2020	-
	West of Hawtin Road (SLK 0.10)	7,106	596	08:00	683	17:00	9.2%	Dec 2015	8,237
	Ramp on to Roe Highway (Southbound) South of Maida Vale Road (SLK 0.23)	5,720	511	07:15	436	16:15	17.0%	Dec 2015	6,631
Abernethy Road	South of Dundas Road (SLK 4.96)	21,232	1,663	07:15	1,720	15:45	23.6%	Dec 2015	24,613
	South of Kalamunda Rd (SLK 6.54)	17,958	1,335	07:30	1,472	15:45	21.7%	2018/ 2019	-
Apricot Street	57 M South West of Fruit Tree Crescent*	1,538	109	08:00	142	17:00	5.6%	Apr 2016	1,731
Dundas Road	South of Maida Vale Road (SLK 2.04)	4,770	372	07:30	424	16:00	19.4%	2016/ 2017	5,368
	40m South of Sultana Road West*	2,708	194	06:00	264	16:00	22.3%	Jul 2016	3,047
	25m North of Onyx Court*	6,091	421	08:00	603	16:00	13.7%	Jun 2016	6,855
	41m South of Carolyn Way*	4,564	434	07:00	387	16:00	20.3%	Oct 2016	5,136

	205m North of Maida Vale Road*	5,687	373	08:00	506	16:00	12.3%	Mar 2018	-
	165m North of Berkshire Road*	4,267	311	07:00	347	15:00	19.4%	Mar 2018	-
	25m South of Kapok Court	5,953	422	07:00	615	16:00	11.5%	Nov 2020	
Dawson Avenue	60m South West of Berkshire Road *	3,100	267	08:00	293	17:00	5.4%	Jul 2016	3,489
Sultana Road West	60m North of Milner Road *	260	20	11:00	28	15:00	18.9%	Oct 2016	292
Harrison Road	35m East of Dundas Road *	971	80	11:00	101	14:00	24.1%	Aug 2016	1,092
Milner Road	32m South West of Sultana Road West *	2,397	228	07:00	236	16:00	14.1%	Mar 2018	-
	120m South of Raven Street *	1,537	163	07:00	151	16:00	9.2%	Mar 2018	-
	45m North East of Stewart Road *	1807	182	07:00	173	16:00	9.4%	Mar 2018	-
	150m South of Eureka Street *	3,864	360	07:00	346	16:00	19.3%	Sep 2019	3,003
Brae Road	295m North of Sultana Road *	149	13	07:00	14	14:00	17.1%	Oct 2016	167

Note - These traffic counts have been received from the City of Kalamunda*
*Note** - These traffic volumes have been derived from SCATS data obtained through Main Roads. Although SCATS should not be used as a sole source of data it is a good tool to verify fluctuations in flow.*

2.6 Vehicular Crash Information

Is Crash Data Available on Main Roads WA website?	YES
Analysis period	01/01/2016 – 31/12/2020
Locations at which no crashes were reported in the above period	Midblock - Stewart Road, Raven Street, Brae Road, Sultana Road W, Milner Road, Ibis Place, Brand Road Intersections - Milner Road: All intersections except with Maida Vale Road and Eureka Street (listed below).

Road Name	Road Hierarchy	Speed Limit	Crash Statistics			
			No of KSI Crashes (Fatal + Hospital)	No of Medical Attention Crashes	No of PDO Major Crashes	No of PDO Minor Crashes
Berkshire Road & Roe Highway (Northbound) off to Berkshire Road & Berkshire Road on to Roe Highway (Northbound)*	Distributor B / Primary Distributor / Primary Distributor	70kph / 70kph / 70kph	0	0	10	3
Berkshire Road & Roe Highway (Southbound) off to Berkshire Road & Berkshire Road on to Roe Highway (Southbound)*	Distributor B / Primary Distributor / Primary Distributor	70kph / 70kph / 70kph	0	0	1	2
Berkshire Road & Dundas Road	Distributor B / Distributor B	70kph/ 70kph	1	0	0	1
No of MVKT Travelled at Location		approximately 7,000*365*5years*0.3km=3.83 MVKT				

KSI Crash Rate		1 per 3.83= 0.26 KSI crashes / MVKT				
Comparison with Crash Density and Crash Rate Statistics		0.26 KSI crashes / MVKT is higher than the network average of 0.07 KSI crashes / MVKT.				
Other Crash Rate		2 per 3.83= 0.52 other crashes / MVKT				
Comparison with Crash Density and Crash Rate Statistics		0.52 crashes / MVKT crash rate is lower than the network average of 1.83 crashes / MVKT.				
Maida Vale Road & Maida Vale Road on to Roe Highway (Southbound)	Distributor B / Primary Distributor	60kph / 60kph	1	1	5	1
No of MVKT Travelled at Location		approximately 10,000*365*5years*0.3km=5.47 MVKT				
KSI Crash Rate		1 per 5.47 = 0.18 KSI crashes / MVKT				
Other Crash Rate		7 per 5.47= 1.28 other crashes / MVKT				
Comparison with Crash Density and Crash Rate Statistics		0.18 KSI crashes / MVKT is higher than the network average of 0.07 KSI crashes / MVKT. 1.28 crashes / MVKT crash rate is lower than network average 1.83 crashes / MVKT.				
Maida Vale Road & Roe Highway (Northbound) Off to Maida Vale Road	Distributor B / Primary Distributor	60kph / 60kph	1	8	13	13
No of MVKT Travelled at Location		approximately 9,000*365*5years*0.3km=4.93 MVKT				
KSI Crash Rate		1 per 4.93= 0.2 KSI crashes / MVKT				
		0.2 KSI crashes / MVKT is higher than the network average of 0.07 KSI crashes / MVKT.				
Other Crash Rate		35 per 4.93= 7.09 other crashes / MVKT				
Comparison with Crash Density and Crash Rate Statistics		7.09 crashes / MVKT crash rate is significantly higher than the network average 1.83 crashes / MVKT.				
Maida Vale Road & Milner Road	Distributor B / Local Distributor	60kph / 70kph	0	0	1	0
Milner Road & Eureka Street	Local Distributor / Access Road	70kph / 50kph	1	0	0	0
Maida Vale Road [SLK 0.88 - 2.93] From the eastern ramp to Roe Highway to Dundas Road	Distributor B	60kph	1	1	4	1
No of MVKT Travelled at Location		approximately 5,000*365*5years*2.05km=18.71 MVKT				
KSI Crash Rate		1 per 18.71= 0.2 KSI crashes / MVKT				
		0.05 KSI crashes / MVKT is lower than the network average of 0.07 KSI crashes / MVKT.				
Other Crash Rate		7 per 18.71= 7.09 other crashes / MVKT				
Comparison with Crash Density and Crash Rate Statistics		0.37 crashes / MVKT crash rate is significantly lower than the network average 1.83 crashes / MVKT.				
Maida Vale Road & Plover Road	Distributor B / Access Road	60kph / 50kph	0	0	3	1
Maida Vale Road & Newburn Rd	Distributor B / Local Distributor	60kph / 50kph	0	0	2	1
Maida Vale Road & Jaeger Court	Distributor B / Access Road	60kph / 50kph	0	0	1	0
Maida Vale Road & Bluebell Avenue	Distributor B / Access Road	60kph / 50kph	0	0	1	0

*Note * - Even though the MRWA crash reports provide results for the past 5 years, Berkshire Road and Roe Highway ramps were constructed in early 2016, and therefore the results cannot be considered complete.*

The following tables shows the Crash Density and Crash Rates on Metropolitan Local and Regional Roads as obtained from Main Roads WA on the 13th May 2020 by email request:

Crash Density and Crash Rate on Metropolitan Local Roads Network only

	All Crashes		Serious Injury Crashes (Fatal+Hospital)	
	Average Annual Crash Density (All Crashes/KM)	Average Annual Crash Rate (All Crashes/MVKT)	Average Annual Crash Density (Ser. Inj. Crashes/KM)	Average Annual Crash Rate (Ser. Inj. Crashes/MVKT)
Metro Local Road - Midblock	2.67	0.86	0.11	0.04
Metro Local Road - All	5.70	1.83	0.22	0.07

Note: Based on 5-years data for the period 2015 to 2019.

Crash Density and Crash Rate on Metropolitan State Roads Network only

	All Crashes		Serious Injury Crashes (Fatal+Hospital)	
	Average Annual Crash Density (All Crashes/KM)	Average Annual Crash Rate (All Crashes/MVKT)	Average Annual Crash Density (Ser. Inj. Crashes/KM)	Average Annual Crash Rate (Ser. Inj. Crashes/MVKT)
Metro State Road - Midblock	22.39	0.42	0.87	0.02
Metro State Road - All	52.67	0.98	1.68	0.03

Note: Based on 5-years data for the period 2015 to 2019.

With increased urbanisation of the area, many intersections will be reconstructed, and therefore, road safety will be significantly improved.

2.7 Public Transport Accessibility

How many bus routes are within 400 metres of the subject site?	3 bus routes
How many rail routes are within 800 metres of the subject site?	Currently no rail routes – Future Forrestfield Airport Link Route

Bus / Rail Route	Description	Peak Frequency	Off-Peak Frequency
294	Midland Stn – Westfield Carousel via Forrestfield & High Wycombe	20 minutes	120 minutes
296	Perth - Kalamunda via Gooseberry Hill Road	60 minutes	120 minutes
287	Perth - Forrestfield via Belmont Forum	30 minutes	no service
298	Perth - Maida Vale via Belmont Forum & Abernethy Road	90 minutes	no service

Walk Score Rating for Accessibility to Public Transport.

10 – 30 Some Transit. A few nearby public transportation options.

Is the development in a Greenfields area? Partially

Additional information on planned improvements:

High Wycombe Train and Forrestfield Airport Link

Forrestfield-Airport Link METRONET

" Completing the Forrestfield-Airport Link - an 8.5km three-station railway spur connected to the Midland Line near Bayswater Station – is part of the first stage of METRONET.

As well as creating a 20-minute train trip between the city and the eastern suburbs, once complete, the rail link will make access to Perth Airport quicker, easier and more affordable for Perth residents and visitors alike.

The project is an important step in improving public transport options for our eastern suburbs. By 2022 the Forrestfield-Airport Link is expected to generate 20,000 passenger trips every day – increasing to 29,000 daily by 2031. With three new stations at Redcliffe, Airport Central and Forrestfield, the new train line will

- *Provide a viable alternative to car travel between the eastern suburbs and Perth.*
- *Enable Perth Airport to continue growing as a nationally important centre of employment, commerce and international trade.*
- *Encourage domestic and international tourism with improved access between Perth Airport and the city. Boost employment, residential and economic growth by encouraging transit oriented development around the new suburban train stations at Redcliffe and Forrestfield.*

Each new station presents different opportunities for their local communities.

High Wycombe Train Station

The catchment area for Forrestfield Station includes the suburbs of High Wycombe, Forrestfield, Maida Vale, Gooseberry Hill and Kalamunda. To make connecting with train services from these suburbs easier, the station precinct is being designed as an intermodal transport hub. This means there will be facilities for passengers arriving at the station by bus, car, bicycle or foot.

To meet demand for parking, a multi-level car park accommodating 1200 cars will be built on land bordered by Maida Vale Road and Ibis Place. While the original plan was for an at-grade car park, the new design will improve access as passengers will now be able to park within 300m of the station's entrance. This new design frees up approximately eight hectares of land for future development. The solution not only meets passenger needs, but also supports METRONET's vision to create connected communities within walking distance of the station and the City of Kalamunda's Forrestfield North District Structure Plan.

Construction of the car park is scheduled to being as soon as tunnelling is finished and will be ready for when first trains run on the Forrestfield Line."

Public Transport Authority website accessed on 30.07.2021.: http://www.pta.wa.gov.au/forrestfieldairportlink/rail-map :

" High Wycombe Station

The above-ground High Wycombe Station, positioned alongside Dundas Road, will be a terminus station serving a large catchment area in Perth's eastern suburbs and foothills.

- *20-minute journey to CBD*
- *2-zone fare to Perth Station*
- *8-bay bus interchange*
- *1200 parking bays*

Once operational Airport Line trains will be integrated into the existing network, travelling between Claremont Station and Perth Station on the Fremantle Line, along the Midland Line east of the Perth CBD to Bayswater and then spur off towards High Wycombe utilising the new underground track."

Forrestfield Airport Link Project Transport Assessment – Forrestfield Station:

" The station will comprise an at grade passenger rail station, an adjacent bus station with 8 active and 4 layover bays, and a small kiosk to serve intermodal passengers. Car parking with up to 2,500 bays will be located at the development to provide park and ride opportunities.

Active transport will be well catered for with the provision of an integrated network of paths that will bring passengers directly to the Station. There will be secure bike parking with space for 180 bikes and U-rails in the Station forecourt.

The development of the Station will include upgrades to Sultana Road West, Ibis Place and Imperial Street, along with a reconfiguration of the Maida Vale Road / Ibis Place intersection to allow ease of access for buses into the bus station. Relocation of Dundas Road is required for the construction of the Station and this will assist the Shire

in its aim of eliminating heavy vehicles from residential areas and restricting it to the light industrial areas to the south of the Station."
It should be noted that the early documents indicate a parking provision of 2,500 bays, however the total number has been reduced to 1,800 bays. Initially 1,200 bays will be developed as a multi-story parking facility opposite the train station with the remainder to be built out at a later stage. This is in line with the general vision for the station as an alternative transport option which promotes the reduction of car usage and dependence.

2.8 Pedestrian Infrastructure

Describe existing local pedestrian infrastructure within a 400m radius of the site:

Existing pedestrian access through the Forrestfield North LSP area for Residential Precinct is very limited due to the low intensity of current land-uses. The extent of development for the area envisaged under the LSP will have a significantly higher activity intensity; therefore, the requirement for good quality pedestrian linkages emerges. One of the key objectives of the Forrestfield North LSP area for the Residential Precinct is to identify key linkages within the proposed LSP area. A plan depicting all of the linkages described below is shown in Appendix 2.

Classification	**Road Name**
" Principal Shared Path (PSP)"	The path along Roe Highway (south of Berkshire Road)
" Other Shared Path (Shared by Pedestrians & Cyclists)"	Maida Vale Road (east of Littlefield Road), Milner Road, Berkshire Road, Palmer Crescent (west of Mack Place), Mack Place, Madderson Road, Golden Crescent (east of Jade Court), Jade Court, Edney Road, Feeney Gardens, Roe Highway (400m north of Berkshire Road)
Does the site have existing pedestrian facilities	YES, on Milner Road and Berkshire Road

Does the site propose to improve pedestrian facilities? YES

If YES, describe the measures proposed.

Pedestrian Paths

It is essential to develop a solid and permeable network of pedestrian paths in order to encourage pedestrian movement. The network of the proposed pedestrian paths is shown in Appendix 2.

Please refer to Section 2.20. for the proposed Internal Road Network for cross-sections of existing and proposed roads. Every major road within the LSP area will have either a shared path or a separate pedestrian path.

All pedestrian and shared paths should be designed to be accessible by all community members, in accordance with the City of Kalamunda's Disability Access and Inclusion Plan 2017-2022 or any other subsequent document of this nature. The exact location of pram ramps and other elements is to be determined later in the project; however, the pram ramps should be positioned to allow continuous movement and shortest crossing distances.

What is the Walk Score Rating?

0-20 Car-Dependent. Almost all errands require a car.

2.9 Cycling Infrastructure

Are there any PBN Routes within an 800m radius of the subject site?	YES

If YES, describe:

Existing cyclist access through the Forrestfield North LSP area for Residential Precinct is very limited due to the low intensity of current land-uses. The extent of development for the area envisaged under the LSP will have a significantly higher activity intensity; therefore, the requirement for good quality cyclist linkages emerges. One of the key objectives of the Forrestfield North LSParea is to identify key linkages within the proposed LSP area. A plan depicting all of the linkages described below is shown in Appendix 2.

Classification	Road Name
" Bicycle Lanes or Sealed Shoulder Either Side"	Abernethy Road, Roe Highway (north of Berkshire Road), Newburn Road
" Principal Shared Path (PSP)"	The path along Roe Highway (south of Berkshire Road)
" Good Road Riding Environment"	Maida Vale Road (west of Priory Road), Priory Road, Newburn Road, Milner Road, Berkshire road (west of Ashby Close), Gilba Road, Bruce Road, Apricot Street, Sultana Road East (east of Bruce Road), Myerson Crescent, Jacks Street
" Other Shared Path (Shared by Pedestrians & Cyclists)"	Maida Vale Road (east of Littlefield Road), Milner Road, Berkshire Road, Palmer Crescent (west of Mack Place), Mack Place, Madderson Road, Golden Crescent (east of Jade Court), Jade Court, Edney Road, Feeney Gardens, Roe Highway (400m north of Berkshire Road)

Are there any PBN Routes within a 400m radius of the subject site?	YES

If YES, describe:

Classification	Road Name
" Bicycle Lanes or Sealed Shoulder Either Side"	Abernethy Road, Roe Highway (north of Berkshire Road), Newburn Road
" Principal Shared Path (PSP)"	Path along Roe Highway (south of Berkshire Road)
" Good Road Riding Environment"	Maida Vale Road (west of Priory Road), Priory Road, Newburn Road, Milner Road, Berkshire Road (west of Ashby Close)
" Other Shared Path (Shared by Pedestrians & Cyclists)"	Maida Vale Road (east of Littlefield Road), Milner Road, Berkshire Road, Palmer Crescent (west of Mack Place), Mack Place, Madderson Road, Golden Crescent (east of Jade Court), Jade Court, Edney Road, Feeney Gardens, Roe Highway (400m north of Berkshire Road)

Does the site have existing cyclist facilities?	NO
Does the site propose to improve cyclist facilities?	YES

If YES, describe the measures proposed.

Please refer to Section 2.20. for the proposed Internal Road Network for cross-sections of existing and proposed roads. Every major road within the structure plan area will have either a shared path or a dedicated cycle lane.

Additionally, the City of Kalamunda has adopted a Bicycle Plan, dated December 2017, prepared by Cardno. The ultimate cycling network from this document is shown in Appendix 2, and the routes going through the LSP area are outlined below:

Note: This was prepared prior to the current structure planning so did not consider further routes within the plan area.

Classification	Road Name
" Principal Route"	Roe Highway, the path along the highway
" Strategic Route"	Milner Road, Maida Vale Road, Future TOD Connector
" Local Route"	Dundas Road, Berkshire Road

Note: Department of Transport is moving to a different classification of Cyclist Infrastructure as follows:

Primary route (" Red Route")

Function: Primary routes are high demand corridors that connect to major destinations. They provide high quality, safe, convenient (and, where possible uninterrupted) routes that form the spine of the cycle network. These routes are conducive to medium or long-distance commuting/utility, recreational, training and tourism trips.

Form: Primary routes are high-quality cycle only or shared paths located adjacent to major roads, rail corridors, rivers and ocean foreshores. Where the environment allows, these are in the form of a Principal Shared Path (PSP). A PSP is a fully lit and separated facility. In locations where vehicles have been grade-separated, the cycle route will also be grade-separated. PSPs are to be designed in accordance with the WA Transport Portfolio's PSP Policy.

Secondary Route (" Blue Route")

Function: Secondary routes have lower demand than primary routes but provide similar levels of quality, safety and convenience. These routes connect primary routes and major activity centres such as shopping precincts, industrial areas or major health, education, sporting and civic facilities.

Form: Secondary routes can take on several forms and are designed to suit the environment in which they are located. These forms include:

- High quality shared paths;
- Bi-directional protected bike lanes;
- Protected on-road bike lanes; and
- Safe Active Streets (Bicycle Boulevards).

Road Cycling Route (" Yellow Route")

Function: Road cycling routes are designated routes for training, sports or recreational cyclists to undertake long distance rides in on-road environments.

Form: Road cycling routes are predominantly located on lower order, rural or semi-rural roads on the outskirts of cities and towns. Sections may follow busier roads, particularly as road cycling routes typically begin and end in built up areas and often follow scenic roads popular with other road users. These routes support cyclists undertaking challenging longer distance rides by raising awareness and encouraging safe behaviour by all road users. This is achieved through advisory signage, warning technology and other road safety initiatives.

Tourist Routes (" Brown Routes")

Function: Tourist trails provide long-distance, off-road (predominantly unsealed) riding experiences through natural settings, away from motorised traffic. They often support recreational and tourism trips between regions.

Form: Trails are typically located within underutilised transport and service corridors in rural areas. Due to their relatively gentle gradients, former railways make excellent candidates for trails. Purpose built trails may be constructed to connect existing corridors. Trails should be constructed from well drained, compacted gravel with supporting infrastructure such as way-finding signage. They may be sealed when they run through towns, busy road crossings or in special circumstances.

2.10 Vehicular Parking

Local Government	City of Kalamunda
Local Government Document Utilised	Local Planning Scheme No. 3 State Planning Policy 3.1 - R-Codes WAPC Apartment Design Policy (Draft) Guide to Traffic Management Part 11: Parking

Description of Parking Requirements in accordance with utilised Documents:

Residential:

- 1-bedroom dwellings – Location B – 1 bay per dwelling
- 2+ bedroom dwellings – Location B – 1.25 bay per dwelling
- Visitor Parking – 1 bay per 4 dwellings, up to 12 dwellings. 1 bay per 8 dwellings for the 13th dwelling and above.

Primary School:

- 1 bay for every staff member, plus 14 drop off bays for every 100 students. (Local Planning Scheme No. 3)

Recreational areas inclusive of Local Open Space:

- 20 spaces per court; 50 spaces per football field (Guide to Traffic Management Part 11: Parking -Table C2 3: Car parking provision rates, Brisbane City Council, Queensland)

Land Use Type	Rate above	Yield	Vehicle Parking Requirements
Residential	As per R Codes; Note: WAPC Apartment Design Policy (currently a DRAFT version) might be applicable for apartments once the finalised version is published.	150 apartment dwellings 2,267 house dwellings	Varies; refer to ***Note** below
Primary School	1 bay for every staff member	Assume 54 staff	54
	14 drop off bays for every 100 students	Assume 540 students	76
Recreational areas inclusive of District Open Space (Sporting Precinct)	20 spaces per court 50 spaces per football field	Assume 2 courts and one football field*	90

*Note * - **Strategy City of Kalamunda Forrestfield North Structure Plan Community Infrastructure Strategy** outlines concept plans for the Education and Sporting Precincts and the Community Centre and Town Park Precinct, and the yields have been sourced from this document.*

Justification

***Note:**The predominant use is residential; therefore, it is expected that most residences will provide parking on the premises, in accordance with the Residential Design Codes or the finalised version of the WAPC Apartment Design Policy. KCTT believes that every house will have its own garage, providing parking for the owner (in the garage) and visitors (at the driveway). Residential buildings will have to provide parking garages with the number of parking bays in accordance with the R-codes or finalised version of the SPP 7.3, depending on the location.

In accordance with the City of Kalamunda Local Planning Scheme No 3, the approximate number of parking bays required for the Primary School is 130. This should be reassessed once more detail is known and individual development applications are submitted.

Some provisional rates are provided for the District Open Space (Sporting Precinct); however, this development should be assessed on its own merits once the final composition and staging of the sporting fields and associated facilities are known. On-street parking should be considered, particularly in the area surrounding District Open Space (Sporting Precinct) and other recreational areas.

Strategy City of Kalamunda Forrestfield North Structure Plan Community Infrastructure Strategy outlines that Sporting Precinct will have approximately 120 bays delivered over two stages of 60 bays each. The Primary School would also use these in a shared use arrangement for pick up/drop off.

Improvement in surrounding:

On-Street Parking

On-street parking will be provided through each of the main linkages in the Forrestfield North LSP area and particularly in the area surrounding District Open Space (Sporting Precinct). It is considered that the following streets as a minimum will have some form of on-street parking: -

- Brae Road
- Brand Road
- Milner Road (north of Sultana Road West)
- TOD Connector
- Stewart Road
- Some lower-order roads

On-street parking will contribute to overall street amenity and will help reduce average operating speeds on the road.

In order to create an appealing urban design response, where on-street parking has a sole function (it is not AM/PM bus priority lane), three or fewer consecutive parking bays will be allowed. If more than 3 consecutive on-street bays are planned, a vegetation strip will be used to break down the continuous line of pavement.

Have Vehicle Swept Paths been checked for Parking? NO

Not applicable for this stage of development.

2.11 Bicycle Parking

Local Government	City of Kalamunda
Reference Document Utilised	City of Kalamunda's Local Planning Scheme No 3 Austroads – Guide to Traffic Management Part 11: Parking Securabike – Bicycle Parking Handbook

Description of Parking Requirements:

The City of Kalamunda does not provide requirements for the provision of bicycle parking.

Bicycle parking provisions for schools are to be in accordance with the Austroads Guide to Traffic Management - Parking (Part 11), page 141:

School *- 1 per 5 pupils over year 4*

Justification

It is assumed that residents of houses will store their bicycles and equipment within their respective dwellings. Therefore, KCTT believe that there is no need for additional bicycle parking provision in residential precincts, however parking should be provided at the primary school and District Open Space (Sporting Precinct).

It is most likely that the utilisation of bicycles within the subject site area will be more viable and attractive to residents. Cycling is further promoted through a network of cycle lanes and shared paths connecting all residential areas to the main attractors.

2.12 ACROD Parking

Class of Building	**Class 1a** - a detached house or one of a group of two or more dwellings separated by a fire resisting wall, including a row house, terrace house, town house or villa unit. **Class 2** – a building containing 2 or more dwelling units (eg: flats, apartments) **Class 9b** - An assembly building, including a trade workshop, laboratory or the like, in a primary or secondary school, but excluding any other parts of the building that are of another class.
Does this building class require specific provision of ACROD Parking?	YES – non-residential uses will require provision of ACROD Parking.
Reference Document Utilised	Building Code of Australia

Description of Parking Requirements:

Class 1a *– no provision for ACROD parking;*

Class 2 *– no provision for ACROD parking unless there are accessible units within the building;*
Class 9b *- School - 1 ACROD bay for every 100 carparking spaces or part thereof;*
Other assembly building - up to 1,000 carparking spaces - 1 ACROD bay for every 50 carparking spaces or part thereof and 1 ACROD bay for each additional 100 carparking spaces or part thereof in excess of 1,000 carparking spaces."

Justification

These requirements will be reviewed as part of the respective Development Applications for each of the sites.

2.13 Parking / Charging Stations for Electrical Vehicles

Class of Building	**Class 1a** - a detached house or one of a group of two or more dwellings separated by a fire resisting wall, including a row house, terrace house, town house or villa unit. **Class 2** – a building containing 2 or more dwelling units (eg: flats, apartments) **Class 9b** - An assembly building, including a trade workshop, laboratory or the like, in a primary or secondary school, but excluding any other parts of the building that are of another class.
Does this building class require specific provision of parking / charging station for electrical vehicles?	All residential buildings with more than 10 dwellings and non-residential buildings should consider provision of parking / charging points for electrical vehicles.

Description of Parking Requirements:

Parking / charging points for electrical vehicles should be provided at a minimum rate of 1 in 20 standard parking bays (5% as prescribed in Green Star - Design and As Built), preferably 1 in 10 standard parking bays.

Justification

The use of electrical vehicles is on the rise and given the reduction in pollution they provide the use should be further encouraged. While in individual dwellings, private owners / developers can choose to implement charging points for electrical vehicles, in multiple dwelling complexes and non-residential buildings it is important to provide charging points so that the residents have an option for using electrical vehicles.

The mandatory rate should be reviewed and revised every 5 years given the technology leaps.

2.14 Delivery and Service Vehicles

Guideline Document used as reference	NSW RTA Guide to Traffic Generating Developments

Requirements

Residential flat buildings *(50% of spaces adequate for trucks): < 200 flats or home units = 1 space per 50 flats or home units;*

Commercial premises *(50% of spaces adequate for trucks): 1 space per 4,000m² GFA (if GFA < 20,000m²);*
Other Uses *(50% of spaces adequate for trucks): 1 space per 2,000m² GFA."*

Justification

It is expected that delivery and service vehicles (such as waste removal vehicles) servicing the residential area will not require designated parking spaces given that they can operate safely within the road reserve.

Service and delivery vehicles for the primary school and District Open Space (Sporting Precinct) will require appropriate parking allocated on site. The crossovers should be designed to accommodate movement of service vehicles as a minimum.

2.15 Calculation of Development Generated / Attracted Trips

What are the likely hours of operation?	For residential land uses, the hours of operation are not applicable.
What are the likely peak hours of operation?	AM 08:00 to 09:00 PM 16:30 to 17:30
Do the development generated peaks coincide with existing road network peaks?	YES
If YES, Which:	Partially both [AM Peak and PM Peak]
Guideline Document Used	**WAPC Transport Assessment Guidelines for Developments**
Rates from above document:	***Residential*** *– 0.8 vehicle trips per dwelling for the AM and PM peak hours. A 25% IN / 75% OUT split has been adopted for the AM peak and a 67% IN / 33% OUT split for the PM peak hour;* ***Schools*** *- 1 vehicle trips per dwelling for the AM and PM peak hours. A 50% IN / 50% OUT split has been adopted for both peaks.*
Guideline Document Used	**NSW RTA Guide to Traffic Generating Developments**
Rates from above document:	***Residential*** *- The NSW RTA Guide to Traffic Generating Developments suggests developments of this type in Sydney tend to generate between 4 and 5 vehicular trips per dwelling for medium to high density developments. In Perth, the Department of Planning and Infrastructure conducted a series of studies in the late 1990's / early 2000's which showed that higher density dwellings tended to average closer to 5.5 vehicle trips per day. These studies assumed that anywhere between 50% and 70% of commuters were travelling to the work by car as a driver.* The following rates were agreed upon with the City of Kalamunda: 8 vehicular trips per day for R30 and R40; 6.5 vehicular trips per day per residence for R60 houses, 5.5 vehicular trips per day per residents for R80 houses and apartments, and 5 vehicular trips per day for R100 Apartments.
Guideline Document Used	**Transportation Engineers (ITE) Common Trip Generation Rates (9th edition)**
Rates from above document:	***Sporting / Soccer Complex*** *Fields: 71.33 vehicular trips per day per field*
Base data for trip calculation (AM peak trips)	Residential: 10% of VPD (25% IN / 75% OUT); School: 1 per student District Open Space (Sporting Precinct): 1.4 trips per playing field (50% IN / 50% OUT)
Base data for trip calculation (PM peak trips)	Residential: 10% of VPD (67% IN / 33% OUT) School: 1 per student District Open Space (Sporting Precinct): 20.67 trips per playing field (70% IN / 30% OUT)

Land Use Type	Rate above	Yield	Daily Traffic Generation VPD	Peak Hour Traffic Generation	
				AM VPH	PM VPH
Residential (R30 and R40 Houses)	8.0 VPD per unit Peak - 10% of VPD	938	7,504	750	750
Residential (R60 Houses and Apartments)	6.5 VPD per unit Peak - 10% of VPD	1,056 units	6,864	686	686
Residential (R80 Houses and Apartments)	5.5 VPD per unit Peak - 10% of VPD	423 units (150 apartments)	2,327	233	233
	Total Residential:	***2,417 units***	***16,691***	***1,669***	***1,669***
Primary School	2 VPD per student	540 students	216	108	108
	Peak – 1 VPH per student *(based the local use - 80% reciprocity applied**)*		1,080	540	540
District Open Space (Sporting Precinct)	71.33 VPD per court AM Peak – 1.4 VPH per court PM Peak – 20.67 VPH per court	2 courts (as per Sporting Precinct Preliminary Concept Plan)	71	2	21
	(based on the proximity of the primary school and the local use - 50% reciprocity applied)		143	3	41
		Total traffic with reciprocity applied:	**16,978**	**1,779**	**1,798**
		Total traffic without reciprocity:	**17,914**	**2,212**	**2,250**

Note * - Strategy City of Kalamunda Forrestfield North Structure Plan Community Infrastructure Strategy *outlines concept plans for the Education and Sporting Precincts and the Community Centre and Town Park Precinct and the yields have been sourced from this document.*

Note ** - *It is anticipated that only 20% of school trips will be generated from outside of the LSP area.*

The estimated yield of 2,417 dwellings is expected within the LSP area. The LSP report indicates an estimated population of 5,998 in the FFN Residential Precinct based on the information received from the City of Kalamunda. According to the City of Kalamunda's household summary on profile.id.com.au 9% of the City's residents are of primary school age.

80% of the assumed 540 children is 432, which is approximately 7.2% of the expected number of future FFN residents, less than the City of Kalamunda average. This more than accounts for the likely reduction in school-age children within higher-density housing forms. Even if the ratio is changed in favour of trips outside of the LSP area, this will not significantly impact traffic distribution and the surrounding road network. The school is expected to generate only up to 1,080 VPD which is less than 6.5% of the total Residential Precinct traffic generation.

Based on the above, KCTT believe that the distribution of 80% local / 20% outside LSP area) should be applied.

It should also be noted that while the cumulative peak volumes represent the most conservative scenario, in reality, peak times of various uses may coincide only partially.

Does the site have existing trip generation/attraction?	YES
No of Daily Trips	50 units * 9 VPD = 450 VPD
No of AM Peak Hour Trips	50 units * 0.8 VPH = 40 VPH
No of PM Peak Hour Trips	50 units * 0.8 VPH = 40 VPH
What is the total impact of the new proposed development?	High impact
Total additional daily traffic to the surrounding road network	16,978 – 450 = **16,528 VPD**
Total additional AM peak traffic to the surrounding road network	1,779 – 40 = **1,739 VPH**
Total additional PM peak traffic to the surrounding road network	1,798 – 40 = **1,758 VPH**

2.16 Trip Purposes

Determine the likely percentage share for different trip purposes based on the land usage.

Land Use Type	Employment	Shopping	Education	Social / Recreational
Residential	40%	17.5%	25%	17.5%
Industrial	100%	n.a.	n.a.	n.a.
Mixed Use	60%	20%	5%	15%

2.17 Expected Origin / Destination

Name the closest existing major residential generators and non-residential attractors of traffic and the distance from the boundaries of the Structure Plan Area.

Residential	Employment (profile.id)	• Potential place of work of future residents of Forrestfield North LSP area: a. West (City of Perth) – 32.5% b. Local (Perth Airport area) – 10% c. Local (Forrestfield North LSP area) – 20% d. South (City of Gosnells / City of Canning) - 10% e. East (City of Kalamunda) - 10% f. West (City of Belmont) – 7.5% g. North (City of Swan) – 5% h. WA Undefined / Other Areas – 5% • Excluding work from home, likely sources of employment within the Forrestfield North area include industrial land-uses in the south-east in the vicinity of Berkshire Road and around the future proposed High Wycombe Train Station; TOD Precinct and Activity Centre Precinct. • To the immediate west of the site is a significant employment catchment around the Perth Airport. • The High Wycombe Train Station provides excellent opportunities for commuting to the Perth CBD.
	Shopping	• Strong opportunities for local shopping within the Forrestfield North area. • Local shopping – High Wycombe Shopping Centre / Forrestfield Shopping Centre • Regional Shopping – Belmont Forum / Carousel Cannington
	Education	• Edney Primary School (corner Edney Road / Newburn Road, High Wycombe), Dawson Park Primary School, High Wycombe Primary School, Woodlupine Primary School; Maida Vale Primary School, Forrestfield Primary School (all within 3km from the LSP area). • Primary School to be allocated within the LSP area. • Kalamunda Senior High School, Darling Range Sports College Forrestfield, Mazenod College Lesmurdie, St Brigid's College Lesmurdie, Belmont City College (High School)
	Social/ Recreational	• 17.5% of all trips are deemed to be local for social / recreational purposes. These types of trip purposes are expected to include sporting / local social trips etc.

		• In an area such as Forrestfield North LSP Area, this could be as high as 25%, however for the purposes of this Transport Impact Assessment we will utilise 17.5% as it places a more conservative and realistic volume of traffic onto the key intersections for analysis.
Commercial and Mixed Use	Employment	• The TOD and Activity Centre Precincts are likely to attract employment trips from the Forrestfield North area, plus generally from the: - o City of Kalamunda to the east (35%) o City of Belmont to the west (25%) o City of Swan / Shire of Mundaring to the north (15%) o City of Gosnells / City of Canning to the south (15%) o Other areas (10%)
	Shopping/ Social	At this point the full range of uses that will be located within the Activity Centre Precinct is not determined. Therefore, the centre is treated as commercial premises for the purposes of this report.
Industrial	Employment	The TOD and Activity Centre Precincts are likely to attract employment trips from the Forrestfield North LSP area, plus generally from the: - • City of Kalamunda to the east (35%) • City of Belmont to the west (25%) • City of Swan / Shire of Mundaring to the north (15%) • City of Gosnells / City of Canning to the south (15%) • Other areas (10%)

2.18 Traffic Flow Distribution onto External Road Networks

How many routes are available for access / egress to the site?	Eight main routes (as modelled in Paramics – please refer to Appendix 4 for detailed traffic distribution) 17,914 VPD / 2,250 VPH
Route 1	
Provide details for Route No 1	**To / from the south via Roe Highway**
Percentage of Vehicular Movements via Route No 1	20%
Route 2	
Provide details for Route No 2	**To / from the south via Hawtin Road**
Percentage of Vehicular Movements via Route No 2	5%
Route 3	
Provide details for Route No 3	**To / from the east via Kalamunda Road**
Percentage of Vehicular Movements via Route No 3	7.5%
Route 4	
Provide details for Route No 4	**To / from the north via Roe Highway**
Percentage of Vehicular Movements via Route No 4	15%
Route 5	
Provide details for Route No 5	**To / from the west via Kalamunda Road**
Percentage of Vehicular Movements via Route No 5	10%
Route 6	
Provide details for Route No 6	**To / from the south via Abernethy Road**

Percentage of Vehicular Movements via Route No 6	8%
Route 7	
Provide details for Route No 7	**To / from the south via Dundas Road**
Percentage of Vehicular Movements via Route No 7	6%
Route 8	
Provide details for Route No 8	**To / from the east via Gooseberry Hill Road**
Percentage of Vehicular Movements via Route No 8	2%
Internal Trips	25% (Inclusive of trips to TOD precinct) + 1.5% to the Forrestfield North Industrial area

*Note: Please refer to Appendix 4 - Traffic modelling report for detailed traffic distribution

2.19 Road Safety

Are sight distances adequate at proposed intersections?	N/A

Justification

All distances between intersections should be spaced according to Liveable Neighbourhoods. To be reviewed in more detailed stages of planning.

Are there any proposed interventions to streets surrounding schools, neighbourhood centres, child and aged person day care facilities, etc?	YES

If YES, nominate which:

Some traffic calming devices are desirable especially in the vicinity the proposed primary school. Chicanes, speed humps, wombat crossings and/or other methods should be considered when designing streets around schools to lower operating speeds and improve safety. Variable speed limit should be considered on all roadways within 200m from the school entry in accordance with the relevant MRWA guidelines.

Furthermore, narrow lanes are advised (3.3m as a maximum width) to increase side friction and reduce operative speed. Long blocks of on-street parking are to be avoided – vegetation strips are recommended to be implemented after each block of maximum 3 on-street parking bays.

2.20 Proposed Road Network

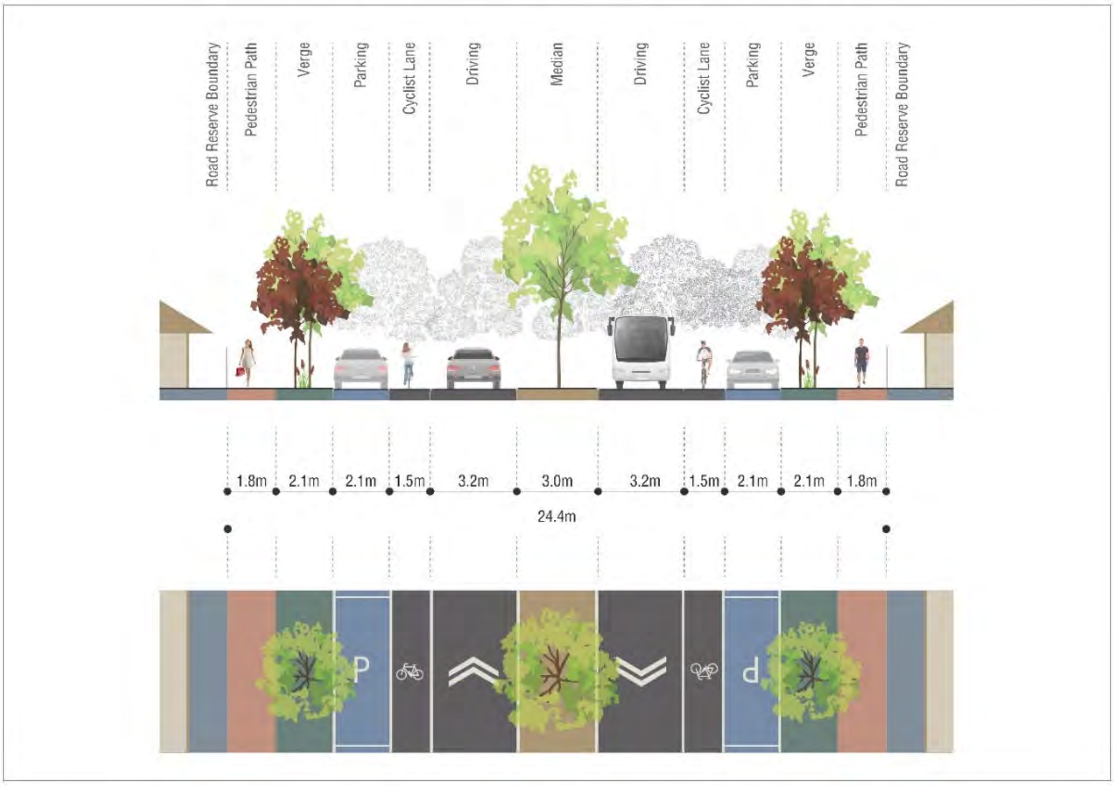
Guideline Document used as reference	Cross-sections for main transit routes were developed in discussion with the City of Kalamunda, however comparable Liveable Neighbourhood classification is provided.
How many proposed roads are there within the Structure Plan Area?	Several road types as listed below Please note that the Residential Precinct is a portion of the wider Forrestfield North Area and following list of roads shows only the roads within the subject area. *Note: The internal road network within the LSP area shown in Appendix 1 and 2 is only an indicative road network. **Note: Cross-sections shown below are indicative in nature and are intended to show main principles and treatments for various traffic modes. In developing the lower order streets and public open spaces Public Realm Guidelines should be referred to.

Name of Roads within the Structure Plan Area / Road Classification and Description:

Road 01

Name	TOD Connector; Raven Street
Projected Traffic Volumes	TOD Connector: 1,428 (2031) 6,432 (2050) Raven Street: 1,015 (2031) 5,984 (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	24.4m
Proposed Road Pavement Width	3.2m per traffic lane
Proposed Median Width	3.0m
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on both sides of the road reservation 1.5m cycling lane on both sides of the road reservation
Equivalent LN Classification	Neighbourhood Connector A
Proposed Speed Limit	50kph
Proposed Bus Route Extension / Introduction	YES
If YES Nominate Bus Routes	It is expected that new Bus Routes will be introduced to / from the High Wycombe Train along with an Autonomous Bus Circular Route
Proposed On-street parking	YES (2.1 parallel parking on both sides)

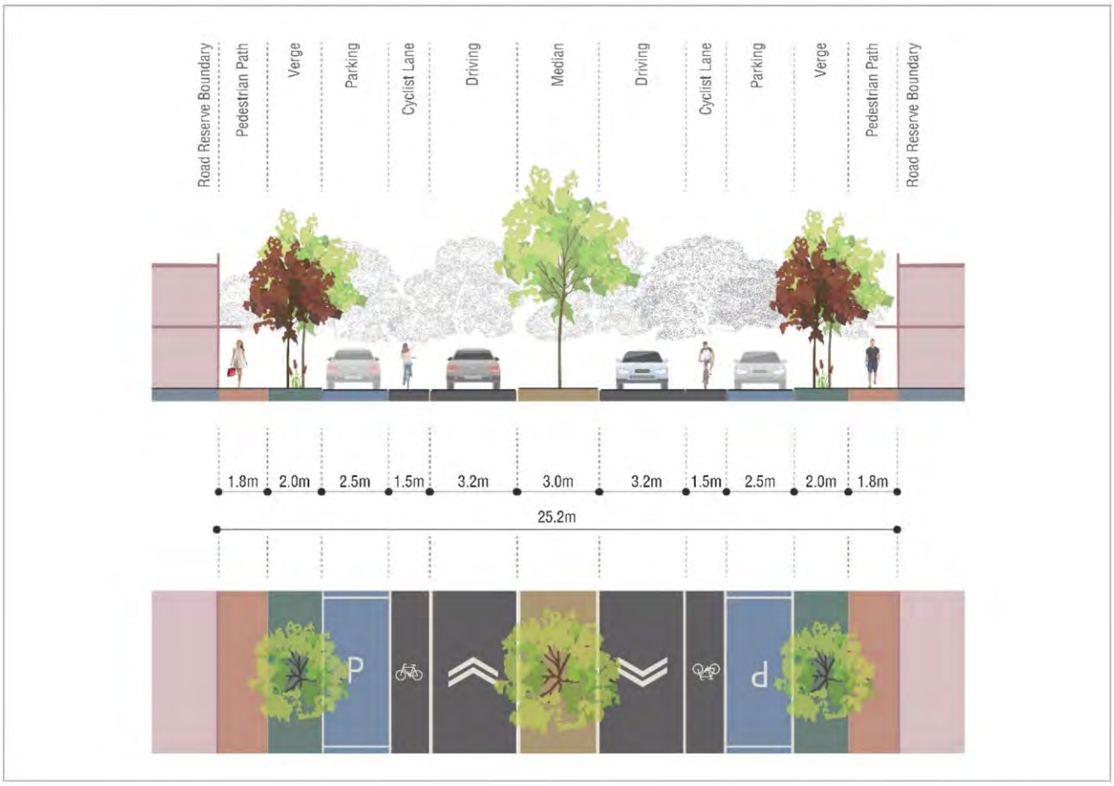
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 2a

Name	Milner Road (Between Sultana Road West and Stewart Road)
Projected Traffic Volumes	4,045 (2031) 8,110 (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	25.2
Proposed Road Pavement Width	3.2m per traffic lane
Proposed Median Width	3.0m
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on both sides of the road reservation 1.5m cycling lane on both sides of the road reservation
Equivalent LN Classification	Integrator B
Proposed Speed Limit	60kph
Proposed Bus Route Extension / Introduction	YES
If YES Nominate Bus Routes	Autonomous Bus Circular Route
Proposed On-street parking	YES (2.5m parallel parking on both sides)

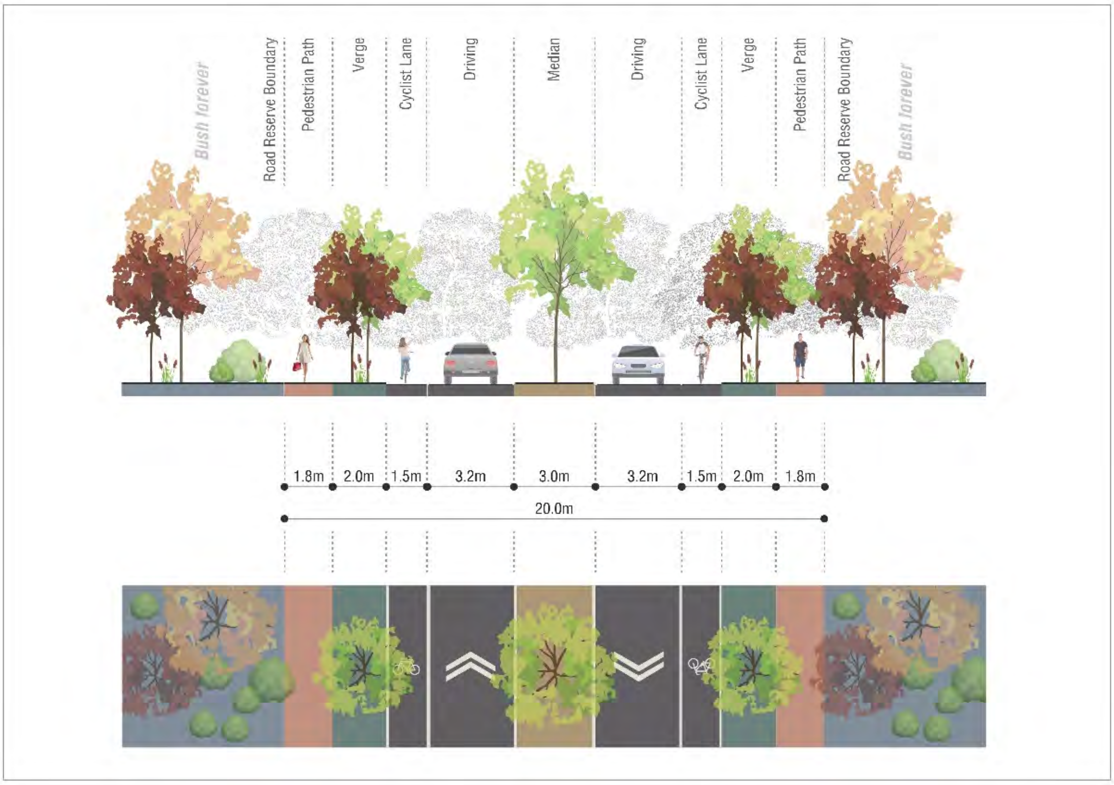
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 2b

Name	Milner Road (North of Stewart Road)
Projected Traffic Volumes	3,914 (2031) 9,288 (2050)
Proposed Number of Lanes	one lane per direction
Proposed Road Reservation Width	20.0m
Proposed Road Pavement Width	3.2m per traffic lane
Proposed Median Width	3.0 m
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on both sides of the road reservation 1.5m cycling lane on both sides of the road reservation
Equivalent LN Classification	Integrator B
Proposed Speed Limit	60kph
Proposed Bus Route Extension / Introduction	NO
Proposed On-street parking	NO

Provide graphics of the proposed internal road cross section within the Structure Plan Area

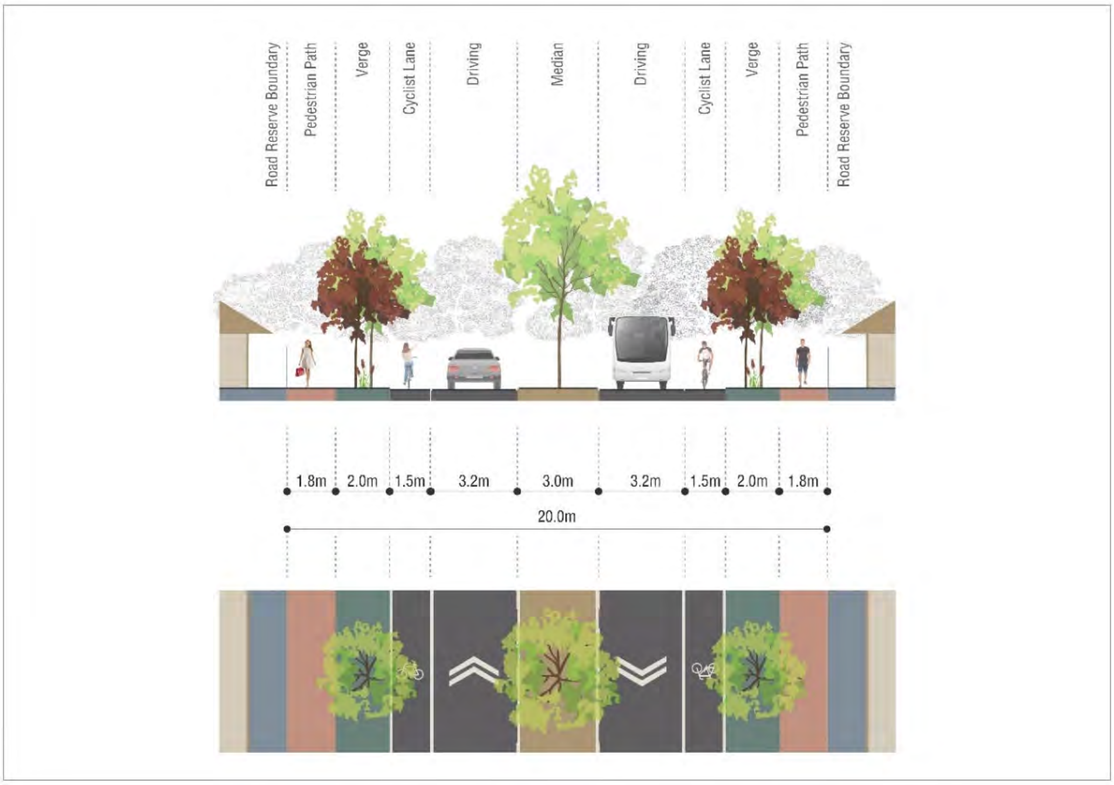


Road 03

Name	Maida Vale Road
Projected Traffic Volumes	6,522 (2031) 13,072VPD (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	20.0m
Proposed Road Pavement Width	3.2m per traffic lane
Proposed Median Width	3.0 m
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on both sides of the road reservation 1.5m cycling lane on both sides of the road reservation
Equivalent LN Classification	Integrator B
Proposed Speed Limit	60kph
Proposed Bus Route Extension / Introduction	YES
If YES Nominate Bus Routes	It is expected that new Bus Routes will be introduced to / from the future High Wycombe Train.
Proposed On-street parking	NO

Note - Maida Vale Road will remain one lane each way and will require two approach lanes into the roundabouts when due for upgrading as shown in SIDRA Analysis. For more details on intersection upgrades refer to Appendix 3 - SIDRA Intersection Analysis.

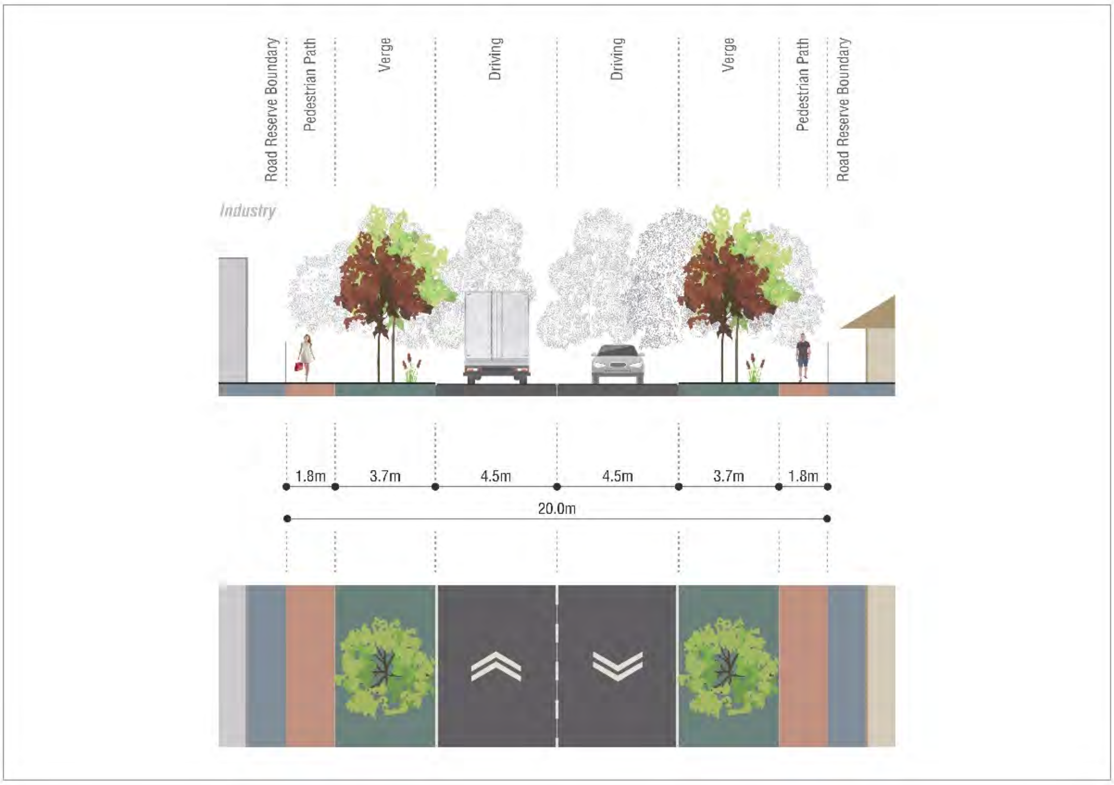
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 04a

Name	Sultana Road West (east of Milner Road)
Projected Traffic Volumes	786 (2031) 1,872 (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	20.0m
Proposed Road Pavement Width	4.5m per traffic lane
Proposed Median Width	no median
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on both sides of the road reservation
Equivalent LN Classification	Access Street
Proposed Speed Limit	50kph
Proposed Bus Route Extension / Introduction	NO
If YES Nominate Bus Routes	-
Proposed On-street parking	NO

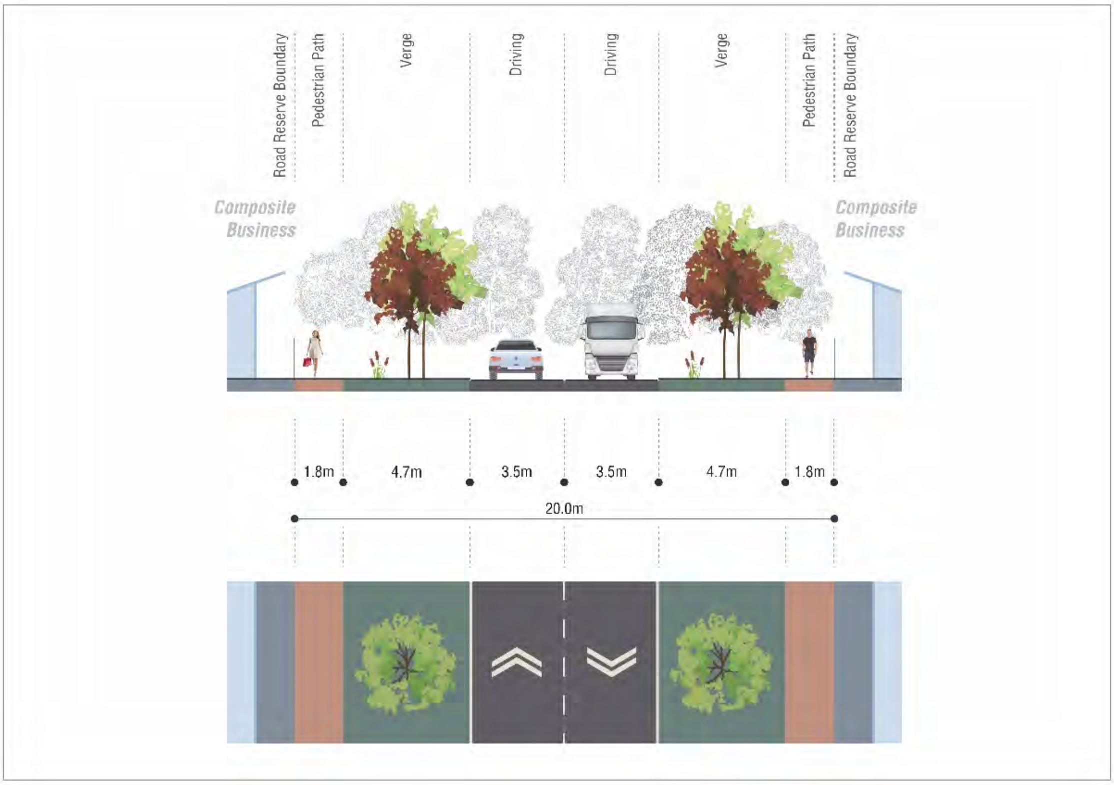
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 04b

Name	Sultana Road West (East of Brand Road)
Projected Traffic Volumes	452 (2031)
	1,664 VPD (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	20.0m
Proposed Road Pavement Width	3.5m per traffic lane
Proposed Median Width	no median
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on both sides of the road reservation
Equivalent LN Classification	Access Street Variation
Proposed Speed Limit	50kph
Proposed Bus Route Extension / Introduction	NO
If YES Nominate Bus Routes	-
Proposed On-street parking	NO

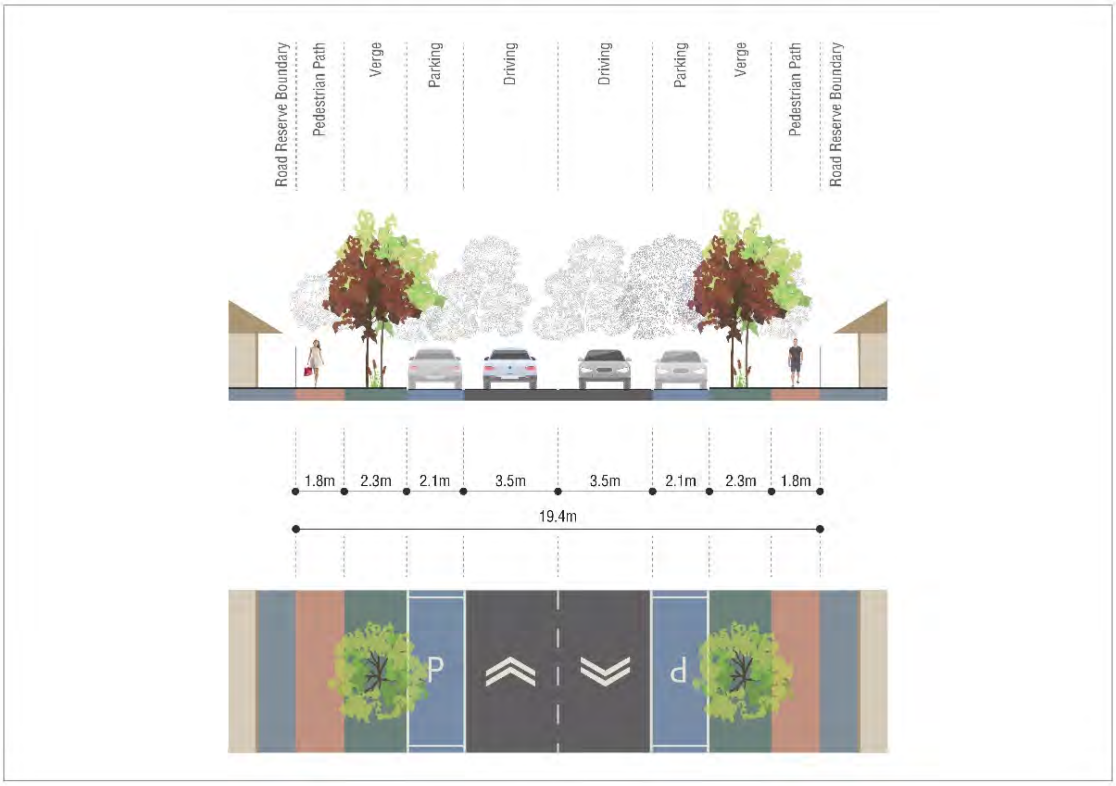
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 05

Name	Brae Road (East of TOD Connector)
Projected Traffic Volumes	439 (2031) 2,599 (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	19.4m
Proposed Road Pavement Width	3.5 per traffic lane
Proposed Median Width	no median
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on both sides of the road reservation
Equivalent LN Classification	Neighbourhood Connector B
Proposed Speed Limit	50kph
Proposed Bus Route Extension / Introduction	YES
If YES Nominate Bus Routes	Autonomous Bus Circular Route
Proposed On-street parking	YES (2.1m wide parking lane on both sides)

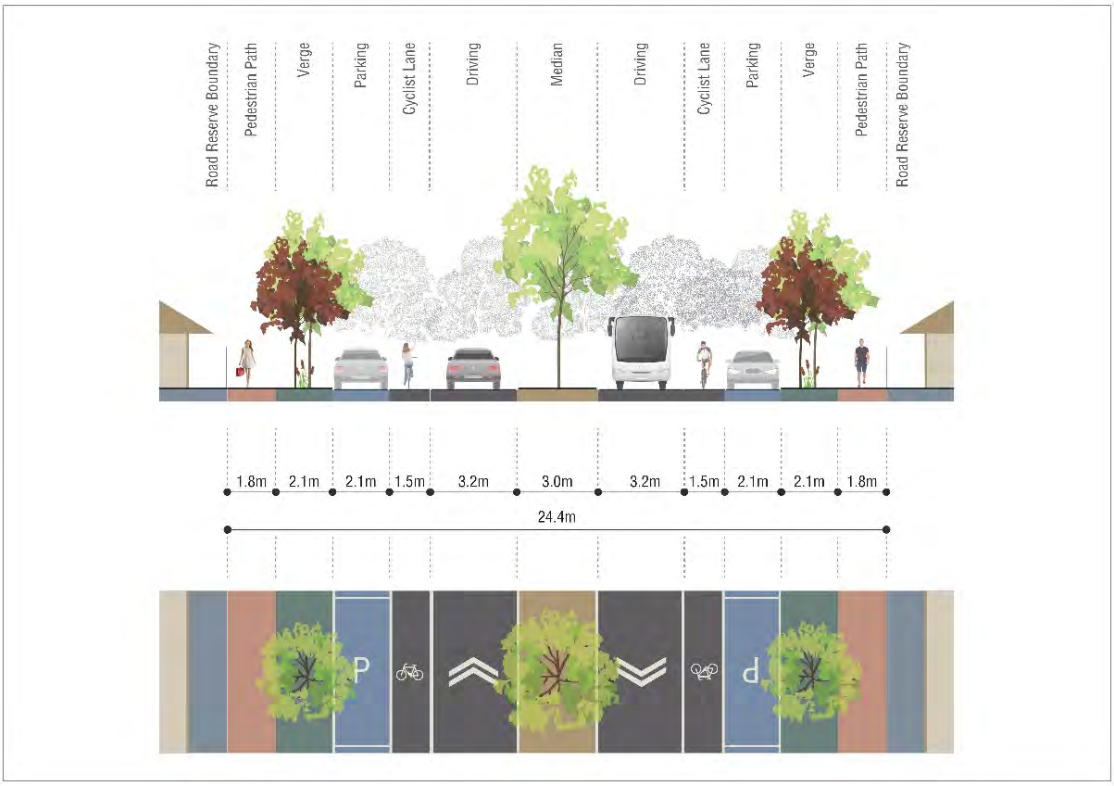
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 06

Name	Stewart Road
Projected Traffic Volumes	791 (2031) 4,739 (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	24.4m
Proposed Road Pavement Width	3.2m per traffic lane
Proposed Median Width	3.0m
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on both sides of the road reservation 1.5m cycling lane on both sides of the road reservation
Equivalent LN Classification	Neighbourhood Connector A
Proposed Speed Limit	50kph
Proposed Bus Route Extension / Introduction	YES
If YES Nominate Bus Routes	Autonomous Bus Circular Route
Proposed On-street parking	YES (2.1m parallel parking on both sides)

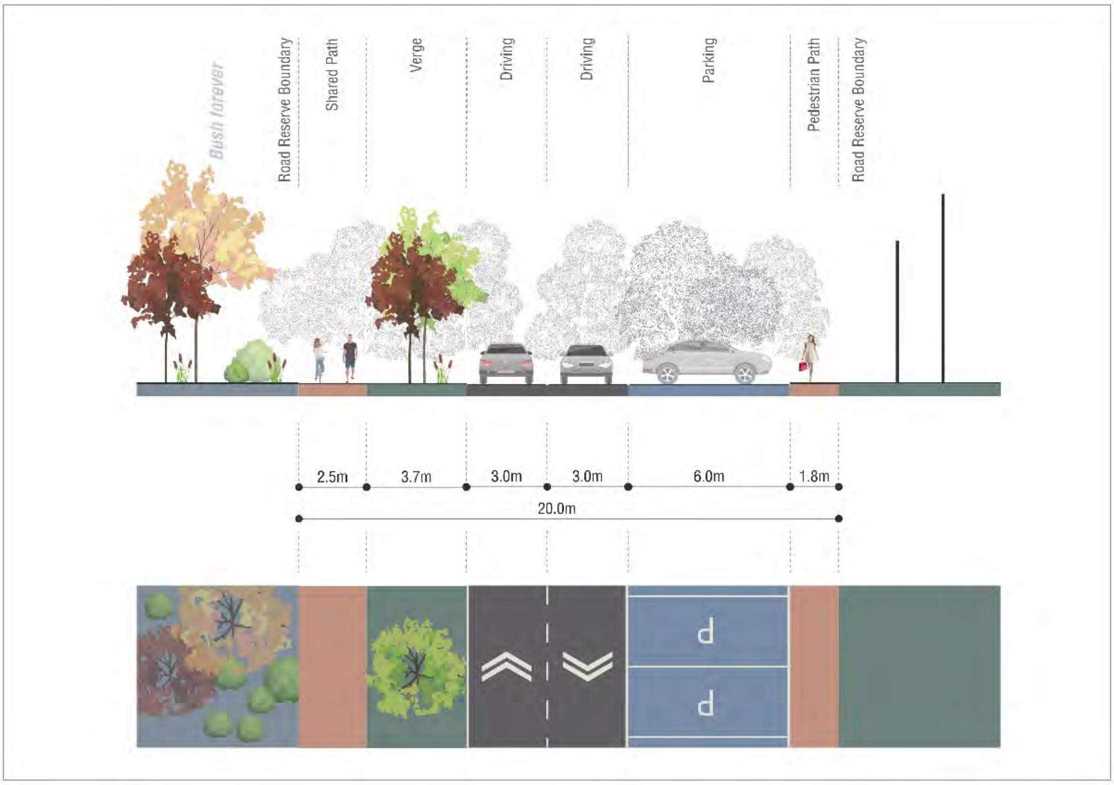
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 07a

Name	Brand Road at District Open Space (Sporting Precinct)
Projected Traffic Volumes	247 (2031) 2,011 (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	20.0m
Proposed Road Pavement Width	3.0 per traffic lane
Proposed Median Width	no median
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on the eastern side of the road reservation 2.5m shared path on the western side of the road reservation
Equivalent LN Classification	Access Street B
Proposed Speed Limit	40kph
Proposed Bus Route Extension / Introduction	NO
If YES Nominate Bus Routes	-
Proposed On-street parking	YES (6.0m angular parking on the eastern side of the road reservation)

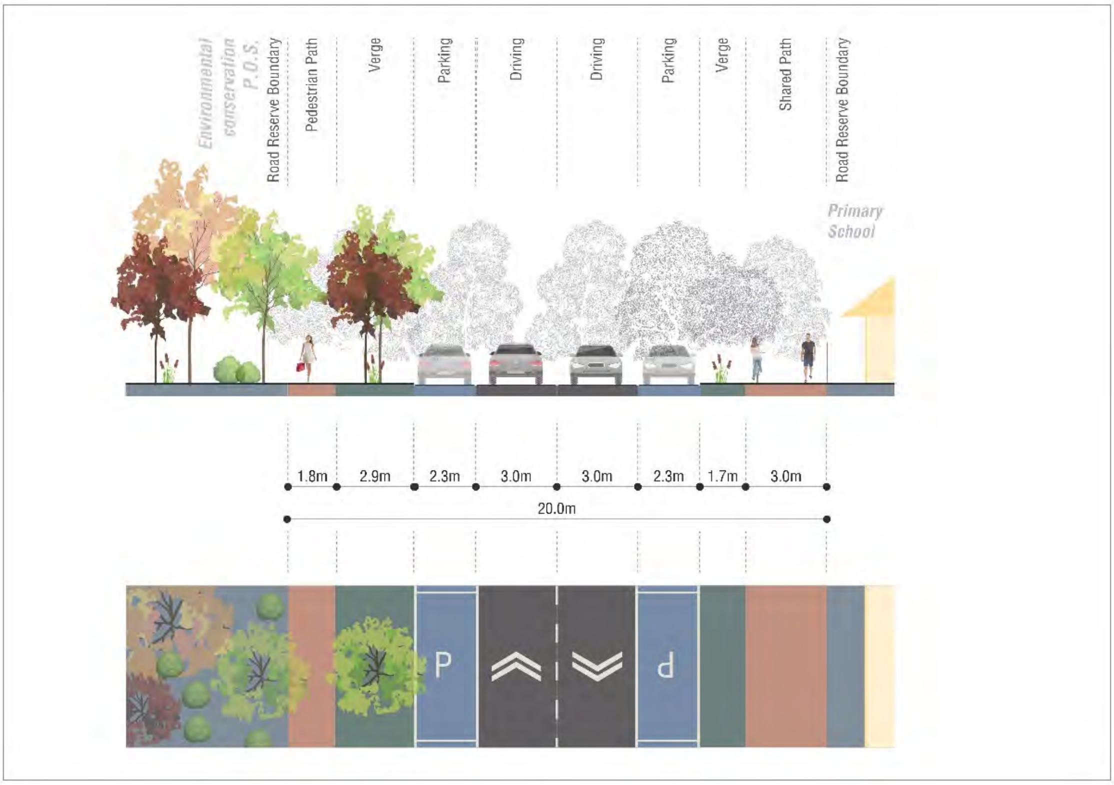
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 07b

Name	Brand Road - South of District Open Space (Sporting Precinct)
Projected Traffic Volumes	247 (2031) 2,011 (2050)
Proposed Number of Lanes	One lane per direction
Proposed Road Reservation Width	20.0m
Proposed Road Pavement Width	3.0m per traffic lane
Proposed Median Width	no median
Proposed Pedestrian / Cyclist / Shared Path Width	1.8 pedestrian path on the western side of the road reservation 3.0m shared path on the eastern side of the road reservation
Equivalent LN Classification	Access Street B Variation
Proposed Speed Limit	40kph
Proposed Bus Route Extension / Introduction	NO
If YES Nominate Bus Routes	-
Proposed On-street parking	YES (2.3m parking lanes on both sides)

Provide graphics of the proposed internal road cross section within the Structure Plan Area

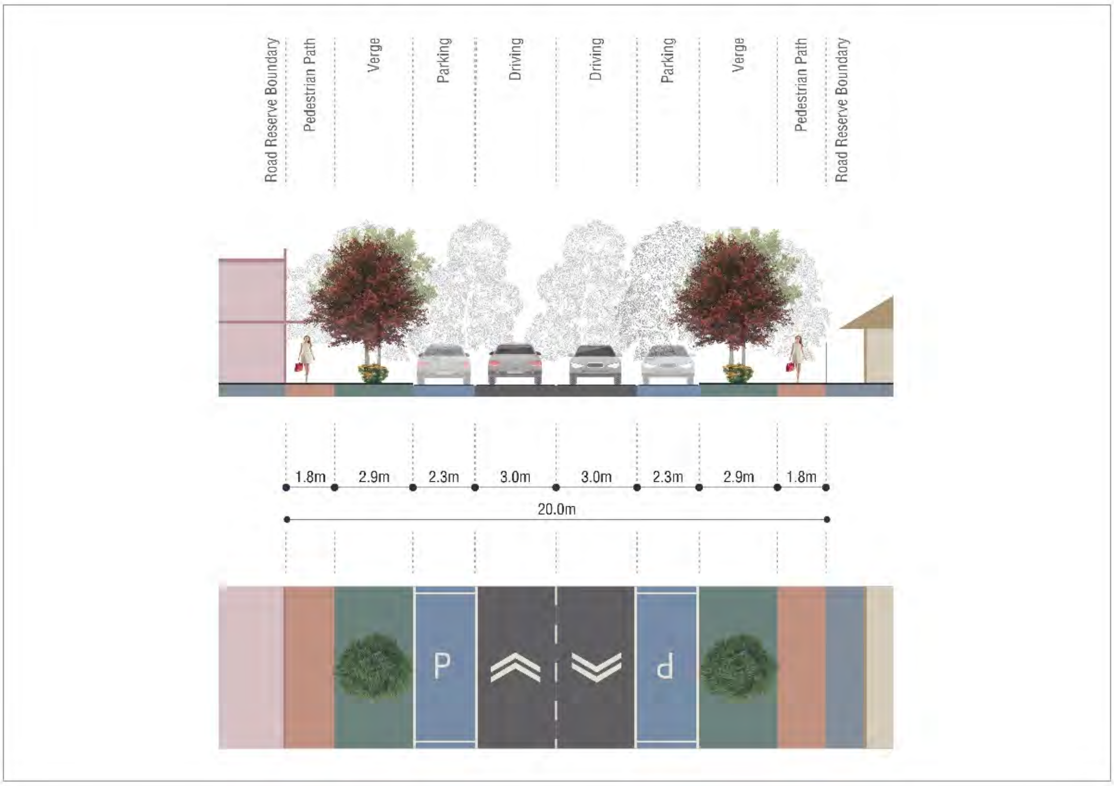


Cross sections below are developed to cover typical street types within the internal road network based on expected traffic volumes.

Road 08a

Name	Urban Residential Street – type 1
Projected Traffic Volumes	Up to 3,000 VPD (2050)
Proposed Number of Lanes	one lane per direction
Proposed Road Reservation Width	20.0m
Proposed Road Pavement Width	3.0m per traffic lane
Proposed Median Width	N/A
Proposed Pedestrian / Cyclist / Shared Path Width	1.8m Pedestrian Paths on both sides
Equivalent LN Classification	Access Street B
Proposed Speed Limit	40kph
Proposed Bus Route Extension / Introduction	NO
If YES Nominate Bus Routes	-
Proposed On-street parking	YES (2.3 parallel parking on both sides)

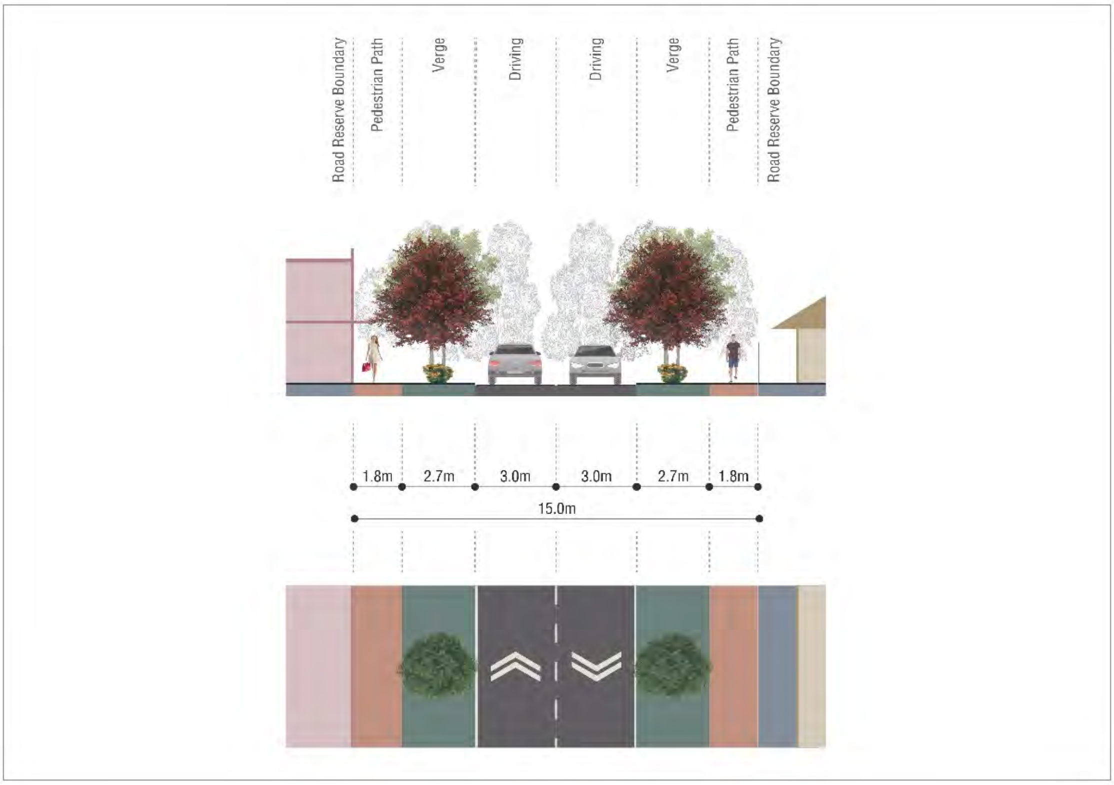
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 08b

Name	Urban Residential Street – type 2
Projected Traffic Volumes	Up to 1,000 VPD (2050)
Proposed Number of Lanes	one lane per direction
Proposed Road Reservation Width	15.0m
Proposed Road Pavement Width	3.0m per traffic lane
Proposed Median Width	N/A
Proposed Pedestrian / Cyclist / Shared Path Width	1.8m Pedestrian Paths on both sides
Equivalent LN Classification	Access Street D
Proposed Speed Limit	40kph
Proposed Bus Route Extension / Introduction	NO
If YES Nominate Bus Routes	-
Proposed On-street parking	NO

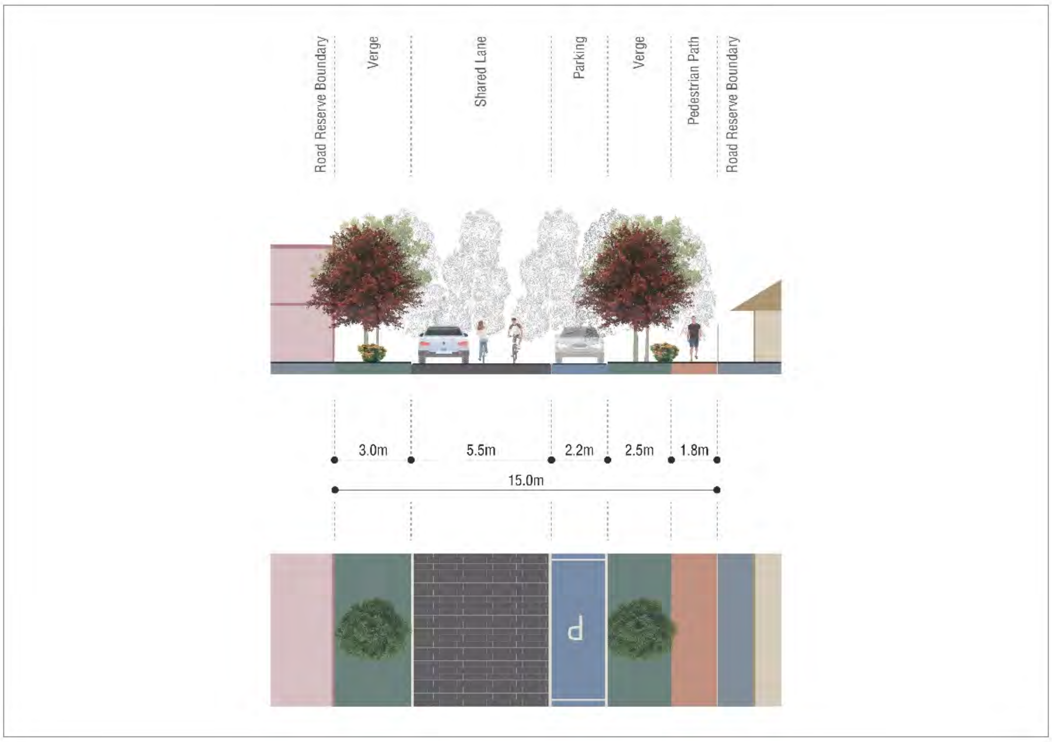
Provide graphics of the proposed internal road cross section within the Structure Plan Area



Road 09

Name	Safe Active Street
Projected Traffic Volumes	Up to 1,000 VPD (2050)
Proposed Number of Lanes	shared lane – no linemarking
Proposed Road Reservation Width	15.0m
Proposed Road Pavement Width	2.25m per traffic lane – lanes are shared space where cyclist have advantage over passenger vehicles
Proposed Median Width	N/A
Proposed Pedestrian / Cyclist / Shared Path Width	1.8m Pedestrian Path on one side
Equivalent LN Classification	Access Street D
Proposed Speed Limit	30kph
Proposed Bus Route Extension / Introduction	NO
If YES Nominate Bus Routes	-
Proposed On-street parking	YES (2.3 parallel parking on one side)

Provide graphics of the proposed internal road cross section within the Structure Plan Area



2.21 Proposed Intersection Controls

Name the intersection control of the key proposed intersections:

Intersection 1	
Name	Dundas Road / Berkshire Road / Milner Road
Proposed Intersection Control	Roundabout
Intersection 2	
Name	Milner Road / TOD Connector
Proposed Intersection Control	Signalised
Intersection 3	
Name	Milner Road / Maida Vale Road
Proposed Intersection Control	Roundabout
Intersection 4	
Name	Milner Road / Stewart Road
Proposed Intersection Control	Roundabout
Intersection 5	
Name	Milner Road / Raven Street
Proposed Intersection Control	Roundabout
Intersection 6	
Name	Brand Road / TOD Connector
Proposed Intersection Control	Sign Controlled – Give-way
Intersection 7	
Name	Brae Road / TOD Connector
Proposed Intersection Control	Sign Controlled – Give-way
Intersection 8	
Name	Brand Road / Brae Road
Proposed Intersection Control	Sign Controlled – Give-way
Intersection 9	
Name	Stewart Road / Brae Road
Proposed Intersection Control	Roundabout
Intersection 10	
Name	Sultana Road West / Brae Road
Proposed Intersection Control	Sign Controlled – Give-way
Intersection 11	
Name	Milner Road / Sultana Road West
Proposed Intersection Control	T-intersection LILORI

All other intersections will be configured as yield or sign controlled intersections.

2.22 Proposed Internal Transport Networks

Are there any changes/additions to the existing road network?	YES Please refer to Appendices 1 and 2 for the road layout and network configuration. Dundas Road was realigned to facilitate the construction of High Wycombe Train. The realignment was not proposed by this Structure Plan. Most notable changes: • Addition of TOD Connector • Realignment of part of Brae Road to accommodate TOD Connector. • Sultana Road West will be terminated north of the current intersection with Brand Road. • The character of Milner Road east and west of the intersection with Sultana Road West will be different – the western section will be designed to cater for the movement of RAV vehicles, while the eastern portion will be designed as an urban boulevard.
Were there any discussions/agreements with MRWA regarding intersections with or direct access onto roads under their jurisdiction?	N/A
Are there any pedestrian/cycle networks and crossing facilities proposed for the roads within the Structure Plan Area?	YES Shared Paths are proposed for: • Milner Road (Sultana Road West -Berkshire Road) • Brand Road • Berkshire Road Separate Pedestrian Paths are proposed for: • Maida Vale Road • Berkshire Road • Brae Road • Brand Road • Milner Road • TOD Connector • Stewart Road • Newburn Road • Urban Residential Streets Separate Cycle Lanes are proposed for: • TOD Connector • Stewart Road • Milner Road (north of Sultana Road West) • Maida Vale Road The connection of Littlefield Boulevard over Poison Gully Creek, which would allow for pedestrian and cycling traffic, is considered.
Were there any discussions/agreements with the local authority over local road networks and pedestrian and cycle facilities?	The City of Kalamunda's bicycle plan was considered in this proposal. Department of Transport has also commenced the initiative of Safe Active Streets (SAS) that was considered in this project. While no direct corridors were designated as SAS, a number of local access streets can be considered for this initiative.

Were there any discussions / agreements with PTA / Transperth on new bus services or extensions / alterations to existing bus services to serve the Structure Plan Area?	YES
If YES, nominate:	In order for new lines to be introduced, the overpass on Roe Highway needs to be constructed; however, this is likely to occur beyond 2050. After completing the overpass, new lines will be introduced to connect Maida Vale South and other suburbs east of the Roe Highway with the High Wycombe Train.

2.23 Changes to External Transport Networks

Are there any proposed changes to the road network?	YES • In Perth and Peel Transport Plan @3.5million, it is stated that by 2050 Roe Highway will be upgraded to 8-lane freeway standard. • Realignment of Dundas Road • Realignment of Brae Road • Berkshire Road will require an upgrade to a dual carriageway by 2041. This work was covered in detail in the DCP study. Funding for upgrading of Berkshire Road is to be considered in preparing the DCP scheme.
Are there any proposed changes to the intersection controls?	• Grade separation of Kalamunda Road / Roe Highway intersection - Completed in 2021 • Roundabout at the realigned intersection of Dundas Road / Berkshire Road / Milner Road • 2021 - Roundabouts construction is started at the intersections of the on and off ramps to Roe Highway and Maida Vale Road.
Are there any proposed changes to the pedestrian/cycle networks and crossing facilities?	The major changes external to the LSP area will be within Maida Vale South LSP after its completion. Other major changes are mostly internal to the structure plan area or at its boundary. Maida Vale Road will also feature improved cycling and pedestrian facilities.
Are there any proposed changes to the public transport services?	Since the entire surrounding area is about to go through significant changes, it is expected that many changes will occur in public transport services provision. Until the future road network is in detailed stages of planning, no precise information is available. It is expected that buses will operate along Berkshire Road, Dundas Road and Maida Vale Road.
Proposed innovative transport initiatives	A driverless shuttle should be considered. This shuttle can provide a direct connection between the proposed railway station and the residential precinct, with a potential for expansion of service once the overpass is constructed, which is not expected until after 2050. Alternatively, a pool of smaller vehicles can be considered as it can be stored and operated locally (either as a part of the community service or as a part of the railway station complex)

Given the prominence of the railway station and the intention to design a nearby Transit-Oriented Development, appropriate bicycle parking facilities should be considered within the proposed station parking areas. This would enable residents to cycle to the station and take advantage of a fully integrated sustainable transportation system.

2.24 Integration with Surrounding Area

Are there any existing major residential generators of traffic within a minimum of 800 metres from the boundaries of the Structure Plan Area?	YES
If YES, nominate:	High Wycombe to the north; Future Maida Vale South to the east
Are there any existing major non-residential attractors of traffic within a minimum of 800 metres from the boundaries of the Structure Plan Area?	YES
If YES, nominate:	• Existing Industrial Zone south of Berkshire Road • Although not within an 800m radius, Perth Airport is located approximately 2km to the west of the LSP area • Future High Wycombe Train Station • Edney Primary School
What are the main desire lines between the structure plan land uses and these external attractors/generators?	Via Dundas Road, Abernethy Road, Maida Vale Road, future TOD Connector and beyond 2050 via overpass above Roe Highway.
Will the existing transport networks, plus any proposed changes, adequately match these desire lines, particularly for pedestrians, cyclists and public transport users?	YES Once all planned upgrades are completed (new roads and upgrades of existing roads) the whole area will be well connected to the existing and future surrounding major attractors/generators.
Identify any deficiencies or areas for improvement in the surrounding transport networks and/or areas where improvements could be made.	N/A The area is well planned; when all the infrastructure is completed, it is expected that the network will function without any major issues.

2.25 Analysis of Transport Networks

Determine the year(s) for assessment and the time period(s) for the traffic flow analysis.	2031 (with approximately 15% of Forrestfield North Project Area constructed and operational) 2041 (with approximately 65% of Forrestfield North Project Area constructed and operational) 2050+ (as the full build-out)
Determine structure plan generated traffic.	17,914 VPD Besides Residential Precinct, structure plan generated traffic includes all traffic from the Forrestfield North TOD and Activity Centre Precincts. Refer to Appendix 4 for more details on traffic modelling.

Structure Plan Impact on Internal and Surrounding External Road Network

Road (Link)	Section	Total Daily Traffic (2031)	External Daily Traffic (2031)	Residential Precinct (2031)	Total Daily Traffic (2050)	External Daily Traffic (2050)	Residential Precinct (2050)
Roe Highway	South of Berkshire Road	120,028	119,171	561	158,183	153,824	3,296
			99.29%	0.47%		97.24%	2.08%
	Between Berkshire Rd and Maida Vale Rd	113,361	113,310	44	140,469	140,182	233
			99.96%	0.04%		99.80%	0.17%
	North of Maida Vale Road	101,905	101,898	0	125,922	125,868	0
			99.99%	0.00%		99.96%	0.00%
	North of Kalamunda Road	108,552	108,026	483	139,007	136256	2,543
			99.52%	0.44%		98.02%	1.83%
Berkshire Road	West of Roe Hwy	16,404	14,422	681	25,843	18,302	4,017
			87.92%	4.15%		70.82%	15.54%
	East of Roe Hwy	17,883	16,721	164	31,805	28,444	954
			93.50%	0.92%		89.43%	3.00%
	South of Milner Rd	15,659	13,606	741	24,915	17301	4,078
			86.89%	4.73%		69.44%	16.37%
Dundas Road	South of Berkshire Road	11,057	10,443	325	15,169	13,236	1,173
			94.45%	2.94%		87.26%	7.73%
	South-west from Old Dundas Road alignment	10,413	9,600	0	13,680	12,306	0
			92.19%	0.00%		89.96%	0.00%
	North of Old Dundas Road alignment	12,471	10530	599	19,964	13407	3,045
			84.44%	4.80%		67.16%	15.25%
Maida Vale Road	East of Ibis Place	3,308	930	682	7,620	1,101	3,600
			28.11%	20.62%		14.45%	47.24%
	East of Raven Street	2,856	1,154	0	4,422	1,231	32
			40.41%	0.00%		27.84%	0.72%
	East of Milner Rd	6,522	4114	789	13,072	4178	4,892
			63.08%	12.10%		31.96%	37.42%
Milner Road	South of Maida Vale Rd	3,914	2,864.00	789	9,288	2,747	4,892
			73.17%	20.16%		29.58%	52.67%
	South of TOD Connector	4,045	3,001	882	8,110	2,820	4,393
			74.19%	21.80%		34.77%	54.17%
	North of Berkshire Rd	6,947	5217	1,066	12,928	5073	5,437
			75.10%	15.34%		39.24%	42.06%
Enterprise Boulevard	West of Maida Vale Rd	1,817	0	51	3,631	0	302
			0.00%	2.81%		0.00%	8.32%

	North of TOD Connector	663	0 0.00%	21 3.17%	1,924	0 0.00%	103 5.35%
Raven Street	South of Maida Vale Rd	1,410	456 32.34%	682 48.37%	5,602	396 7.07%	3,632 64.83%
	South of Milner Rd	1,015	0 0.00%	1,015 100.00%	5,984	0 0.00%	5,984 100.00%
Stewart Road	East of Milner Rd	791	0 0.00%	791 100.00%	4,739	0 0.00%	4,739 100.00%
TOD Connector	East of Milner Rd	1,428	319 22.34%	804 56.30%	6,432	323 5.02%	4,464 69.40%
	South of Ibis Pl	695	0 0.00%	129 18.56%	2,322	0 0.00%	555 23.90%
	South of Brae Rd	733	0 0.00%	733 100.00%	4,520	0 0.00%	3,765 83.30%
Sultana Road West	West of Milner Rd	498	0 0.00%	20 4.02%	1,586	0 0.00%	338 21.31%
	East of Milner Rd	786	564 71.76%	184 23.41%	1,872	554 29.59%	1,081 57.75%
	West of Brae Street	452	217 48.01%	209 46.24%	1,664	180 10.82%	1,332 80.05%
Newburn Road	North of Maida Vale Road	4,131	3534 85.55%	483 11.69%	6,568	3593 54.70%	2,567 39.08%
Brae Road	East of TOD Connector	439	0 0.00%	439 100.00%	2,599	0 0.00%	2,698 103.81%
Brand Road	North of TOD Connector	247	0 0.00%	247 100.00%	2,011	0 0.00%	2,386 118.65%

Identify all schools within the structure plan area and those within 800 metres of the structure plan area.	There are three schools within 800m of the structure plans: the proposed primary schools in the Residential Precinct LSP area and Maida Vale South LSP area and Edney Primary School.
Identify the most likely walk and cycle routes to each school from the catchment areas.	The main walk and cycle routes will include the pedestrian and cycle lanes on TOD Connector and all other paths leading to Brand Road, where the future primary school will be located within the LSP area.

Appendix 1

The Layout of the Proposed Development

LEGEND

Structure Plan Boundary

Region Scheme Reserves

Parks and Recreation

Primary Regional Road

Notice of Delegation

Bush Forever

Land Use and Residential Density

Environmental Conservation

Local Open Space

PS Public Purposes - Primary School

Residential Medium Density (R30 - R60)*

Residential High Density (R60 - R100)*

Other Categories

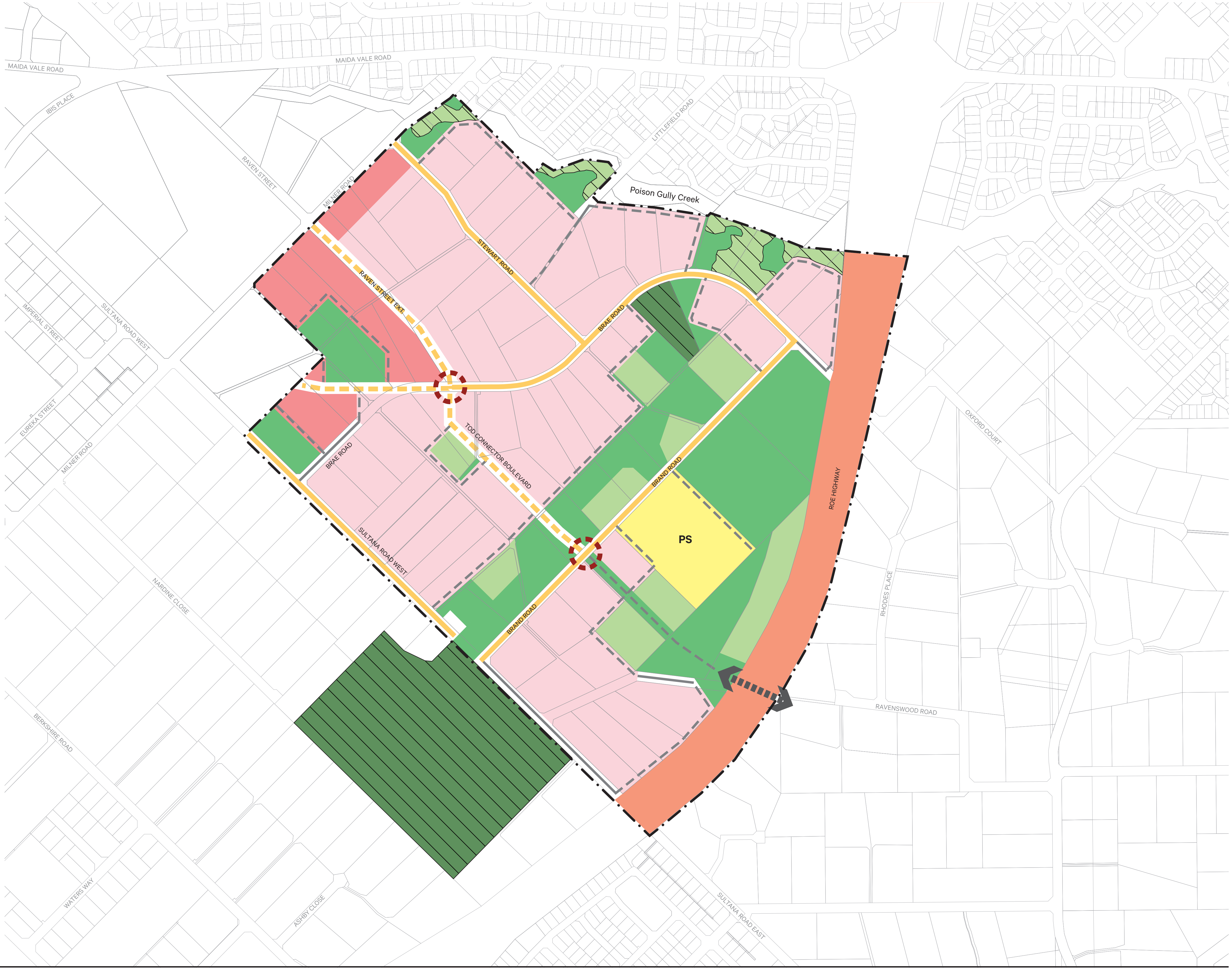
Neighbourhood Connector (Existing / Proposed)

Local Street (Existing / Proposed)

Proposed Roundabout

Future Roe Highway Overpass

* *Applications for subdivision or development at the higher end of the density band shall be assessed against a range of criteria. Refer Part One, Section 4.2 of the Local Structure Plan.*



Plan 1: Structure Plan

High Wycombe South Residential Precinct

Date: 21 Sep 2021 Scale: 1:8000@ A3 1:4000 @ A1 File: **17-527 ST-1** **A** Staff: MC GW Checked: MC

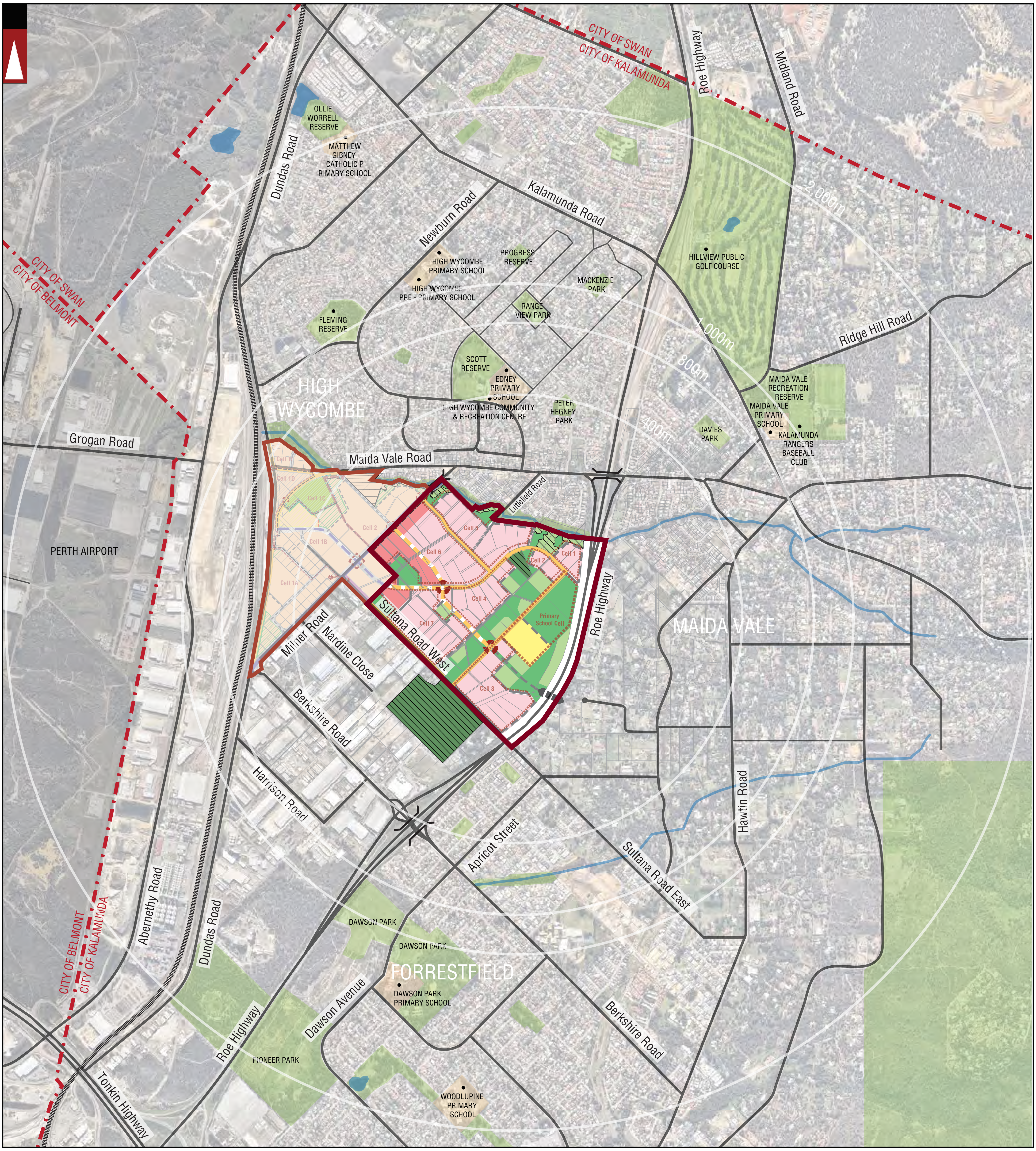
0 80 160m

element.

Level 18, 191 St Georges Terrace, Perth Western Australia 6000.
PO Box 7375 Cloisters Square, Perth Western Australia 6850.
T. +61 8 9289 8300 | E. hello@elementwa.com.au **elementwa.com.au**

Appendix 2

Transport Planning and Traffic Plans



PARKS AND RECREATION	ROAD	RESIDENTIAL PRECINCT BOUNDARY	
WATERWAYS	Hay Street — STREET NAME	TOD PRECINCT BOUNDARY	
PUBLIC PURPOSE	RAILWAY	CITY OF KALAMUNDA — LOCAL GOVERNMENT NAME	
FORRESTFIELD — SUBURB	ROAD BRIDGE	LOCAL AUTHORITY BOUNDARY	
	DISTANCE FROM LOCATION		

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

LEGEND

No	DATE	AMENDMENT
F	12-12-2022	PROPOSED LAYOUT AMENDED
E	30-08-2021	PROPOSED LAYOUT AMENDED
D	27-07-2021	INFORMATION UPDATED
C	14-04-2020	INFORMATION UPDATED

PROJECT:
FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE:
LOCALITY PLAN - 2,000M RADIUS

DRAWING NUMBER:
KC00604.000_ S01

DRAWN BY: A.M.

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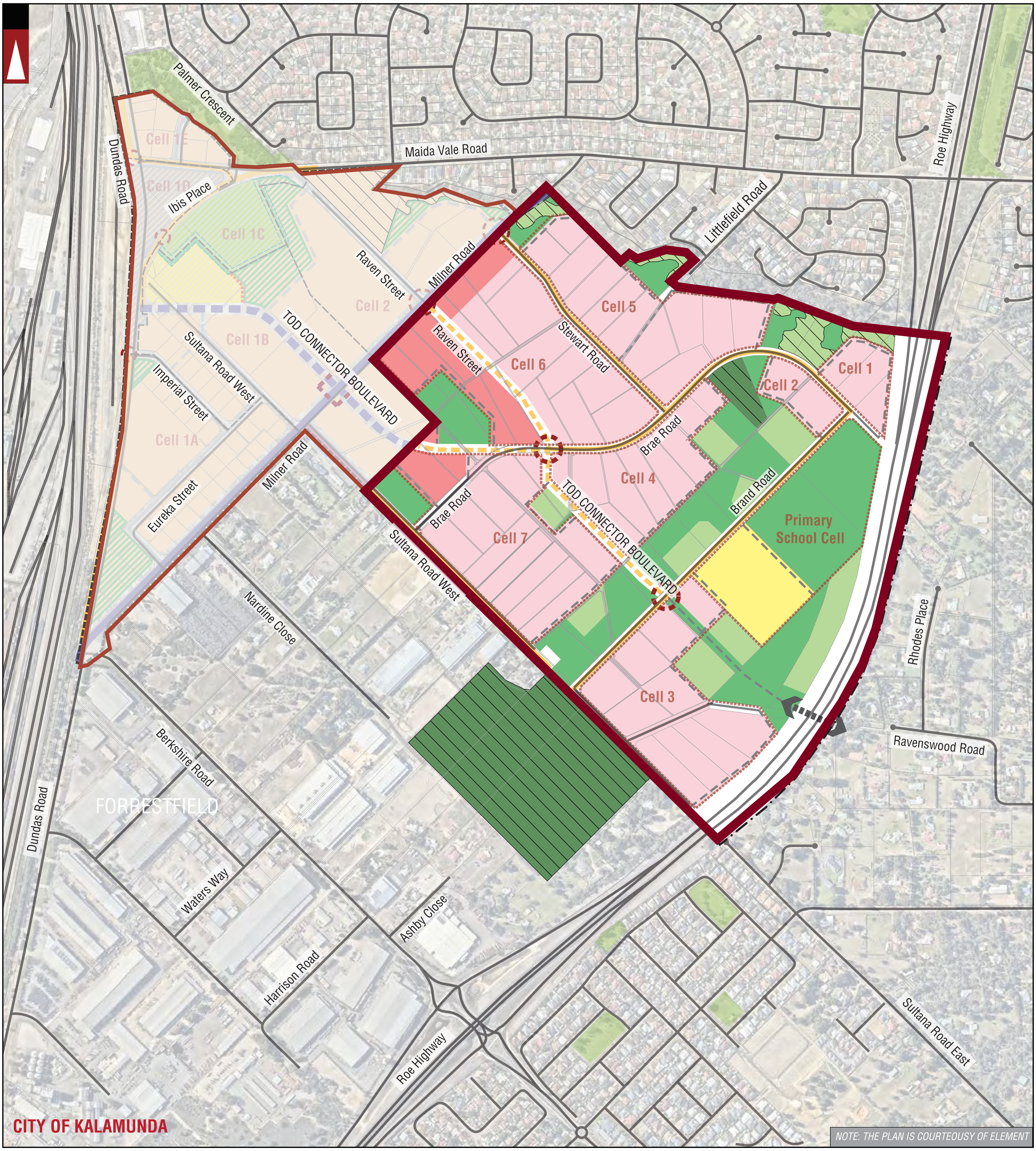

ROAD
Hay Street STREET NAME
RAILWAY
ROAD BRIDGE
RESIDENTIAL PRECINCT BOUNDARY
TOD PRECINCT BOUNDARY
CITY OF KALAMUNDA — LOCAL GOVERNMENT NAME
LOCAL AUTHORITY BOUNDARY

LEGEND

No	DATE	AMENDMENT
H	12-12-2022	PROPOSED LAYOUT AMENDED
G	30-08-2021	PROPOSED LAYOUT AMENDED
F	27-07-2021	PROPOSED LAYOUT AMENDED
E	11-05-2020	AMENDED AS PER COMMENTS

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: LOCALITY PLAN - ZOOM IN

DRAWING NUMBER: KC00604.000_ S01a

DRAWN BY: A.M.

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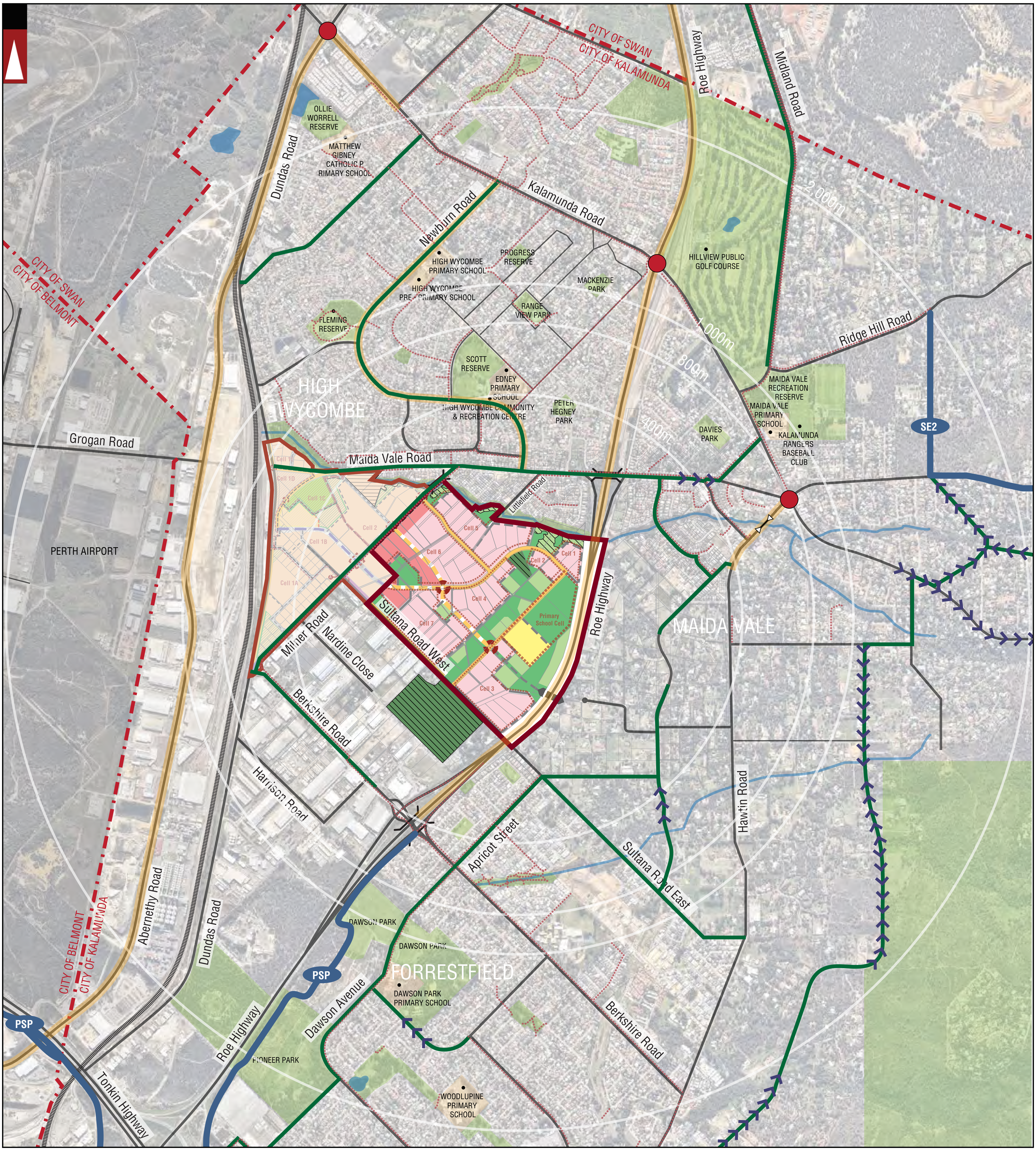

PARKS AND RECREATION	ROAD	RESIDENTIAL PRECINCT BOUNDARY	PSP PRINCIPAL SHARED PATH (PSP)	GRADIENT ARROW
WATERWAYS	Hay Street STREET NAME	TOD PRECINCT BOUNDARY	HIGH QUALITY SHARED PATH	TRAFFIC LIGHT
PUBLIC PURPOSE	RAILWAY	CITY OF KALAMUNDA LOCAL GOVERNMENT NAME	OTHER SHARED PATH (SHARED BY PEDESTRIANS AND CYCLIST)	
FORRESTFIELD SUBURB	ROAD BRIDGE	LOCAL AUTHORITY BOUNDARY	GOOD ROAD RIDING ENVIRONMENT	
	DISTANCE FROM LOCATION		BICYCLE LANES OR SEALED SHOULDER EITHER SIDE	

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

LEGEND

No	DATE	AMENDMENT
F	12-12-2022	PROPOSED LAYOUT AMENDED
E	30-08-2021	PROPOSED LAYOUT AMENDED
D	27-07-2021	INFORMATION UPDATED
C	14-04-2020	INFORMATION UPDATED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: BICYCLE NETWORK PLAN - 2,000M RADIUS

DRAWING NUMBER: KC00604.000_ S02

DRAWN BY: A.M.

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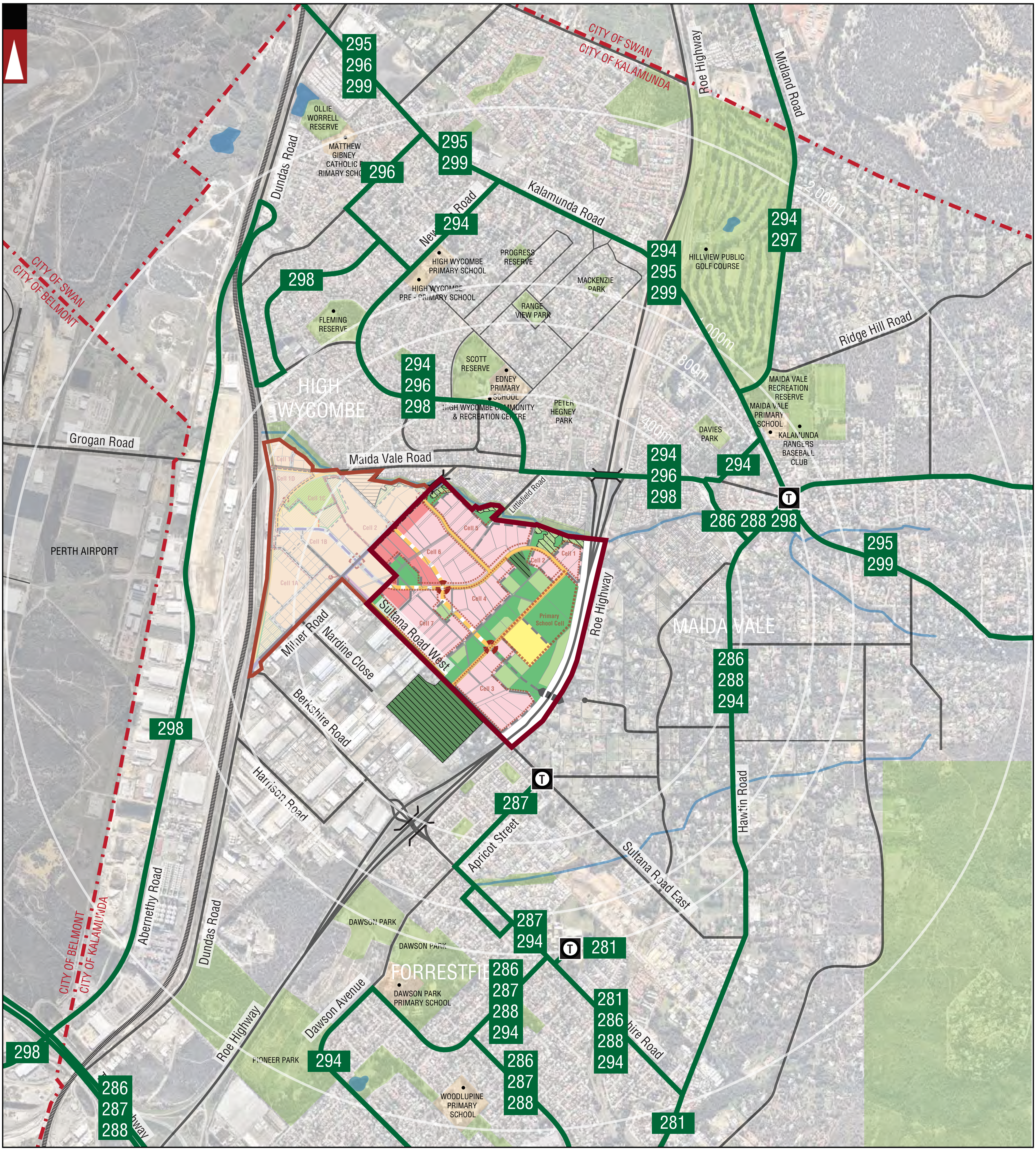

PARKS AND RECREATION	ROAD	RESIDENTIAL PRECINCT BOUNDARY	BUS TERMINUS
WATERWAYS	Hay Street — STREET NAME	TOD PRECINCT BOUNDARY	BUS ROUTES
PUBLIC PURPOSE	RAILWAY	CITY OF KALAMUNDA — LOCAL GOVERNMENT NAME	103 — BUS ROUTE NUMBER
FORRESTFIELD — SUBURB	ROAD BRIDGE	LOCAL AUTHORITY BOUNDARY	
	DISTANCE FROM LOCATION		

NOTE : FOR MORE INFORMATION REGARDING TO DESCRIPTION OF THE BUS ROUTE AND THEIR INDICATIVE PEAK AND OFF-PEAK FREQUENCIES REFER TO THE REPORT

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

LEGEND

No	DATE	AMENDMENT
F	12-12-2022	PROPOSED LAYOUT AMENDED
E	30-08-2021	PROPOSED LAYOUT AMENDED
D	27-07-2021	INFORMATION UPDATED
C	14-04-2020	INFORMATION UPDATED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: PUBLIC TRANSPORT PLAN - 2,000M RADIUS

DRAWING NUMBER: KC00604.000_ S03

DRAWN BY: A.M.

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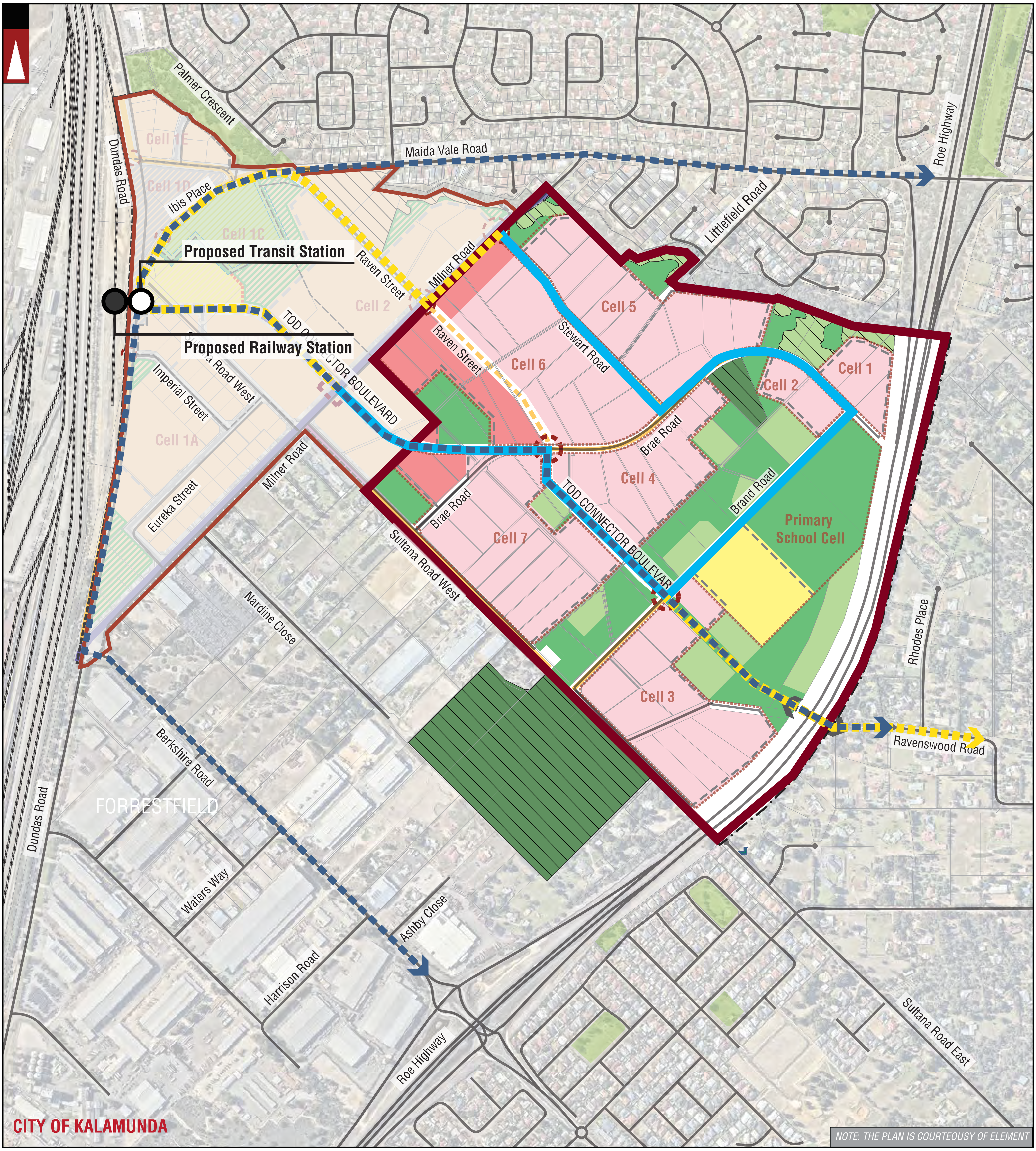

LEGEND

- ROAD
- Hay Street — STREET NAME
- RAILWAY
- ROAD BRIDGE
- RESIDENTIAL PRECINCT BOUNDARY
- TOD PRECINCT BOUNDARY
- CITY OF KALAMUNDA — LOCAL GOVERNMENT NAME
- LOCAL AUTHORITY BOUNDARY
- POTENTIAL ALIGNMENT OF BUS ROUTES
- PROPOSED AUTONOMOUS BUS CIRCULAR ROUTE
- POTENTIAL EXTERNAL ALIGNMENT OF AUTONOMOUS BUS CIRCULAR ROUTE

No	DATE	AMENDMENT
H	12-12-2022	PROPOSED LAYOUT AMENDED
G	30-08-2021	PROPOSED LAYOUT AMENDED
F	27-07-2021	PROPOSED LAYOUT AMENDED
E	11-05-2020	AMENDED AS PER COMMENTS

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: PUBLIC TRANSPORT PLAN - PROPOSED

DRAWING NUMBER: KC00604.000_ S03a

DRAWN BY: A.M.

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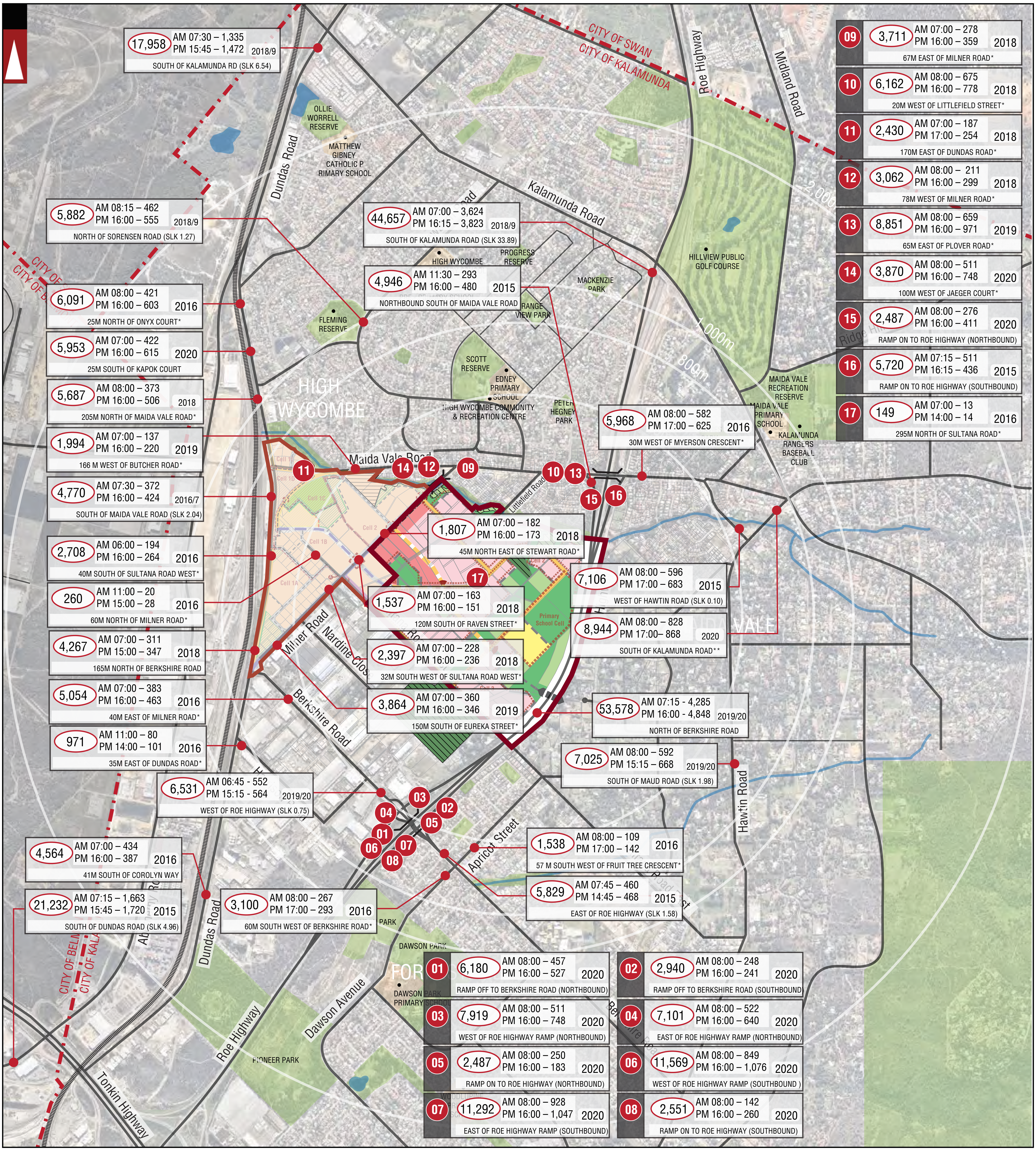

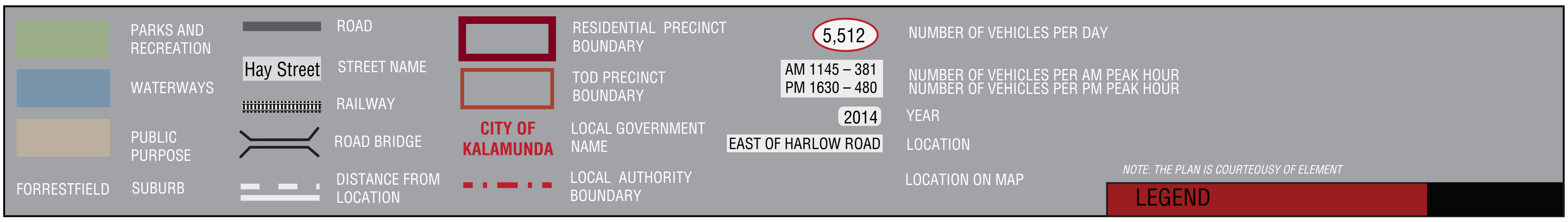

No	DATE	AMENDMENT
F	12-12-2022	PROPOSED LAYOUT AMENDED
E	30-08-2021	PROPOSED LAYOUT AMENDED
D	27-07-2021	INFORMATION UPDATED
C	14-04-2020	INFORMATION UPDATED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: EXISTING TRAFFIC COUNTS - 2,000M RADIUS

DRAWING NUMBER: KC00604.000_ S05

DRAWN BY: A.M.

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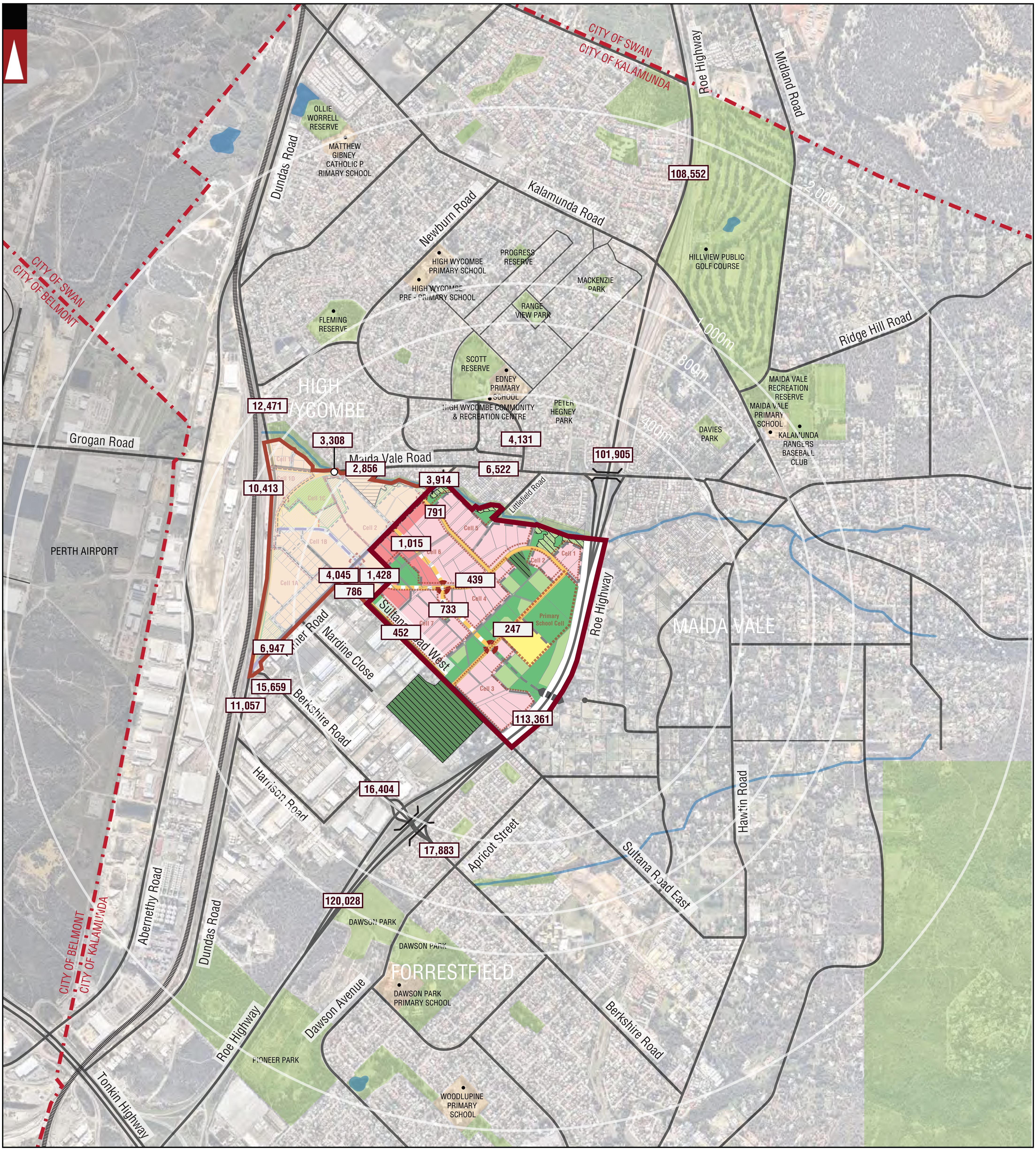

PARKS AND RECREATION	ROAD	RESIDENTIAL PRECINCT BOUNDARY	30,500 TOTAL DAILY ANTICIPATED TRAFFIC - 2031
WATERWAYS	Hay Street STREET NAME	TOD PRECINCT BOUNDARY	
PUBLIC PURPOSE	RAILWAY	CITY OF KALAMUNDA LOCAL GOVERNMENT NAME	
FORRESTFIELD SUBURB	ROAD BRIDGE	LOCAL AUTHORITY BOUNDARY	
	DISTANCE FROM LOCATION		

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

LEGEND

No	DATE	AMENDMENT
F	12-12-2022	PROPOSED LAYOUT AMENDED
E	30-08-2021	PROPOSED LAYOUT AMENDED
D	27-07-2021	INFORMATION UPDATED
C	14-04-2020	INFORMATION UPDATED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: TOTAL DAILY ANTICIPATED TRAFFIC - 2031

DRAWING NUMBER: KC00604.000_ S06A

DRAWN BY: A.M.

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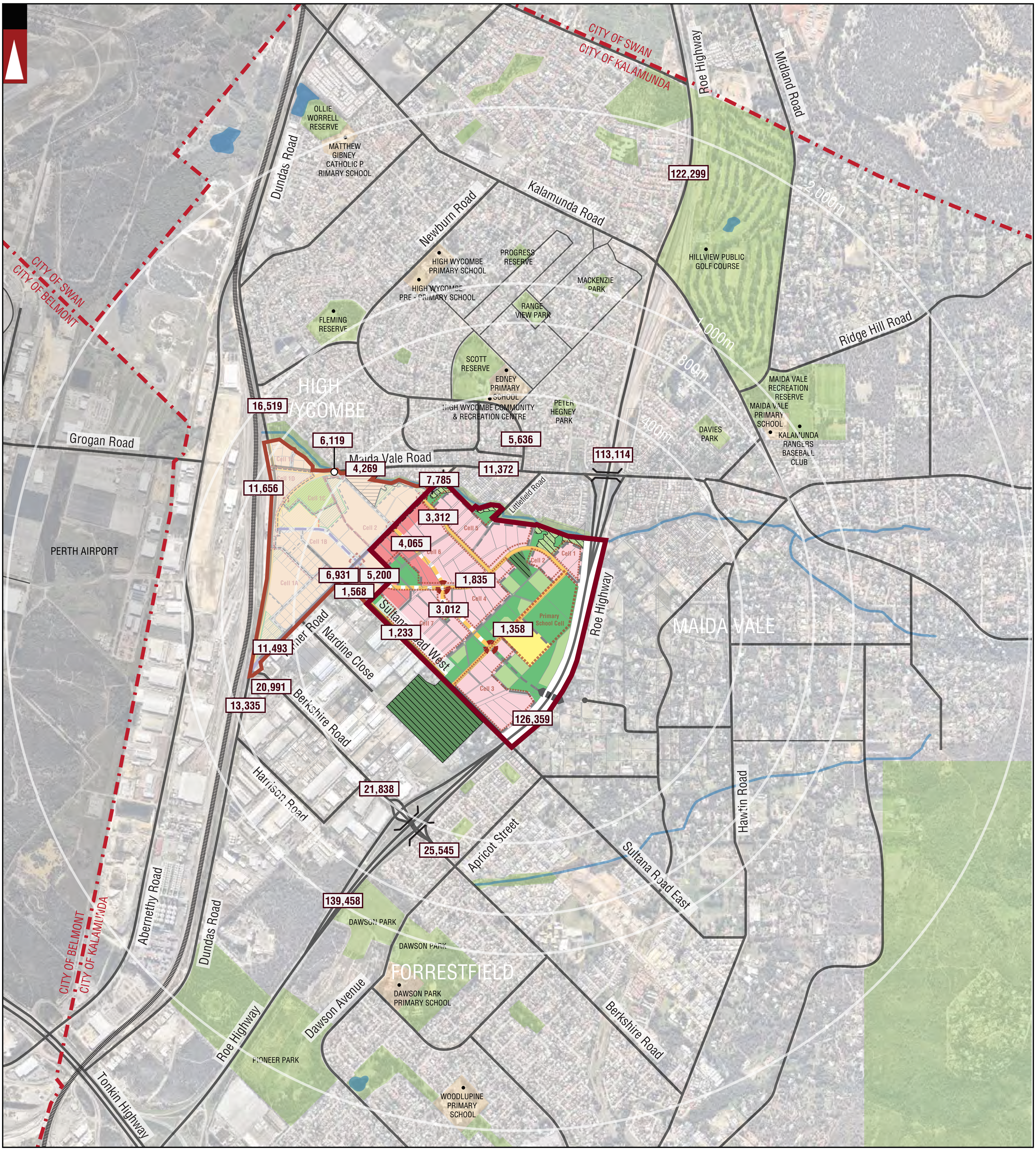

PARKS AND RECREATION	ROAD	RESIDENTIAL PRECINCT BOUNDARY	30,500 TOTAL DAILY ANTICIPATED TRAFFIC - 2041
WATERWAYS	Hay Street STREET NAME	TOD PRECINCT BOUNDARY	
PUBLIC PURPOSE	RAILWAY	CITY OF KALAMUNDA LOCAL GOVERNMENT NAME	
FORRESTFIELD SUBURB	ROAD BRIDGE		
	DISTANCE FROM LOCATION	LOCAL AUTHORITY BOUNDARY	

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

LEGEND

No	DATE	AMENDMENT
F	12-12-2022	PROPOSED LAYOUT AMENDED
E	30-08-2021	PROPOSED LAYOUT AMENDED
D	27-07-2021	INFORMATION UPDATED
C	14-04-2020	INFORMATION UPDATED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: TOTAL DAILY ANTICIPATED TRAFFIC - 2041

DRAWING NUMBER: KC00604.000_ S06B

DRAWN BY: A.M.

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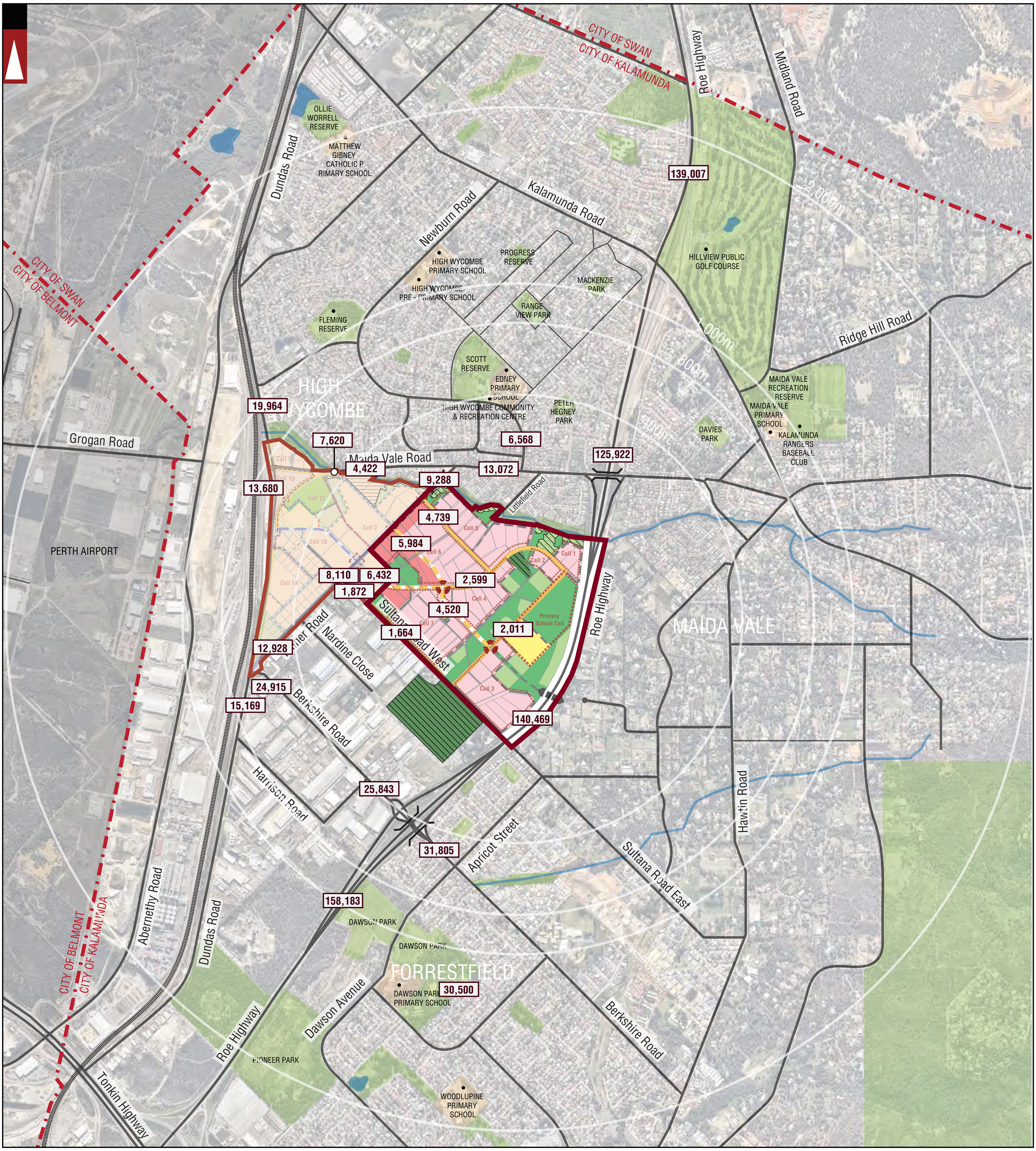

PARKS AND RECREATION
WATERWAYS
PUBLIC PURPOSE
FORRESTFIELD SUBURB
ROAD
Hay Street STREET NAME
RAILWAY
ROAD BRIDGE
DISTANCE FROM LOCATION
RESIDENTIAL PRECINCT BOUNDARY
TOD PRECINCT BOUNDARY
CITY OF KALAMUNDA LOCAL GOVERNMENT NAME
LOCAL AUTHORITY BOUNDARY
30,500 TOTAL DAILY ANTICIPATED TRAFFIC - 2051

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

LEGEND

No	DATE	AMENDMENT
F	12-12-2022	PROPOSED LAYOUT AMENDED
E	30-08-2021	PROPOSED LAYOUT AMENDED
D	27-07-2021	INFORMATION UPDATED
C	14-04-2020	INFORMATION UPDATED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: TOTAL DAILY ANTICIPATED TRAFFIC - 2051

DRAWING NUMBER: KC00604.000_ S06C

DRAWN BY: A.M.

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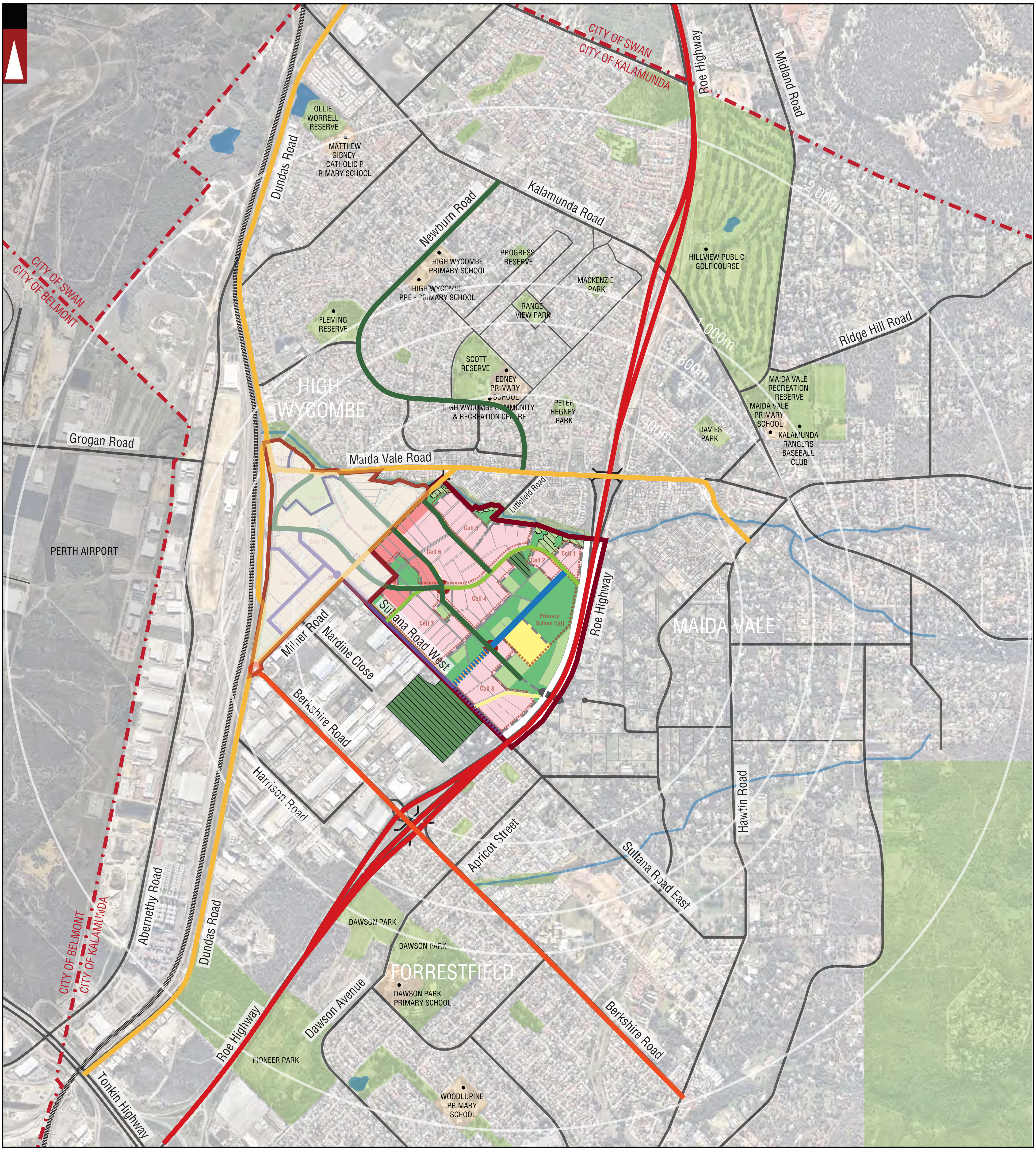

LEGEND

PARKS AND RECREATION	ROAD	RESIDENTIAL PRECINCT BOUNDARY	PRIMARY DISTRIBUTOR
WATERWAYS	Hay Street — STREET NAME	TOD PRECINCT BOUNDARY	INTEGRATOR A
PUBLIC PURPOSE	RAILWAY	CITY OF KALAMUNDA — LOCAL GOVERNMENT NAME	INTEGRATOR B
FORRESTFIELD — SUBURB	ROAD BRIDGE	LOCAL AUTHORITY BOUNDARY	NEIGHBOURHOOD CONNECTOR A
	DISTANCE FROM LOCATION		NEIGHBOURHOOD CONNECTOR B
			ACCESS STREET B
			ACCESS STREET B VARIATION

- ACCESS STREET
- ACCESS STREET VARIATION
- ACCESS STREET D
- LANEWAY

THIS HIERARCHY PLAN DEPICT THE NETWORK UPGRADE REQUIREMENTS FOR THE YEAR 2031. STREETS CARRYING TRAFFIC VOLUMES LOWER THAN 1,000 VEHICLES PER DAY WILL BE CLASSIFIED AS ACCESS STREET D. REFER TO TIA REPORT FOR CROSS SECTION DRAWINGS.

NOTE: THE PLAN IS COURTEOUS OF ELEMENT

No	DATE	AMENDMENT
F	12-12-2022	PROPOSED LAYOUT AMENDED
E	30-08-2021	PROPOSED LAYOUT AMENDED
D	27-07-2021	INFORMATION UPDATED
C	14-04-2020	INFORMATION UPDATED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: HIERARCHY PLAN

DRAWING NUMBER: KC00604.000_ S10

DRAWN BY: A.M.

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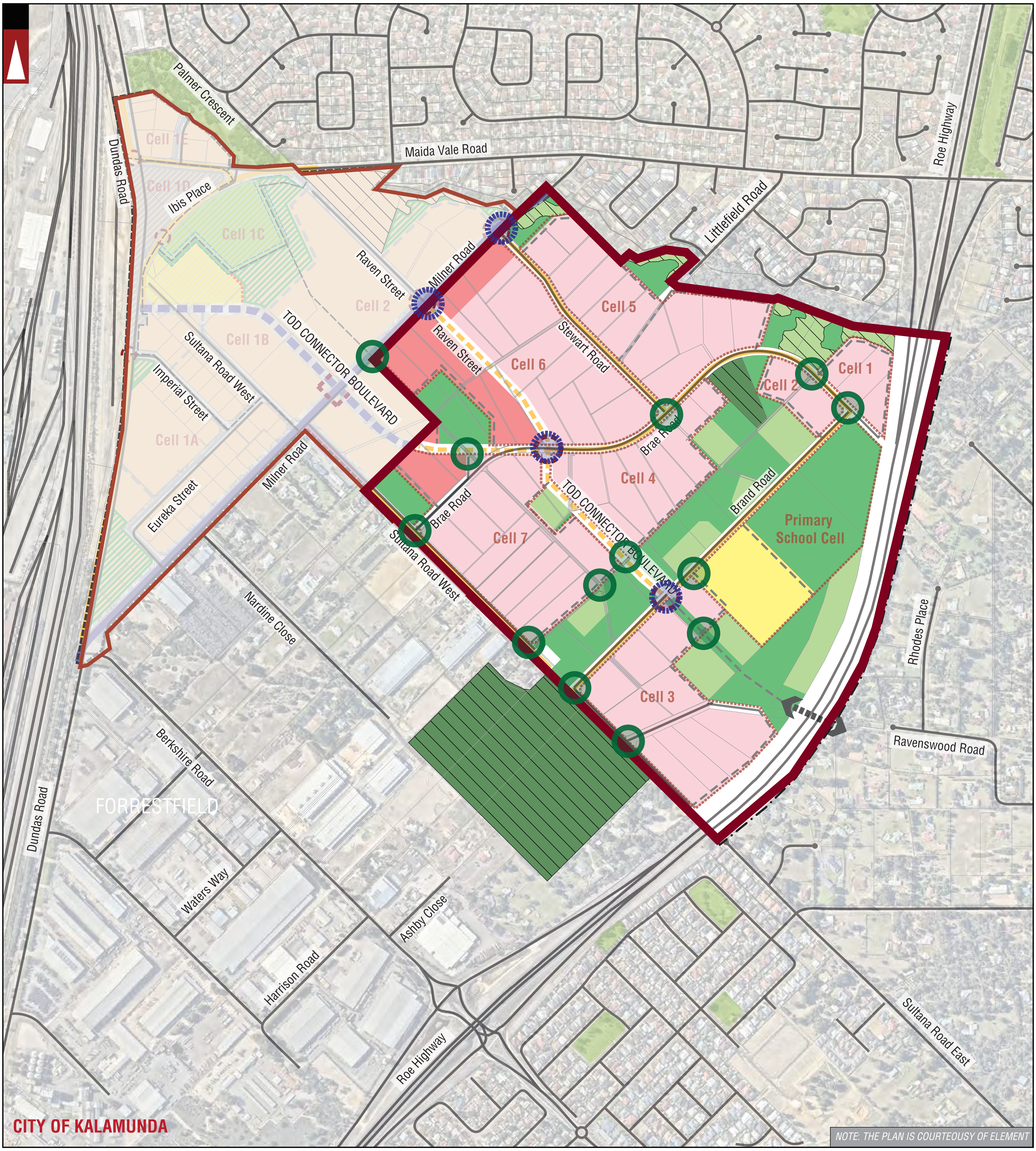

ROAD	RESIDENTIAL PRECINCT BOUNDARY	PROPOSED ROUNDABOUT	
Hay Street — STREET NAME	TOD PRECINCT BOUNDARY	SIGN CONTROLLED / YIELD	
RAILWAY	CITY OF KALAMUNDA — LOCAL GOVERNMENT NAME		
ROAD BRIDGE	LOCAL AUTHORITY BOUNDARY		

NOTE - THE PLAN SHOWS INTERSECTION CONTROL ON MAJOR INTERSECTIONS, ALL OTHER INTERSECTIONS ARE TO BE SIGN CONTROLLED /YIELD.

LEGEND

No	DATE	AMENDMENT
H	12-12-2022	PROPOSED LAYOUT AMENDED
G	30-08-2021	PROPOSED LAYOUT AMENDED
F	27-07-2021	PROPOSED LAYOUT AMENDED
E	11-05-2020	AMENDED AS PER COMMENTS

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: INTERSECTION CONTROL

DRAWING NUMBER: KC00604.000_ S11

DRAWN BY: A.M.

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Appendix 3

SIDRA Intersection Analysis

Table of Contents

List of Figures

1. Introduction

This short report provides details on the SIDRA Analysis conducted to support the findings of the report KC00604.000_R01_Rev Final. The intersections have been modelled in the AM and PM peak hour for assessment years – 2016 (base year), 2031 and 2050. It is assumed that by 2031, approximately 15% of Forrestfield North will be developed. In 2050, it is expected that the entire Forrestfield North will be developed.

The dimensions of the existing intersection elements have been scaled from aerial imagery which was obtained through our commercial arrangement with Nearmap and through publicly available Intramaps. These images are suitable for use in concept drafting applications with a level of accuracy to within +/- 10 centimetres. The dimensions of future intersections and roads were sourced from publicly available documents and drawings. Where no data was available, intersection elements were assumed based on the previous experience, regulatory documents and relevant precedents.

2. Traffic Generation and Distribution Analysis

Nominate the analysed intersection	M01. **Interchange of Roe Highway and Maida Vale Road - (2016, 2031 and 2050)** M02. **Maida Vale Road / Milner Road – (2016, 2031 and 2050)** M03. **Milner Road / Stewart Road - (2031 and 2050)** M04. **Milner Road / Raven Street - (2031 and 2050)** M05. **Milner Road / TOD Connector - (2031 and 2050)** M06. **Milner Road / Berkshire Road / Dundas Road -(2016, 2031 and 2050)** M07. **Interchange of Roe Highway and Berkshire Road - (2016, 2031 and 2050)**
Nominate the source for SIDRA Intersection turning movements	Input volumes for Base models were obtained through MRWA Traffic map and/or received from the City of Kalamunda. Input volumes for SIDRA Intersection analysis have been obtained from Paramics modelling results (turn counts) with the exception of some approaches at M01. ***Described on the next page**. KCTT has utilised the daily volumes of ROM24 2031 and 2041 (MLUFS 1.4 version) to create the demand matrix and distribute the traffic between the 8 major external zones. The traffic demands between any two zones were estimated and calibrated using Paramics modelling software until the traffic flows reflected the ROM24 data as closely as possible. FFN generated traffic was processed separately in the Paramics model, and the turn counts were derived from this model through the analyser component of Paramics and used for the SIDRA models. Refer to Appendix 4 - Traffic Modelling Report for more detail. Input volumes (turn counts) were provided at the end of this document.

Nominate any specific changes in input volumes	M01 Interchange of Roe Highway and Maida Vale Road – future years 2031 and 2050; KCTT have used the turning counts from KC01369.000 City of Kalamunda Traffic Model project for the following approaches: • Ramp off Roe Highway right turn onto Maida Vale Road • Maida Vale left turn onto Roe Highway on-ramp. • This was conducted to ensure for a more adequate representation of future traffic on Maida Vale Road section east of Roe Highway. • These movements do not include any traffic generated by High Wycombe South Precincts. • ROM24 model on which this traffic was initially modelled for this area envisioned extreme traffic which is likely a side effect of the robust model which in fact shows the most accurate projections on Primary Roads mostly. • These volumes have crossed over the threshold of one lane per direction on Maida Vale which would include duplication of roundabouts and the bridge over Roe Highway itself. • Having in mind the above, KCTT have used the more realistic volumes obtained in the abovementioned project. • KCTT believe that this approach would prevent overestimation of traffic on Maida Vale Road and prevent any unnecessary works on the bridge and roundabouts.

Nominate the external zones for traffic distribution	**Zone 1.**	To/from the north via Roe Highway (south of Berkshire Road)
	Zone 2.	To/from the south via Hawtin Road (south of Berkshire Road)
	Zone 3.	To/from the east via Kalamunda Road
	Zone 4.	To/from the north via Roe Highway (north of Kalamunda Road)
	Zone 5.	To/from the west via Kalamunda Road (west of Abernethy Road)
	Zone 6.	To/from the south via Abernethy Road (south of Dundas Road)
	Zone 7.	To/from the south via Dundas Road (south of Berkshire Road
	Zone 8.	To/from the east via Gooseberry Hill Road (east of Kalamunda Road)

Land Use	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Surrounding Suburbs and Developments	Internal Trips
All Residential	20%	5%	7.5%	15%	10%	8%	6%	2%	1.5%	25%
Primary School	0%	2%	1%	0%	0%	0%	0%	2%	80%	15%
All Non-residential Land uses	5	15%	15%	5%	10%	5%	5%	10%	30%	Varies*

*Note; Non-Residential land use distribution shows only external traffic distribution (calculates to full 100% of external traffic). Internal traffic percentages shown below are calculated from the total traffic generated by individual land uses:

- Retail without Food Component / Showroom Retail: 20%
- Retail with Food Component: 45%
- Medical Centre and Childcare Centre: 25%
- Commercial: 5%
- Community Centre: 20%
- FFN Station: 20%

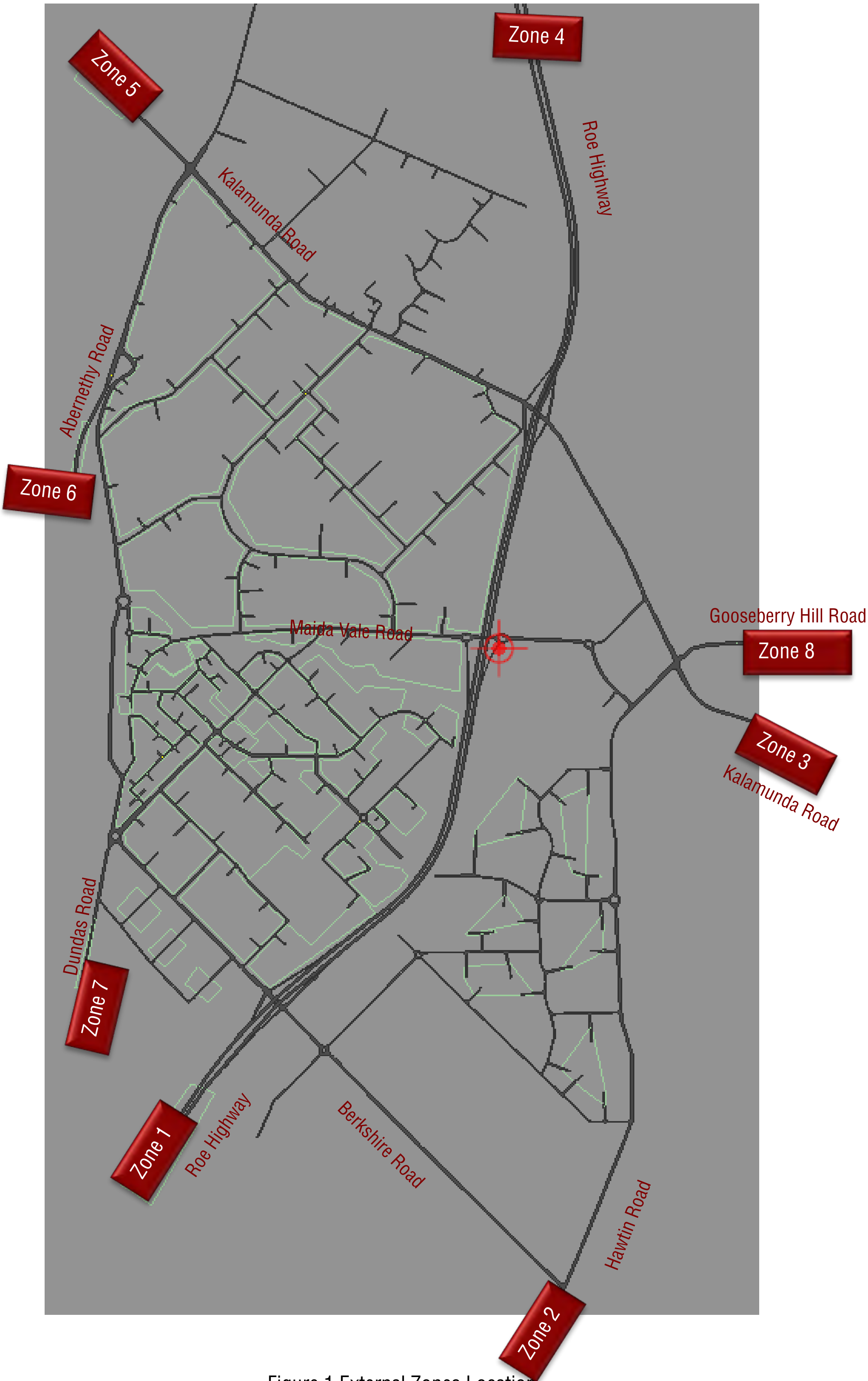


Figure 1 External Zones Location

3. Summary of Results

Nominate the analysed intersections and intersection controls	M01. **Interchange of Roe Highway and Maida Vale Road** M02. **Maida Vale Road / Milner Road – Roundabout** M03. **Milner Road / Stewart Road – Give Way (Potential Roundabout)** M04. **Milner Road / Raven Street – Roundabout** M05. **Milner Road / TOD Connector – Signalised Intersection** M06. **Milner Road / Berkshire Road / Dundas Road – Roundabout** M07. **Interchange of Roe Highway and Berkshire Road**
Describe the models analysed in SIDRA	Base Intersections were modelled as seen from the aerial imagery for the existing intersections. All intersections' Base Models perform at satisfactory levels in 2016. All intersections were analysed in AM and PM peaks for the years - 2031 and 2050. Input traffic volumes for SIDRA models were obtained through the output of traffic modelling conducted by KCTT (Refer to Appendix 4 for Traffic modelling report). The most notable adjustments to the existing road geometry are: 1) Two additional through lanes per direction have been added to Roe Highway, as it is stated in Road Network Plan – Transport @ 3.5 million that Roe Highway will be upgraded to an 8-lane freeway standard by 2050. However, modelling has shown that 4 lanes per direction might be required in 2031 too. 2) Intersections of ramps to/from Roe Highway with Maida Vale Road were modelled as roundabouts. (This is currently being implemented by the City of Kalamunda in 2022). 3) Two lanes per direction for Berkshire Road to cater for the estimated future traffic volumes.
Describe the Level of Service results	M01. The interchange of Roe Highway and Maida Vale Road is generally expected to be operate at satisfactory level in 2031 and 2050 in both AM and PM peaks with LOS ranging from A – B for majority of approaches. In 2050 AM Roe Highway shows LOS E on southbound through lanes. This is due to the high through traffic (modelled to reflect the expected traffic in ROM24). This approach does not contain any traffic from the High Wycombe South (as seen in the SIDRA Output). Intersections of ramps and Maida Vale Road are expected to operate as 1-lane roundabouts in all future assessment years. M02. The intersection of Maida Vale Road and Milner Road is generally expected to perform at a satisfactory level in 2050 in both AM and PM peaks with LOS ranging from A – B. The existing stop sign T-

intersection will operate at LOS A and LOS B in 2031, while the single-lane roundabout will alleviate potential issues in 2050.

M03. The intersection of Milner Road and Stewart Road is generally expected to perform at a satisfactory level in 2050 in both AM, and PM peaks with LOS ranging from A – B. Potential roundabout would also have high LOS A.

M04. The intersection of Milner Road and Raven Street is generally expected to perform at a satisfactory level in 2031 and 2050 in both AM and PM peaks with LOS ranging from A – B.

M05. The intersection of Milner Road and TOD Connector is generally expected to perform at a satisfactory level in 2031 and 2050 in both AM and PM peaks with LOS B. The intersection is expected to operate as a signalised intersection in 2031 and 2050.

M06. The intersection of Milner Road, Berkshire Road and Dundas Road is generally expected to perform at a satisfactory level in 2031 in both AM and PM peak as a 2-lane roundabout and in 2050 as a 3-lane roundabout.

However, oversizing the intersections too early could have negative effects in the future. KCTT believes that leaving sufficient space and upgrading all intersections gradually, when and if necessary, would be the most effective strategy when planning for a more distant future. A 3-lane roundabout is extremely costly, and it should be used as a last option if traffic volumes reach these values in the distant future.

Additionally, the City of Kalamunda has advised that a 2-lane roundabout is the only acceptable option due to too spatial and other constraints.

M07. The interchange is expected to operate at a satisfactory level in 2031. With some proposed amendments (additional lanes on Berkshire Road approaches as seen in the below SIDRA Output) both signalised intersections are expected to operate at LOS C in 2050.

Roe Highway Southbound through lanes show LOS F in 2050 AM peak. Similar to the Maida Vale Interchange, there is no traffic from High Wycombe South.

Roe Highway Northbound through lanes show LOS F in 2050 PM peak. Traffic from High Wycombe South LSP constitutes only 1% out of 7,309 vehicles at this approach.

Delays shown in 2050 are at 80s in the PM peak for individual approaches. This is generally common in high traffic volume environments in peak times.

Comments and conclusion

KCTT believe that the key will be monitoring the key intersections' performance and acting accordingly.

The surrounding area is not developing at speed predicted in the previous decade. Development speed is significantly lower due to the slow-down in the real estate market and general economic conditions in the WA economy.

Furthermore, the actual means and efficiency of transportation and associated traffic flow itself are expected to change significantly in the next 2-3 decades (autonomous vehicles, 'smart' infrastructure etc). These are the factors to be considered when committing land for intersection upgrades long before the upgrade is due. Considering these factors will reduce the risk of oversizing the intersection and inefficiently using land and resources.

Upgrades shown for 2050 for all models are to be taken with caution, having in mind all the above.

A summary of the results of the SIDRA analysis is shown on the following pages. For purposes of clarity, we will provide intersection summaries below. The full SIDRA output report can be provided on request.

Note - SIDRA graphic is not an accurate representation of the intersection geometry. It is a simplified tool, and its main purpose is to illustrate main intersection elements roughly. The graphic might show median breaks where there are none, in reality, oversized splitter islands and central islands for roundabouts etc. The graphic representation does not influence the calculations nor any other output.*

4. SIDRA Intersection Analysis - Output

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M01 Roe Highway - Maida Vale Road — **Template: Site Report**

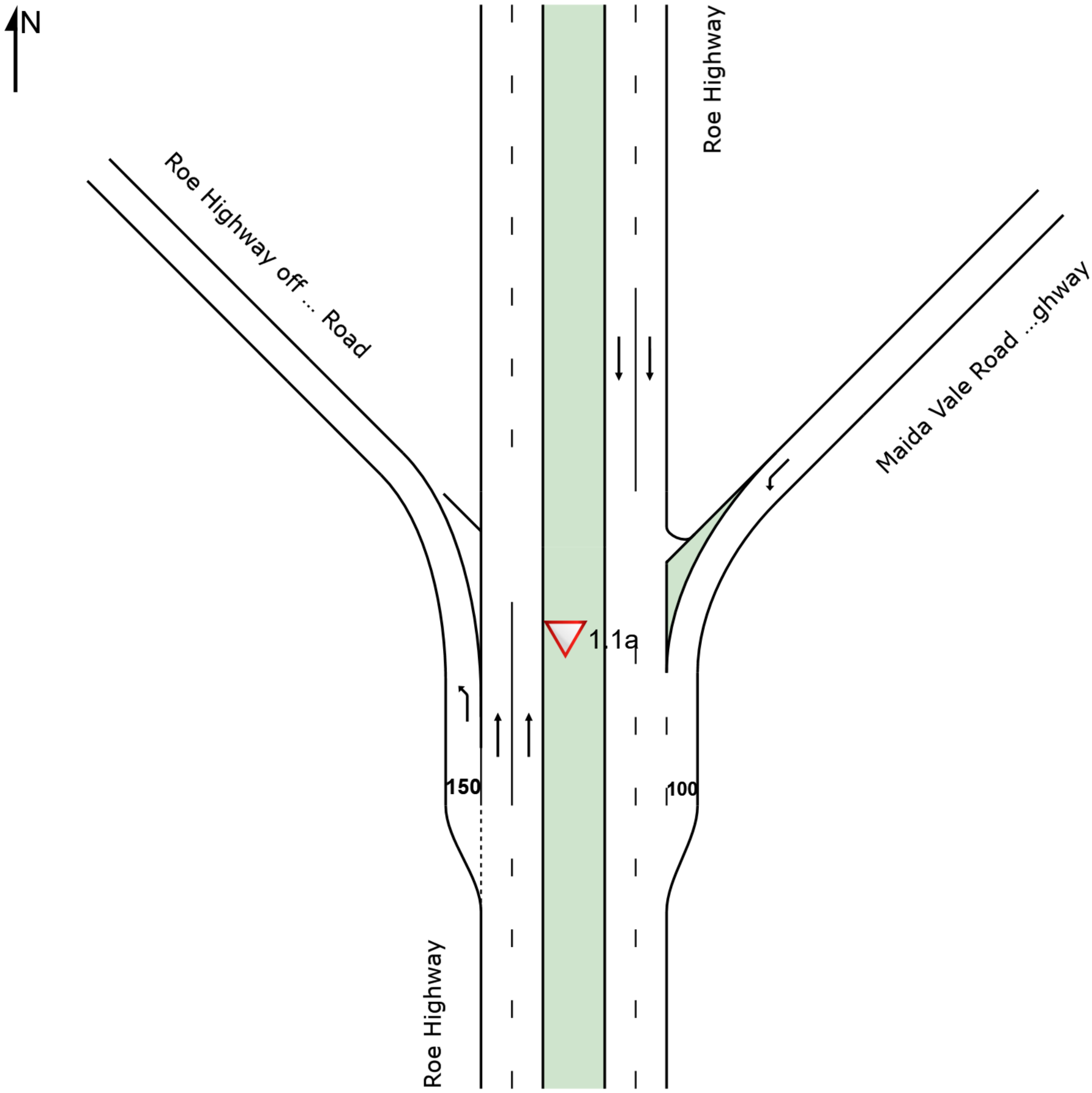
Site: 1.1a [1.1a Roe Highway Interchange with Maida Vale Road - 2016 AM (Site Folder: AM)]

Network: 1 [n1.1a Network 2016 AM (Network Folder: General)]

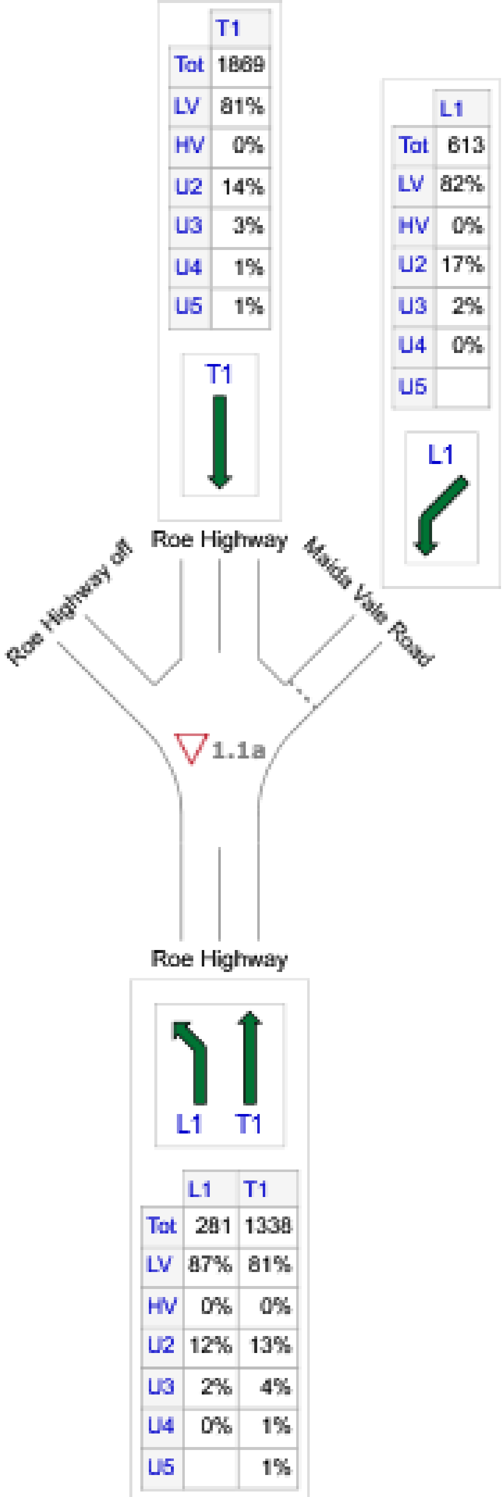
1.1a Roe Highway Interchange with Maida Vale Road - 2016 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)
S: Roe Highway	1619	1327	0	207
NE: Maida Vale Road on to Roe Highway	613	501	0	101
N: Roe Highway	1869	1505	0	267
Total	4101	3333	0	576

Lane Use and Performance

	DEMAND FLOWS		ARRIVAL FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Roe Highway															

Lane 1	281	13.4	281	13.4	1710	0.164	100	8.0	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	669	19.0	669	19.0	1816	0.368	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	669	19.0	669	19.0	1816	0.368	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1619	18.0	1619	18.0		0.368		1.4	NA	0.0	0.0				
NorthEast: Maida Vale Road on to Roe Highway															
Lane 1	613	18.2	613	18.2	1613	0.380	100	6.4	LOS A	0.0	0.0	Full	400	0.0	0.0
Approach	613	18.2	613	18.2		0.380		6.4	NA	0.0	0.0				
North: Roe Highway															
Lane 1	935	19.5	935	19.5	1818	0.514	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	935	19.5	935	19.5	1818	0.514	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1869	19.5	1869	19.5		0.514		0.4	NA	0.0	0.0				
Intersection	4101	18.7	4101	18.7		0.514		1.7	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

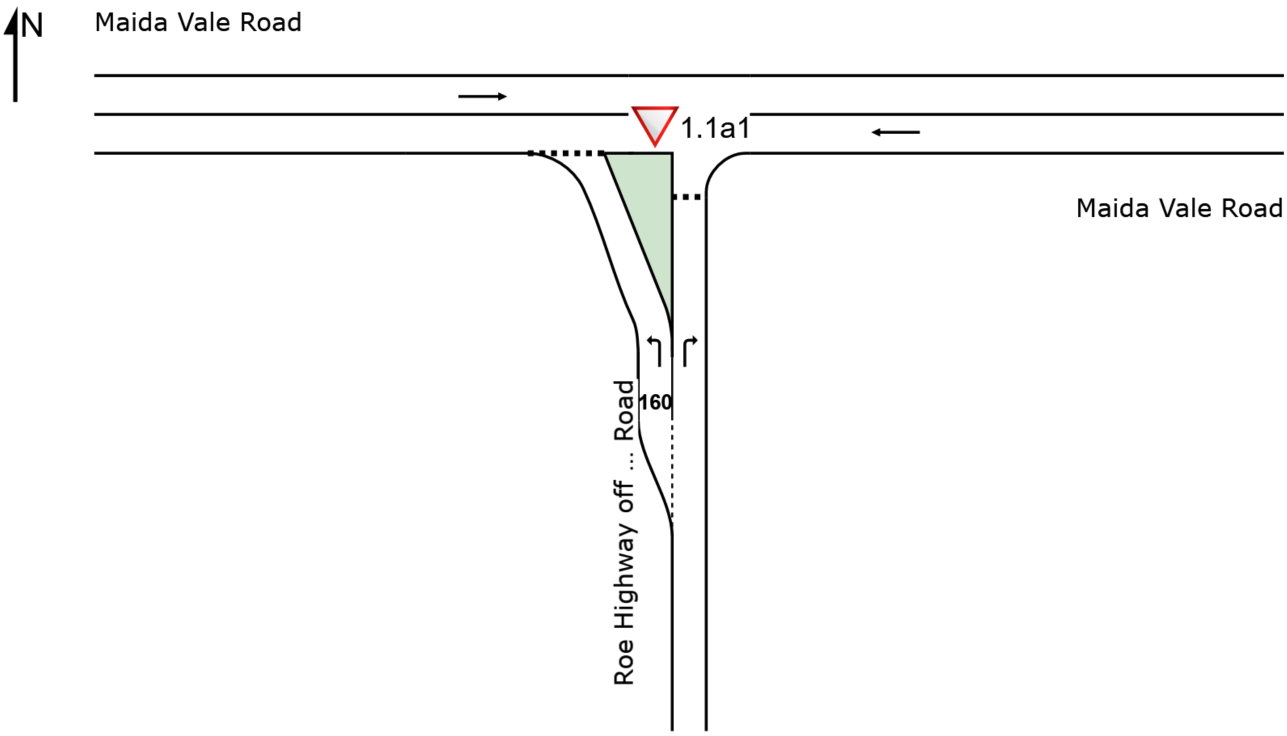
Site: 1.1a1 [1.1a1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2016 AM (Site Folder: AM)]

Network: 1 [n1.1a Network 2016 AM (Network Folder: General)]

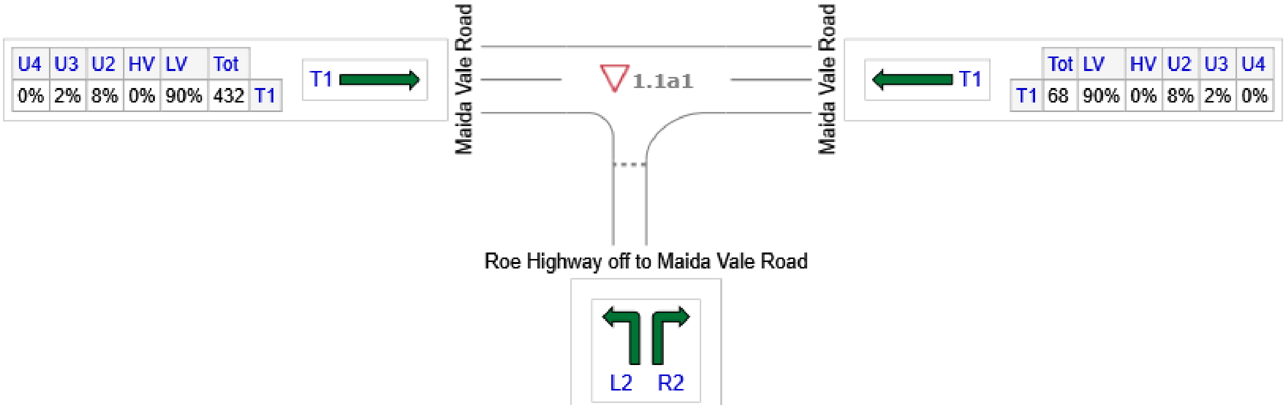
1.1a1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2016 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	L2	R2
Tot	65	216
LV	87%	87%
HV	0%	0%
U2	12%	12%
U3	2%	2%
U4	0%	0%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)
S: Roe Highway off to Maida Vale Road	281	243	0	33
E: Maida Vale Road	68	62	0	5
W: Maida Vale Road	432	389	0	34
Total	781	694	0	72

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Roe Highway off to Maida Vale Road															

Lane 1	65	13.4	65	13.4	1857	0.035	100	6.0	LOS A	0.1	0.6	Short	160	0.0	NA
Lane 2	216	13.4	216	13.4	1061	0.203	100	7.0	LOS A	0.2	1.8	Full	400	0.0	0.0
Approach	281	13.4	281	13.4		0.203		6.8	LOS A	0.2	1.8				
East: Maida Vale Road															
Lane 1	68	9.8	68	9.8	1808	0.038	100	0.0	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	68	9.8	68	9.8		0.038		0.0	NA	0.0	0.0				
West: Maida Vale Road															
Lane 1	432	9.8	432	9.8	1808	0.239	100	0.0	LOS A	0.0	0.0	Full	120	0.0	0.0
Approach	432	9.8	432	9.8		0.239		0.0	NA	0.0	0.0				
Intersection	781	11.1	781	11.1		0.239		2.5	NA	0.2	1.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

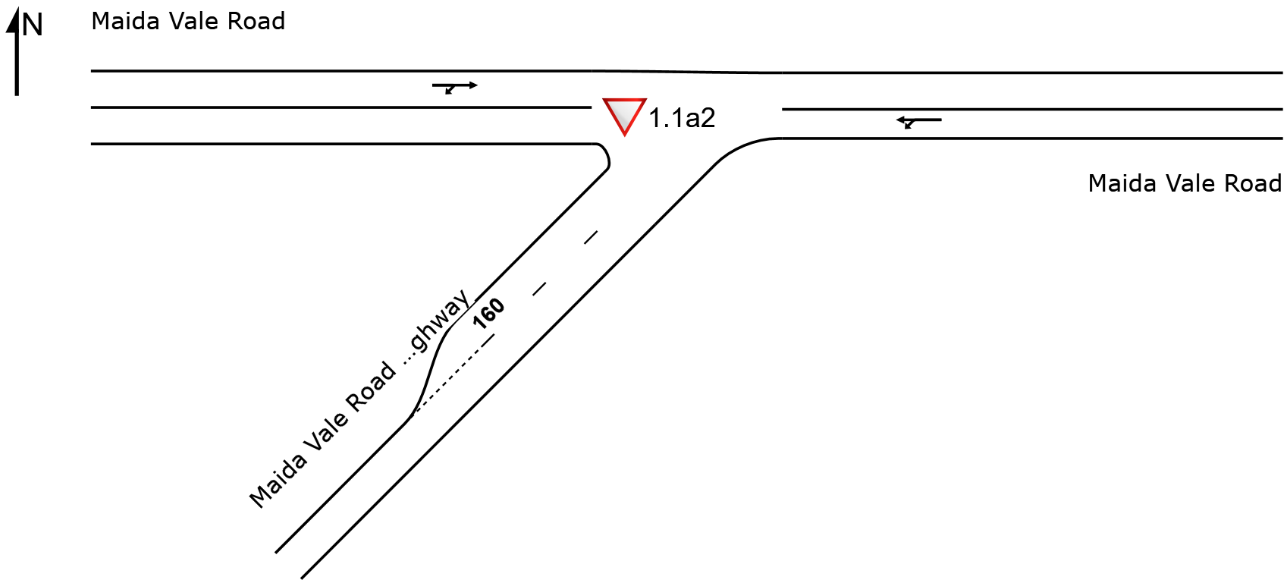
Site: 1.1a2 [1.1a2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2016 AM (Site Folder: AM)]

Network: 1 [n1.1a Network 2016 AM (Network Folder: General)]

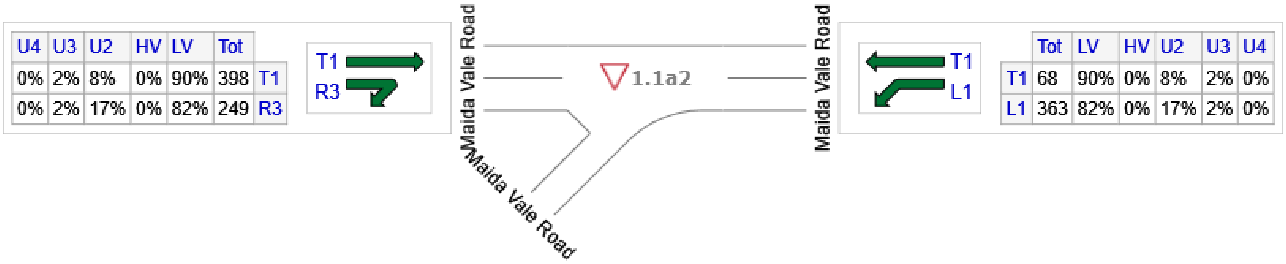
1.1a2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2016 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6
E: Maida Vale Road	432	359	0	65	8
W: Maida Vale Road	647	563	0	72	12
Total	1079	922	0	137	20

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Maida Vale Road															

Lane 1	432	16.9	432	16.9	1595	0.271	100	4.5	LOS A	0.0	0.0	Full	120	0.0	0.0
Approach	432	16.9	432	16.9		0.271		4.5	NA	0.0	0.0				
West: Maida Vale Road															
Lane 1	647	13.0	647	13.0	1289	0.502	100	6.7	LOS A	1.9	15.8	Full	160	0.0	0.0
Approach	647	13.0	647	13.0		0.502		6.7	NA	1.9	15.8				
Intersection	1079	14.6	1079	14.6		0.502		5.8	NA	1.9	15.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M01 Roe Highway - Maida Vale Road — **Template: Site Report**

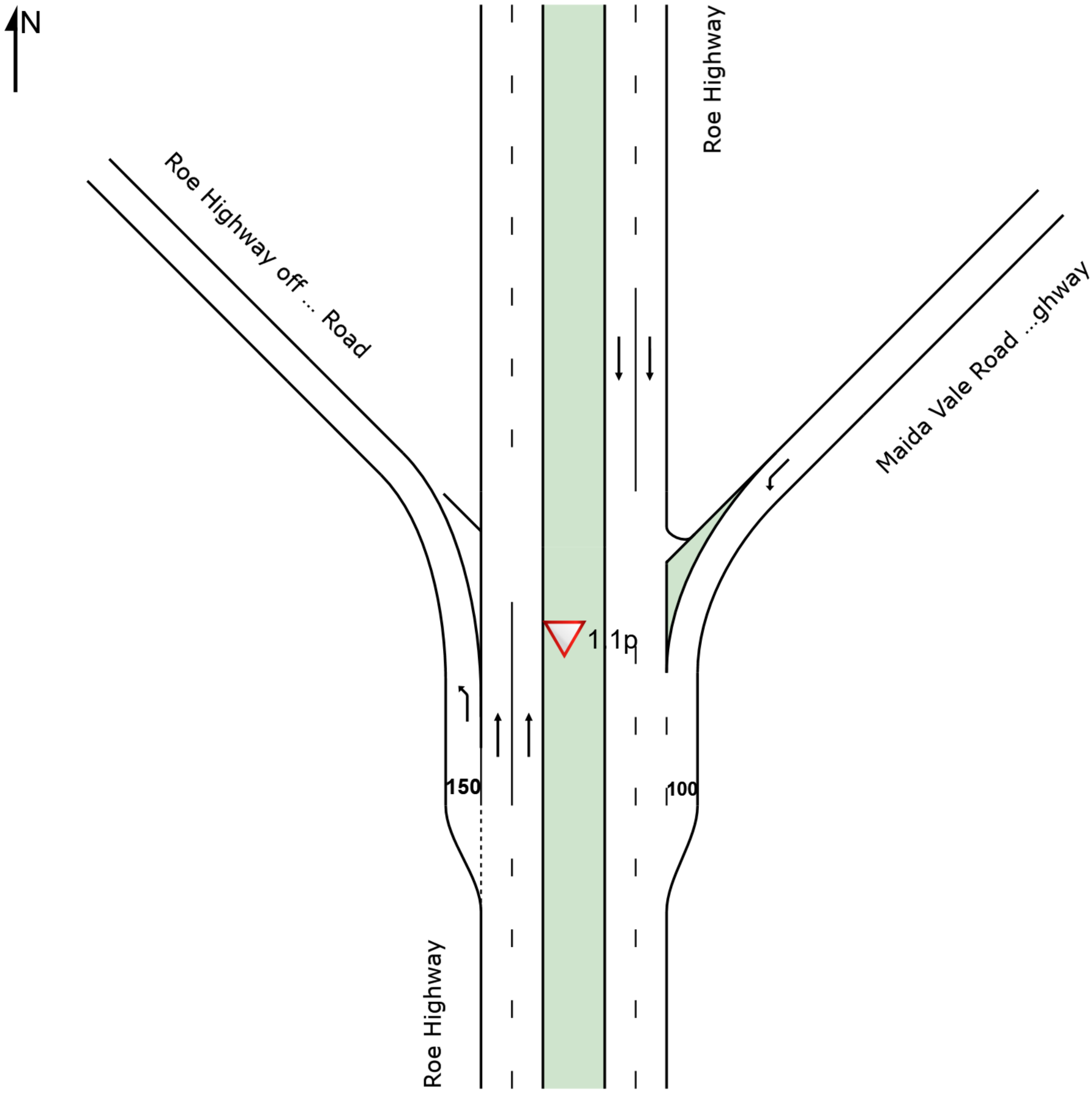
Site: 1.1p [1.1p Roe Highway Interchange with Maida Vale Road - 2016 PM (Site Folder: PM)]

Network: 2 [n1.1p Network 2016 PM (Network Folder: General)]

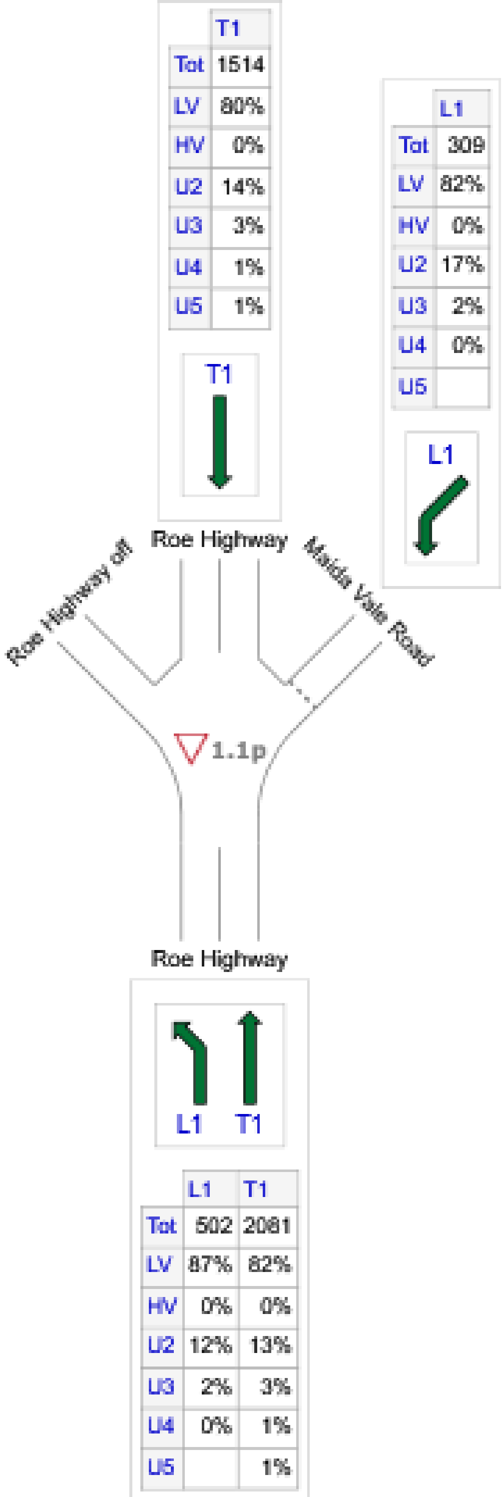
1.1p Roe Highway Interchange with Maida Vale Road - 2016 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)
S: Roe Highway	2583	2135	0	330
NE: Maida Vale Road on to Roe Highway	309	253	0	51
N: Roe Highway	1514	1219	0	216
Total	4406	3607	0	597

Lane Use and Performance

	DEMAND FLOWS		ARRIVAL FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Roe Highway															

Lane 1	502	13.4	502	13.4	1710	0.294	100	8.0	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	1041	18.3	1041	18.3	1831	0.568	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1041	18.3	1041	18.3	1831	0.568	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	2583	17.3	2583	17.3		0.568		1.6	NA	0.0	0.0				
NorthEast: Maida Vale Road on to Roe Highway															
Lane 1	309	18.2	309	18.2	1613	0.192	100	5.2	LOS A	0.0	0.0	Full	400	0.0	0.0
Approach	309	18.2	309	18.2		0.192		5.2	NA	0.0	0.0				
North: Roe Highway															
Lane 1	757	19.5	757	19.5	1818	0.416	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	757	19.5	757	19.5	1818	0.416	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1514	19.5	1514	19.5		0.416		0.1	NA	0.0	0.0				
Intersection	4406	18.1	4406	18.1		0.568		1.4	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

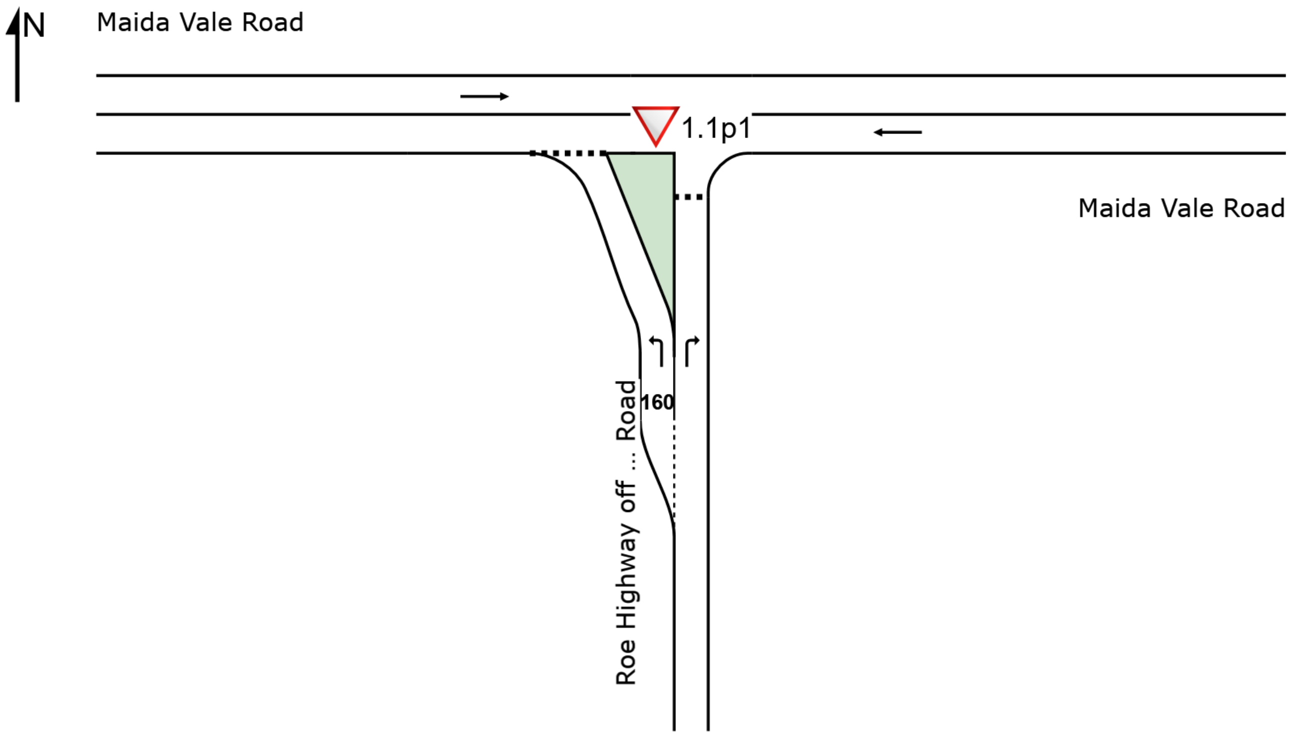
Site: 1.1p1 [1.1p1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2016 PM (Site Folder: PM)]

Network: 2 [n1.1p Network 2016 PM (Network Folder: General)]

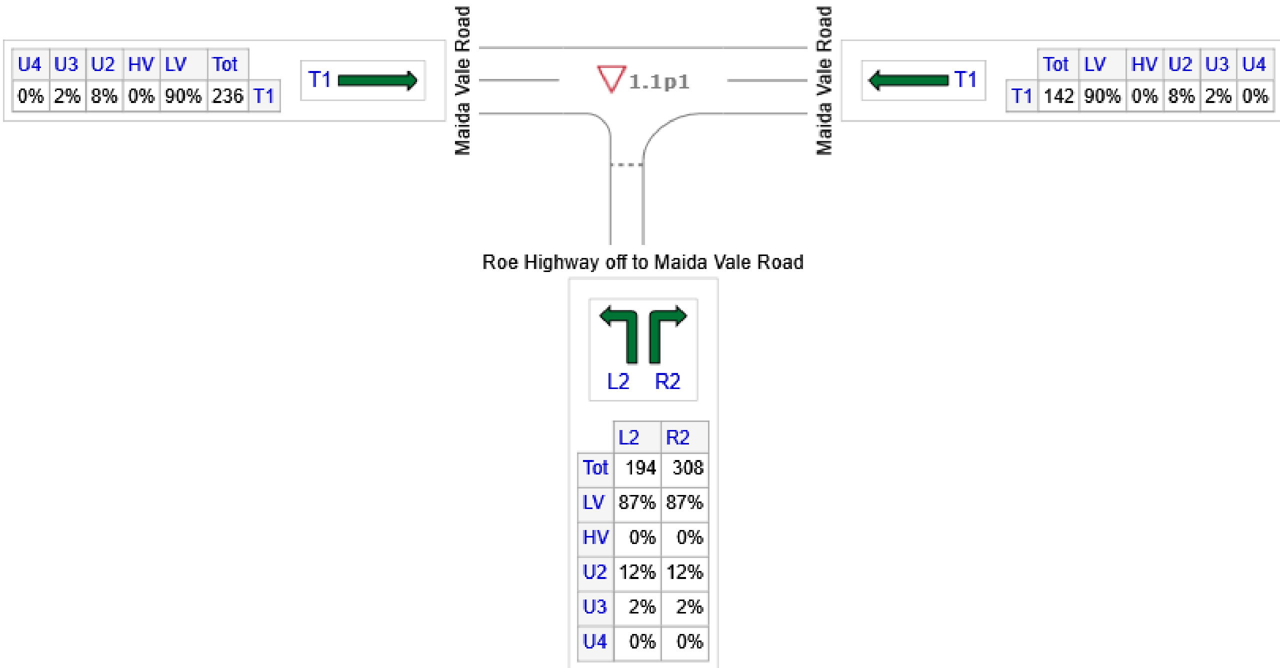
1.1p1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2016 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)
S: Roe Highway off to Maida Vale Road	502	435	0	59
E: Maida Vale Road	142	128	0	11
W: Maida Vale Road	236	213	0	18
Total	880	776	0	89

Lane Use and Performance

	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist]	Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Roe Highway off to Maida Vale Road															

Lane 1	194	13.4	194	13.4	1737	0.111	100	6.2	LOS A	0.2	1.9	Short	160	0.0	NA
Lane 2	308	13.4	308	13.4	1164	0.265	100	6.7	LOS A	0.3	2.5	Full	400	0.0	0.0
Approach	502	13.4	502	13.4		0.265		6.5	LOS A	0.3	2.5				
East: Maida Vale Road															
Lane 1	142	9.8	142	9.8	1808	0.079	100	0.0	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	142	9.8	142	9.8		0.079		0.0	NA	0.0	0.0				
West: Maida Vale Road															
Lane 1	236	9.8	236	9.8	1808	0.130	100	0.0	LOS A	0.0	0.0	Full	120	0.0	0.0
Approach	236	9.8	236	9.8		0.130		0.0	NA	0.0	0.0				
Intersection	880	11.9	880	11.9		0.265		3.7	NA	0.3	2.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

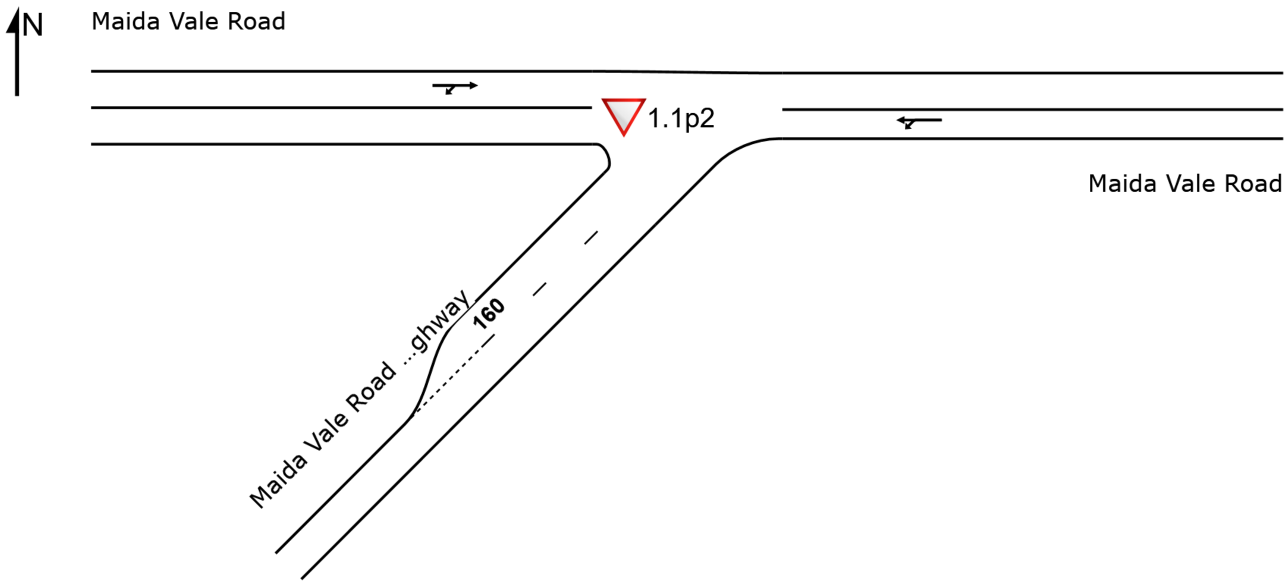
Site: 1.1p2 [1.1p2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2016 PM (Site Folder: PM)]

Network: 2 [n1.1p Network 2016 PM (Network Folder: General)]

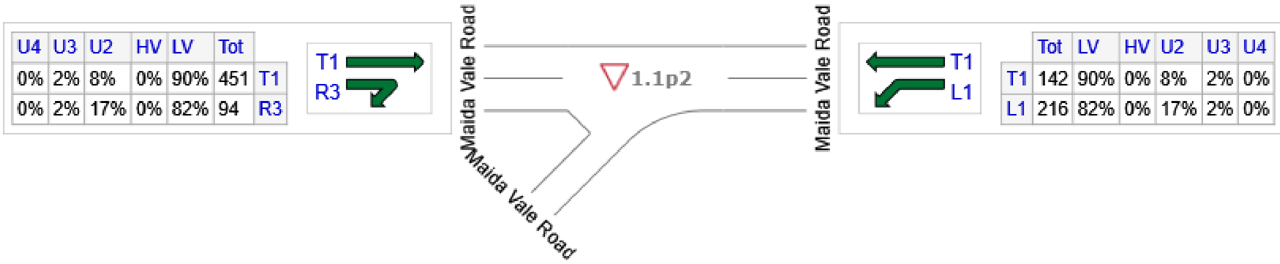
1.1p2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2016 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6
E: Maida Vale Road	358	305	0	47	7
W: Maida Vale Road	544	483	0	51	11
Total	902	788	0	97	17

Lane Use and Performance

	DEMAND FLOWS		ARRIVAL FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
East: Maida Vale Road															

Lane 1	358	14.9	358	14.9	1633	0.219	100	3.2	LOS A	0.0	0.0	Full	120	0.0	0.0
Approach	358	14.9	358	14.9		0.219		3.2	NA	0.0	0.0				
West: Maida Vale Road															
Lane 1	544	11.2	544	11.2	1563	0.348	100	2.3	LOS A	0.5	4.4	Full	160	0.0	0.0
Approach	544	11.2	544	11.2		0.348		2.3	NA	0.5	4.4				
Intersection	902	12.7	902	12.7		0.348		2.7	NA	0.5	4.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK

All Movement Classes

Project: KC00604.000 M01 Roe Highway - Maida Vale Road   Template: Network Site Report

Network: n1.1a [n1.1a Network 2016 AM (Network Folder: General)]

n1.1a Network 2016 AM
Network Category: Existing Design

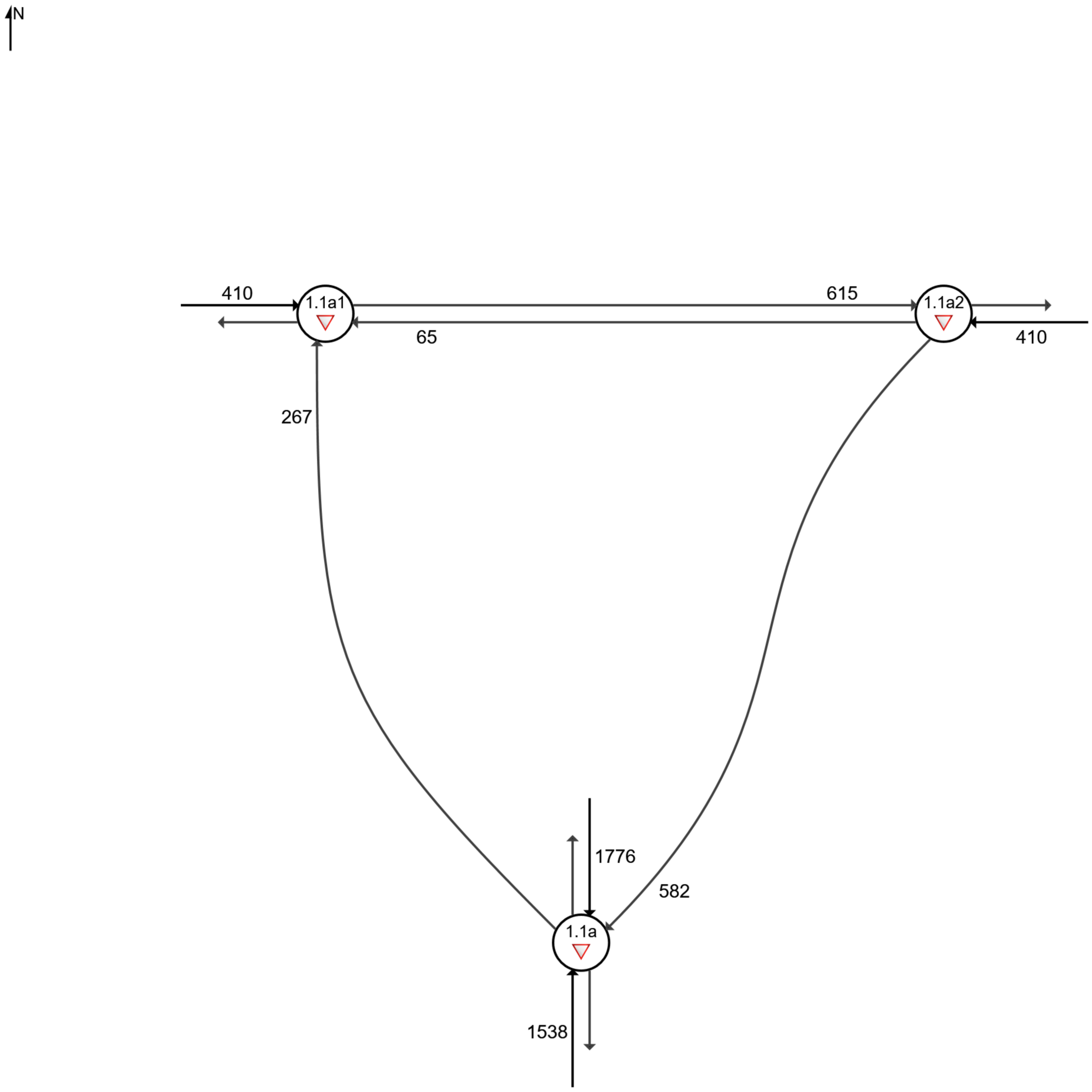
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1.1a	NA	1.1a Roe Highway Interchange with Maida Vale Road - 2016 AM
▽1.1a1	NA	1.1a1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2016 AM
▽1.1a2	NA	1.1a2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2016 AM

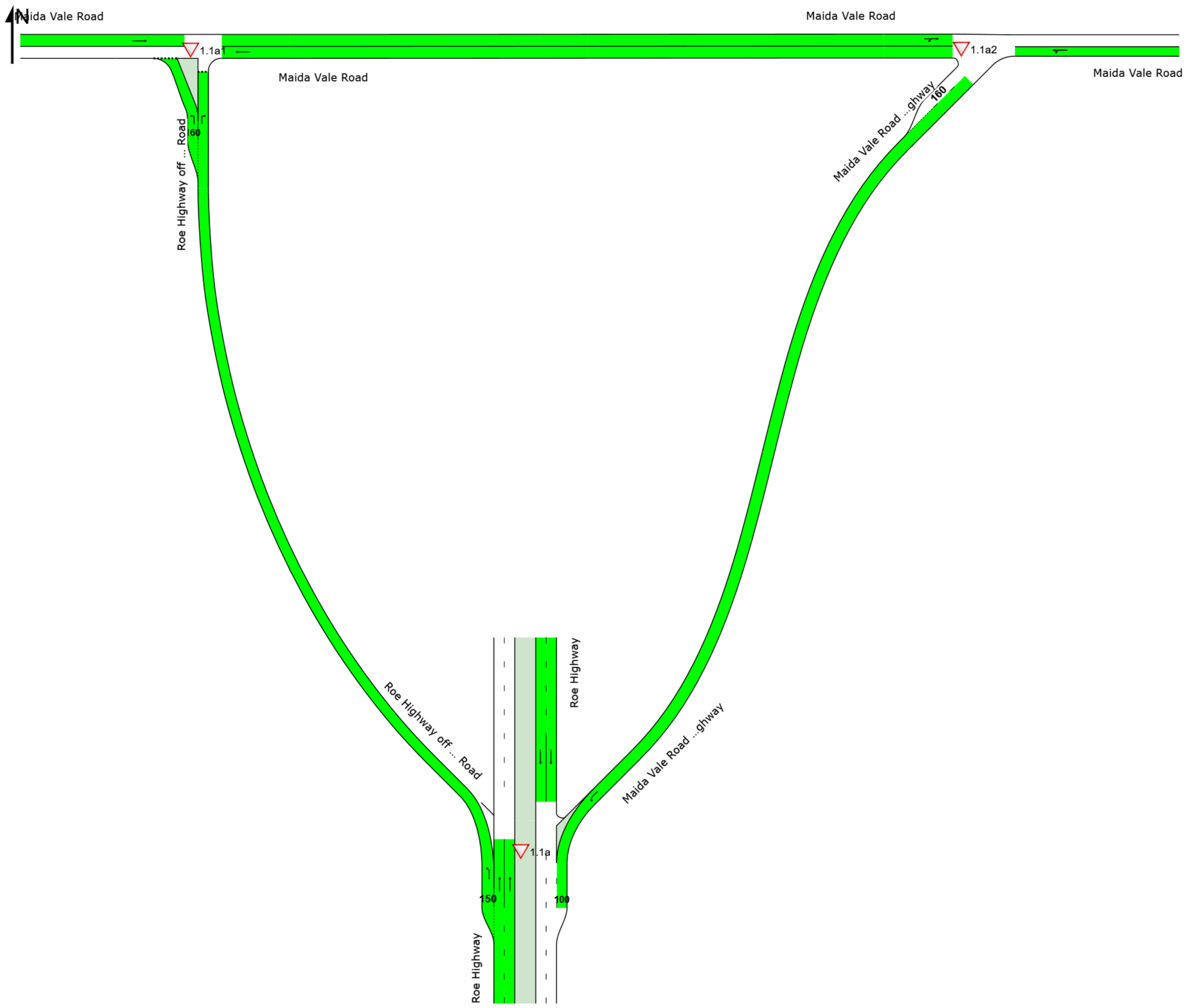
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Network: N101 [n1.1p Network 2016 PM (Network Folder: General)]

New Network
Network Category: (None)

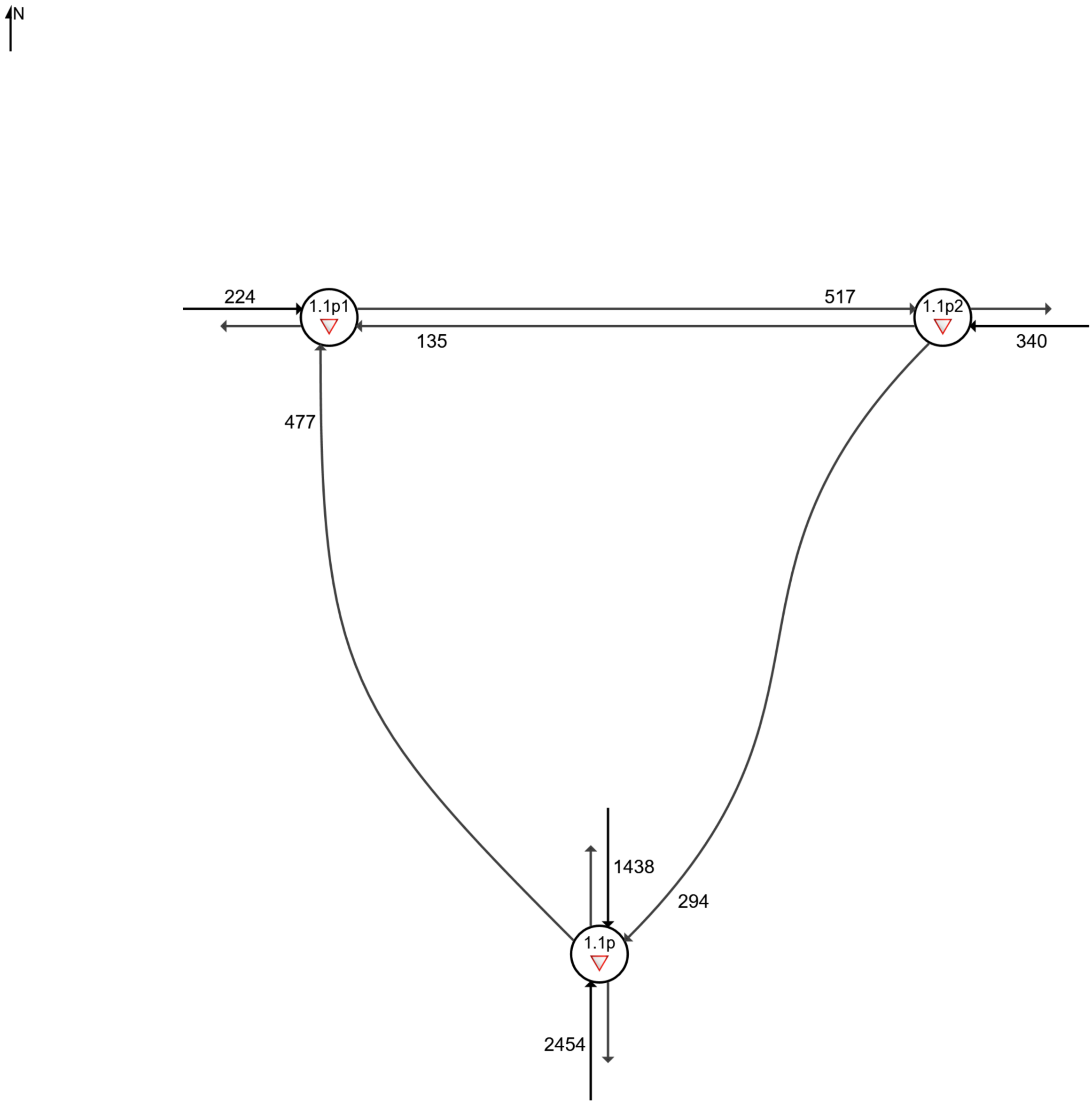
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1.1p	NA	1.1p Roe Highway Interchange with Maida Vale Road - 2016 PM
▽1.1p1	NA	1.1p1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2016 PM
▽1.1p2	NA	1.1p2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2016 PM

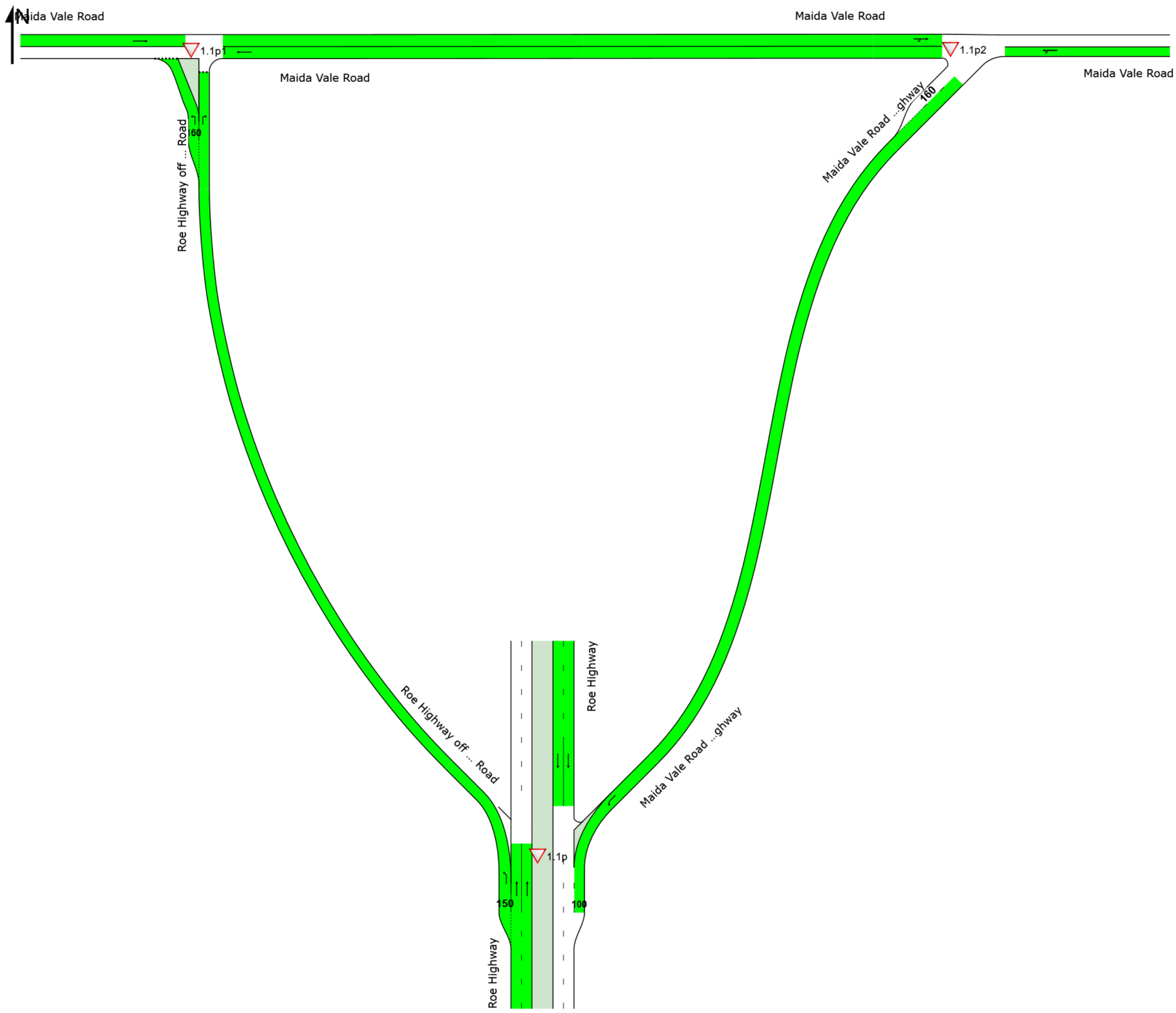
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M01 Roe Highway - Maida Vale Road — **Template: Site Report**

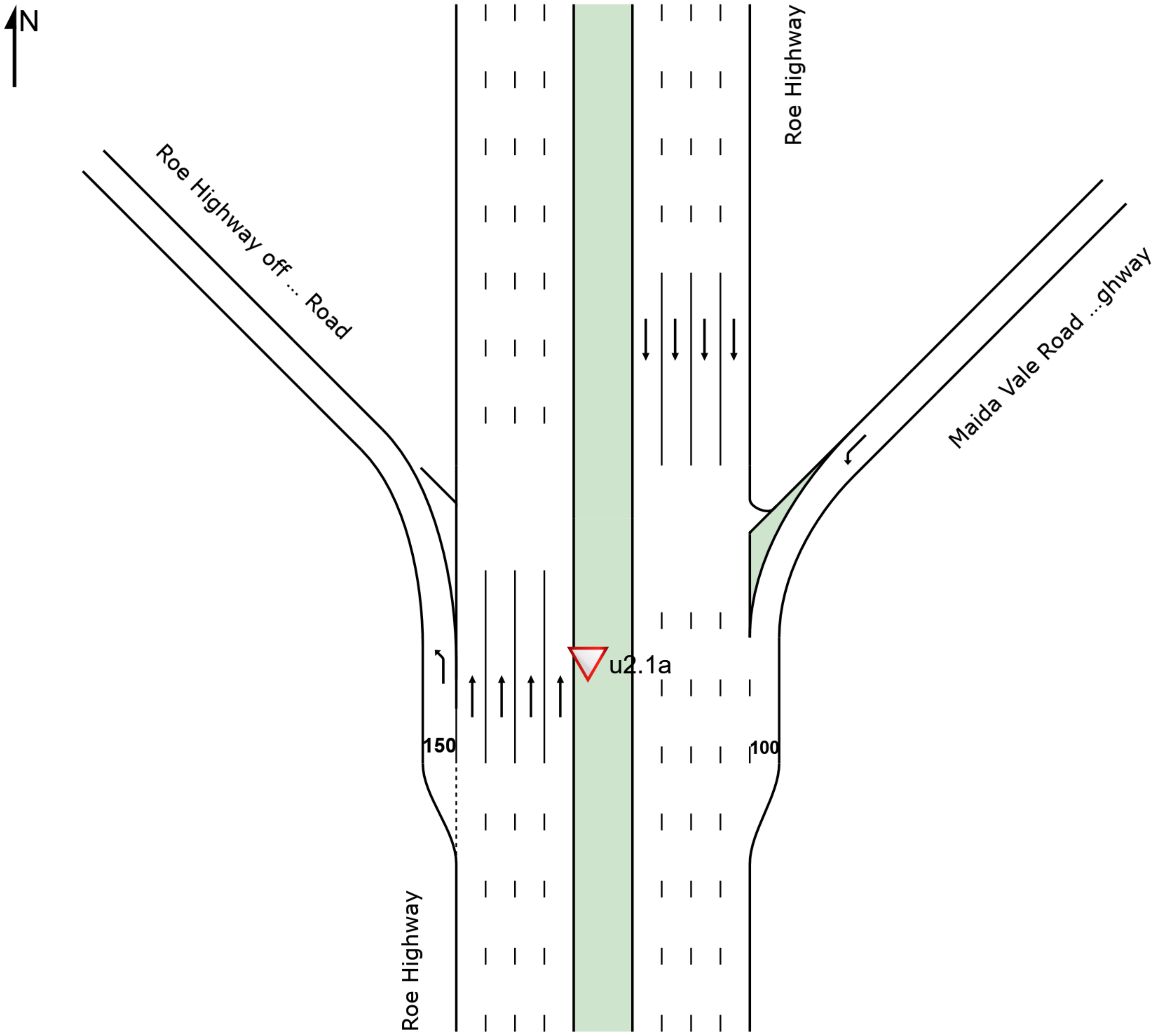
Site: u2.1a [u2.1a Roe Highway Interchange with Maida Vale Road - 2031 AM - Upgrade - Copy (Site Folder: 2031 AM KC1369)]

Network: 13 [un2.1a Network 2031 AM - Upgrade - KC1369 (Network Folder: 2031 - KC1369)]

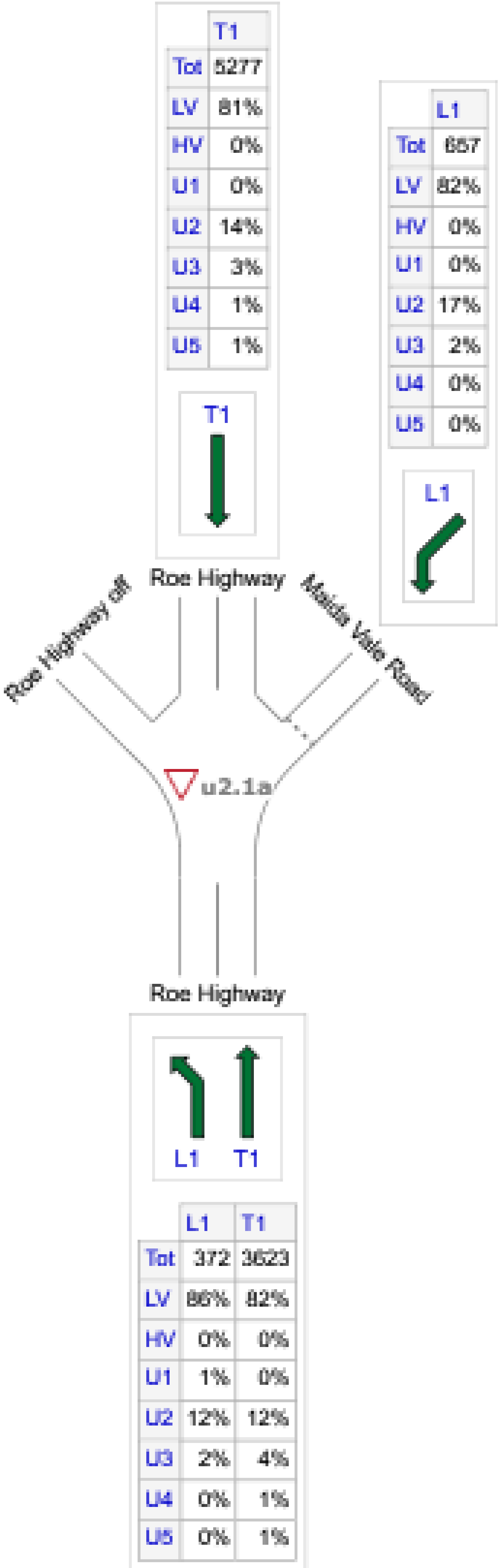
u2.1a Roe Highway Interchange with Maida Vale Road - 2031 AM - Upgrade
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	Austroads(
S: Roe Highway	3995	3288	0	5	478	151	
NE: Maida Vale Road on to Roe Highway	657	537	0	0	108	11	
N: Roe Highway	5277	4248	0	0	755	164	
Total	9928	8073	0	5	1341	326	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Roe Highway															

Lane 1	372	13.3	372	13.3	1712	0.217	100	8.0	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	906	18.0	906	18.0	1830	0.495	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	906	18.0	906	18.0	1830	0.495	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	906	18.0	906	18.0	1830	0.495	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	906	18.0	906	18.0	1830	0.495	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	3995	17.6	3995	17.6		0.495		0.8	NA	0.0	0.0				
NorthEast: Maida Vale Road on to Roe Highway															
Lane 1	657	18.2	657	18.2	1613	0.407	100	5.3	LOS A	0.0	0.0	Full	400	0.0	0.0
Approach	657	18.2	657	18.2		0.407		5.3	NA	0.0	0.0				
North: Roe Highway															
Lane 1	754	19.5	754	19.5	1818	0.415	50[7]	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1508	19.5	1508	19.5	1818	0.829	100	0.4	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1508	19.5	1508	19.5	1818	0.829	100	0.4	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1508	19.5	1508	19.5	1818	0.829	100	0.4	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	5277	19.5	5277	19.5		0.829		0.4	NA	0.0	0.0				
Intersection	9928	18.6	9928	18.6		0.829		0.9	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

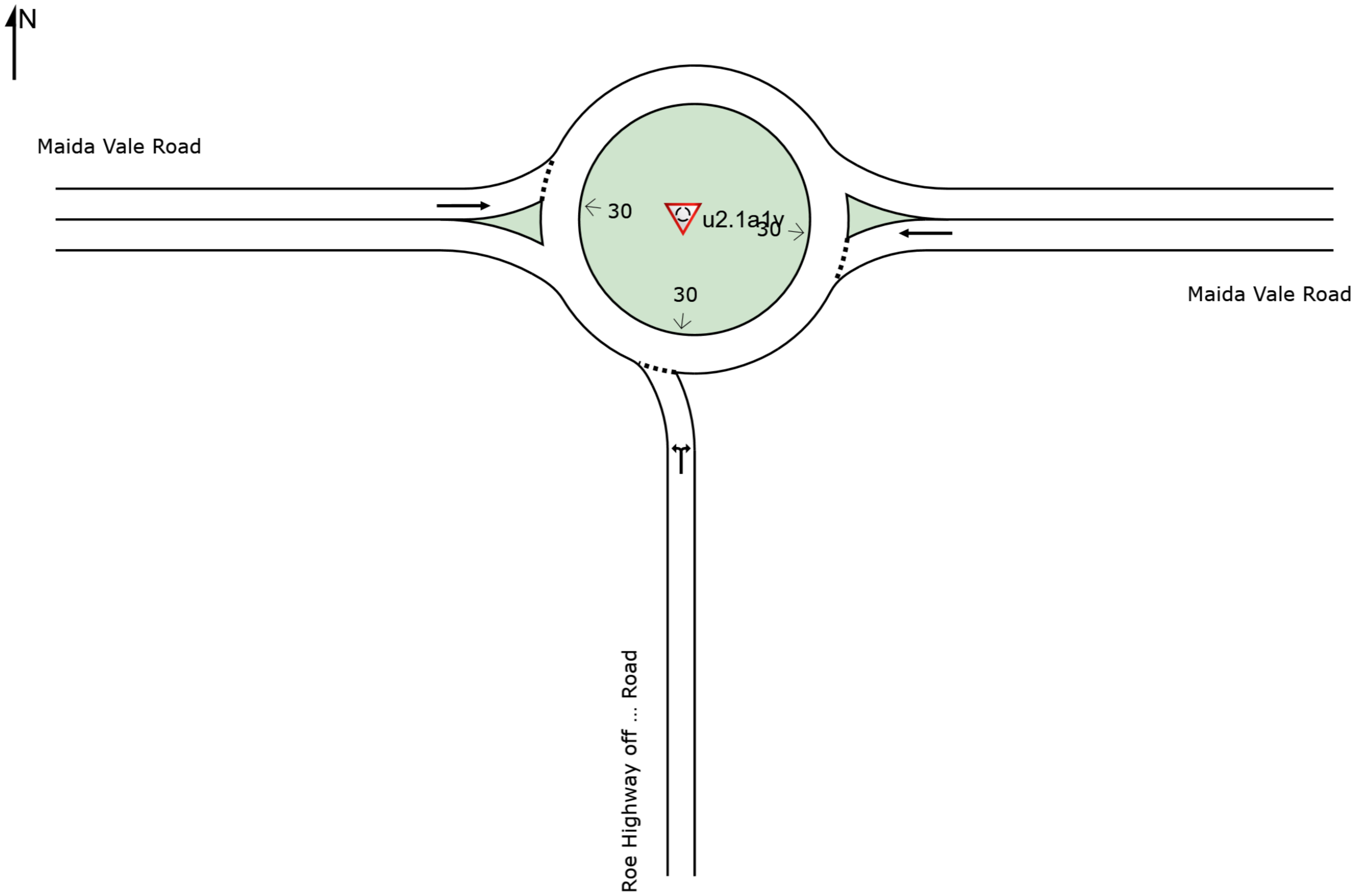
Site: u2.1a1v [u2.1a1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2031 AM - Upgrade - Conversion - Copy (Site Folder: 2031 AM KC1369)]

Network: 13 [un2.1a Network 2031 AM - Upgrade - KC1369 (Network Folder: 2031 - KC1369)]

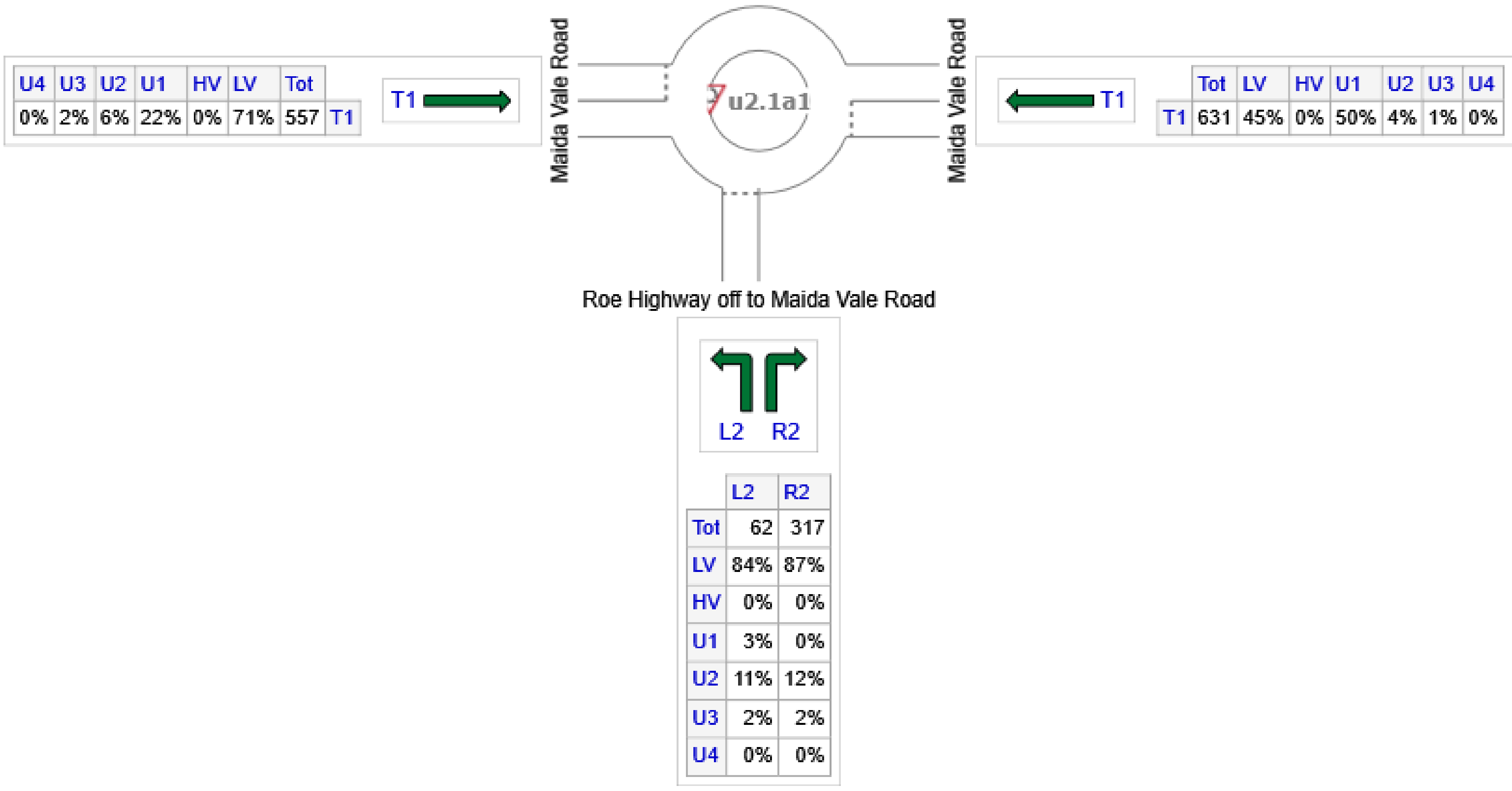
u2.1a1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2031 AM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsCl
S: Roe Highway off to Maida Vale Road	379	326	0	2	44	6	
E: Maida Vale Road	631	287	0	313	25	6	
W: Maida Vale Road	557	394	0	120	34	9	
Total	1566	1007	0	435	103	21	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Roe Highway off to Maida Vale Road															

Lane 1[d]	379	13.3	379	13.3	787	0.481	100	15.2	LOS B	1.5	12.8	Full	400	0.0	0.0
Approach	379	13.3	379	13.3		0.481		15.2	LOS B	1.5	12.8				
East: Maida Vale Road															
Lane 1[d]	631	5.0	631	5.0	1722	0.366	100	3.3	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	631	5.0	631	5.0		0.366		3.3	LOS A	0.0	0.0				
West: Maida Vale Road															
Lane 1[d]	557	7.7	557	7.7	1016	0.548	100	6.1	LOS A	1.9	15.6	Full	120	0.0	0.0
Approach	557	7.7	557	7.7		0.548		6.1	LOS A	1.9	15.6				
Intersection	1566	8.0	1566	8.0		0.548		7.2	LOS A	1.9	15.6				

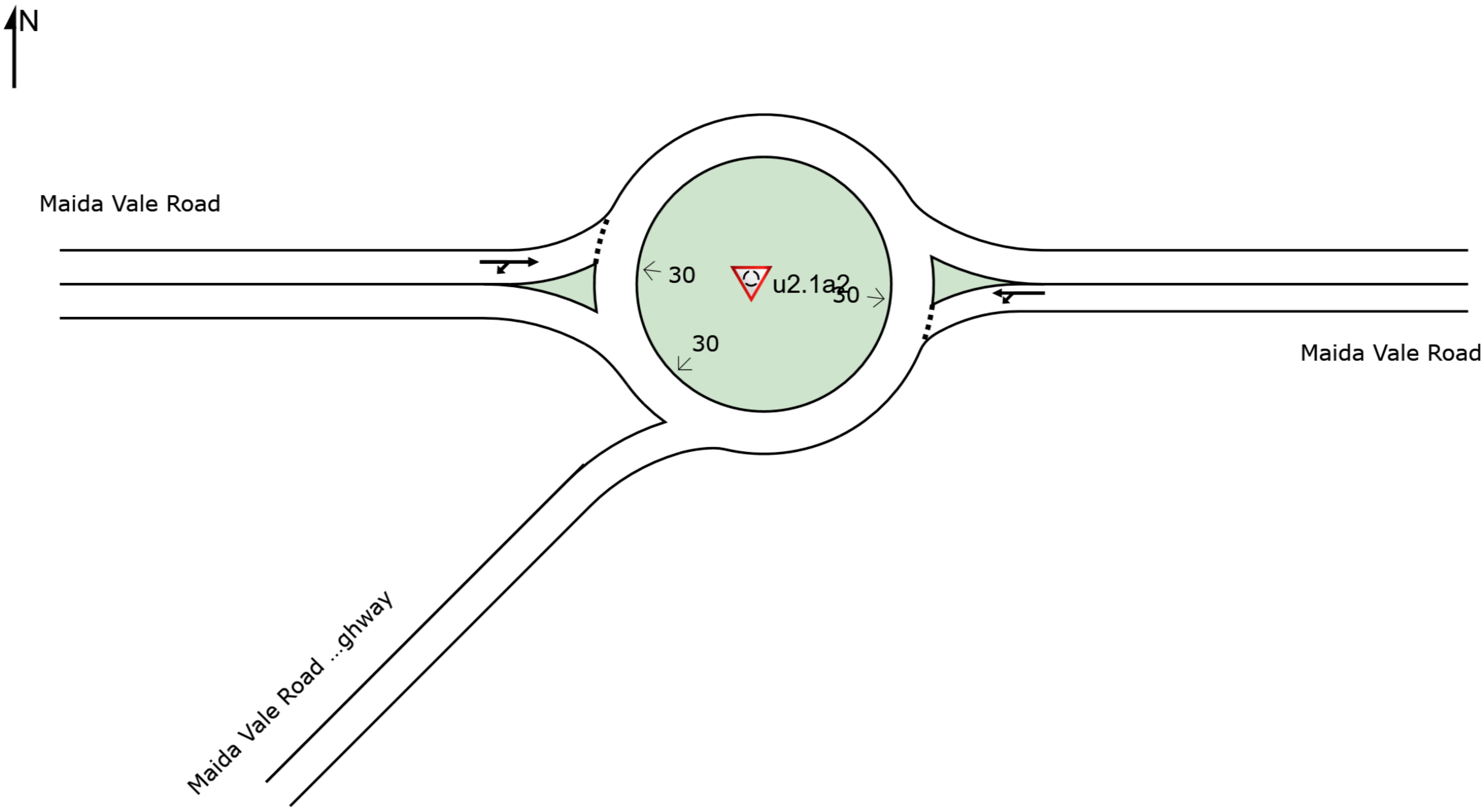
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

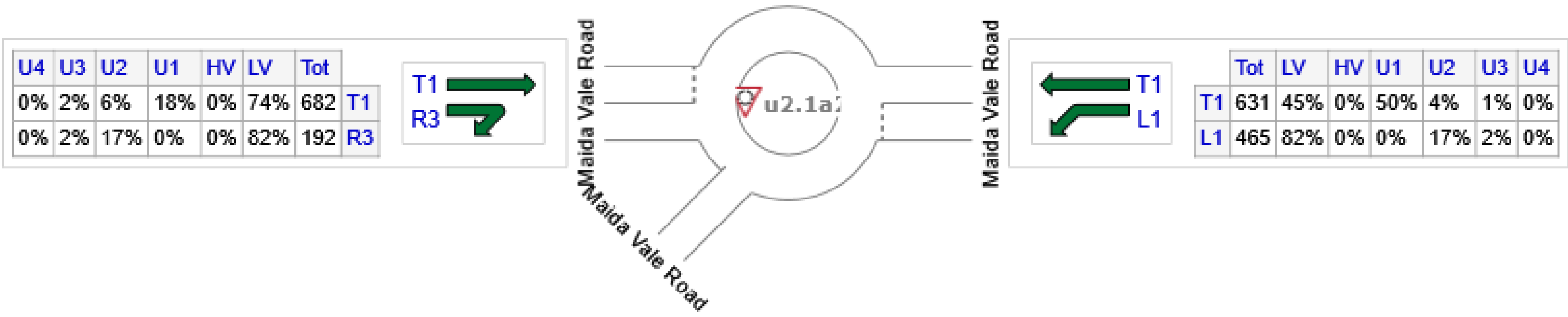
u2.1a2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2031 AM - Upgrade - Conversion
Site Category: (None)
Roundabout

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Maida Vale Road	1096	667	0	313	102	14	0
W: Maida Vale Road	874	663	0	121	75	14	0
Total	1969	1330	0	434	177	29	0

Lane Use and Performance

	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist]	Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
East: Maida Vale Road															
Lane 1[d]	1096	10.6	1096	10.6	1196	0.916	100	15.2	LOS B	10.6	87.5	Full	120	0.0	27.0

Approach	1096	10.6	1096	10.6		0.916		15.2	LOS B	10.6	87.5				
West: Maida Vale Road															
Lane 1[d]	874	10.3	874	10.3	1674	0.522	100	4.9	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	874	10.3	874	10.3		0.522		4.9	LOS A	0.0	0.0				
Intersection	1969	10.4	1969	10.4		0.916		10.6	LOS B	10.6	87.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M01 Roe Highway - Maida Vale Road **Template: Site Report**

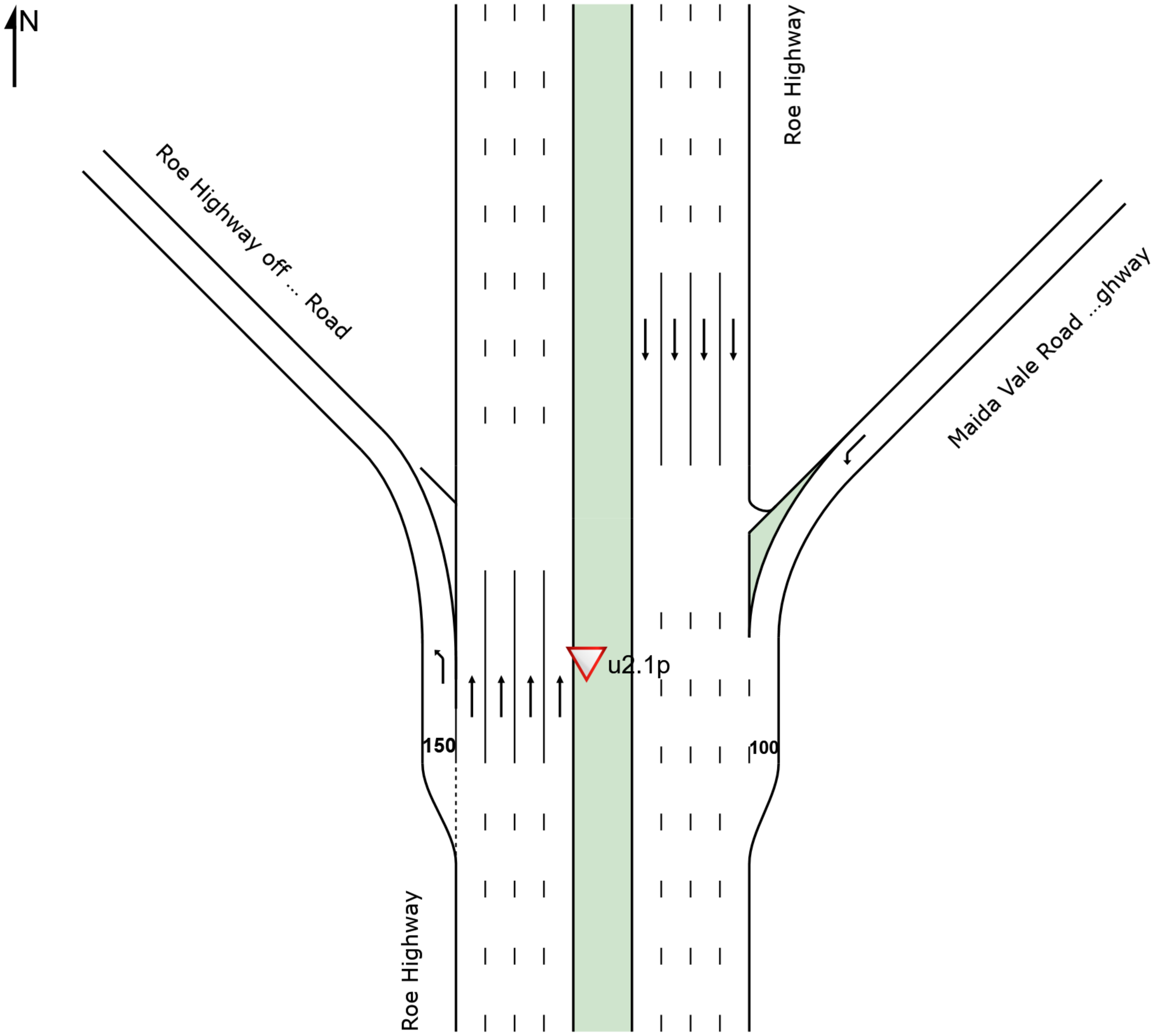
Site: u2.1p [u2.1p Roe Highway Interchange with Maida Vale Road - 2031 PM - Upgrade - Copy (Site Folder: 2031 PM KC1369)]

Network: 14 [un2.1p Network 2031 PM - Upgrade - KC1369 (Network Folder: 2031 - KC1369)]

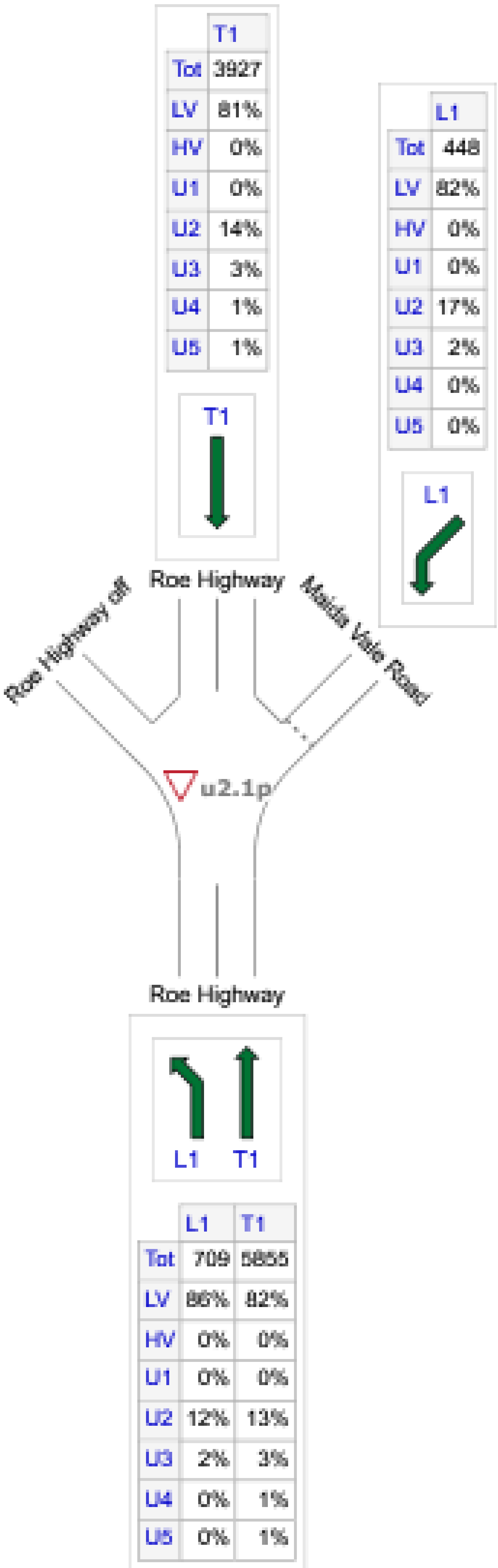
u2.1p Roe Highway Interchange with Maida Vale Road - 2031 PM - Upgrade
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	Austroads(
S: Roe Highway	6564	5393	0	5	844	193	
NE: Maida Vale Road on to Roe Highway	448	367	0	0	74	8	
N: Roe Highway	3927	3162	0	0	562	122	
Total	10940	8922	0	5	1480	322	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Roe Highway															

Lane 1	709	13.4	709	13.4	1711	0.415	100	8.1	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	1464	18.3	1464	18.3	1831	0.799	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1464	18.3	1464	18.3	1831	0.799	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1464	18.3	1464	18.3	1831	0.799	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1464	18.3	1464	18.3	1831	0.799	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	6564	17.8	6564	17.8		0.799		1.1	NA	0.0	0.0				
NorthEast: Maida Vale Road on to Roe Highway															
Lane 1	448	18.2	448	18.2	1613	0.278	100	4.5	LOS A	0.0	0.0	Full	400	0.0	0.0
Approach	448	18.2	448	18.2		0.278		4.5	NA	0.0	0.0				
North: Roe Highway															
Lane 1	561	19.5	561	19.5	1818	0.309	50[7]	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1122	19.5	1122	19.5	1818	0.617	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1122	19.5	1122	19.5	1818	0.617	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1122	19.5	1122	19.5	1818	0.617	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	3927	19.5	3927	19.5		0.617		0.1	NA	0.0	0.0				
Intersection	10940	18.4	10940	18.4		0.799		0.9	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

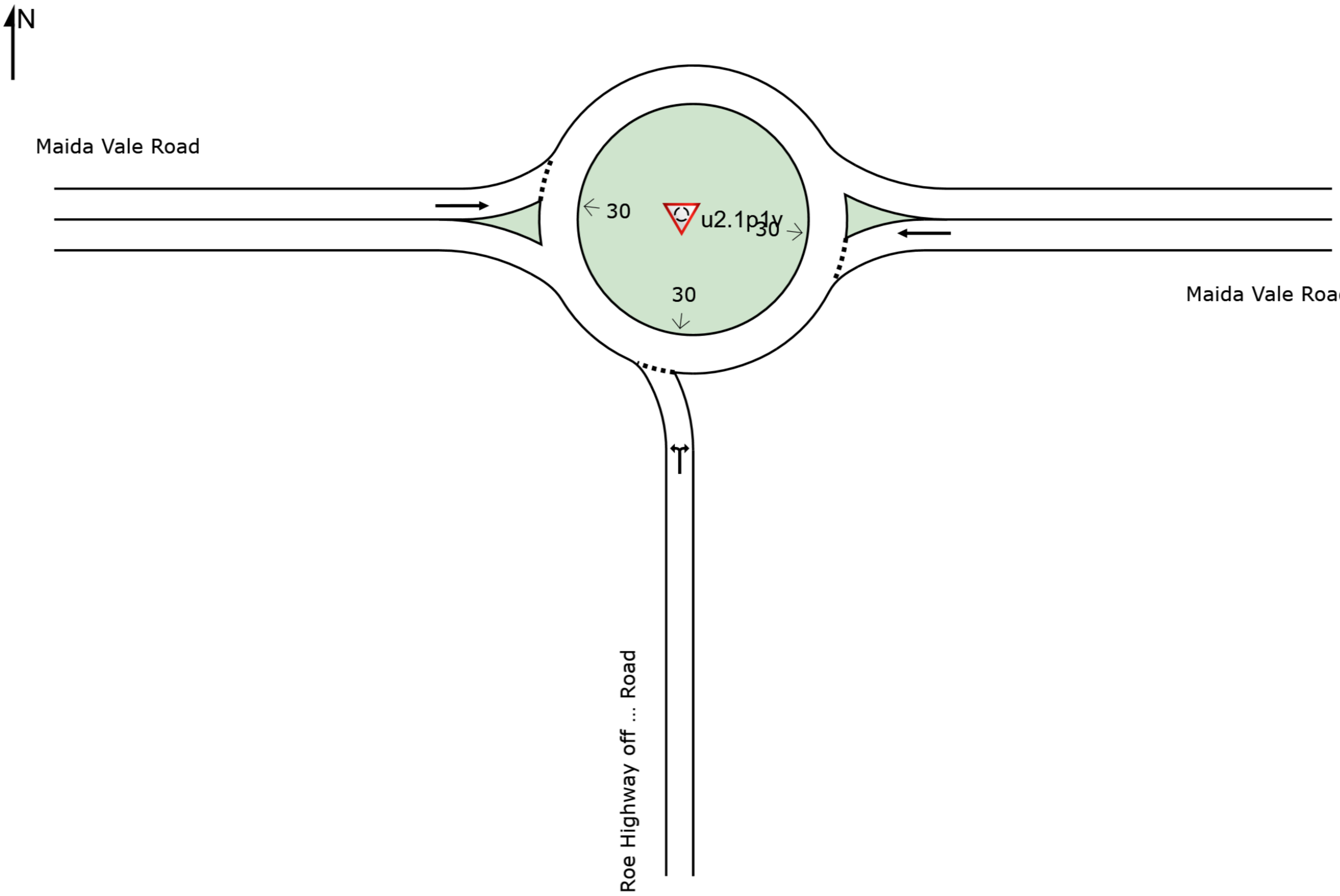
Site: u2.1p1v [u2.1p1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2031 PM - Upgrade - Conversion - Copy (Site Folder: 2031 PM KC1369)]

Network: 14 [un2.1p Network 2031 PM - Upgrade - KC1369 (Network Folder: 2031 - KC1369)]

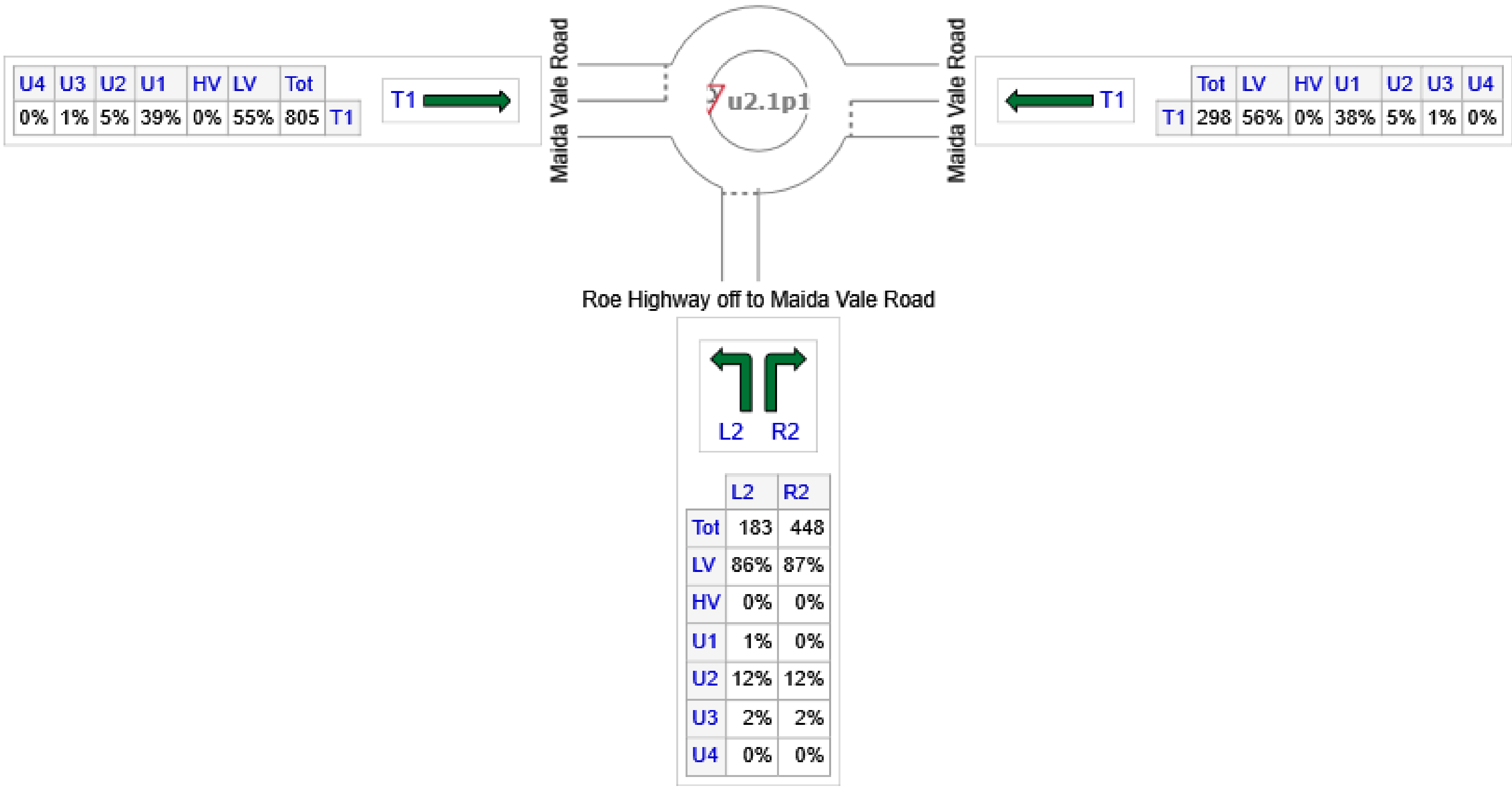
u2.1p1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2031 PM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsCl
S: Roe Highway off to Maida Vale Road	632	545	0	2	74	10	
E: Maida Vale Road	298	167	0	113	14	4	
W: Maida Vale Road	805	442	0	315	38	10	
Total	1735	1155	0	429	127	24	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Roe Highway off to Maida Vale Road															

Lane 1[d]	632	13.3	632	13.3	1051	0.601	100	11.3	LOS B	2.2	18.9	Full	400	0.0	0.0
Approach	632	13.3	632	13.3		0.601		11.3	LOS B	2.2	18.9				
East: Maida Vale Road															
Lane 1[d]	298	6.1	298	6.1	1711	0.174	100	3.3	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	298	6.1	298	6.1		0.174		3.3	LOS A	0.0	0.0				
West: Maida Vale Road															
Lane 1[d]	805	6.0	805	6.0	907	0.888	100	19.6	LOS B	7.7	61.1	Full	120	0.0	12.4
Approach	805	6.0	805	6.0		0.888		19.6	LOS B	7.7	61.1				
Intersection	1735	8.7	1735	8.7		0.888		13.8	LOS B	7.7	61.1				

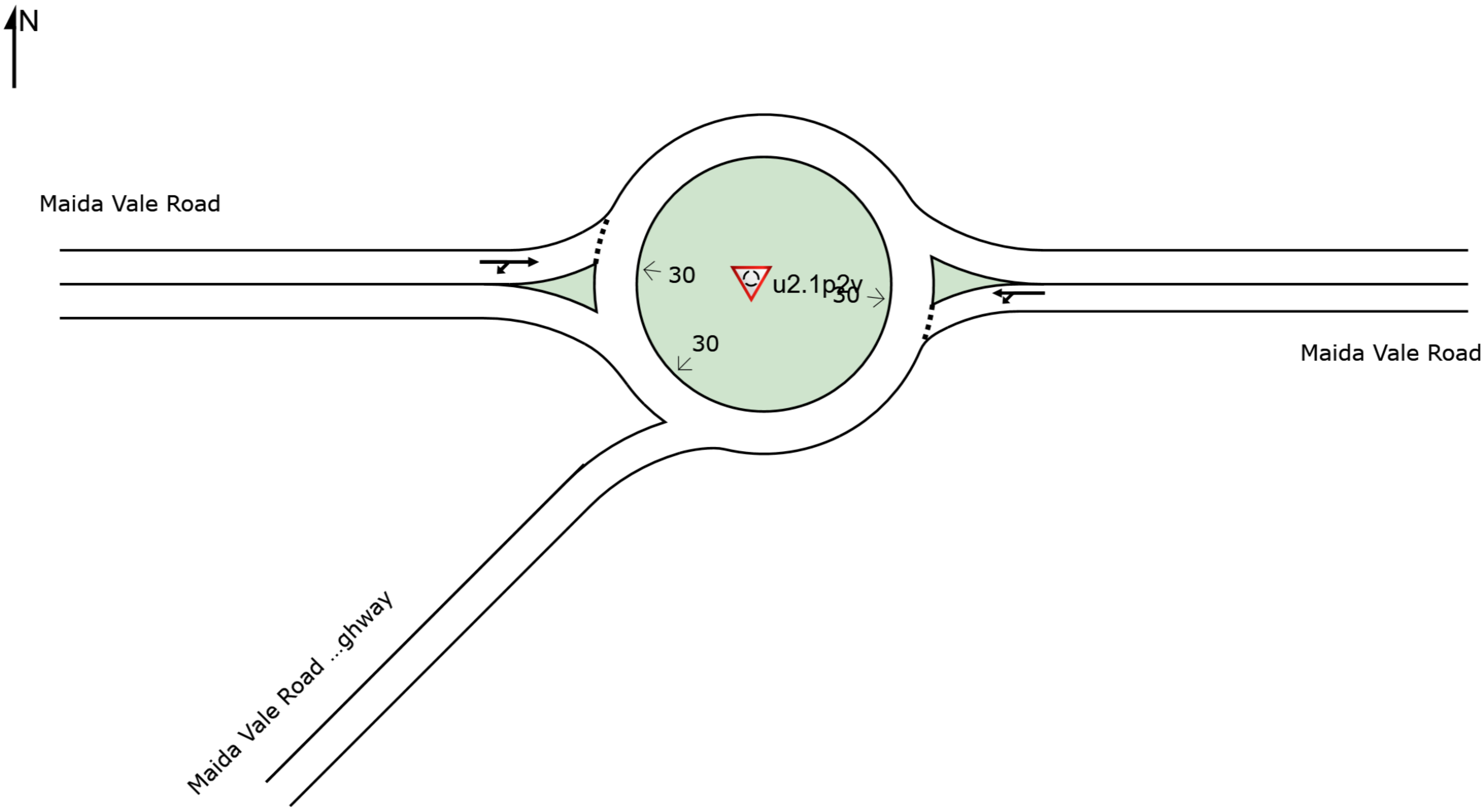
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

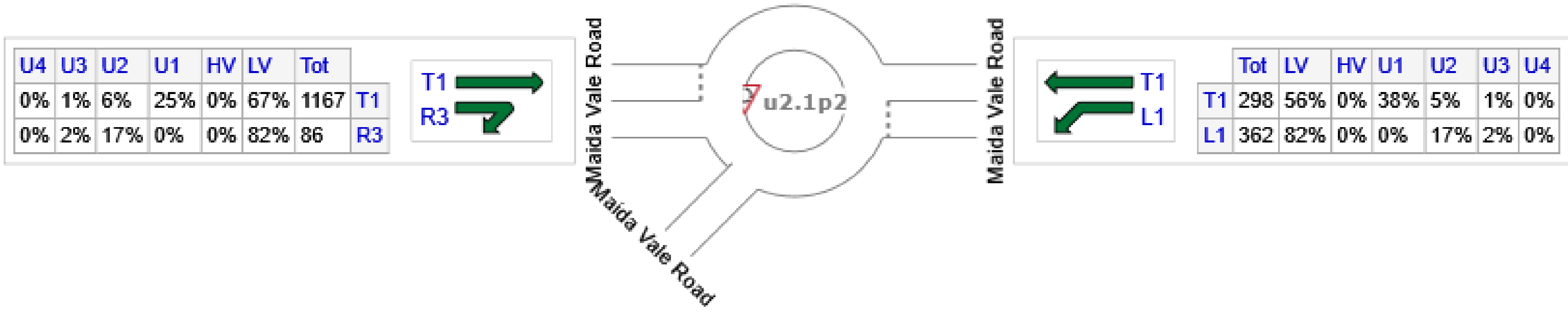
u2.1p2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2031 PM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Maida Vale Road	660	463	0	113	74	10	0
W: Maida Vale Road	1254	857	0	295	82	19	0
Total	1914	1321	0	408	156	29	0

Lane Use and Performance

	DEMAND FLOWS		ARRIVAL FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
East: Maida Vale Road															
Lane 1[d]	660	12.7	660	12.7	1338	0.493	100	4.0	LOS A	1.7	14.5	Full	120	0.0	0.0

Approach	660	12.7	660	12.7		0.493		4.0	LOS A	1.7	14.5				
West: Maida Vale Road															
Lane 1[d]	1254	8.1	1254	8.1	1693	0.741	100	3.8	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	1254	8.1	1254	8.1		0.741		3.8	LOS A	0.0	0.0				
Intersection	1914	9.7	1914	9.7		0.741		3.9	LOS A	1.7	14.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M01 Roe Highway - Maida Vale Road **Template: Site Report**

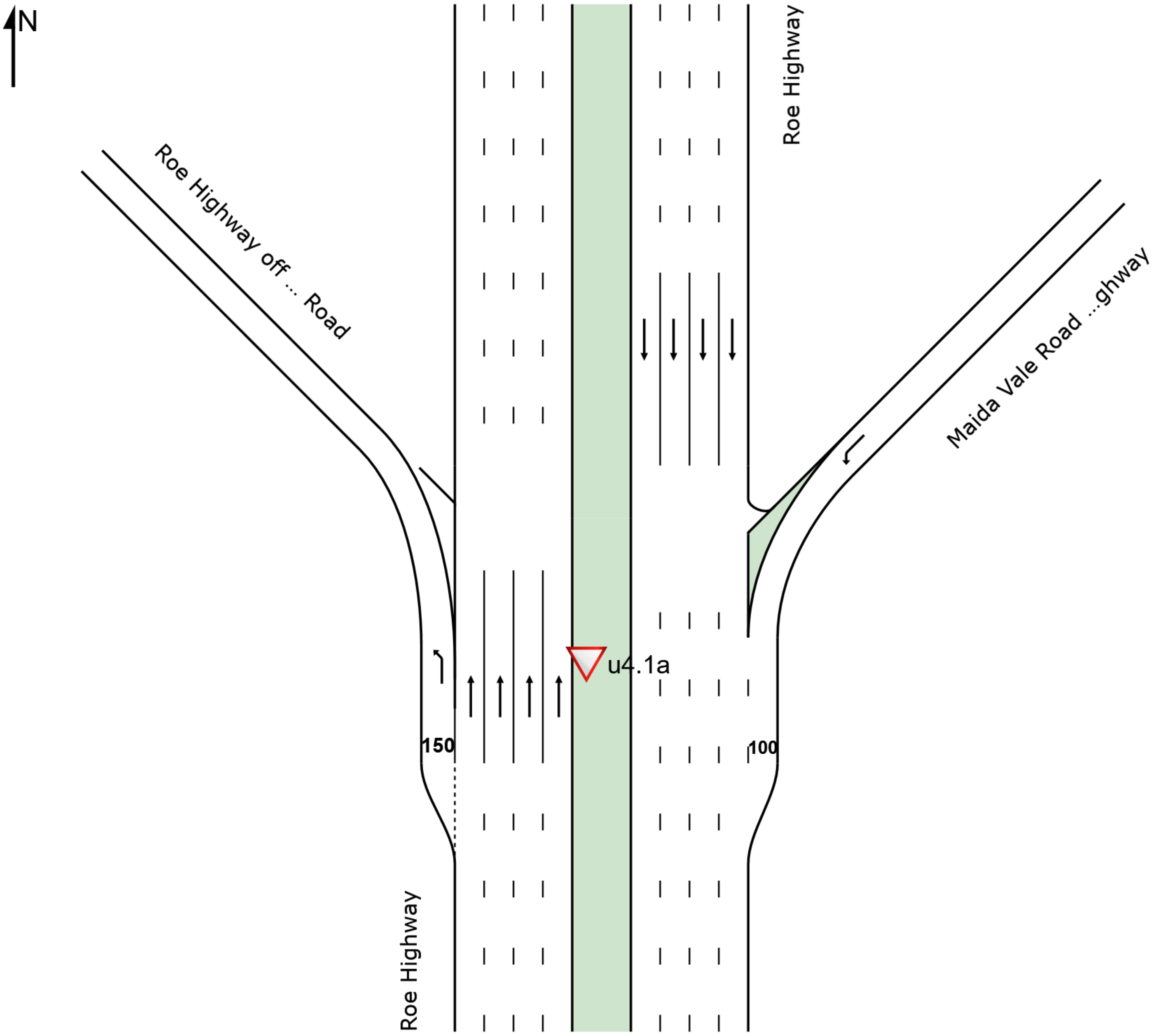
Site: u4.1a [u4.1a Roe Highway Interchange with Maida Vale Road - 2050 AM - Upgrade - Copy (Site Folder: 2050 AM KC1369)]

Network: 11 [un4.1a Network 2050 AM - Upgrade - Copy (Network Folder: 2050 - KC1369)]

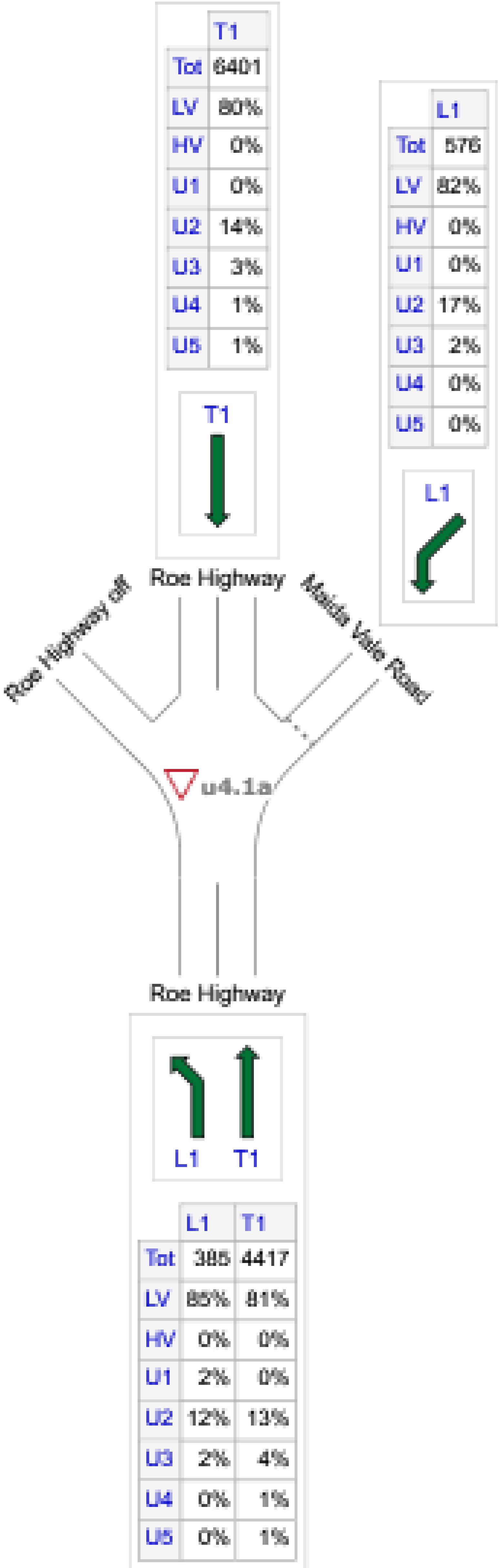
u4.1a Roe Highway Interchange with Maida Vale Road - 2050 AM - Upgrade
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	Austroads(
S: Roe Highway	4802	3902	0	10	618	183	
NE: Maida Vale Road on to Roe Highway	576	471	0	0	95	10	
N: Roe Highway	6401	5152	0	1	915	198	
Total	11779	9525	0	11	1629	391	

Lane Use and Performance

	DEMAND FLOWS [Total	DEMAND FLOWS HV]	ARRIVAL FLOWS [Total	ARRIVAL FLOWS HV]	Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh	AVERAGE BACK OF QUEUE Dist]	Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Roe Highway															

Lane 1	385	13.2	385	13.2	1714	0.225	100	8.0	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	1104	19.0	1104	19.0	1816	0.608	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1104	19.0	1104	19.0	1816	0.608	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1104	19.0	1104	19.0	1816	0.608	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1104	19.0	1104	19.0	1816	0.608	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	4802	18.5	4802	18.5		0.608		0.8	NA	0.0	0.0				
NorthEast: Maida Vale Road on to Roe Highway															
Lane 1	576	18.2	576	18.2	1613	0.357	100	4.5	LOS A	0.0	0.0	Full	400	0.0	0.0
Approach	576	18.2	576	18.2		0.357		4.5	NA	0.0	0.0				
North: Roe Highway															
Lane 1	492	19.5	492	19.5	1818	0.271	25[7]	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1970	19.5	1970	19.5	1818	1.083	100	39.1	LOS E	0.0	0.0	Full	500	0.0	0.0
Lane 3	1970	19.5	1970	19.5	1818	1.083	100	39.1	LOS E	0.0	0.0	Full	500	0.0	0.0
Lane 4	1970	19.5	1970	19.5	1818	1.083	100	39.1	LOS E	0.0	0.0	Full	500	0.0	0.0
Approach	6401	19.5	6401	19.5		1.083		36.1	NA	0.0	0.0				
Intersection	11779	19.0	11779	19.0		1.083		20.2	NA	0.0	0.0				

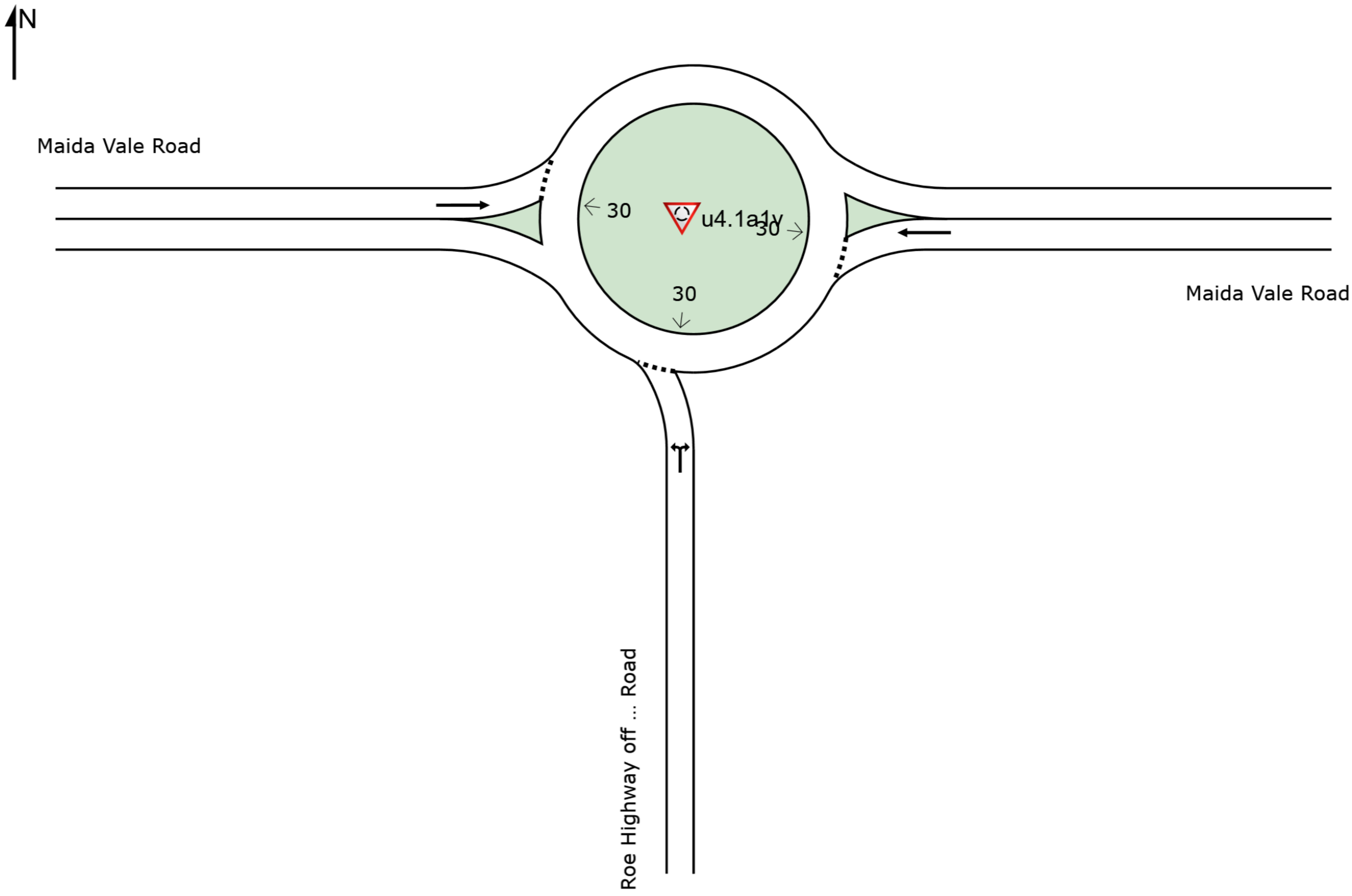
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

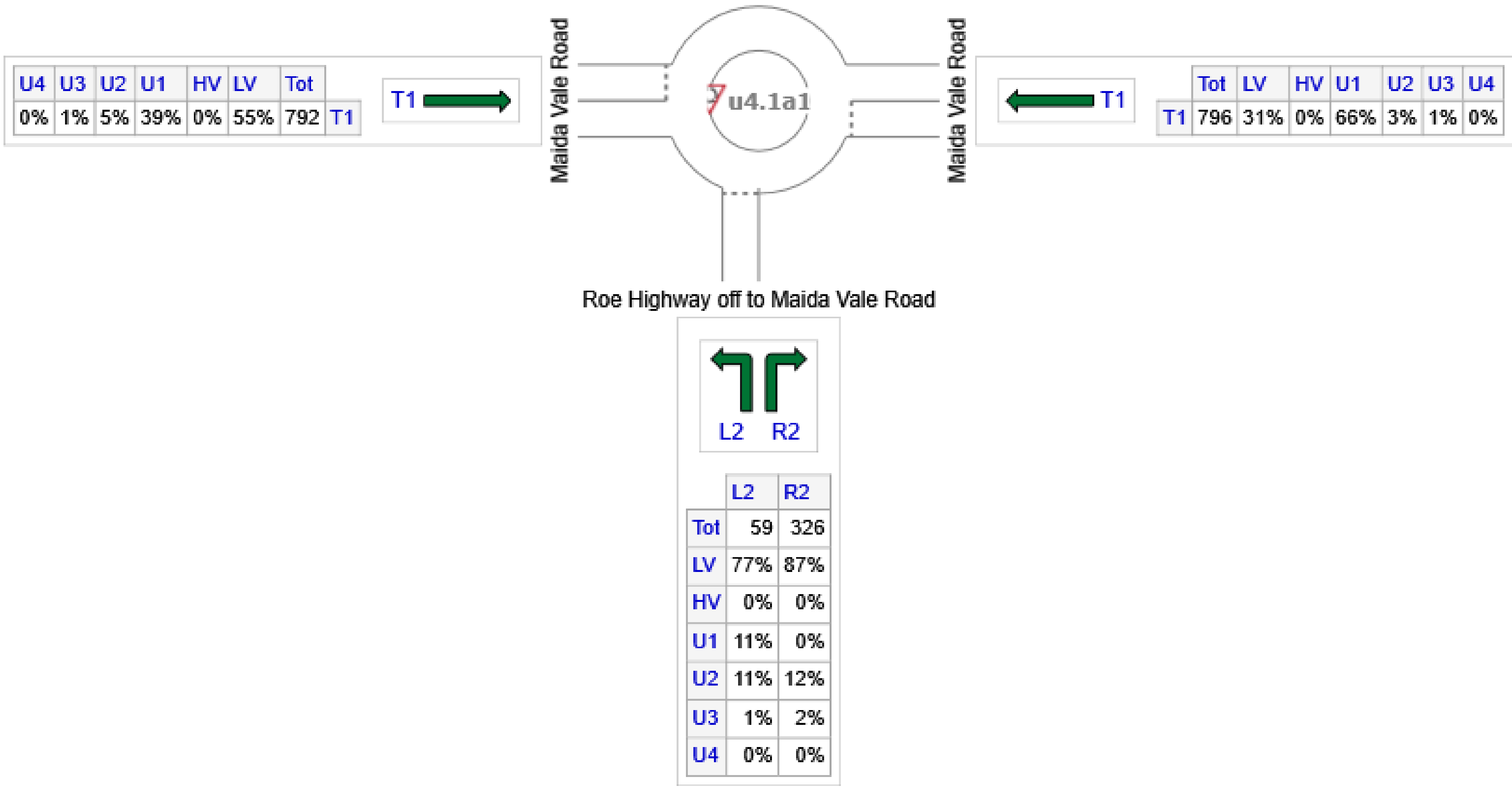
u4.1a1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2050 AM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsCl
S: Roe Highway off to Maida Vale Road	385	328	0	6	45	6	
E: Maida Vale Road	796	246	0	523	21	5	
W: Maida Vale Road	792	435	0	309	38	10	
Total	1973	1009	0	839	104	21	

Lane Use and Performance

	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist]	Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Roe Highway off to Maida Vale Road															

Lane 1[d]	385	13.2	385	13.2	692	0.557	100	19.8	LOS B	2.1	17.7	Full	400	0.0	0.0
Approach	385	13.2	385	13.2		0.557		19.8	LOS B	2.1	17.7				
East: Maida Vale Road															
Lane 1[d]	796	3.4	796	3.4	1739	0.458	100	3.3	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	796	3.4	796	3.4		0.458		3.3	LOS A	0.0	0.0				
West: Maida Vale Road															
Lane 1[d]	792	6.0	792	6.0	1022	0.774	100	9.9	LOS A	4.7	36.9	Full	120	0.0	0.0
Approach	792	6.0	792	6.0		0.774		9.9	LOS A	4.7	36.9				
Intersection	1973	6.3	1973	6.3		0.774		9.2	LOS A	4.7	36.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

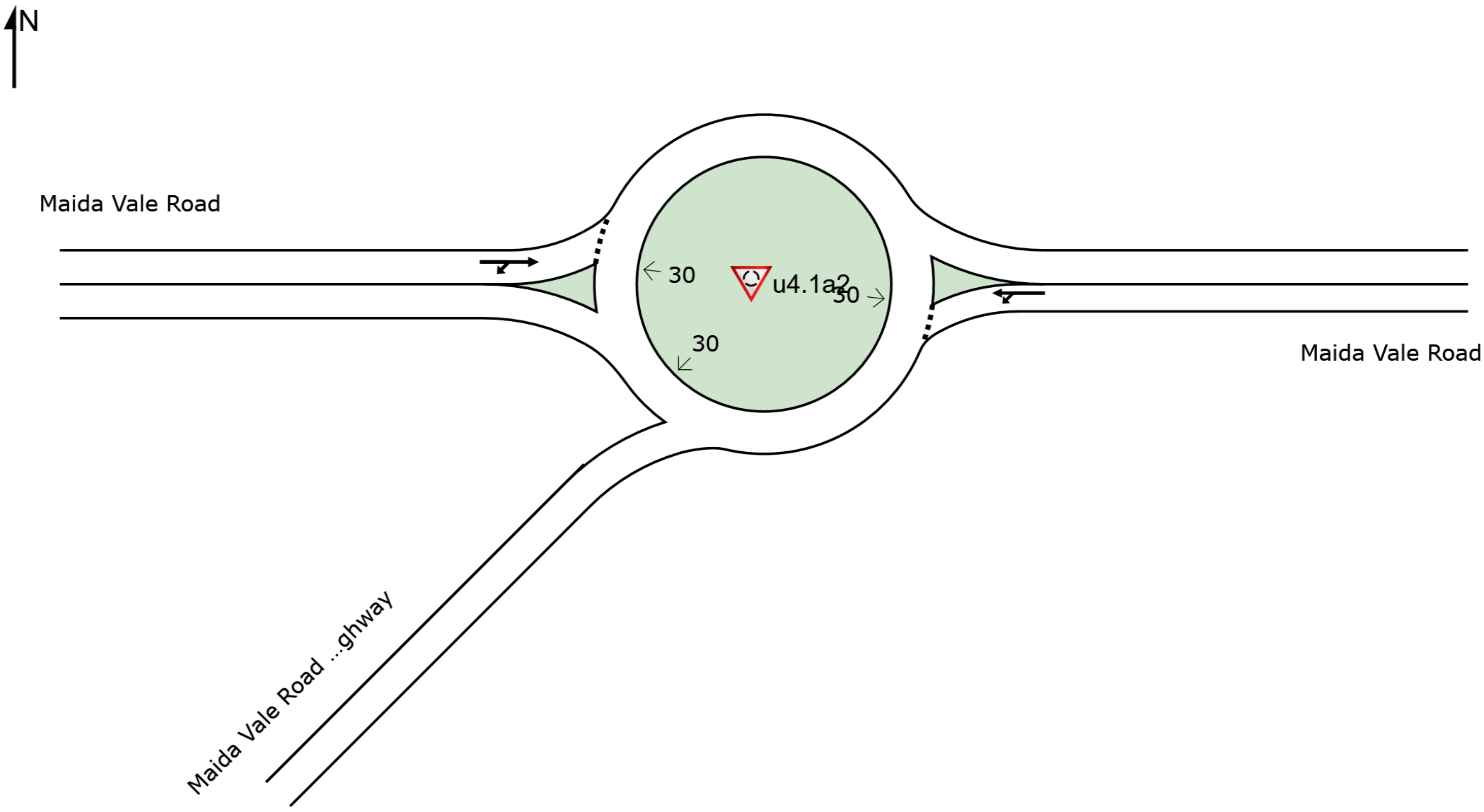
Site: u4.1a2 [u4.1a2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2050 AM - Upgrade - Conversion - Copy (Site Folder: 2050 AM KC1369)]

Network: 11 [un4.1a Network 2050 AM - Upgrade - Copy (Network Folder: 2050 - KC1369)]

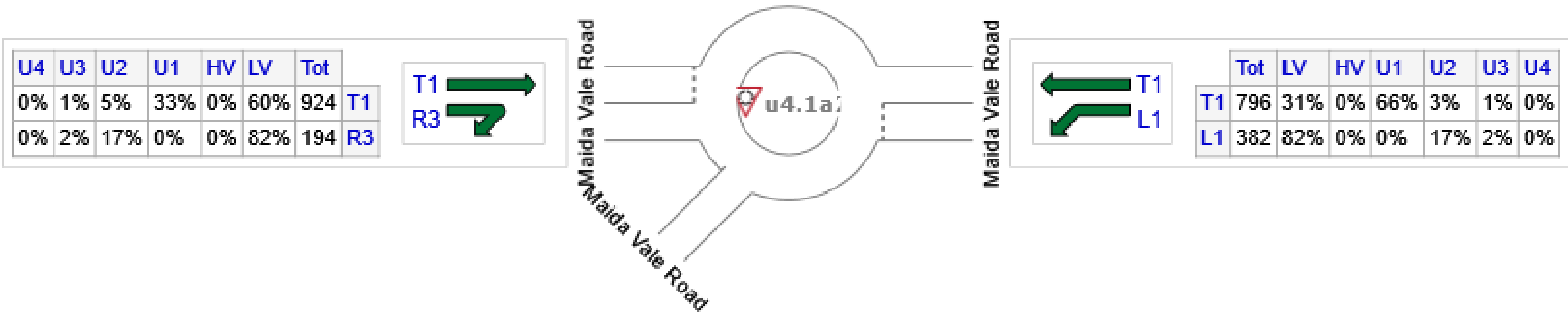
u4.1a2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2050 AM - Upgrade - Conversion
Site Category: (None)
Roundabout

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Maida Vale Road	1178	558	0	523	84	12	0
W: Maida Vale Road	1118	717	0	305	80	16	0
Total	2296	1275	0	828	165	28	0

Lane Use and Performance

	DEMAND FLOWS		ARRIVAL FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
East: Maida Vale Road															
Lane 1[d]	1178	8.2	1178	8.2	1215	0.969	100	24.7	LOS C	16.5	133.0	Full	120	0.0	67.4

Approach	1178	8.2	1178	8.2		0.969		24.7	LOS C	16.5	133.0				
West: Maida Vale Road															
Lane 1[d]	1118	8.6	1118	8.6	1689	0.662	100	4.6	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	1118	8.6	1118	8.6		0.662		4.6	LOS A	0.0	0.0				
Intersection	2296	8.4	2296	8.4		0.969		14.9	LOS B	16.5	133.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M01 Roe Highway - Maida Vale Road | **Template: Site Report**

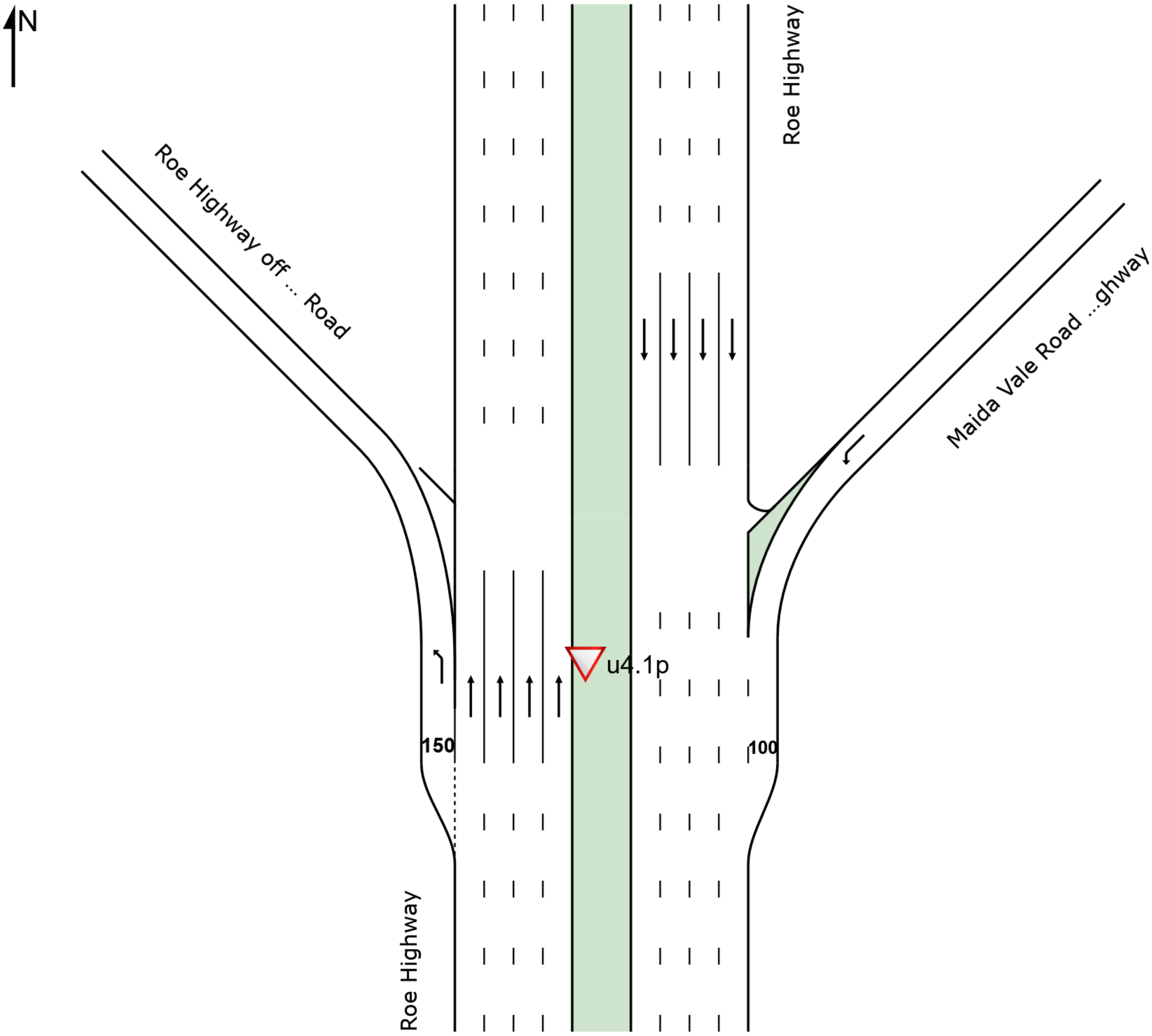
Site: u4.1p [u4.1p Roe Highway Interchange with Maida Vale Road - 2050 PM - Upgrade - Copy (Site Folder: 2050 PM KC1369)]

Network: 12 [un4.1p Network 2050 PM - Upgrade - Copy (Network Folder: 2050 - KC1369)]

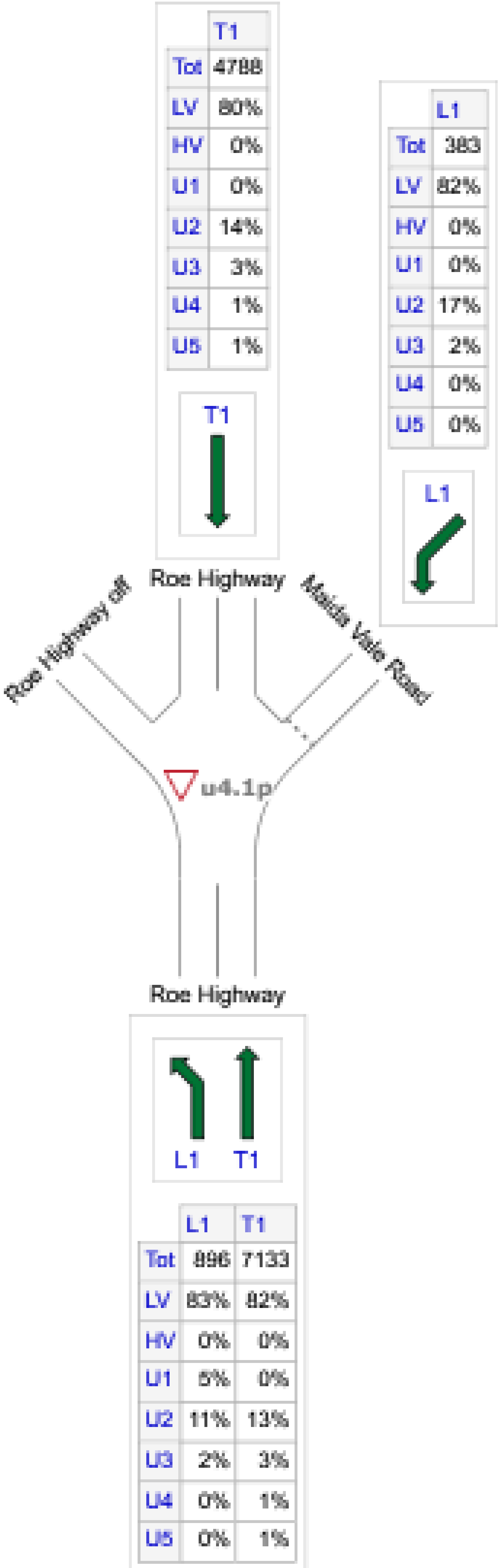
u4.1p Roe Highway Interchange with Maida Vale Road - 2050 PM - Upgrade
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



Some reduced upstream exit flow rates exist due to capacity constraint applied to oversaturated approach lanes. See Arrival Flows in Lane Summary reports.

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	Austroads(
S: Roe Highway	8028	6560	0	49	1027	235	
NE: Maida Vale Road on to Roe Highway	383	314	0	0	63	7	
N: Roe Highway	4788	3854	0	1	685	148	
Total	13200	10727	0	51	1775	390	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Roe Highway															

Lane 1	896	12.8	896	12.8	1722	0.520	100	8.1	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	1783	18.3	1783	18.3	1831	0.974	100	2.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1783	18.3	1783	18.3	1831	0.974	100	2.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1783	18.3	1783	18.3	1831	0.974	100	2.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1783	18.3	1783	18.3	1831	0.974	100	2.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	8028	17.7	8028	17.7		0.974		3.0	NA	0.0	0.0				
NorthEast: Maida Vale Road on to Roe Highway															
Lane 1	384	18.2	383	18.2	1613	0.238	100	4.4	LOS A	0.0	0.0	Full	400	0.0	0.0
Approach	384	18.2	383[N1]	18.2		0.238		4.4	NA	0.0	0.0				
North: Roe Highway															
Lane 1	368	19.5	368	19.5	1818	0.203	25[7]	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1473	19.5	1473	19.5	1818	0.810	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1473	19.5	1473	19.5	1818	0.810	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1473	19.5	1473	19.5	1818	0.810	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	4788	19.5	4788	19.5		0.810		0.3	NA	0.0	0.0				
Intersection	13201	18.4	13200[N1]	18.4		0.974		2.0	NA	0.0	0.0				

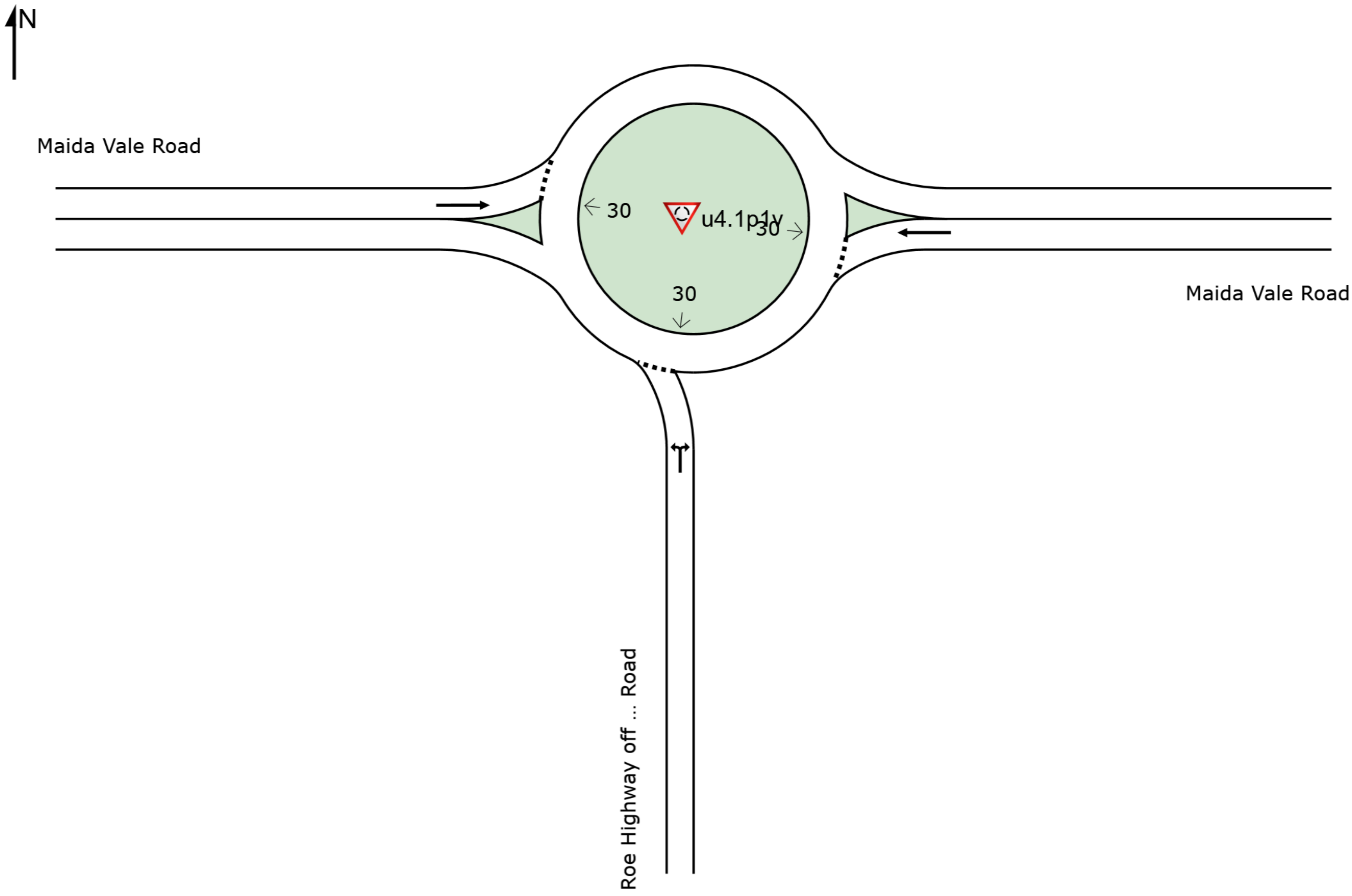
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

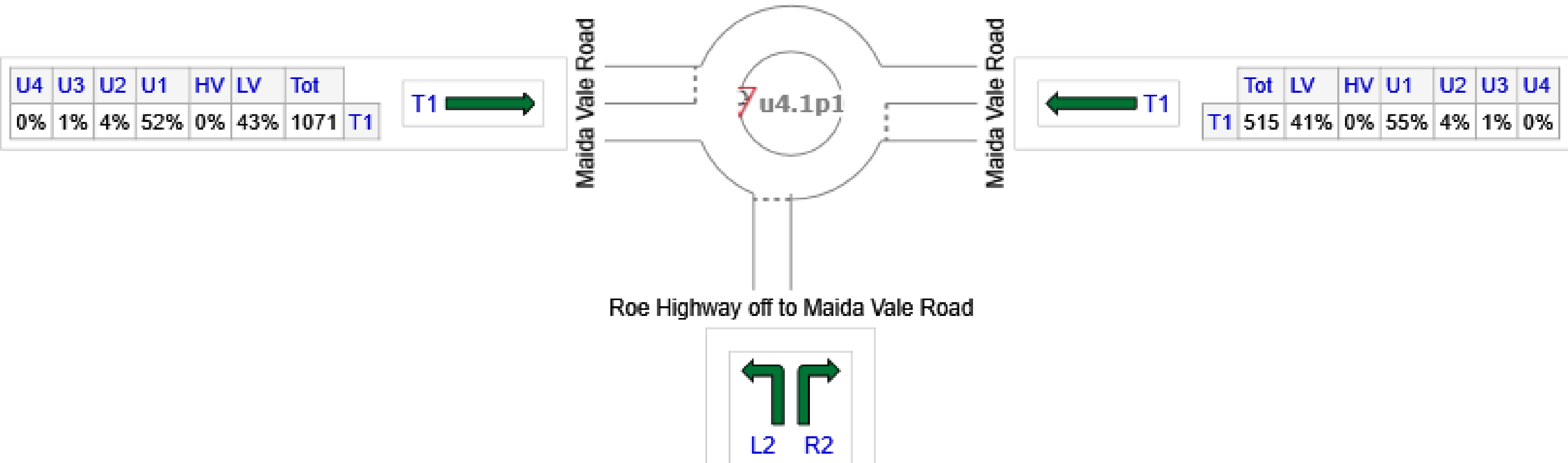
u4.1p1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2050 PM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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



OD Arrival Flows



	L2	R2
Tot	240	325
LV	71%	87%
HV	0%	0%
U1	18%	0%
U2	10%	12%
U3	1%	2%
U4	0%	0%

Some reduced upstream exit flow rates exist due to capacity constraint applied to oversaturated approach lanes. See Arrival Flows in Lane Summary reports.

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsCl
S: Roe Highway off to Maida Vale Road	565	453	0	42	62	8	
E: Maida Vale Road	515	210	0	282	18	5	
W: Maida Vale Road	1071	462	0	558	40	10	
Total	2151	1126	0	882	120	23	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Roe Highway off to Maida Vale Road															

Lane 1[d]	565	12.4	565	12.4	869	0.651	100	15.2	LOS B	2.9	24.0	Full	400	0.0	0.0
Approach	565	12.4	565	12.4		0.651		15.2	LOS B	2.9	24.0				
East: Maida Vale Road															
Lane 1[d]	515	4.4	515	4.4	1728	0.298	100	3.3	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	515	4.4	515	4.4		0.298		3.3	LOS A	0.0	0.0				
West: Maida Vale Road															
Lane 1[d]	1071	4.7	1071	4.7	1050	1.020	100	50.5	LOS E	21.7	168.6	Full	120	0.0	100.0
Approach	1071	4.7	1071	4.7		1.020		50.5	LOS E	21.7	168.6				
Intersection	2151	6.6	2151	6.6		1.020		29.9	LOS C	21.7	168.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

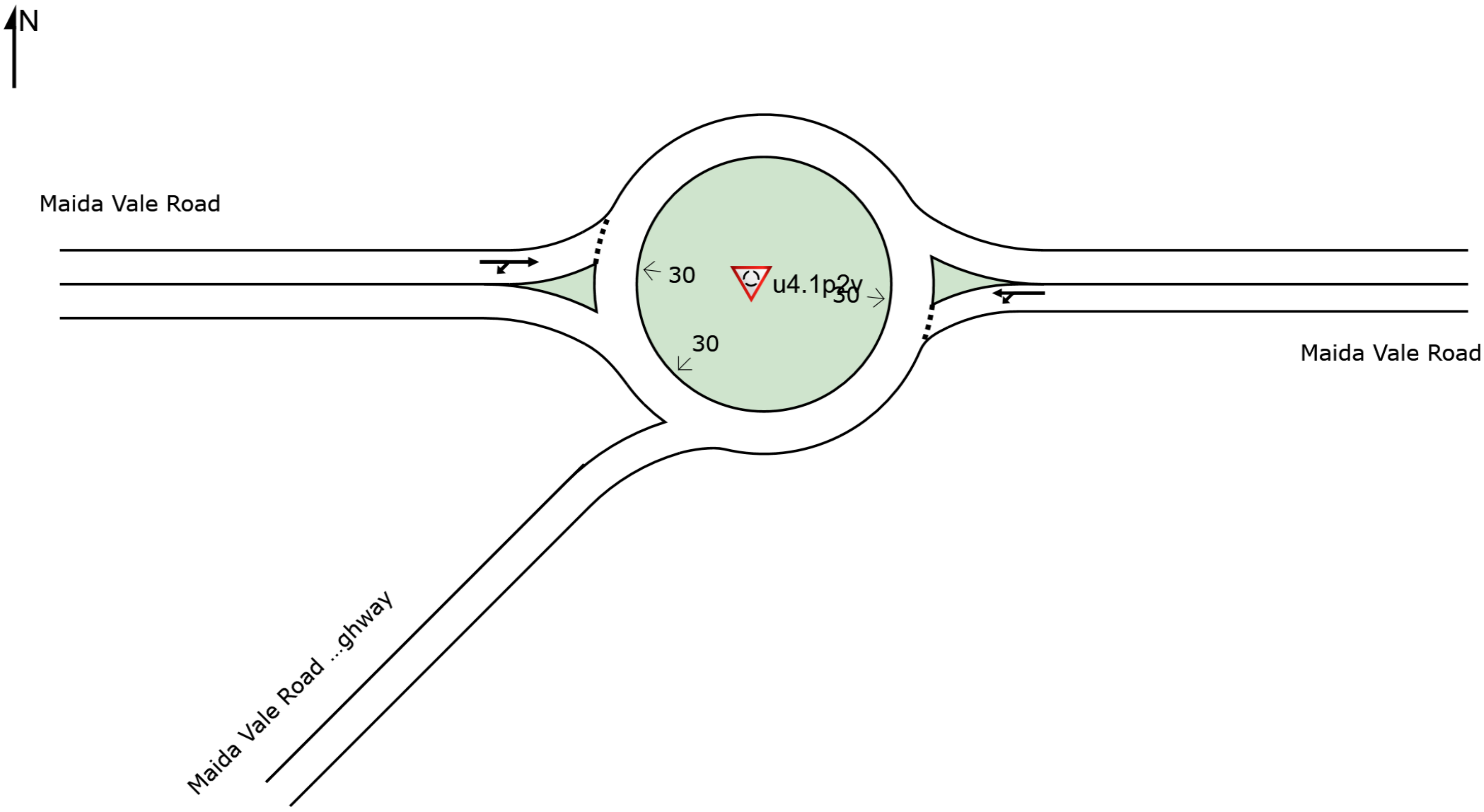
Site: u4.1p2v [u4.1p2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2050 PM - Upgrade - Copy (Site Folder: 2050 PM KC1369)]

Network: 12 [un4.1p Network 2050 PM - Upgrade - Copy (Network Folder: 2050 - KC1369)]

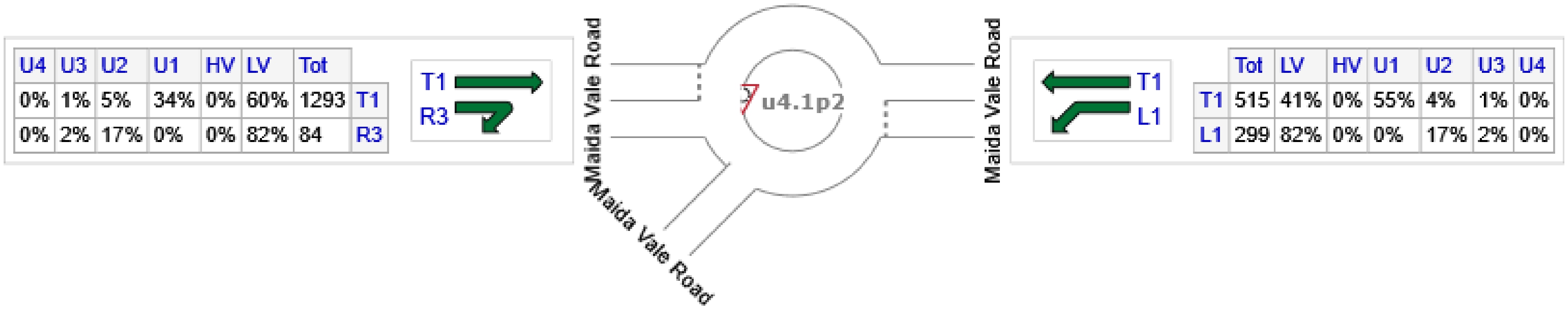
u4.1p2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2050 PM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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



OD Arrival Flows



Some reduced upstream exit flow rates exist due to capacity constraint applied to oversaturated approach lanes. See Arrival Flows in Lane Summary reports.

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Maida Vale Road	814	454	0	282	67	10	0
W: Maida Vale Road	1377	841	0	437	81	19	0
Total	2191	1295	0	719	148	28	0

Lane Use and Performance

	DEMAND FLOWS		ARRIVAL FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
East: Maida Vale Road															
Lane 1[d]	814	9.5	814	9.5	1380	0.590	100	4.2	LOS A	2.4	19.4	Full	120	0.0	0.0

Approach	814	9.5	814	9.5		0.590		4.2	LOS A	2.4	19.4				
West: Maida Vale Road															
Lane 1[d]	1396	7.2	1377	7.2	1701	0.810	100	3.7	LOS A	0.0	0.0	Full	160	0.0	0.0
Approach	1396	7.2	1377[N1]	7.2		0.810		3.7	LOS A	0.0	0.0				
Intersection	2209	8.0	2191[N1]	8.1		0.810		3.9	LOS A	2.4	19.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

USER REPORT FOR NETWORK

All Movement Classes

Project: KC00604.000 M01 Roe Highway - Maida Vale Road

Template: Network Site Report

Network: un2.1a [un2.1a Network 2031 AM - Upgrade - KC1369 (Network Folder: 2031 - KC1369)]

un2.1a Network 2031 AM - Upgrade
Network Category: Existing Design

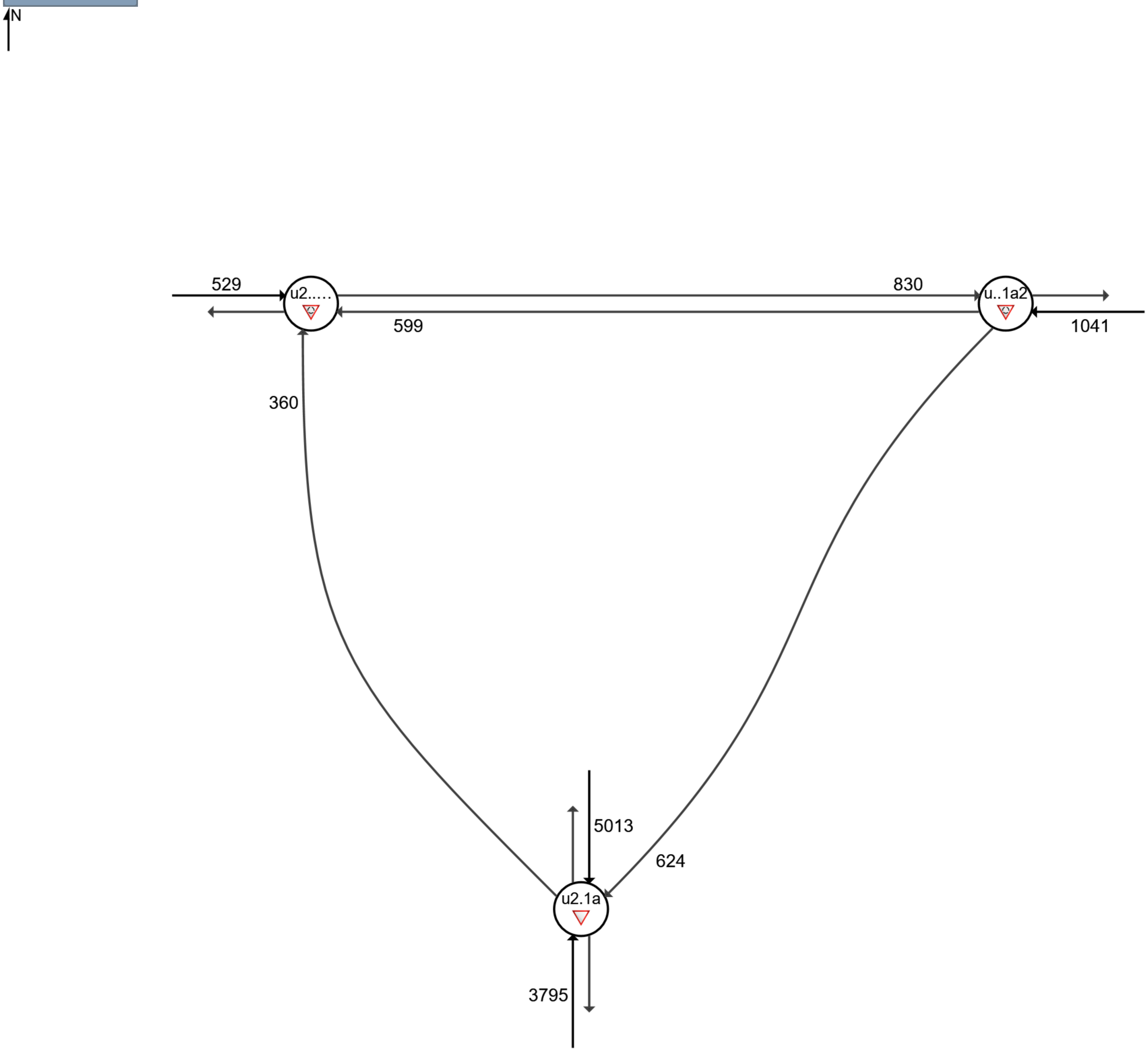
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
u2.1a	NA	u2.1a Roe Highway Interchange with Maida Vale Road - 2031 AM - Upgrade - Copy
u2.1a1v	NA	u2.1a1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2031 AM - Upgrade - Conversion - Copy
u2.1a2	NA	u2.1a2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2031 AM - Upgrade - Conversion - Copy

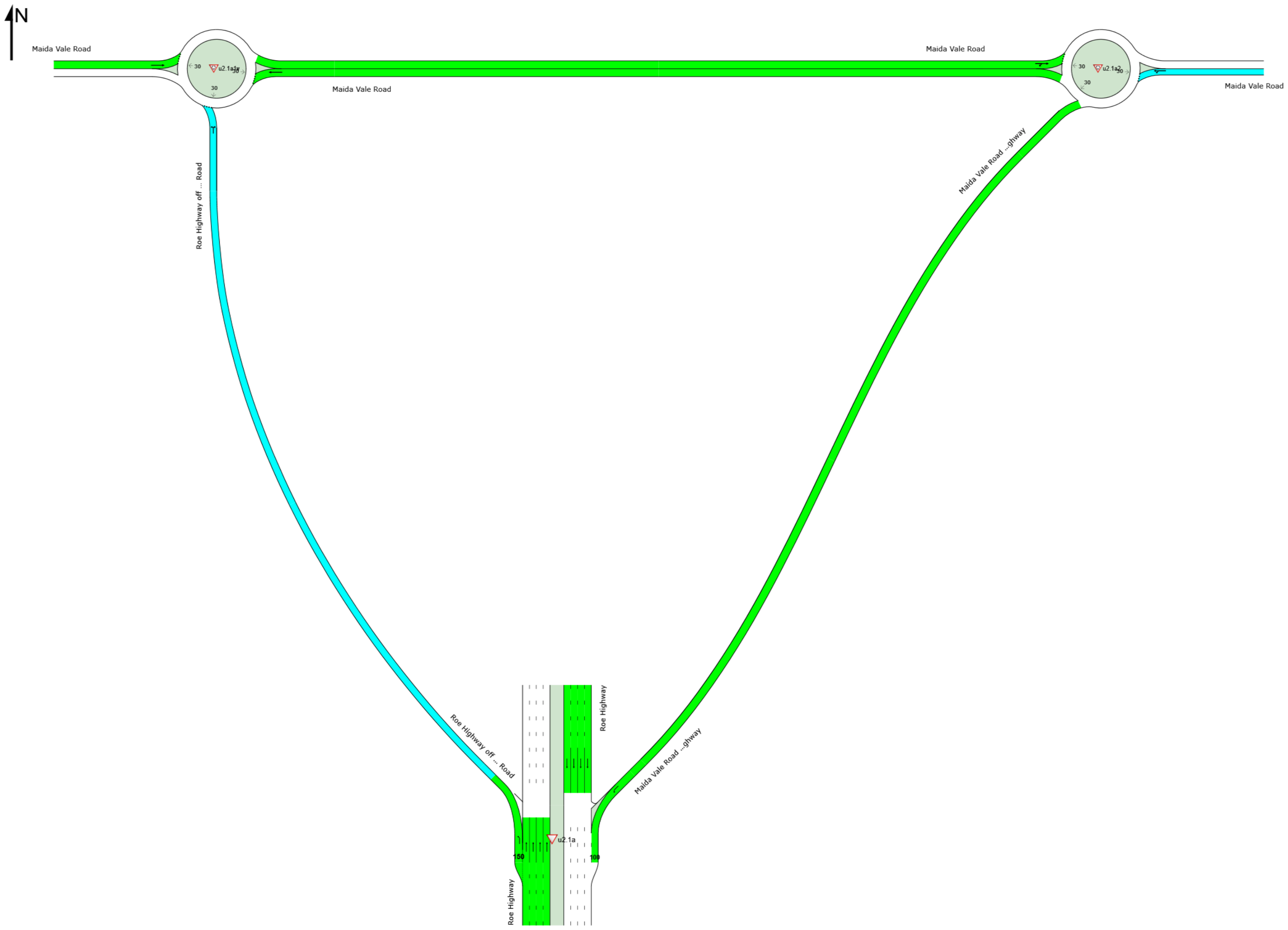
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Network: un2.1p [un2.1p Network 2031 PM - Upgrade - KC1369 (Network Folder: 2031 - KC1369)]

un2.1p Network 2031 PM - Upgrade
Network Category: (None)

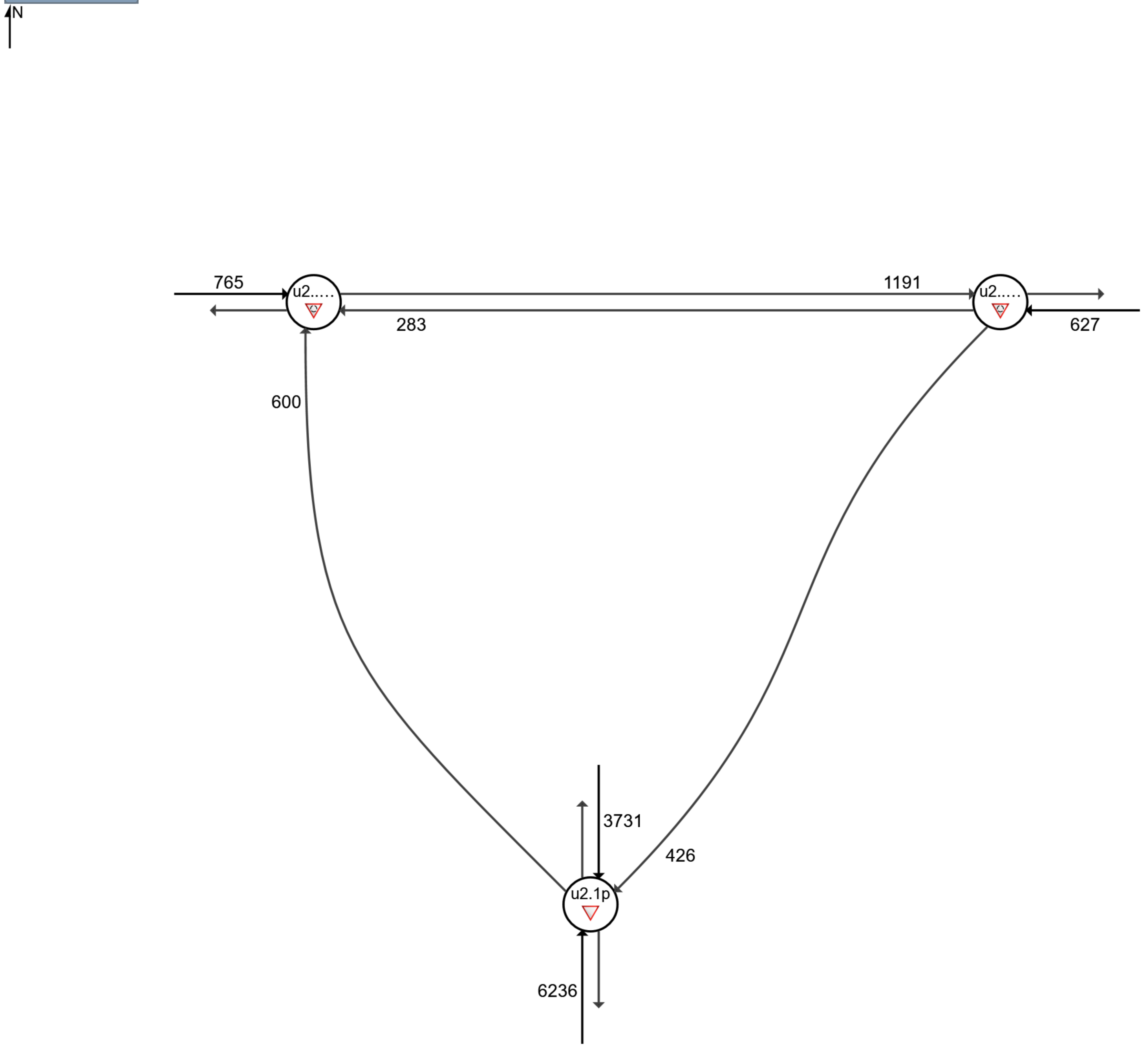
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
u2.1p	NA	u2.1p Roe Highway Interchange with Maida Vale Road - 2031 PM - Upgrade - Copy
u2.1p1v	NA	u2.1p1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2031 PM - Upgrade - Conversion - Copy
u2.1p2v	NA	u2.1p2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2031 PM - Upgrade - Conversion - Copy

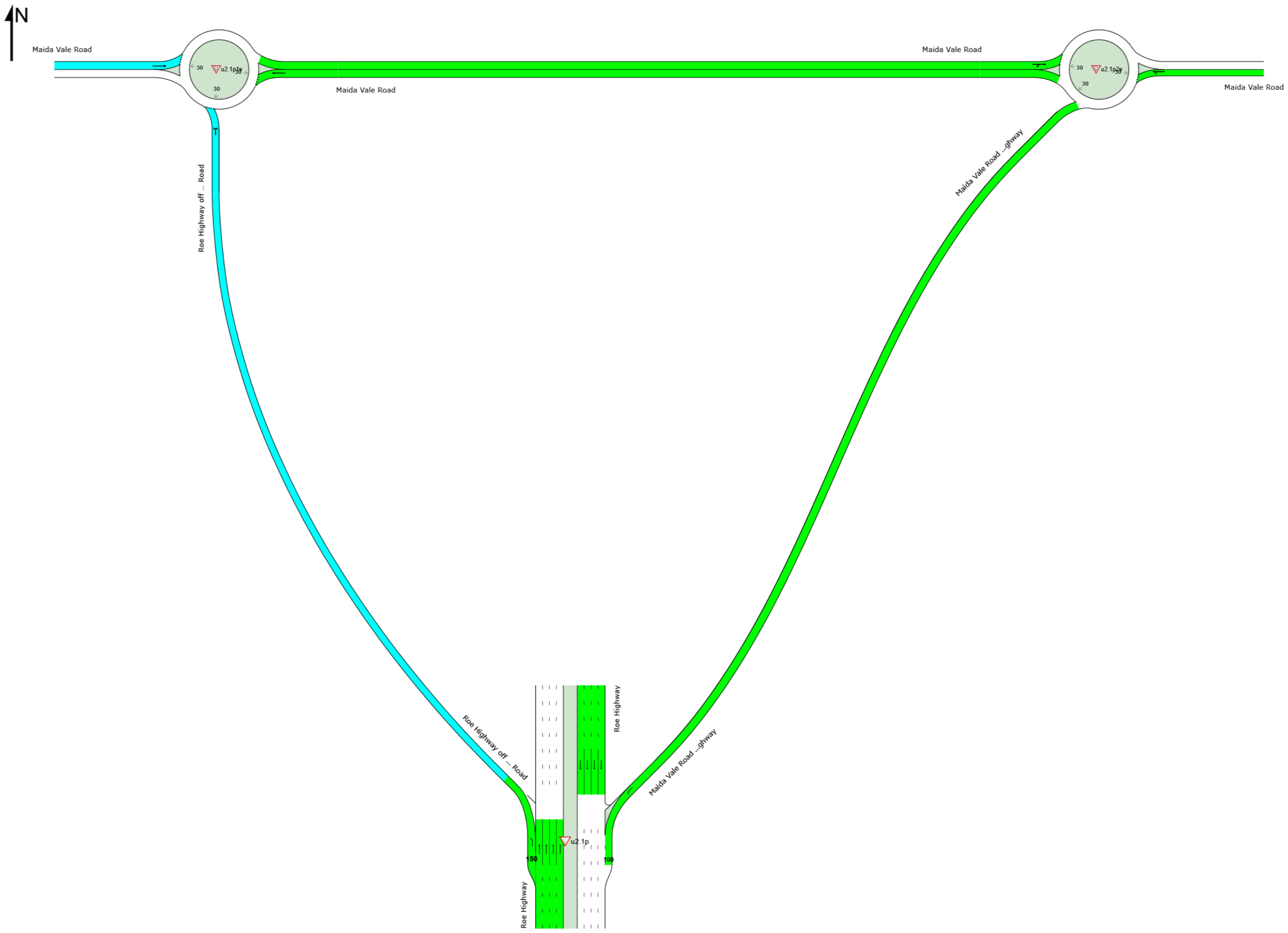
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Network: un4.1a [un4.1a Network 2050 AM - Upgrade - KC1369 (Network Folder: 2050 - KC1369)]

un4.1a Network 2050 AM - Upgrade
Network Category: Existing Design

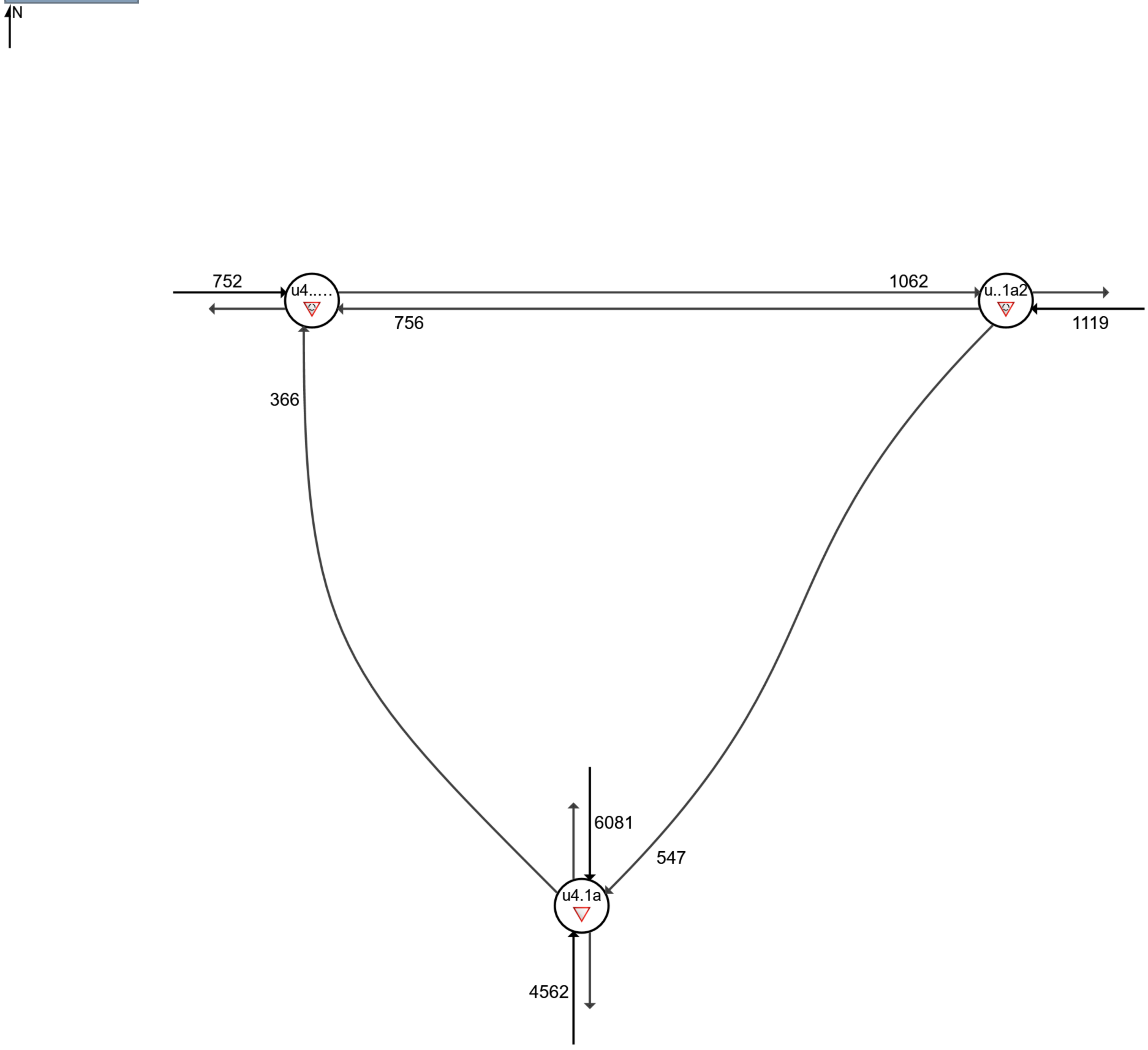
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
u4.1a	NA	u4.1a Roe Highway Interchange with Maida Vale Road - 2050 AM - Upgrade - Copy
u4.1a1v	NA	u4.1a1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2050 AM - Upgrade - Copy
u4.1a2	NA	u4.1a2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2050 AM - Upgrade - Conversion - Copy

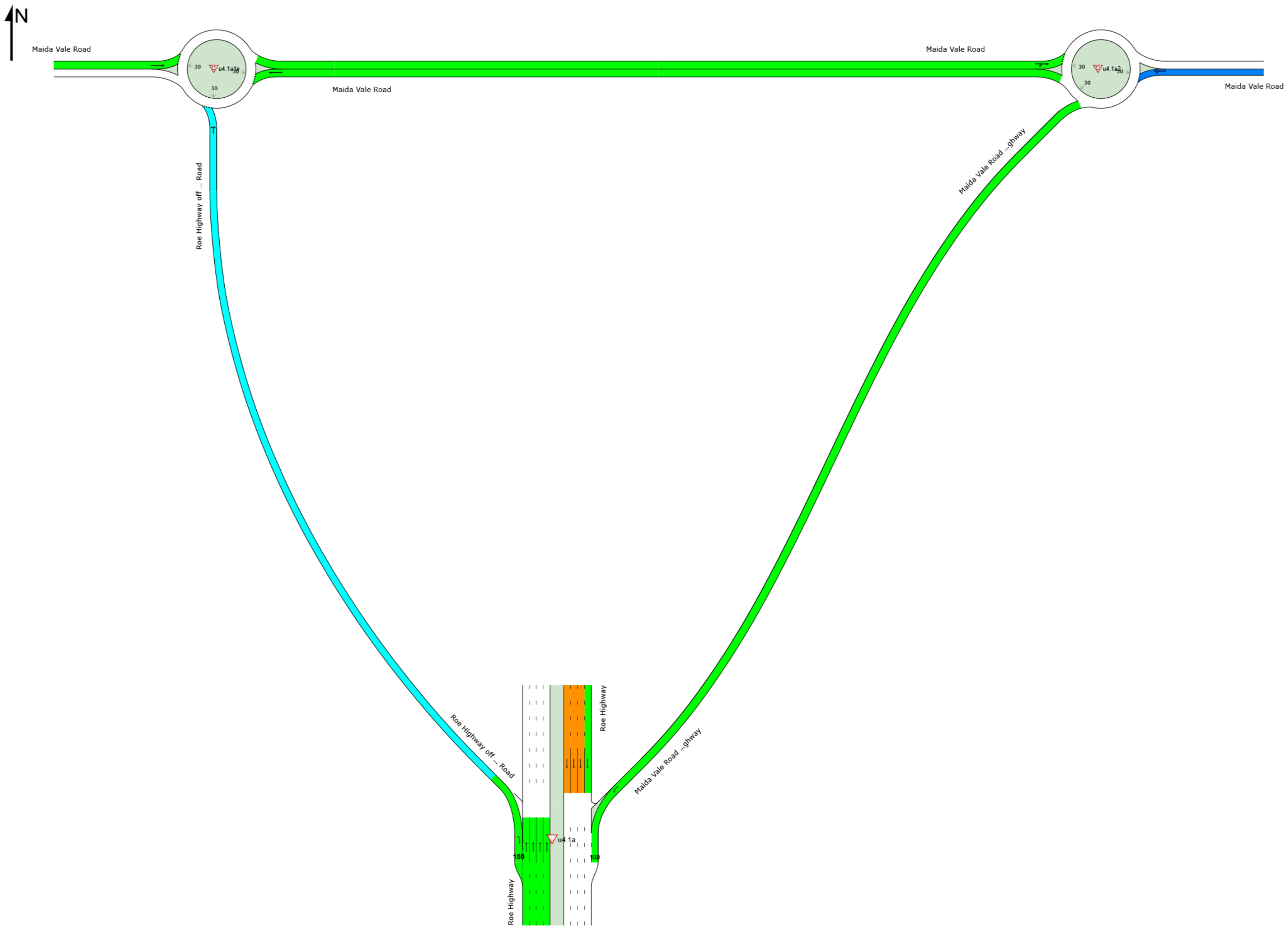
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Network: un4.1p [un4.1p Network 2050 PM - Upgrade - KC1369 (Network Folder: 2050 - KC1369)]

un4.1p Network 2050 PM - Upgrade
Network Category: (None)

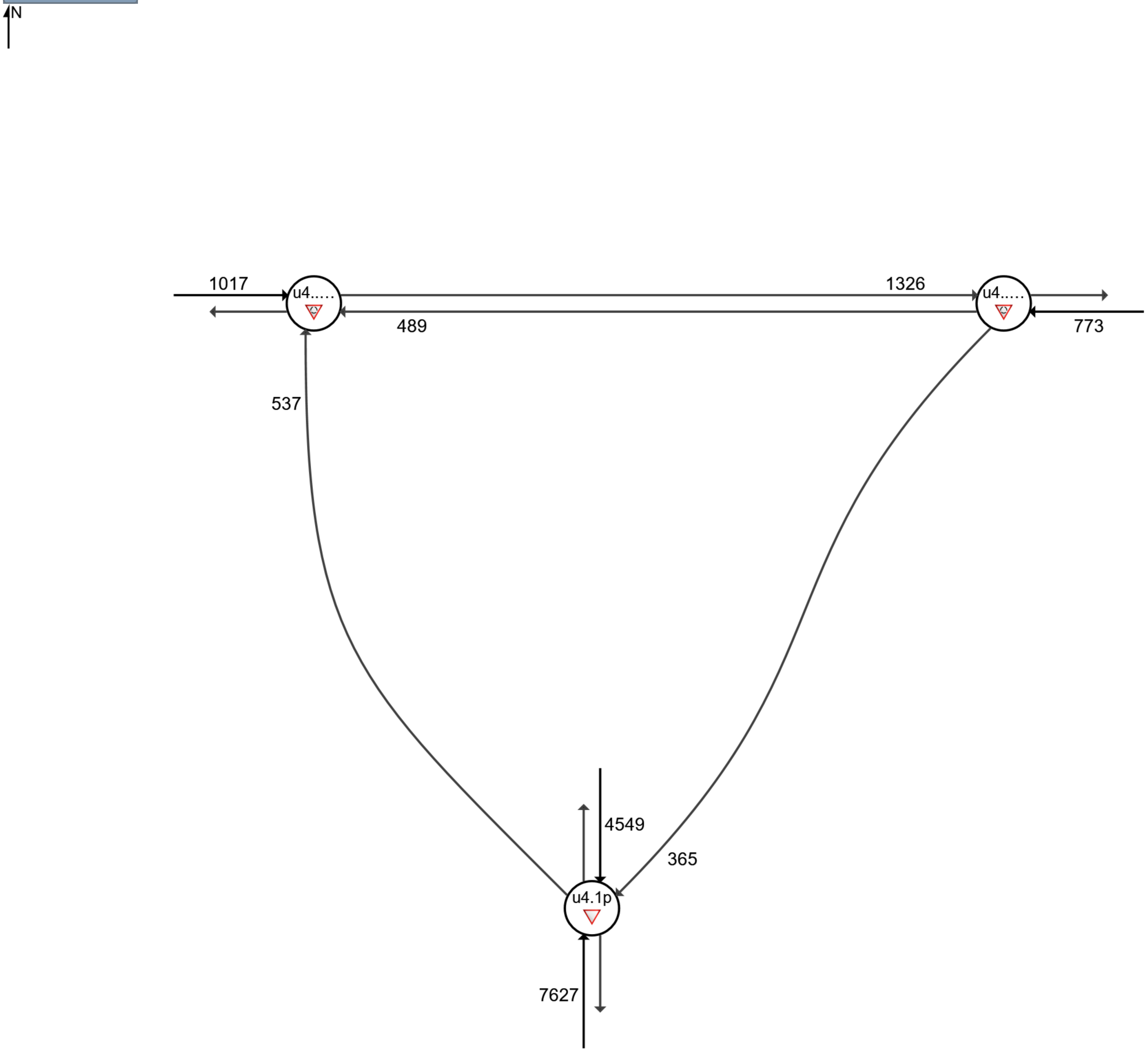
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
u4.1p	NA	u4.1p Roe Highway Interchange with Maida Vale Road - 2050 PM - Upgrade - Copy
u4.1p1v	NA	u4.1p1 Maida Vale Road - Roe Highway off to Maida Vale Road - 2050 PM - Upgrade - Copy
u4.1p2v	NA	u4.1p2 Maida Vale Road - Maida Vale Road on to Roe Highway - 2050 PM - Upgrade - Copy

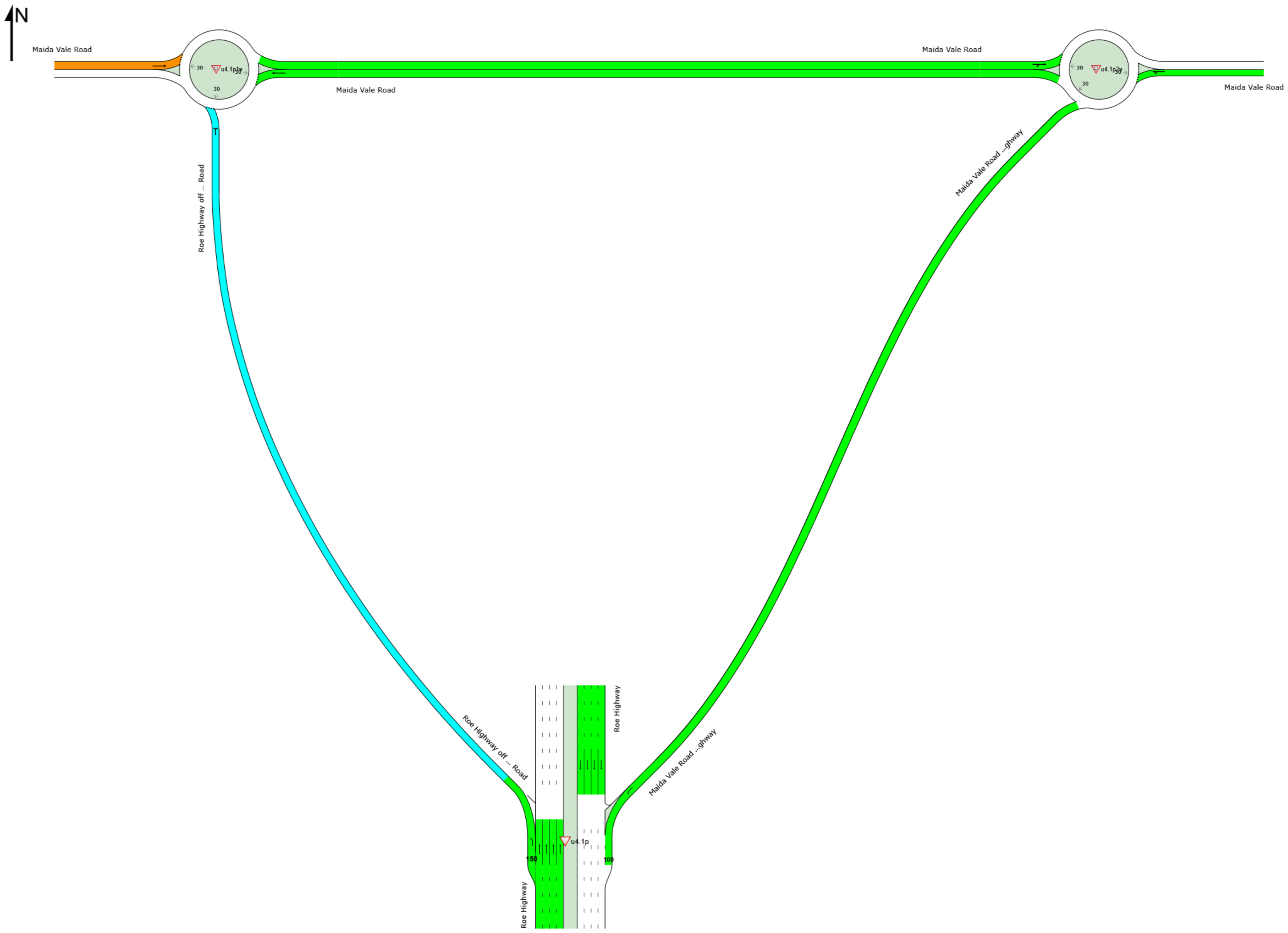
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Organisation: KC TRAFFIC AND TRANSPORT | Licence: NETWORK / 1PC | Created: Wednesday, February 1, 2023 15:09:21
Project: C:\Users\Nemanja\Box\KCTT Projects\KC00000 Current Projects\KC00604.000 Forrestfield North - Structure Plan Preparation\Outgoing\SIDRA\Residential Precinct\221213 Rev D\Future Models\KC00604.000 M01 Roe Highway - Maida Vale Road.sip9

USER REPORT FOR SITE

All Movement Classes

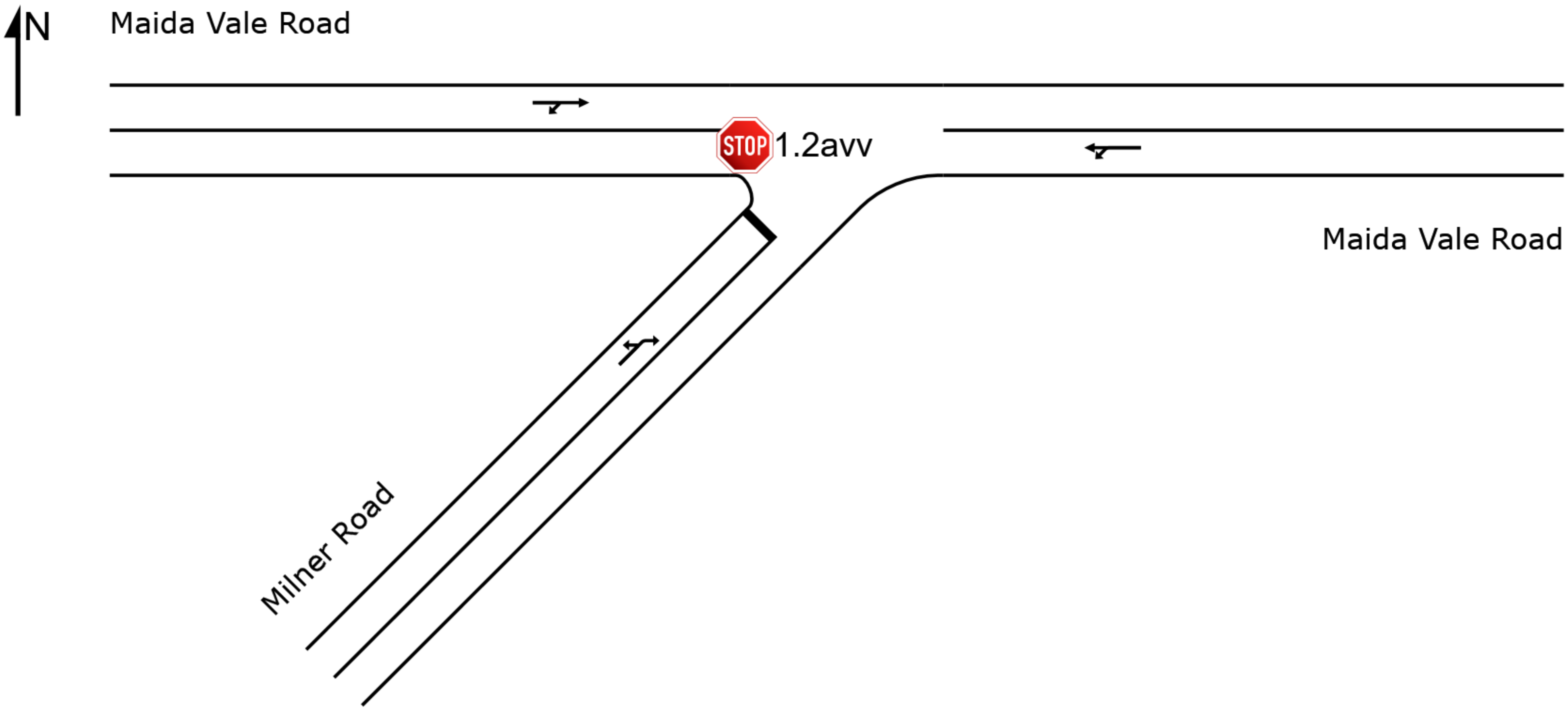
Project: KC00604.000 M02 Maida Vale Road - Milner Road — **Template: Single Site User Report**

Site: 1.2avv [1.2a Maida Vale Road - Milner Road - 2016 AM - Conversion (Site Folder: General)]

1.2a Maida Vale Road - Milner Road - 2016 AM
Site Category: Existing Design
Stop (Two-Way)

Site Layout

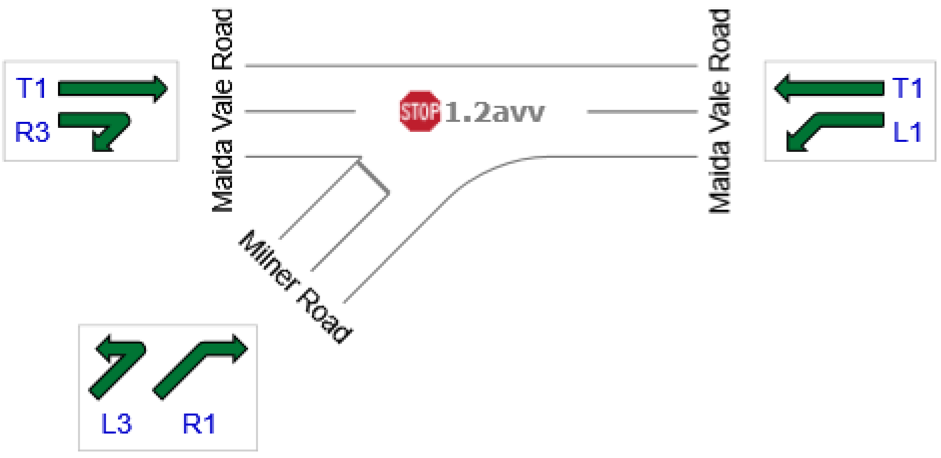
Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Input Volumes

Volume Display Method: Total and %

U3	U2	HV	LV	Tot	
2%	8%	0%	90%	93	T1
3%	8%	0%	89%	8	R3



	Tot	LV	HV	U2	U3
T1	58	90%	0%	8%	2%
L1	42	89%	0%	8%	3%

	L3	R1
Tot	1	24
LV	89%	89%
HV	0%	0%
U2	8%	8%
U3	3%	3%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
E: Maida Vale Road	100	90	0	8	2
W: Maida Vale Road	101	91	0	8	2
SW: Milner Road	25	22	0	2	1
Total	226	203	0	18	5

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Maida Vale Road													
Lane 1	105	10.2	1778	0.059	100	2.3	LOS A	0.0	0.0	Full	350	0.0	0.0
Approach	105	10.2		0.059		2.3	NA	0.0	0.0				
West: Maida Vale Road													
Lane 1	106	9.9	1754	0.061	100	0.6	LOS A	0.1	0.5	Full	450	0.0	0.0
Approach	106	9.9		0.061		0.6	NA	0.1	0.5				
SouthWest: Milner Road													
Lane 1	26	10.8	1157	0.023	100	9.7	LOS A	0.1	0.5	Full	220	0.0	0.0
Approach	26	10.8		0.023		9.7	LOS A	0.1	0.5				
Intersection	238	10.1		0.061		2.4	NA	0.1	0.5				

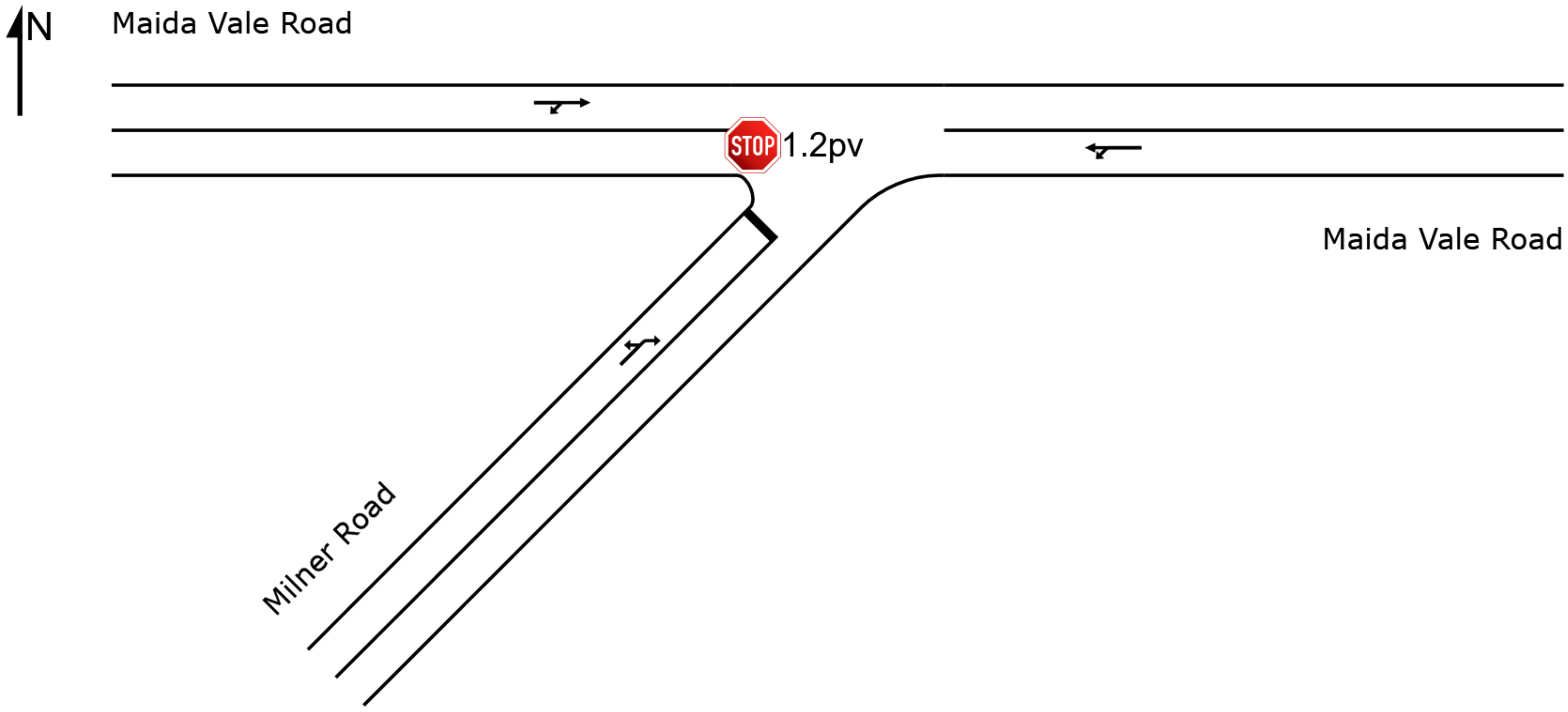
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 1.2pv [1.2p Maida Vale Road - Milner Road - 2016 PM - Conversion (Site Folder: General)]

1.2p Maida Vale Road - Milner Road - 2016 PM
Site Category: Existing Design
Stop (Two-Way)

Site Layout

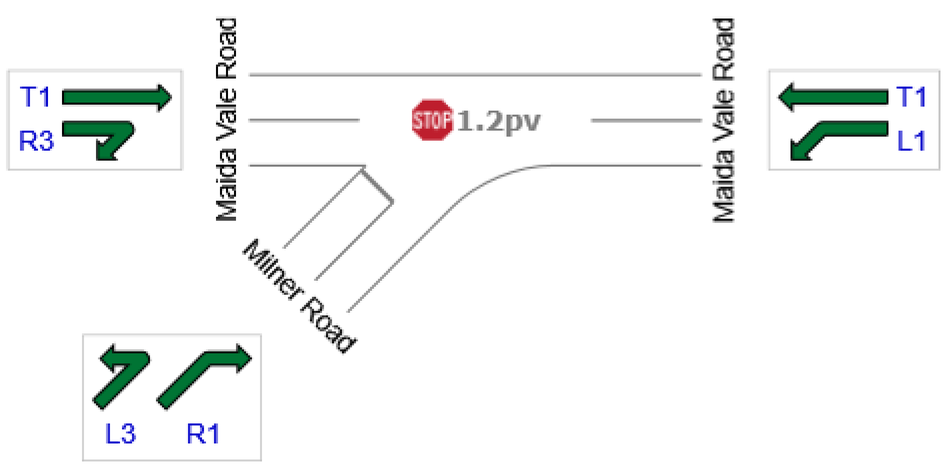
Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Input Volumes

Volume Display Method: Total and %

U3	U2	HV	LV	Tot	
2%	8%	0%	90%	74	T1
3%	8%	0%	89%	3	R3



	Tot	LV	HV	U2	U3
T1	69	90%	0%	8%	2%
L1	36	89%	0%	8%	3%

	L3	R1
Tot	1	91
LV	89%	89%
HV	0%	0%
U2	8%	8%
U3	3%	3%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
E: Maida Vale Road	105	94	0	8	2
W: Maida Vale Road	77	69	0	6	2
SW: Milner Road	92	82	0	8	2
Total	274	246	0	22	6

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Maida Vale Road													
Lane 1	111	10.1	1783	0.062	100	1.9	LOS A	0.0	0.0	Full	350	0.0	0.0
Approach	111	10.1		0.062		1.9	NA	0.0	0.0				
West: Maida Vale Road													
Lane 1	81	9.8	1780	0.046	100	0.3	LOS A	0.0	0.2	Full	450	0.0	0.0
Approach	81	9.8		0.046		0.3	NA	0.0	0.2				
SouthWest: Milner Road													
Lane 1	97	10.8	1161	0.083	100	9.7	LOS A	0.2	1.8	Full	220	0.0	0.0
Approach	97	10.8		0.083		9.7	LOS A	0.2	1.8				
Intersection	288	10.3		0.083		4.1	NA	0.2	1.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR SITE

All Movement Classes

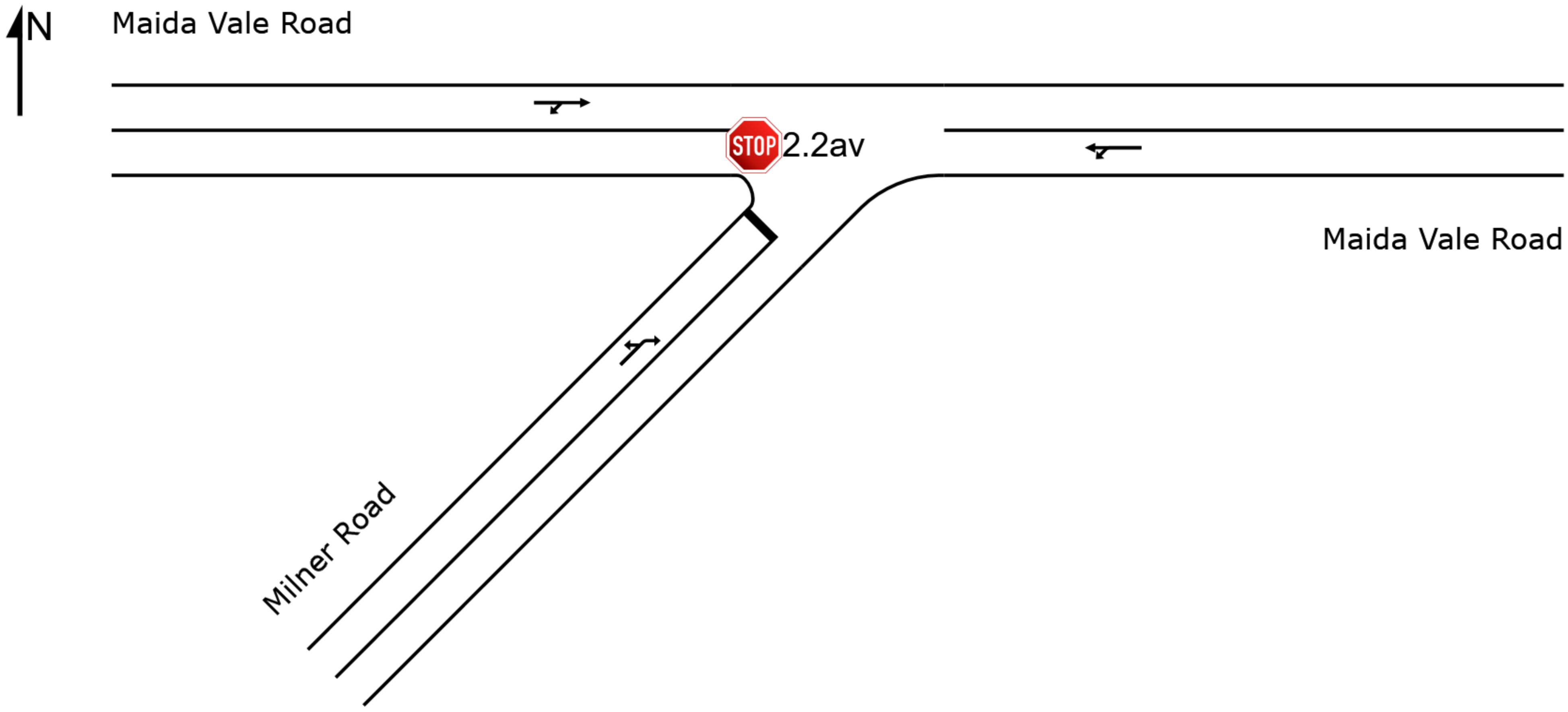
Project: KC00604.000 M02 Maida Vale Road - Milner Road — **Template: Single Site User Report**

Site: 2.2av [2.2a Maida Vale Road - Milner Road - 2031 AM - Conversion (Site Folder: 2031)]

2.2a Maida Vale Road - Milner Road - 2031 AM
Site Category: Existing Design
Stop (Two-Way)

Site Layout

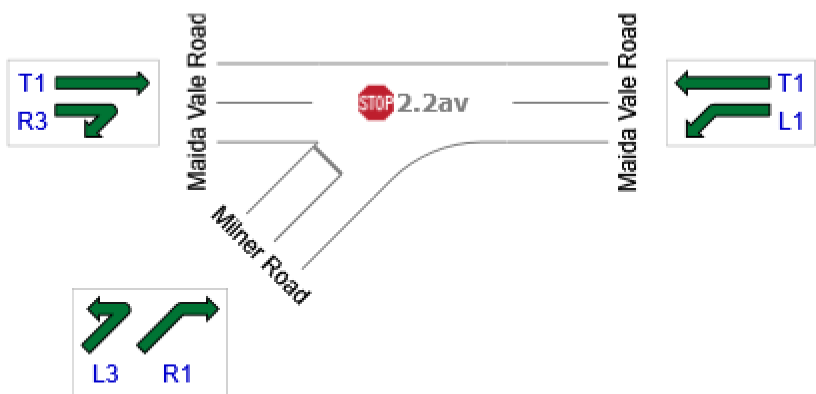
Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Input Volumes

Volume Display Method: Total and %

U4	U3	U2	D1	HV	LV	Tot	
0%	1%	3%	58%	0%	38%	166	T1
0%	3%	8%	0%	0%	89%	1	R3



	Tot	LV	HV	D1	U2	U3	U4
T1	333	11%	0%	88%	1%	0%	0%
L1	319	79%	0%	12%	7%	2%	0%

	L3	R1
Tot	1	152
LV	89%	53%
HV	0%	0%
D1	0%	40%
U2	8%	5%
U3	3%	2%
U4	0%	0%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Maida Vale Road	652	288	0	330	27	8	0
W: Maida Vale Road	167	64	0	96	6	1	0
SW: Milner Road	153	82	0	61	8	2	0
Total	972	434	0	487	40	12	0

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Maida Vale Road													
Lane 1	686	5.3	1873	0.366	100	2.8	LOS A	0.0	0.0	Full	350	0.0	0.0
Approach	686	5.3		0.366		2.8	NA	0.0	0.0				
West: Maida Vale Road													
Lane 1	176	4.2	1903	0.092	100	0.1	LOS A	0.0	0.1	Full	450	0.0	0.0
Approach	176	4.2		0.092		0.1	NA	0.0	0.1				
SouthWest: Milner Road													
Lane 1	161	6.5	783	0.206	100	10.9	LOS B	0.6	4.5	Full	220	0.0	0.0
Approach	161	6.5		0.206		10.9	LOS B	0.6	4.5				
Intersection	1023	5.3		0.366		3.6	NA	0.6	4.5				

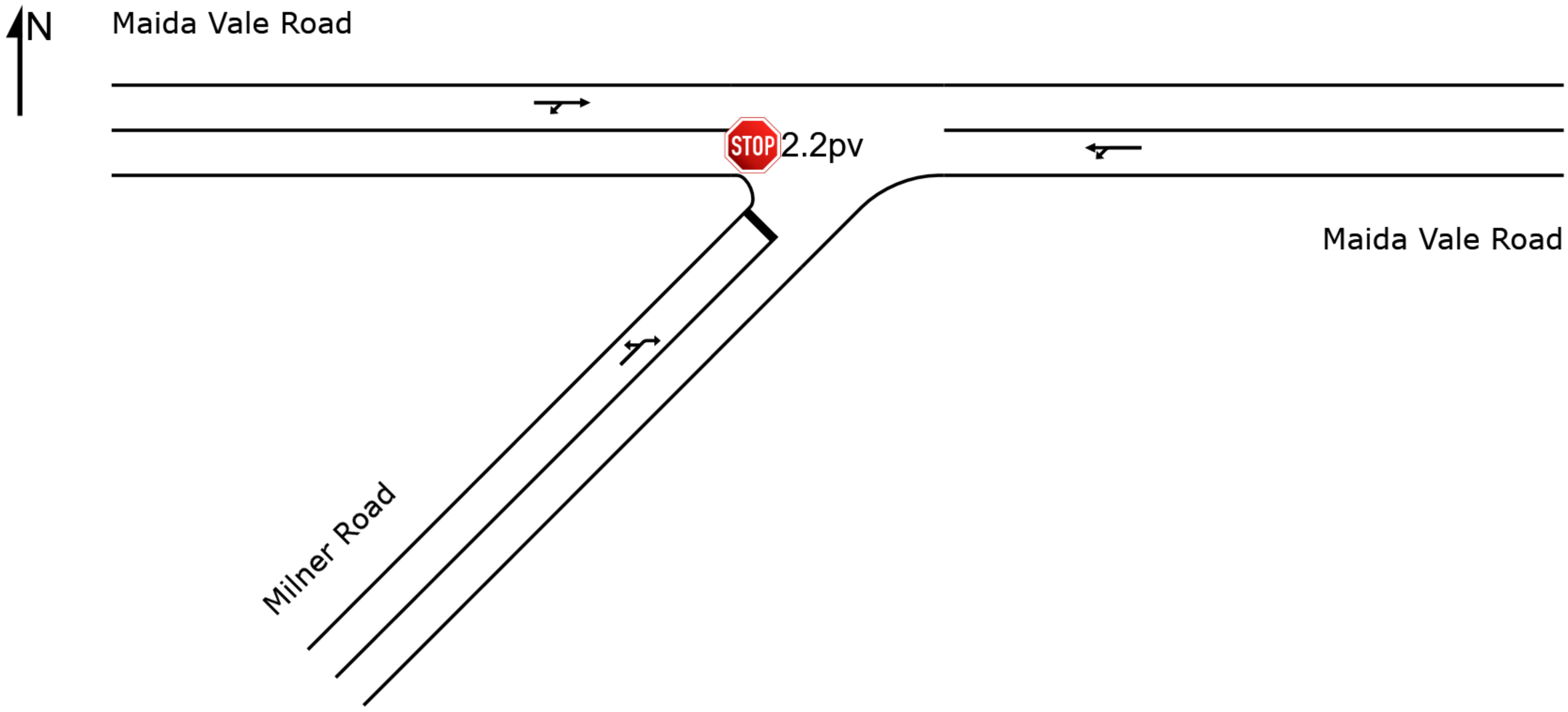
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 2.2pv [2.2p Maida Vale Road - Milner Road - 2031 PM - Conversion (Site Folder: 2031)]

2.2p Maida Vale Road - Milner Road - 2031 PM
Site Category: Existing Design
Stop (Two-Way)

Site Layout

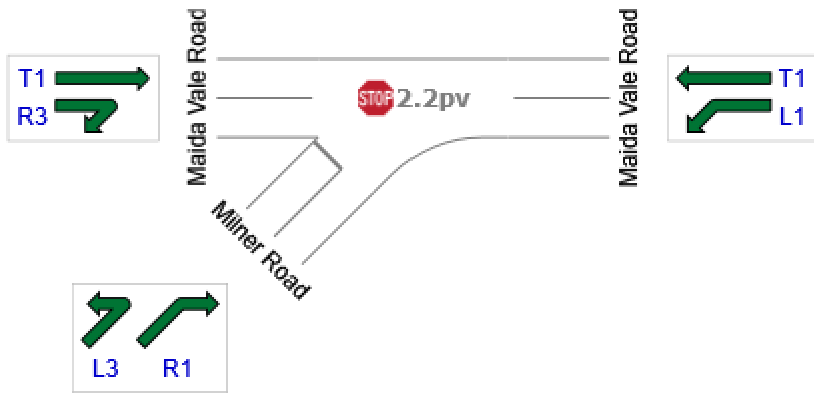
Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Input Volumes

Volume Display Method: Total and %

U4	U3	U2	D1	HV	LV	Tot	
0%	0%	2%	81%	0%	17%	372	T1
0%	3%	8%	0%	0%	89%	1	R3



	Tot	LV	HV	D1	U2	U3	U4
T1	125	32%	0%	64%	3%	1%	0%
L1	139	46%	0%	48%	4%	1%	0%

	L3	R1
Tot	2	379
LV	89%	80%
HV	0%	0%
D1	0%	10%
U2	8%	7%
U3	3%	2%
U4	0%	0%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Maida Vale Road	264	105	0	147	9	3	0
W: Maida Vale Road	373	66	0	300	6	1	0
SW: Milner Road	381	306	0	38	28	9	0
Total	1018	477	0	485	44	13	0

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Maida Vale Road													
Lane 1	278	4.6	1890	0.147	100	2.9	LOS A	0.0	0.0	Full	350	0.0	0.0
Approach	278	4.6		0.147		2.9	NA	0.0	0.0				
West: Maida Vale Road													
Lane 1	393	1.9	1971	0.199	100	0.0	LOS A	0.0	0.1	Full	450	0.0	0.0
Approach	393	1.9		0.199		0.0	NA	0.0	0.1				
SouthWest: Milner Road													
Lane 1	401	9.7	844	0.475	100	11.9	LOS B	2.1	17.3	Full	220	0.0	0.0
Approach	401	9.7		0.475		11.9	LOS B	2.1	17.3				
Intersection	1072	5.5		0.475		5.2	NA	2.1	17.3				

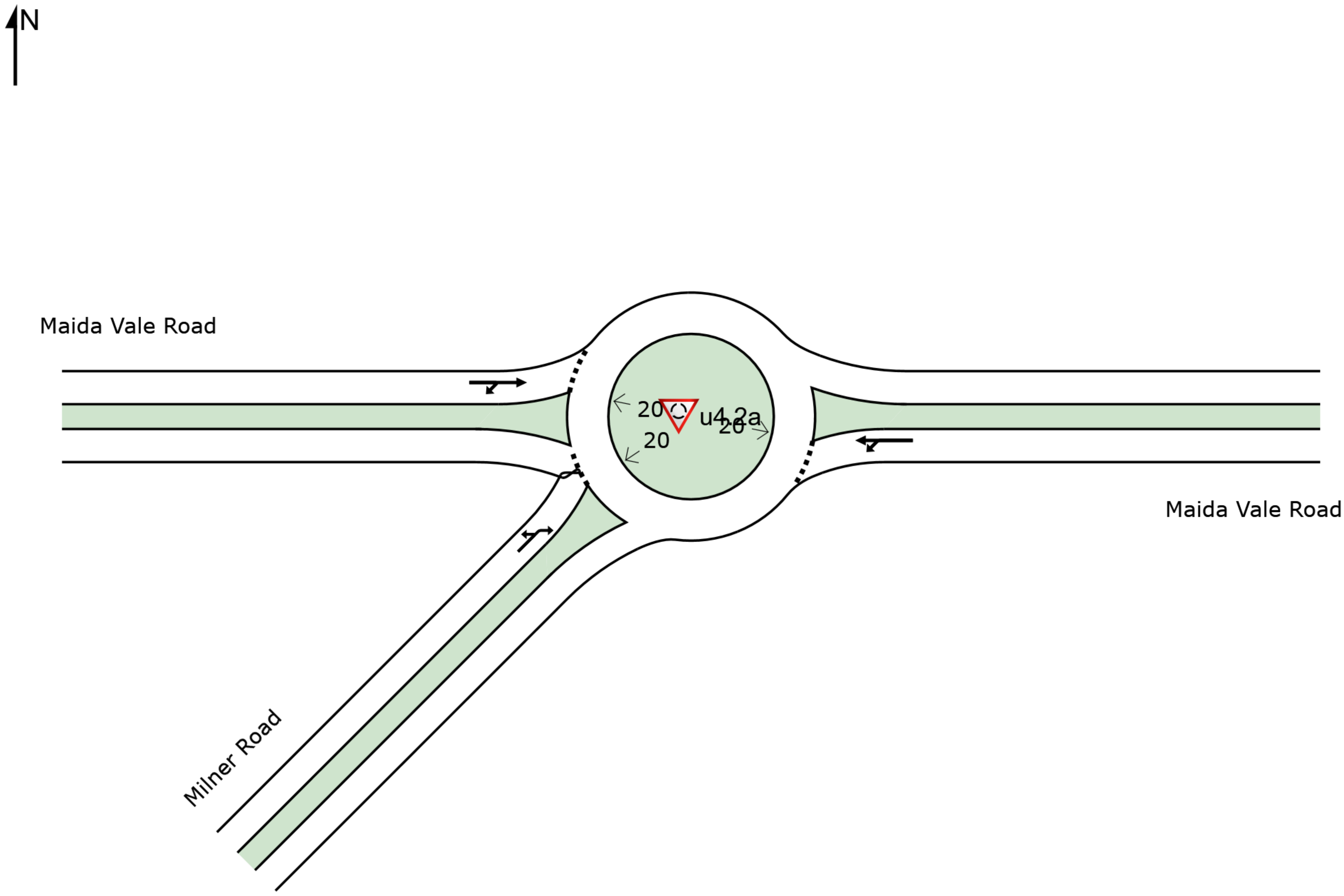
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: u4.2a [u4.2a Maida Vale Road - Milner Road - 2050 AM - Upgrade (Site Folder: 2050)]

u4.2a Maida Vale Road - Milner Road - 2050 AM - Upgrade
Site Category: Existing Design
Roundabout

Site Layout

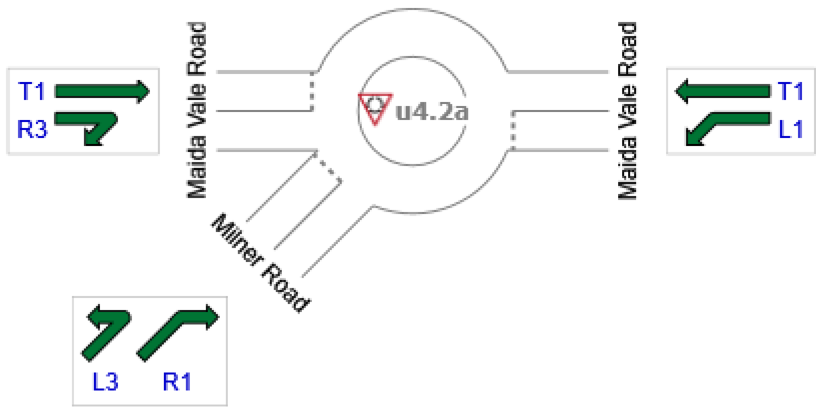
Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Input Volumes

Volume Display Method: Total and %

U4	U3	U2	D1	HV	LV	Tot	
0%	0%	2%	61%	0%	37%	231	T1
0%	0%	1%	75%	0%	24%	4	R3



	Tot	LV	HV	D1	U2	U3	U4
T1	451	8%	0%	91%	0%	0%	0%
L1	442	53%	0%	44%	3%	1%	0%

	L3	R1
Tot	1	469
LV	94%	20%
HV	0%	0%
D1	0%	79%
U2	5%	1%
U3	1%	0%
U4	0%	0%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Maida Vale Road	893	270	0	606	14	3	0
W: Maida Vale Road	235	86	0	143	5	1	0
SW: Milner Road	470	94	0	370	5	1	0
Total	1598	450	0	1119	24	5	0

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Maida Vale Road													
Lane 1[d]	940	1.9	1714	0.548	100	4.0	LOS A	6.1	45.7	Full	350	0.0	0.0
Approach	940	1.9		0.548		4.0	LOS A	6.1	45.7				
West: Maida Vale Road													
Lane 1[d]	247	2.3	860	0.288	100	7.2	LOS A	1.9	14.7	Full	450	0.0	0.0
Approach	247	2.3		0.288		7.2	LOS A	1.9	14.7				
SouthWest: Milner Road													
Lane 1[d]	495	1.3	927	0.534	100	12.7	LOS B	4.5	33.7	Full	220	0.0	0.0
Approach	495	1.3		0.534		12.7	LOS B	4.5	33.7				
Intersection	1682	1.8		0.548		7.0	LOS A	6.1	45.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

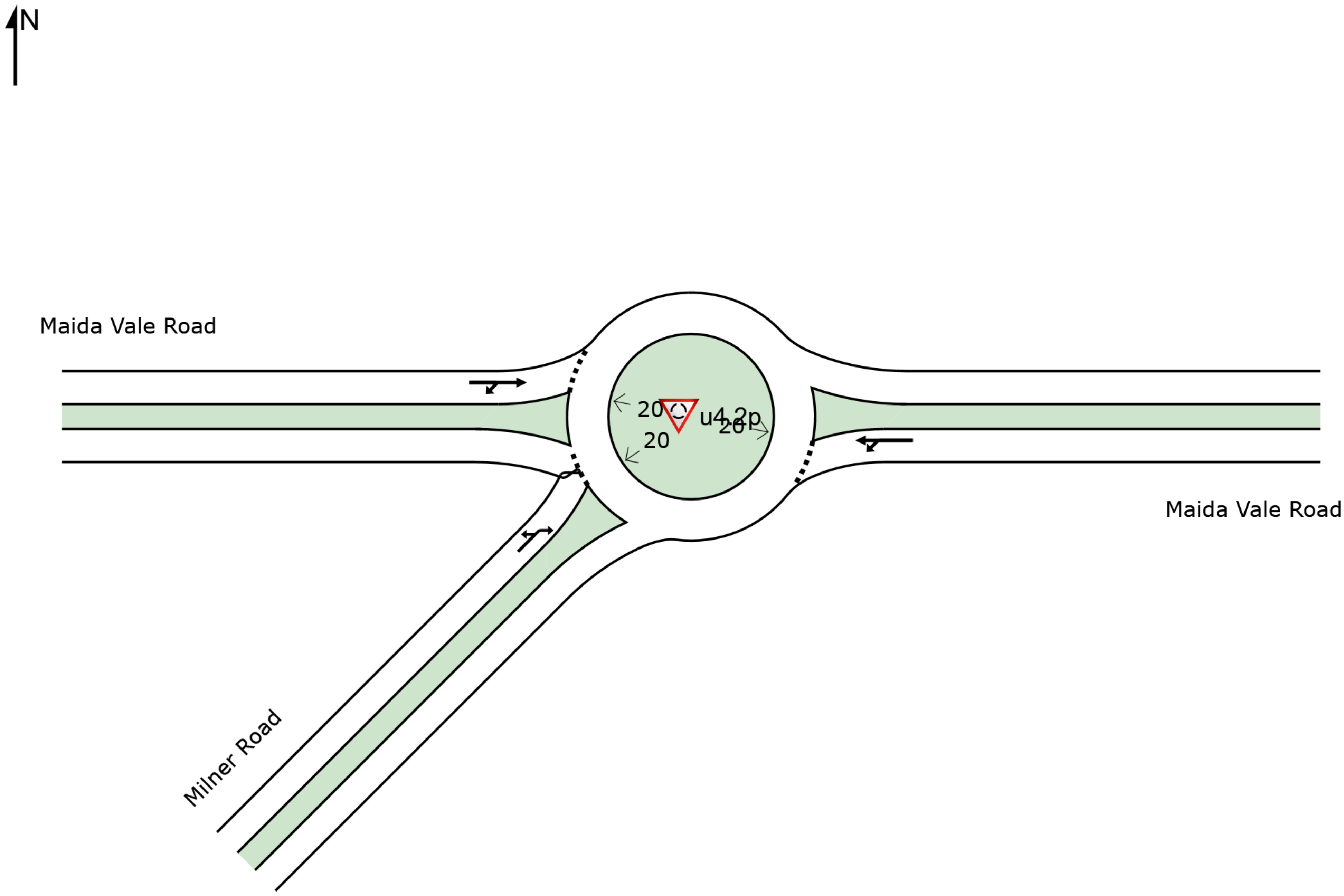
d Dominant lane on roundabout approach

Site: u4.2p [u4.2p Maida Vale Road - Milner Road - 2050 PM - Upgrade (Site Folder: 2050)]

u4.2p Maida Vale Road - Milner Road - 2050 PM - Upgrade
Site Category: Existing Design
Roundabout

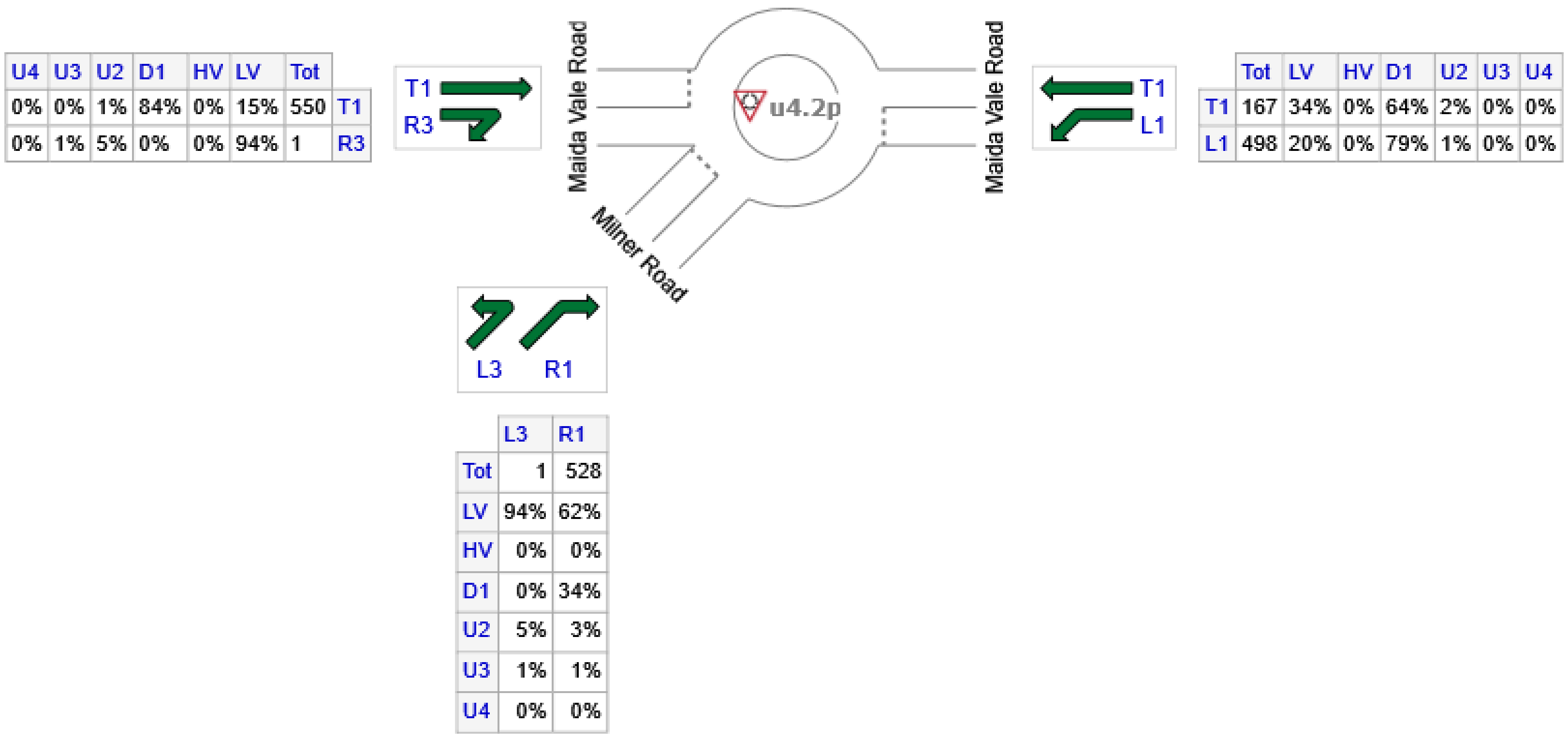
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Maida Vale Road	665	155	0	500	8	2	0
W: Maida Vale Road	551	82	0	464	4	1	0
SW: Milner Road	529	329	0	179	17	3	0
Total	1745	566	0	1143	30	6	0

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Maida Vale Road													
Lane 1 d	700	1.5	1733	0.404	100	3.8	LOS A	3.8	28.8	Full	350	0.0	0.0
Approach	700	1.5		0.404		3.8	LOS A	3.8	28.8				
West: Maida Vale Road													
Lane 1 d	580	1.0	847	0.685	100	12.5	LOS B	8.0	59.3	Full	450	0.0	0.0
Approach	580	1.0		0.685		12.5	LOS B	8.0	59.3				
SouthWest: Milner Road													
Lane 1 d	557	4.0	1221	0.456	100	9.2	LOS A	3.4	26.5	Full	220	0.0	0.0
Approach	557	4.0		0.456		9.2	LOS A	3.4	26.5				
Intersection	1837	2.1		0.685		8.2	LOS A	8.0	59.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

USER REPORT FOR SITE

All Movement Classes

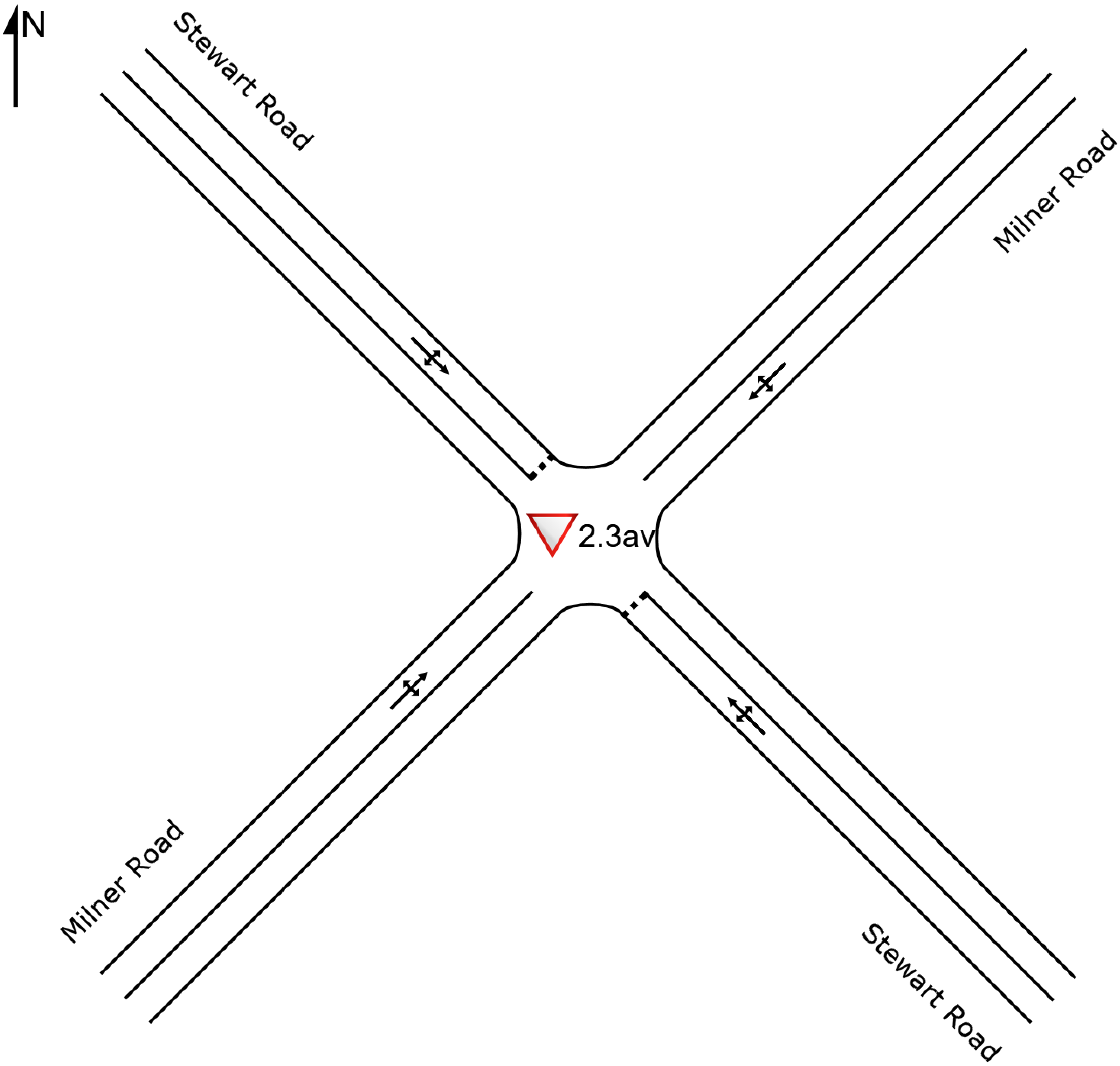
Project: KC00604.000 M03 Milner Road - Stewart Road **Template: Single Site User Report**

Site: 2.3av [2.3a Milner Road - Stewart Road - 2031 AM (Site Folder: 2031)]

2.3a Milner Road - Stewart Road - 2031 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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

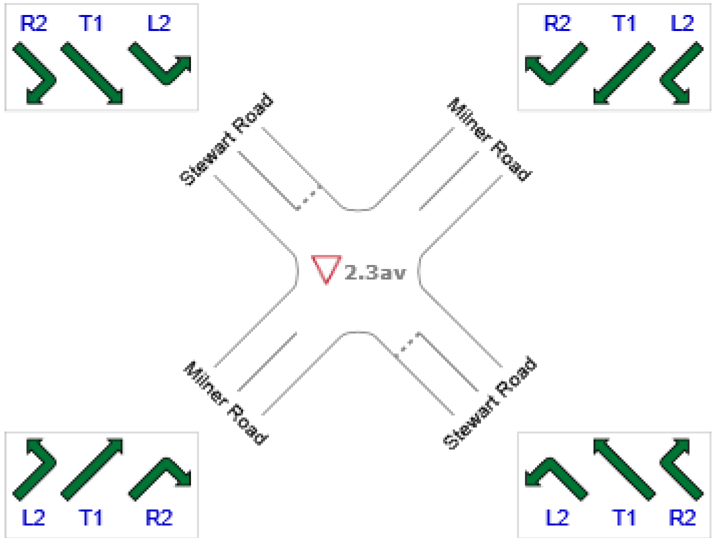


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	3	3
LV	100%	33%	33%
HV	0%	0%	0%
D1	0%	67%	67%
U2			
U3			

	R2	T1	L2
Tot	1	303	18
LV	100%	83%	6%
HV	0%	0%	0%
D1	0%	7%	94%
U2		8%	
U3		2%	



	L2	T1	R2
Tot	1	121	2
LV	100%	67%	50%
HV	0%	0%	0%
D1	0%	25%	50%
U2		6%	
U3		2%	

	L2	T1	R2
Tot	22	17	30
LV	5%	6%	3%
HV	0%	0%	0%
D1	95%	94%	97%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Stewart Road	69	3	0	66	-	-
NE: Milner Road	322	254	0	38	23	7
NW: Stewart Road	7	3	0	4	-	-
SW: Milner Road	124	83	0	31	8	2
Total	522	343	0	139	31	9

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Stewart Road													
Lane 1	73	0.0	1160	0.063	100	5.1	LOS A	0.2	1.4	Full	60	0.0	0.0
Approach	73	0.0		0.063		5.1	LOS A	0.2	1.4				
NorthEast: Milner Road													
Lane 1	339	9.5	1741	0.195	100	0.3	LOS A	0.0	0.1	Full	220	0.0	0.0
Approach	339	9.5		0.195		0.3	NA	0.0	0.1				
NorthWest: Stewart Road													
Lane 1	7	0.0	1364	0.005	100	4.6	LOS A	0.0	0.1	Full	130	0.0	0.0
Approach	7	0.0		0.005		4.6	LOS A	0.0	0.1				
SouthWest: Milner Road													
Lane 1	131	7.9	1764	0.074	100	0.2	LOS A	0.0	0.2	Full	200	0.0	0.0
Approach	131	7.9		0.074		0.2	NA	0.0	0.2				
Intersection	549	7.7		0.195		1.0	NA	0.2	1.4				

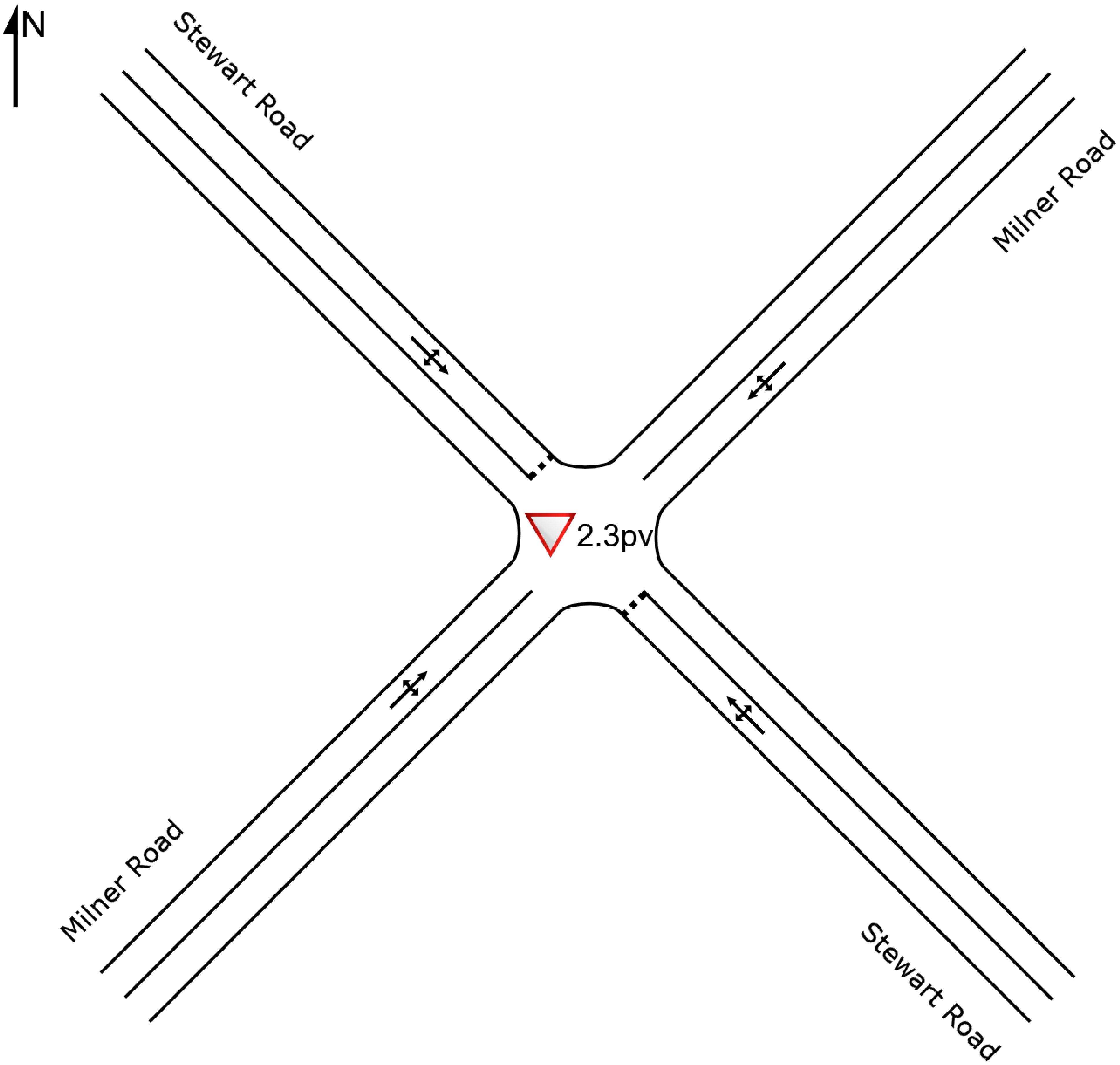
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 2.3pv [2.3p Milner Road - Stewart Road - 2031 PM (Site Folder: 2031)]

2.3p Milner Road - Stewart Road - 2031 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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

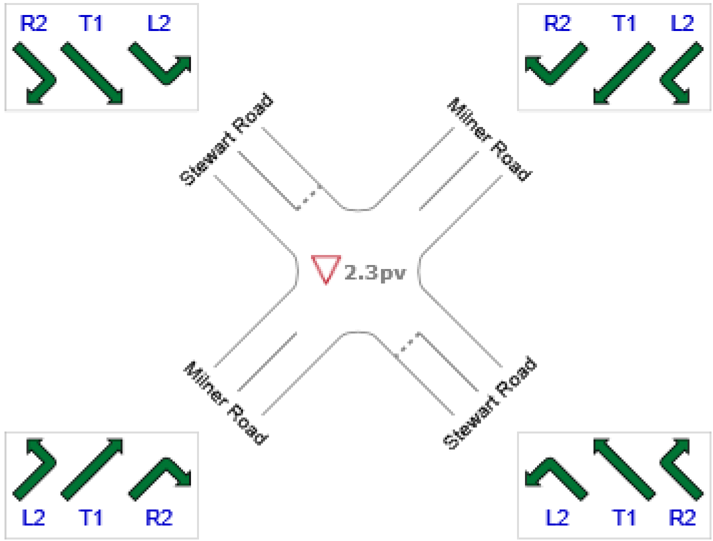


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	8	3
LV	100%	13%	33%
HV	0%	0%	0%
D1	0%	88%	67%
U2			
U3			

	R2	T1	L2
Tot	1	98	41
LV	100%	65%	2%
HV	0%	0%	0%
D1	0%	28%	98%
U2		6%	
U3		2%	



	L2	T1	R2
Tot	2	367	7
LV	50%	83%	14%
HV	0%	0%	0%
D1	50%	7%	86%
U2		8%	
U3		2%	

	L2	T1	R2
Tot	4	7	13
LV	25%	14%	8%
HV	0%	0%	0%
D1	75%	86%	92%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Stewart Road	24	3	0	21	-	-
NE: Milner Road	140	65	0	67	6	2
NW: Stewart Road	12	3	0	9	-	-
SW: Milner Road	376	308	0	31	28	9
Total	552	379	0	128	34	10

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Stewart Road													
Lane 1	25	0.0	1059	0.024	100	5.1	LOS A	0.1	0.5	Full	60	0.0	0.0
Approach	25	0.0		0.024		5.1	LOS A	0.1	0.5				
NorthEast: Milner Road													
Lane 1	147	5.5	1795	0.082	100	1.7	LOS A	0.0	0.1	Full	220	0.0	0.0
Approach	147	5.5		0.082		1.7	NA	0.0	0.1				
NorthWest: Stewart Road													
Lane 1	13	0.0	1185	0.011	100	4.7	LOS A	0.0	0.2	Full	130	0.0	0.0
Approach	13	0.0		0.011		4.7	LOS A	0.0	0.2				
SouthWest: Milner Road													
Lane 1	396	9.8	1734	0.228	100	0.2	LOS A	0.1	0.5	Full	200	0.0	0.0
Approach	396	9.8		0.228		0.2	NA	0.1	0.5				
Intersection	581	8.1		0.228		0.9	NA	0.1	0.5				

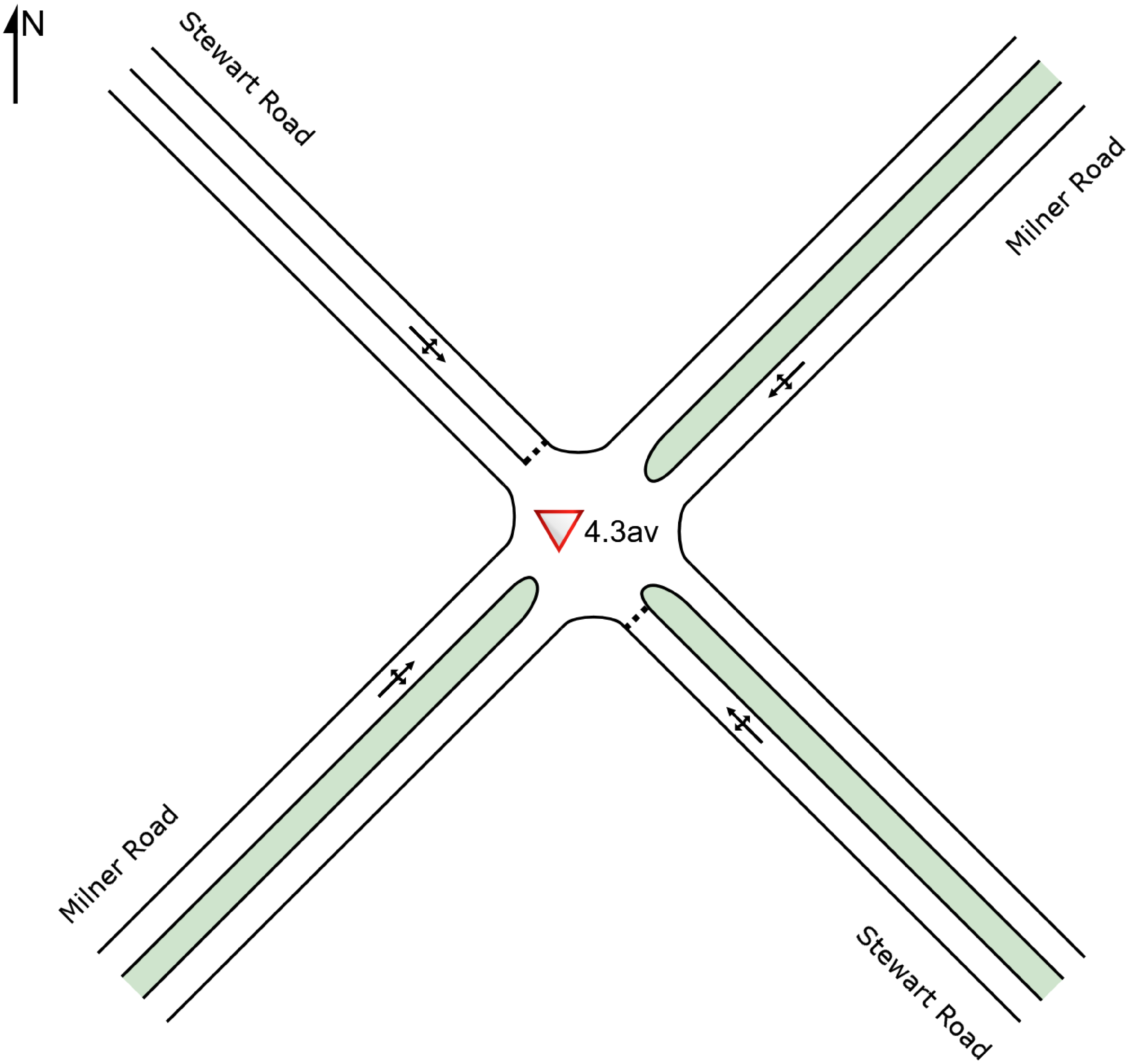
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 4.3av [4.3a Milner Road - Stewart Road - 2050 AM (Site Folder: 2050)]

4.3a Milner Road - Stewart Road - 2050 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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

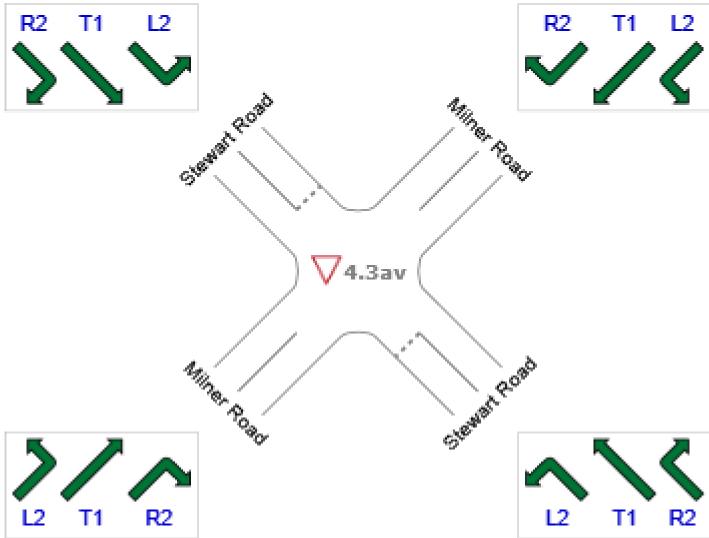


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	30	6
LV	100%	3%	17%
HV	0%	0%	0%
D1	0%	97%	83%
U2			
U3			

	R2	T1	L2
Tot	3	379	66
LV	33%	62%	2%
HV	0%	0%	0%
D1	67%	35%	98%
U2		3%	
U3		1%	



	L2	T1	R2
Tot	9	333	12
LV	11%	27%	8%
HV	0%	0%	0%
D1	89%	71%	92%
U2		1%	
U3		0%	

	L2	T1	R2
Tot	128	67	130
LV	1%	1%	1%
HV	0%	0%	0%
D1	99%	99%	99%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Stewart Road	325	3	0	322	-	-
NE: Milner Road	448	235	0	198	12	2
NW: Stewart Road	37	3	0	34	-	-
SW: Milner Road	354	93	0	255	5	1
Total	1164	334	0	809	17	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Stewart Road													
Lane 1	342	0.0	951	0.360	100	6.9	LOS A	1.6	11.6	Full	60	0.0	0.0
Approach	342	0.0		0.360		6.9	LOS A	1.6	11.6				
NorthEast: Milner Road													
Lane 1	472	3.3	1858	0.254	100	0.9	LOS A	0.0	0.4	Full	220	0.0	0.0
Approach	472	3.3		0.254		0.9	NA	0.0	0.4				
NorthWest: Stewart Road													
Lane 1	39	0.0	975	0.040	100	5.3	LOS A	0.1	0.9	Full	130	0.0	0.0
Approach	39	0.0		0.040		5.3	LOS A	0.1	0.9				
SouthWest: Milner Road													
Lane 1	373	1.6	1863	0.200	100	0.6	LOS A	0.2	1.3	Full	200	0.0	0.0
Approach	373	1.6		0.200		0.6	NA	0.2	1.3				
Intersection	1225	1.8		0.360		2.6	NA	1.6	11.6				

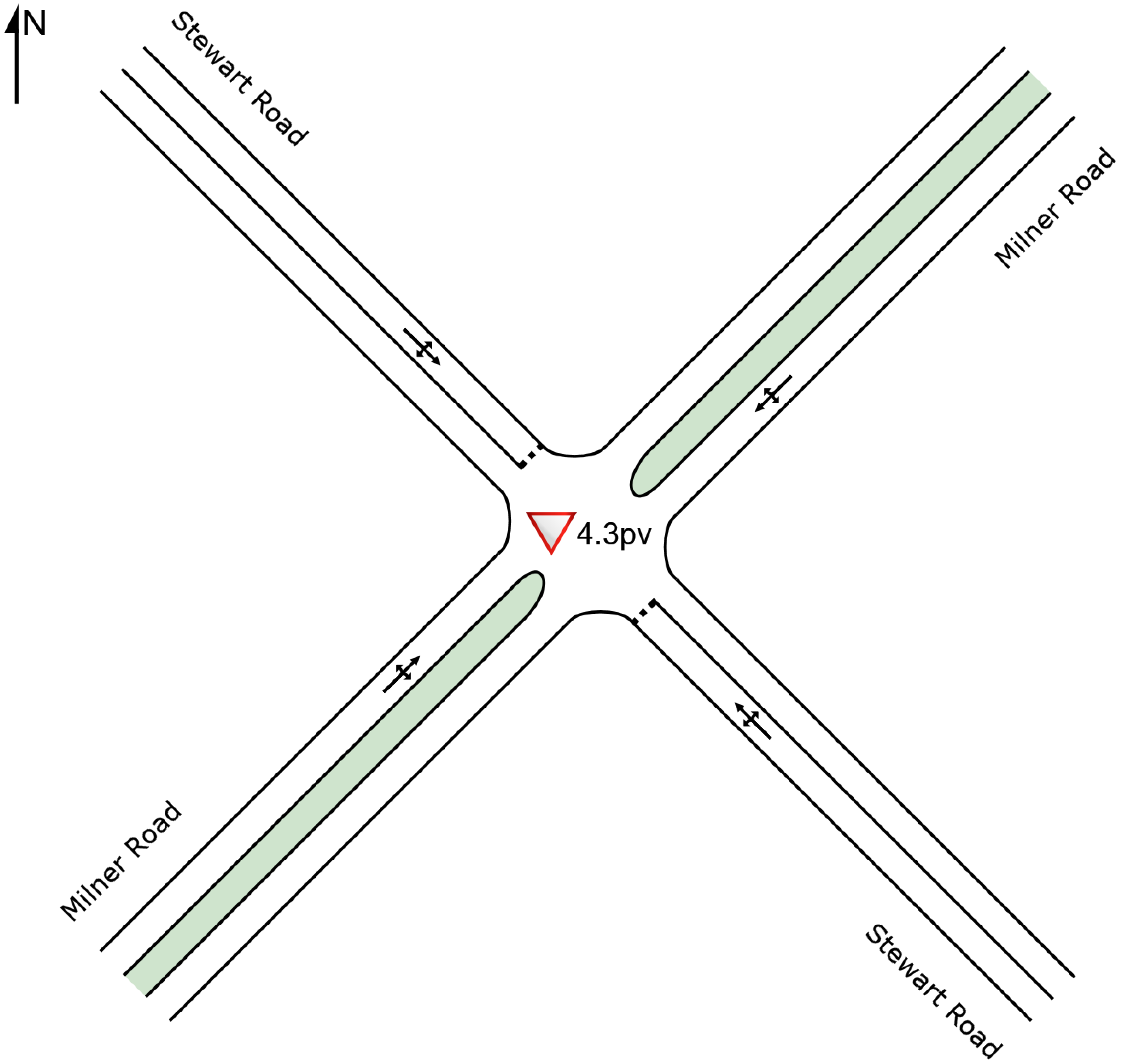
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 4.3pv [4.3p Milner Road - Stewart Road - 2050 PM (Site Folder: 2050)]

4.3p Milner Road - Stewart Road - 2050 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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

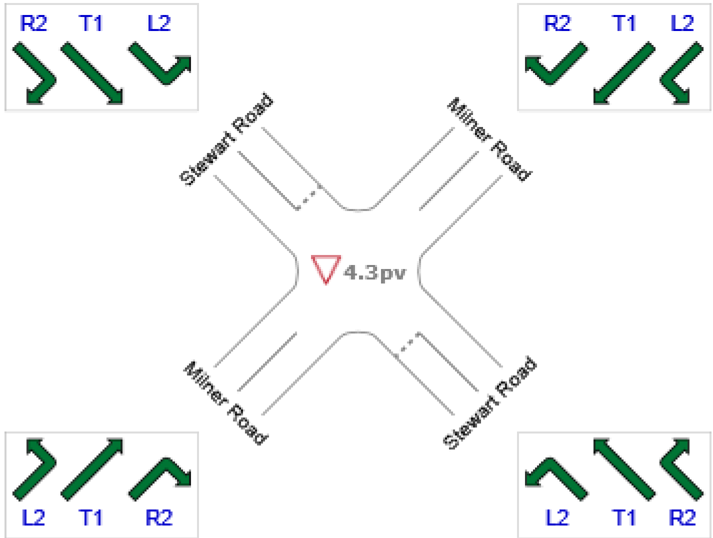


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	57	6
LV	100%	2%	17%
HV	0%	0%	0%
D1	0%	98%	83%
U2			
U3			

	R2	T1	L2
Tot	9	271	201
LV	11%	30%	0%
HV	0%	0%	0%
D1	89%	68%	100%
U2		2%	
U3		0%	



	L2	T1	R2
Tot	4	451	37
LV	25%	69%	3%
HV	0%	0%	0%
D1	75%	27%	97%
U2		4%	
U3		1%	

	L2	T1	R2
Tot	56	30	55
LV	2%	3%	2%
HV	0%	0%	0%
D1	98%	97%	98%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Stewart Road	141	3	0	138	-	-
NE: Milner Road	481	83	0	393	4	1
NW: Stewart Road	64	3	0	61	-	-
SW: Milner Road	492	313	0	159	17	3
Total	1178	402	0	751	21	4

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Stewart Road													
Lane 1	148	0.0	888	0.167	100	6.4	LOS A	0.5	4.0	Full	60	0.0	0.0
Approach	148	0.0		0.167		6.4	LOS A	0.5	4.0				
NorthEast: Milner Road													
Lane 1	506	1.1	1860	0.272	100	2.6	LOS A	0.2	1.3	Full	220	0.0	0.0
Approach	506	1.1		0.272		2.6	NA	0.2	1.3				
NorthWest: Stewart Road													
Lane 1	67	0.0	819	0.082	100	6.0	LOS A	0.2	1.7	Full	130	0.0	0.0
Approach	67	0.0		0.082		6.0	LOS A	0.2	1.7				
SouthWest: Milner Road													
Lane 1	518	4.0	1760	0.294	100	1.0	LOS A	0.5	4.1	Full	200	0.0	0.0
Approach	518	4.0		0.294		1.0	NA	0.5	4.1				
Intersection	1240	2.1		0.294		2.6	NA	0.5	4.1				

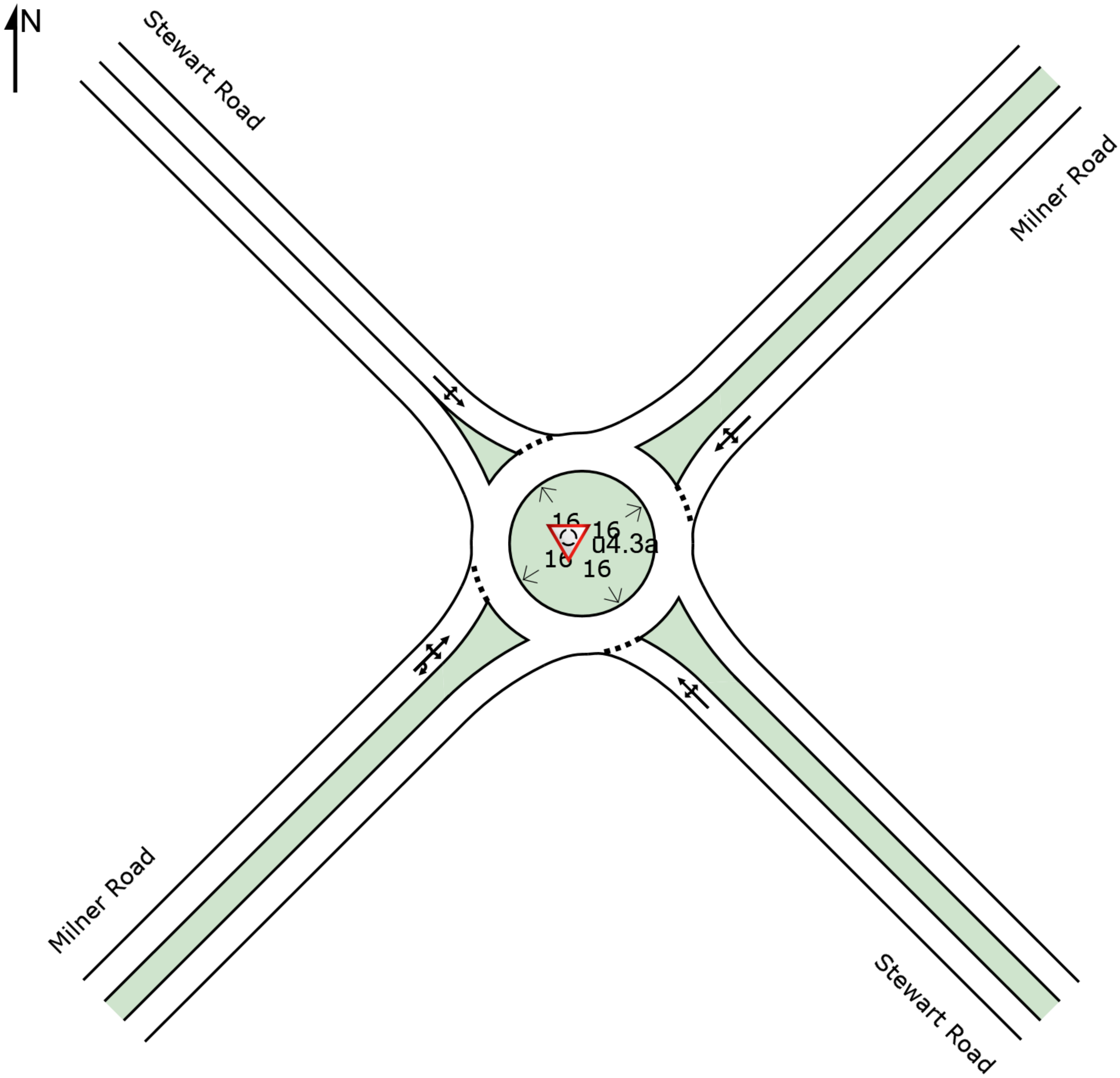
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: u4.3a [u4.3a Milner Road - Stewart Road - 2050 AM - Upgrade (Site Folder: 2050 - Potential upgrade to Roundabout for safety reasons)]

u4.3a Milner Road - Stewart Road - 2050 AM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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

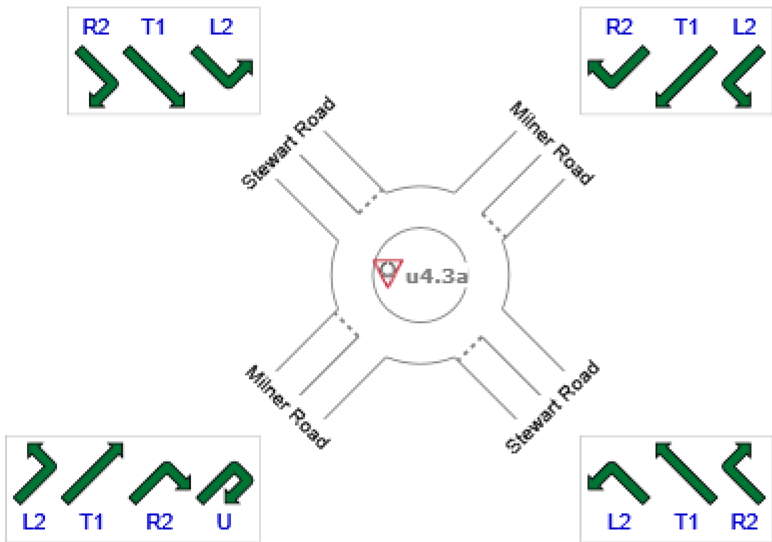


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	30	6
LV	100%	3%	17%
HV	0%	0%	0%
D1	0%	97%	83%
U2			
U3			

	R2	T1	L2
Tot	3	379	66
LV	33%	62%	2%
HV	0%	0%	0%
D1	67%	35%	98%
U2		3%	
U3		1%	



	L2	T1	R2	U
Tot	9	333	12	18
LV	11%	27%	8%	6%
HV	0%	0%	0%	0%
D1	89%	71%	92%	94%
U2		1%		
U3		0%		

	L2	T1	R2
Tot	128	67	130
LV	1%	1%	1%
HV	0%	0%	0%
D1	99%	99%	99%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Stewart Road	325	3	0	322	-	-
NE: Milner Road	448	235	0	198	12	2
NW: Stewart Road	37	3	0	34	-	-
SW: Milner Road	372	94	0	272	5	1
Total	1182	335	0	826	17	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Stewart Road													
Lane 1[d]	342	0.0	900	0.380	100	8.1	LOS A	2.8	20.4	Full	60	0.0	0.0
Approach	342	0.0		0.380		8.1	LOS A	2.8	20.4				
NorthEast: Milner Road													
Lane 1[d]	472	3.3	1398	0.337	100	4.9	LOS A	2.6	19.9	Full	220	0.0	0.0
Approach	472	3.3		0.337		4.9	LOS A	2.6	19.9				
NorthWest: Stewart Road													
Lane 1[d]	39	0.0	815	0.048	100	6.6	LOS A	0.3	2.2	Full	130	0.0	0.0
Approach	39	0.0		0.048		6.6	LOS A	0.3	2.2				
SouthWest: Milner Road													
Lane 1[d]	392	1.6	1111	0.352	100	6.4	LOS A	2.8	20.6	Full	200	0.0	0.0
Approach	392	1.6		0.352		6.4	LOS A	2.8	20.6				
Intersection	1244	1.7		0.380		6.3	LOS A	2.8	20.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

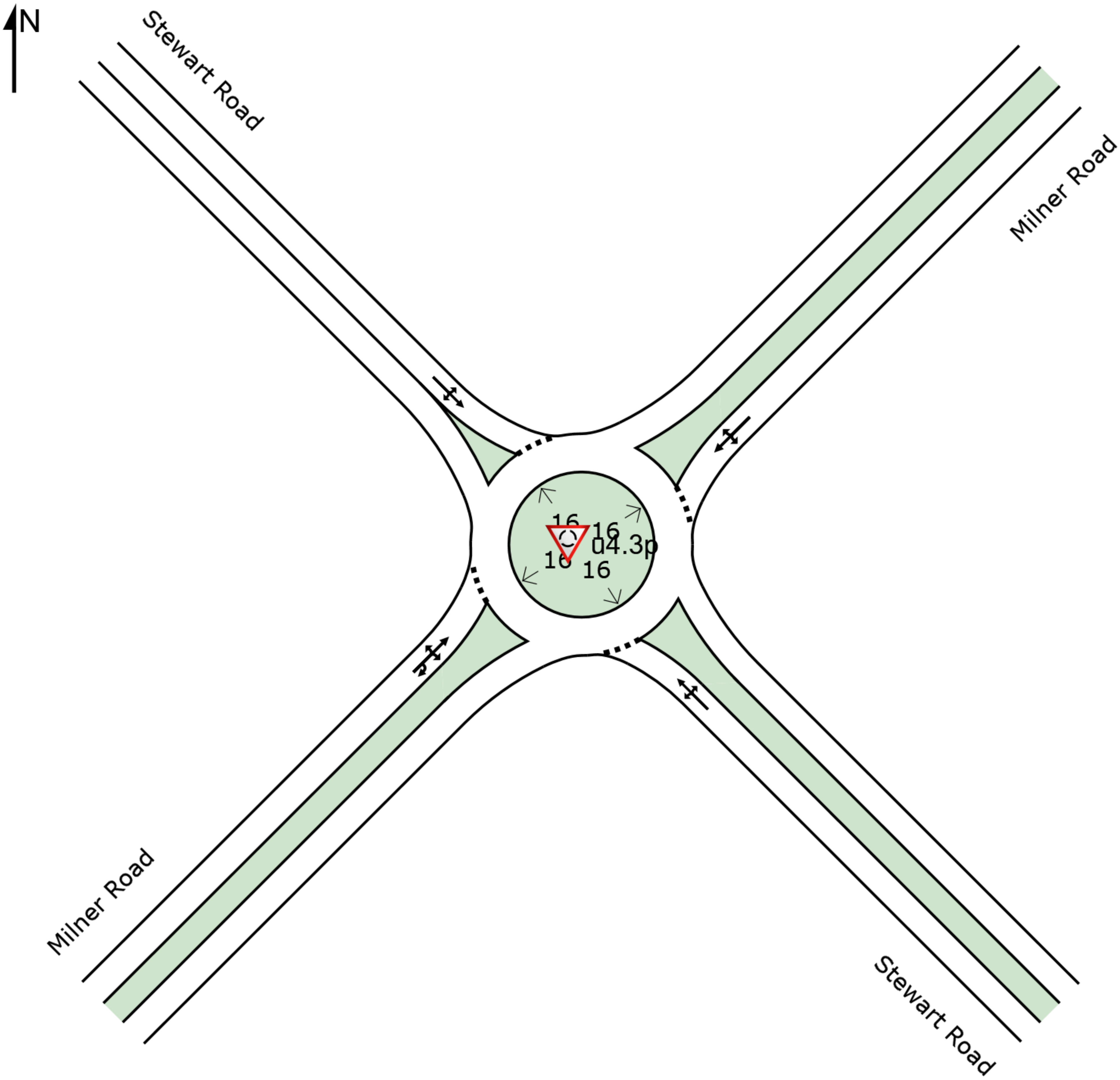
d Dominant lane on roundabout approach

Site: u4.3p [u4.3p Milner Road - Stewart Road - 2050 PM - Upgrade (Site Folder: 2050 - Potential upgrade to Roundabout for safety reasons)]

u4.3p Milner Road - Stewart Road - 2050 PM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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

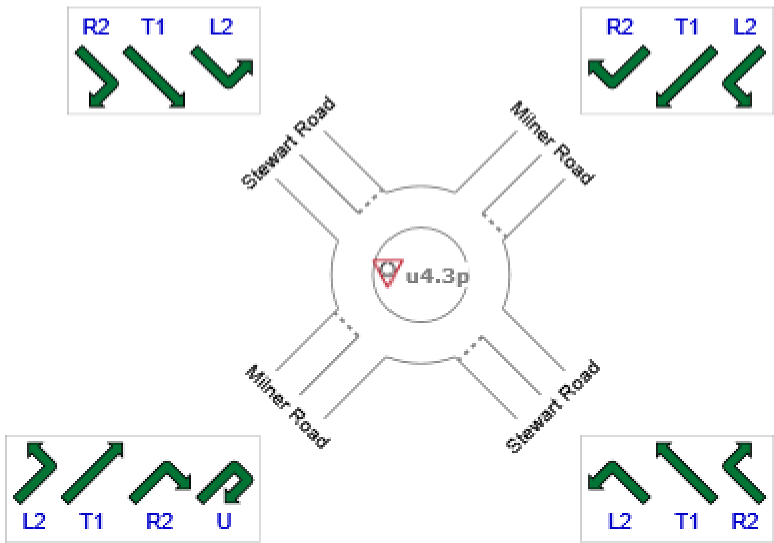


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	57	6
LV	100%	2%	17%
HV	0%	0%	0%
D1	0%	98%	83%
U2			
U3			

	R2	T1	L2
Tot	9	271	201
LV	11%	30%	0%
HV	0%	0%	0%
D1	89%	68%	100%
U2		2%	
U3		0%	



	L2	T1	R2	U
Tot	4	451	37	8
LV	25%	69%	3%	13%
HV	0%	0%	0%	0%
D1	75%	27%	97%	88%
U2		4%		
U3		1%		

	L2	T1	R2
Tot	56	30	55
LV	2%	3%	2%
HV	0%	0%	0%
D1	98%	97%	98%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Stewart Road	141	3	0	138	-	-
NE: Milner Road	481	83	0	393	4	1
NW: Stewart Road	64	3	0	61	-	-
SW: Milner Road	500	314	0	166	17	3
Total	1186	403	0	758	21	4

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Stewart Road													
Lane 1[d]	148	0.0	999	0.149	100	6.5	LOS A	1.0	7.0	Full	60	0.0	0.0
Approach	148	0.0		0.149		6.5	LOS A	1.0	7.0				
NorthEast: Milner Road													
Lane 1[d]	506	1.1	1318	0.384	100	5.2	LOS A	3.1	23.1	Full	220	0.0	0.0
Approach	506	1.1		0.384		5.2	LOS A	3.1	23.1				
NorthWest: Stewart Road													
Lane 1[d]	67	0.0	768	0.088	100	7.3	LOS A	0.6	4.1	Full	130	0.0	0.0
Approach	67	0.0		0.088		7.3	LOS A	0.6	4.1				
SouthWest: Milner Road													
Lane 1[d]	526	4.0	1313	0.401	100	5.6	LOS A	3.4	26.1	Full	200	0.0	0.0
Approach	526	4.0		0.401		5.6	LOS A	3.4	26.1				
Intersection	1248	2.1		0.401		5.6	LOS A	3.4	26.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

USER REPORT FOR SITE

All Movement Classes

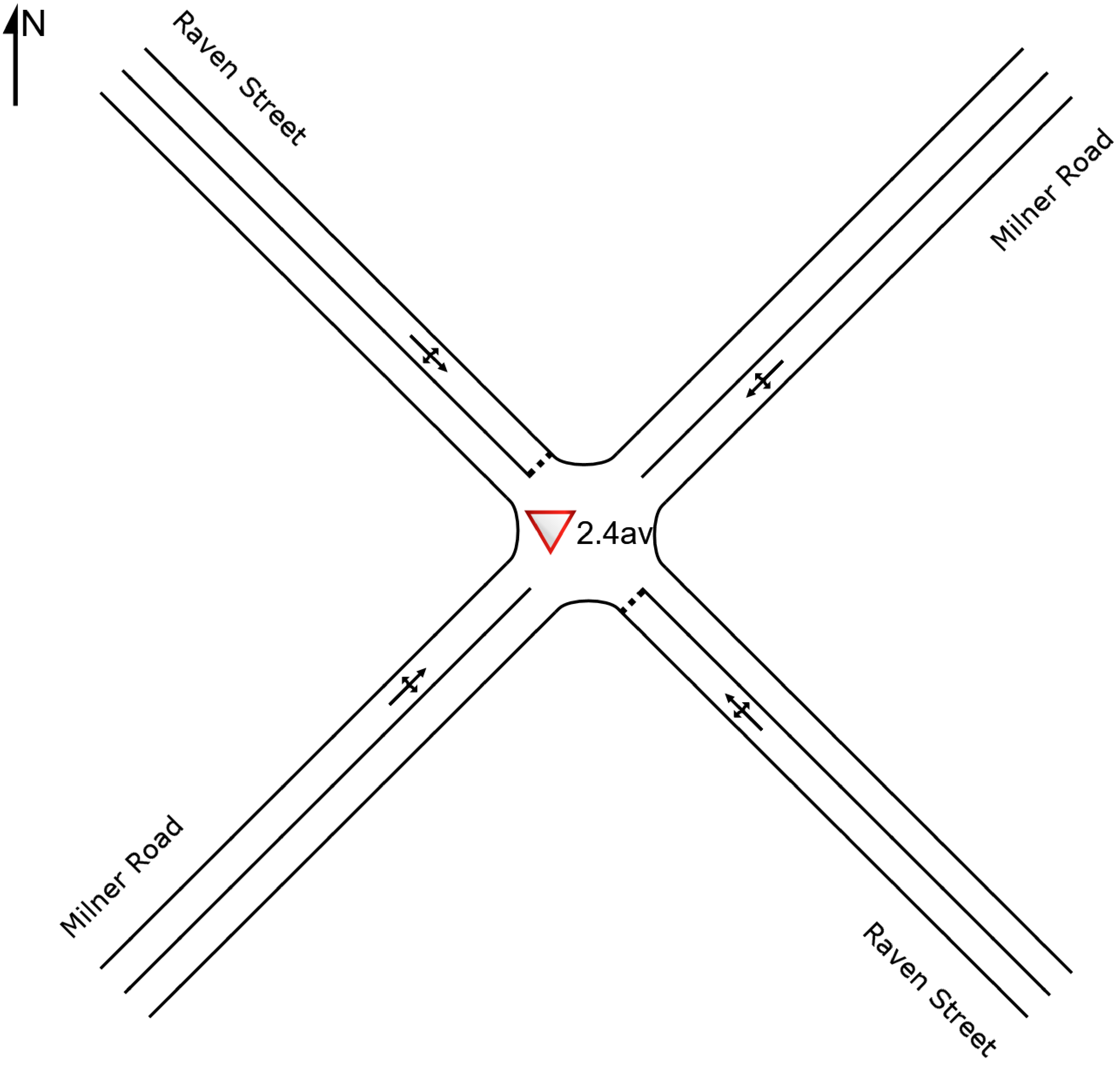
Project: KC00604.000 M04 Milner Road - Raven Street **Template: Single Site User Report**

Site: 2.4av [2.4a Milner Road - Raven Street - 2031 AM (Site Folder: 2031)]

2.4a Milner Road - Raven Street - 2031 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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

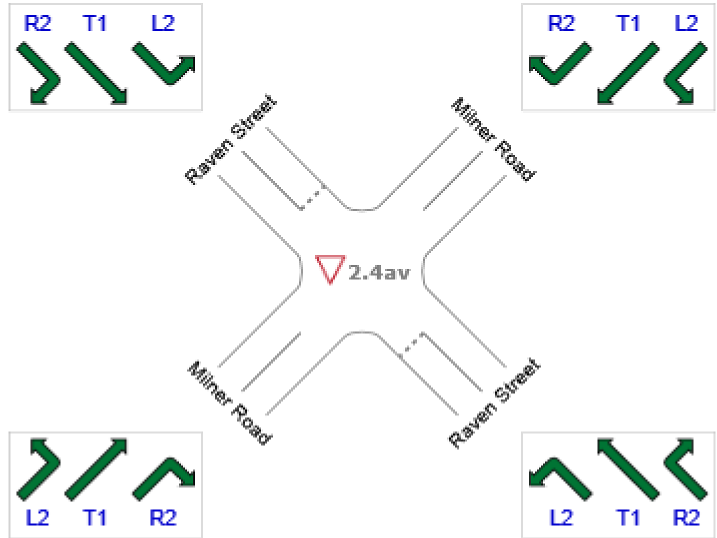


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	12	1
LV	100%	8%	100%
HV	0%	0%	0%
D1	0%	92%	0%
U2			
U3			

	R2	T1	L2
Tot	1	325	9
LV	100%	80%	11%
HV	0%	0%	0%
D1	0%	10%	89%
U2		7%	
U3		2%	



	L2	T1	R2
Tot	30	105	12
LV	47%	77%	8%
HV	0%	0%	0%
D1	53%	13%	92%
U2		7%	
U3		2%	

	L2	T1	R2
Tot	14	35	18
LV	7%	3%	6%
HV	0%	0%	0%
D1	93%	97%	94%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Raven Street	67	3	0	64	-	-
NE: Milner Road	335	262	0	42	24	7
NW: Raven Street	14	3	0	11	-	-
SW: Milner Road	147	96	0	41	8	2
Total	563	364	0	158	32	10

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Raven Street													
Lane 1	71	0.0	1155	0.061	100	5.0	LOS A	0.2	1.3	Full	150	0.0	0.0
Approach	71	0.0		0.061		5.0	LOS A	0.2	1.3				
NorthEast: Milner Road													
Lane 1	353	9.4	1745	0.202	100	0.2	LOS A	0.0	0.1	Full	240	0.0	0.0
Approach	353	9.4		0.202		0.2	NA	0.0	0.1				
NorthWest: Raven Street													
Lane 1	15	0.0	1192	0.012	100	4.3	LOS A	0.0	0.2	Full	130	0.0	0.0
Approach	15	0.0		0.012		4.3	LOS A	0.0	0.2				
SouthWest: Milner Road													
Lane 1	155	6.7	1720	0.090	100	1.9	LOS A	0.1	1.1	Full	280	0.0	0.0
Approach	155	6.7		0.090		1.9	NA	0.1	1.1				
Intersection	593	7.3		0.202		1.3	NA	0.2	1.3				

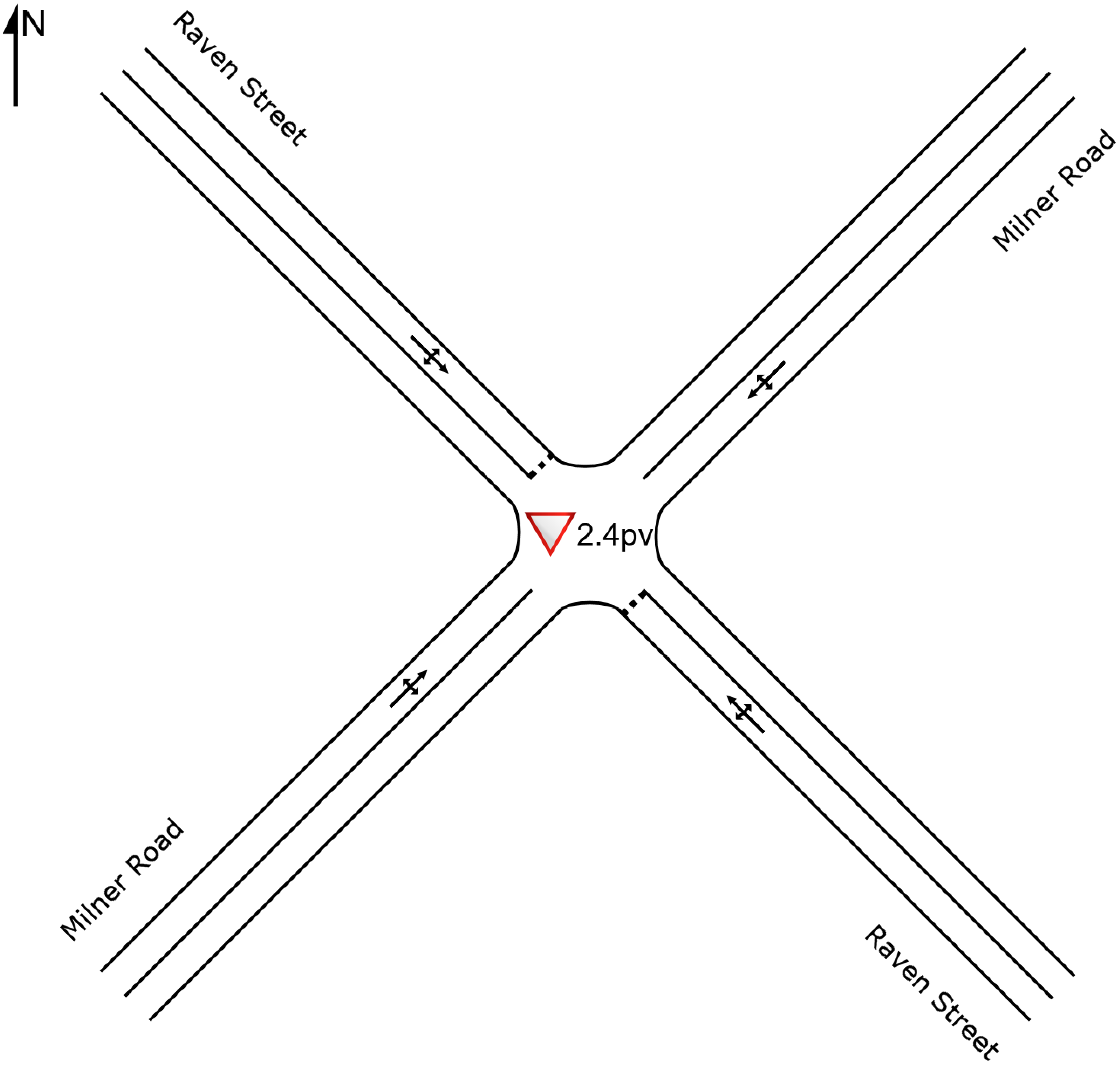
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 2.4pv [2.4p Milner Road - Raven Street - 2031 PM (Site Folder: 2031)]

2.4p Milner Road - Raven Street - 2031 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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

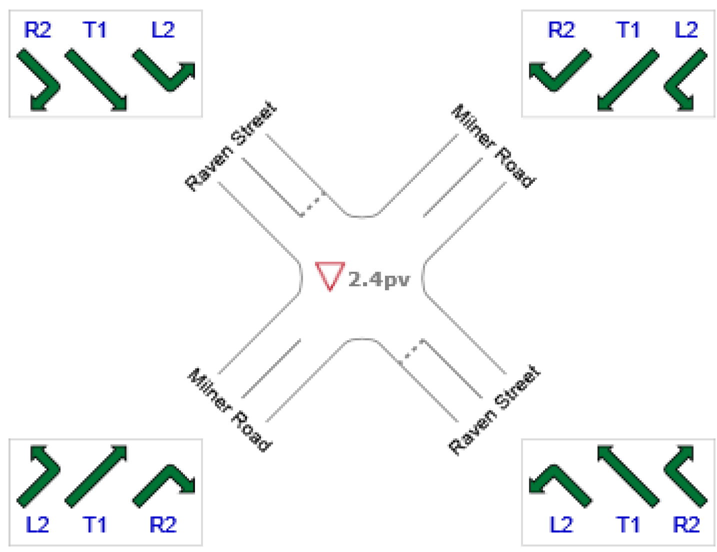


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	43	1
LV	100%	2%	100%
HV	0%	0%	0%
D1	0%	98%	0%
U2			
U3			

	R2	T1	L2
Tot	1	89	15
LV	100%	73%	7%
HV	0%	0%	0%
D1	0%	18%	93%
U2		7%	
U3		2%	



	L2	T1	R2
Tot	50	378	27
LV	88%	83%	4%
HV	0%	0%	0%
D1	12%	7%	96%
U2		8%	
U3		2%	

	L2	T1	R2
Tot	11	10	7
LV	9%	10%	14%
HV	0%	0%	0%
D1	91%	90%	86%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Raven Street	28	3	0	25	-	-
NE: Milner Road	105	67	0	30	6	2
NW: Raven Street	45	3	0	42	-	-
SW: Milner Road	455	360	0	57	29	9
Total	633	433	0	154	35	11

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Raven Street													
Lane 1	29	0.0	1227	0.024	100	5.0	LOS A	0.1	0.6	Full	150	0.0	0.0
Approach	29	0.0		0.024		5.0	LOS A	0.1	0.6				
NorthEast: Milner Road													
Lane 1	111	7.5	1763	0.063	100	0.9	LOS A	0.0	0.1	Full	240	0.0	0.0
Approach	111	7.5		0.063		0.9	NA	0.0	0.1				
NorthWest: Raven Street													
Lane 1	47	0.0	1117	0.042	100	4.5	LOS A	0.1	0.9	Full	130	0.0	0.0
Approach	47	0.0		0.042		4.5	LOS A	0.1	0.9				
SouthWest: Milner Road													
Lane 1	479	8.4	1746	0.274	100	1.0	LOS A	0.3	2.3	Full	280	0.0	0.0
Approach	479	8.4		0.274		1.0	NA	0.3	2.3				
Intersection	666	7.3		0.274		1.4	NA	0.3	2.3				

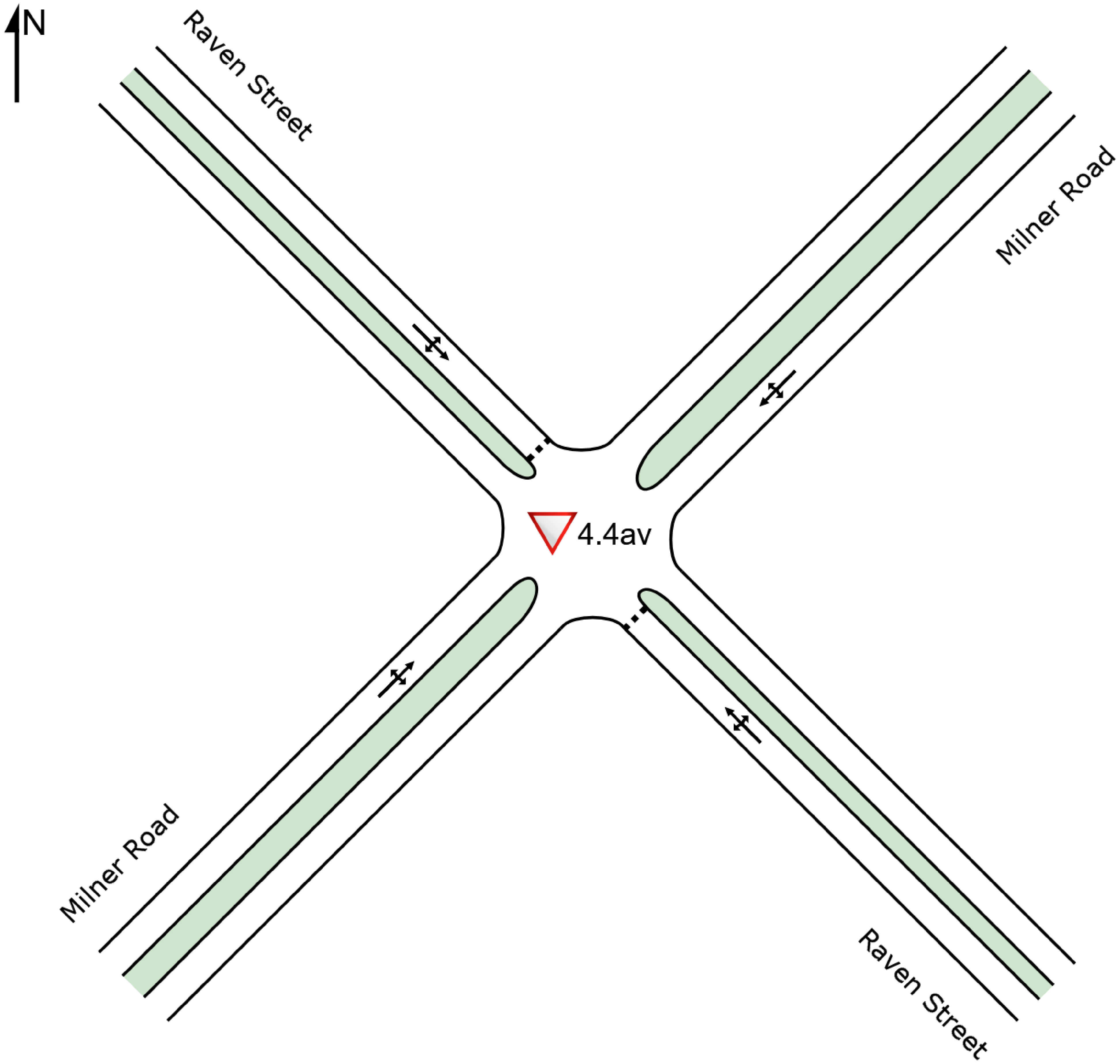
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

▽ Site: 4.4av [4.4a Milner Road - Raven Street - 2050 AM (Site Folder: 2050)]

4.4a Milner Road - Raven Street - 2050 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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

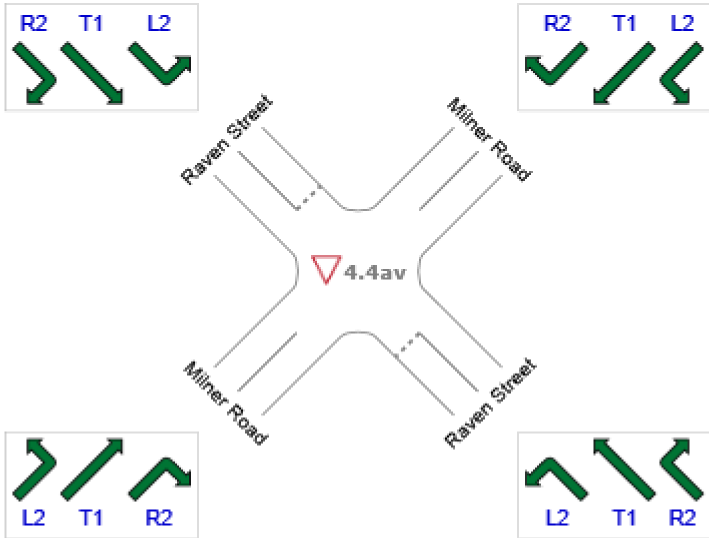


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	9	112	1
LV	11%	1%	100%
HV	0%	0%	0%
D1	89%	99%	0%
U2			
U3			

	R2	T1	L2
Tot	1	462	69
LV	100%	52%	1%
HV	0%	0%	0%
D1	0%	45%	99%
U2		3%	
U3		1%	



	L2	T1	R2
Tot	51	203	54
LV	10%	44%	2%
HV	0%	0%	0%
D1	90%	54%	98%
U2		2%	
U3		0%	

	L2	T1	R2
Tot	61	168	181
LV	2%	1%	1%
HV	0%	0%	0%
D1	98%	99%	99%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Raven Street	410	3	0	407	-	-
NE: Milner Road	532	242	0	275	13	3
NW: Raven Street	122	3	0	119	-	-
SW: Milner Road	308	94	0	208	5	1
Total	1372	342	0	1009	17	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Raven Street													
Lane 1	432	0.0	806	0.535	100	8.6	LOS A	2.7	19.5	Full	150	0.0	0.0
Approach	432	0.0		0.535		8.6	LOS A	2.7	19.5				
NorthEast: Milner Road													
Lane 1	560	2.9	1874	0.299	100	0.7	LOS A	0.0	0.1	Full	240	0.0	0.0
Approach	560	2.9		0.299		0.7	NA	0.0	0.1				
NorthWest: Raven Street													
Lane 1	128	0.0	868	0.148	100	5.7	LOS A	0.4	3.1	Full	130	0.0	0.0
Approach	128	0.0		0.148		5.7	LOS A	0.4	3.1				
SouthWest: Milner Road													
Lane 1	324	1.8	1623	0.200	100	3.4	LOS A	0.8	6.0	Full	280	0.0	0.0
Approach	324	1.8		0.200		3.4	NA	0.8	6.0				
Intersection	1444	1.5		0.535		4.1	NA	2.7	19.5				

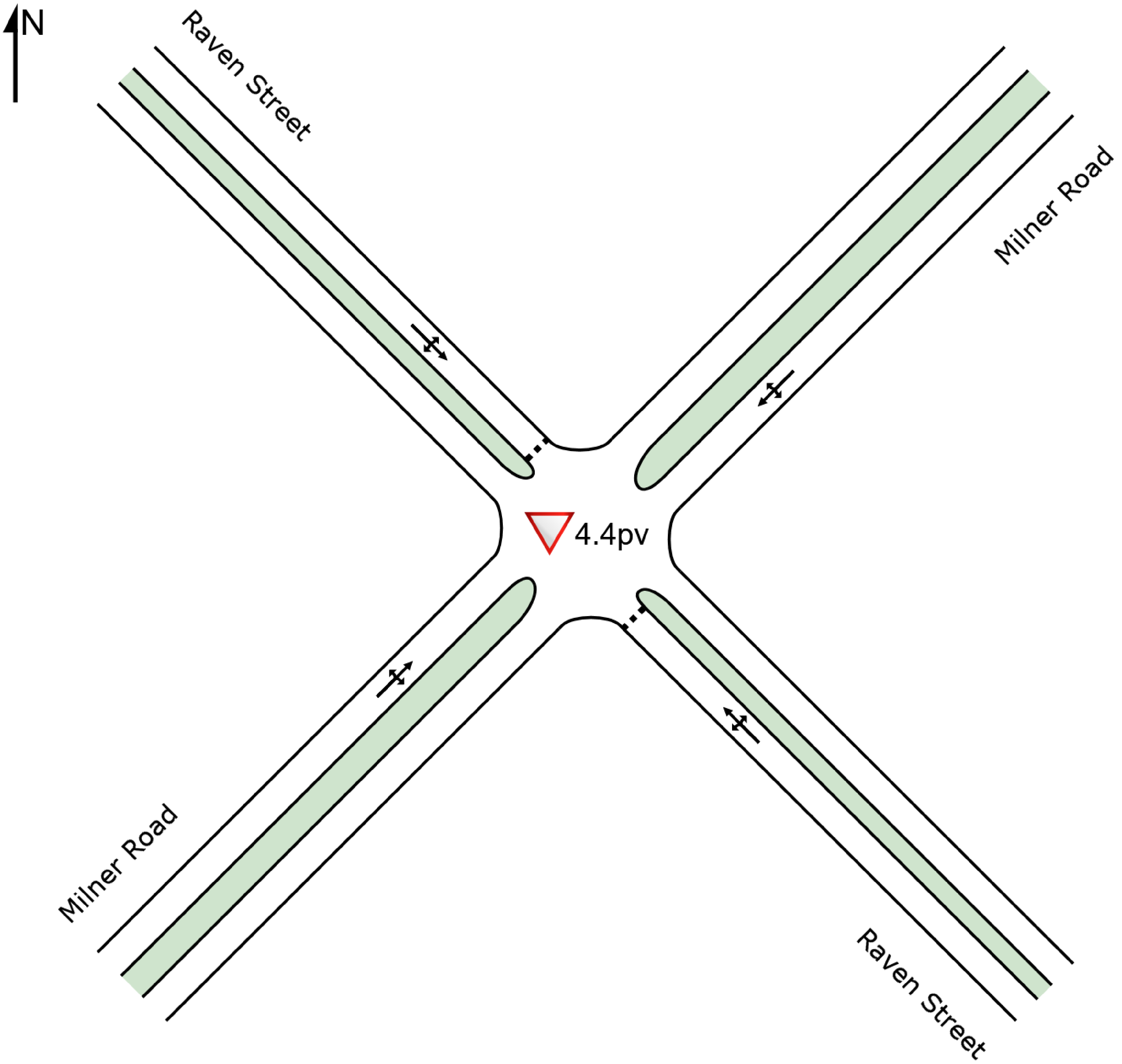
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 4.4pv [4.4p Milner Road - Raven Street - 2050 PM (Site Folder: 2050)]

4.4p Milner Road - Raven Street - 2050 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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

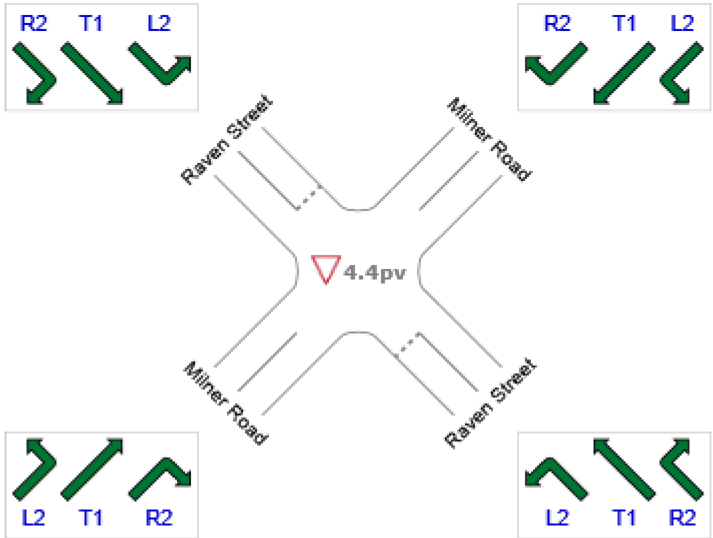


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	7	213	1
LV	14%	0%	100%
HV	0%	0%	0%
D1	86%	100%	0%
U2			
U3			

	R2	T1	L2
Tot	1	216	113
LV	100%	35%	1%
HV	0%	0%	0%
D1	0%	63%	99%
U2		2%	
U3		0%	



	L2	T1	R2
Tot	60	465	144
LV	60%	69%	1%
HV	0%	0%	0%
D1	40%	26%	99%
U2		4%	
U3		1%	

	L2	T1	R2
Tot	26	77	74
LV	4%	1%	1%
HV	0%	0%	0%
D1	96%	99%	99%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Raven Street	177	3	0	174	-	-
NE: Milner Road	330	78	0	247	4	1
NW: Raven Street	221	3	0	218	-	-
SW: Milner Road	669	358	0	290	17	3
Total	1397	443	0	929	21	4

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Raven Street													
Lane 1	186	0.0	682	0.273	100	8.0	LOS A	0.9	6.7	Full	150	0.0	0.0
Approach	186	0.0		0.273		8.0	LOS A	0.9	6.7				
NorthEast: Milner Road													
Lane 1	347	1.5	1880	0.185	100	1.9	LOS A	0.0	0.1	Full	240	0.0	0.0
Approach	347	1.5		0.185		1.9	NA	0.0	0.1				
NorthWest: Raven Street													
Lane 1	233	0.0	758	0.307	100	7.0	LOS A	1.0	7.7	Full	130	0.0	0.0
Approach	233	0.0		0.307		7.0	LOS A	1.0	7.7				
SouthWest: Milner Road													
Lane 1	704	3.1	1695	0.415	100	2.9	LOS A	2.2	16.8	Full	280	0.0	0.0
Approach	704	3.1		0.415		2.9	NA	2.2	16.8				
Intersection	1471	1.8		0.415		4.0	NA	2.2	16.8				

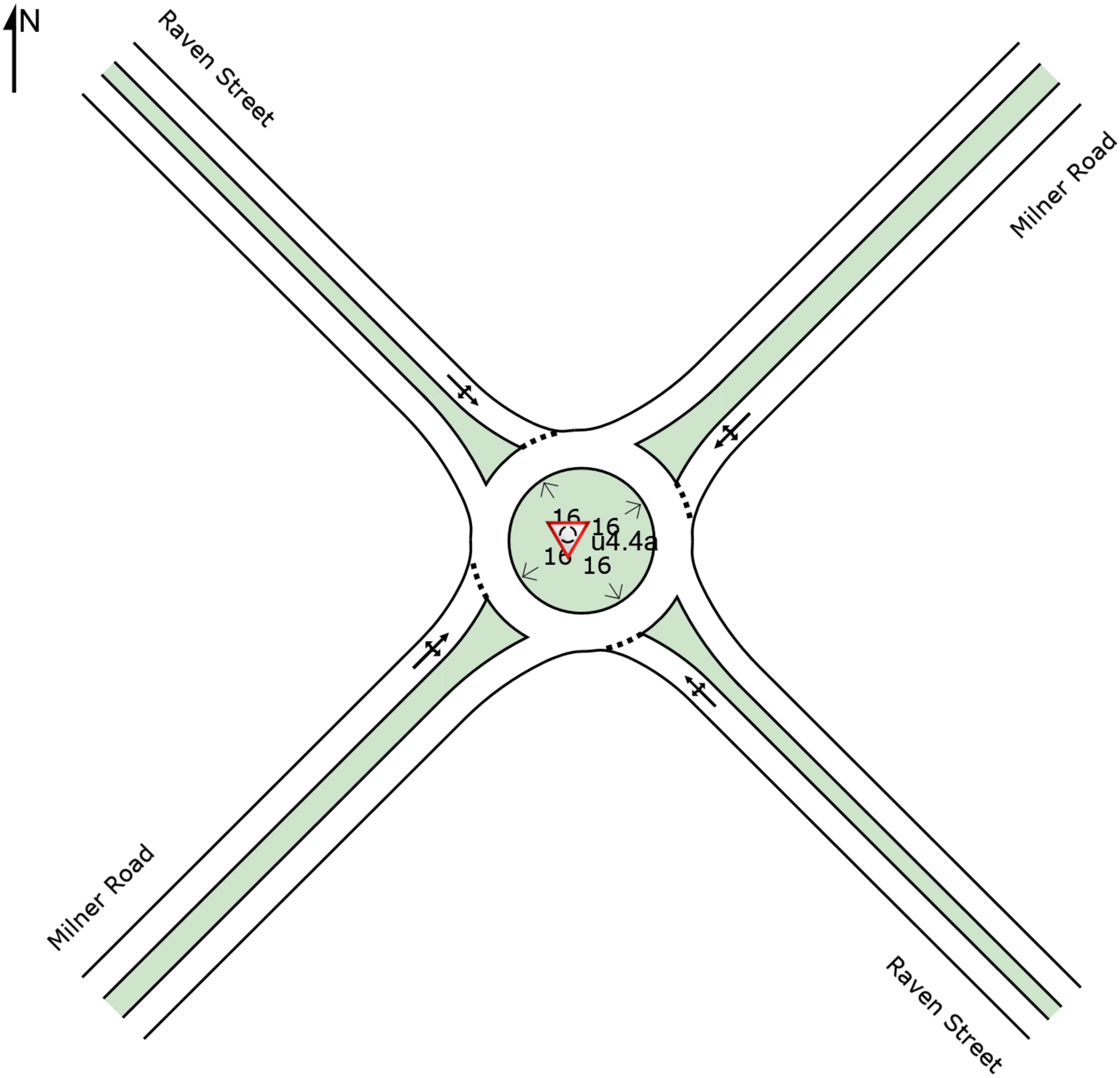
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: u4.4a [u4.4a Milner Road - Raven Street - 2050 AM - Upgrade for safety reasons (Site Folder: 2050)]

u4.4a Milner Road - Raven Street - 2050 AM - Upgrade
Site Category: (None)
Roundabout

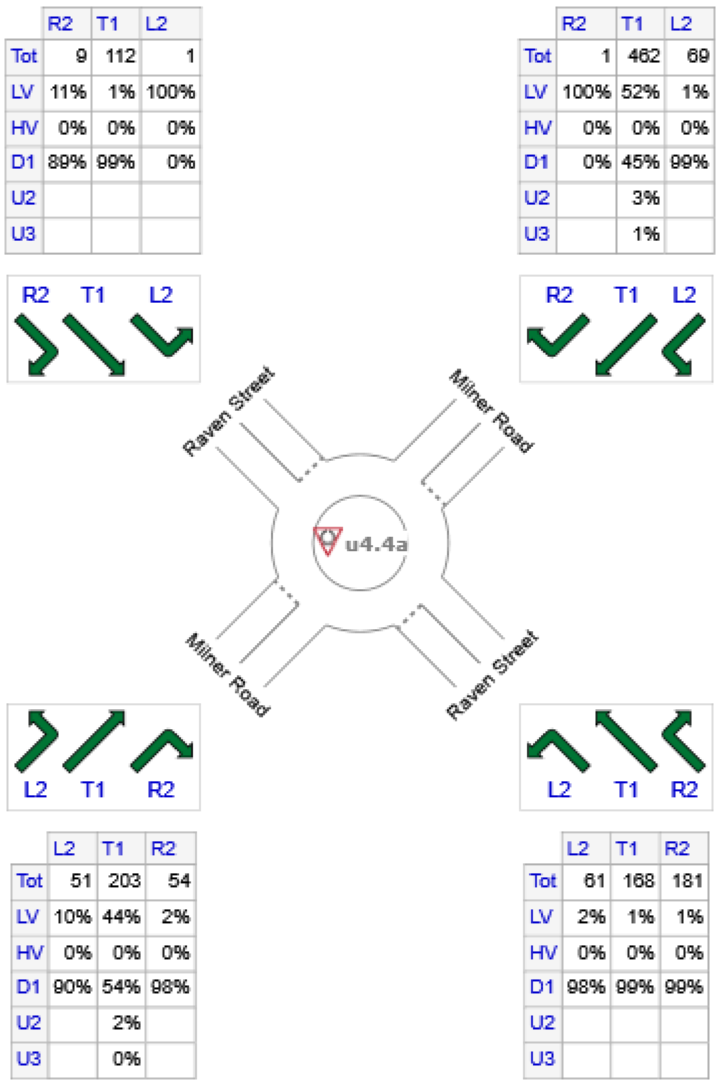
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Raven Street	410	3	0	407	-	-
NE: Milner Road	532	242	0	275	13	3
NW: Raven Street	122	3	0	119	-	-
SW: Milner Road	308	94	0	208	5	1
Total	1372	342	0	1009	17	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Raven Street													
Lane 1[d]	432	0.0	807	0.535	100	11.0	LOS B	5.0	37.0	Full	150	0.0	0.0
Approach	432	0.0		0.535		11.0	LOS B	5.0	37.0				
NorthEast: Milner Road													
Lane 1[d]	560	2.9	1175	0.477	100	6.0	LOS A	4.1	31.2	Full	240	0.0	0.0
Approach	560	2.9		0.477		6.0	LOS A	4.1	31.2				
NorthWest: Raven Street													
Lane 1[d]	128	0.0	857	0.150	100	6.7	LOS A	1.0	7.1	Full	130	0.0	0.0
Approach	128	0.0		0.150		6.7	LOS A	1.0	7.1				
SouthWest: Milner Road													
Lane 1[d]	324	1.8	906	0.358	100	7.9	LOS A	2.7	20.6	Full	280	0.0	0.0
Approach	324	1.8		0.358		7.9	LOS A	2.7	20.6				
Intersection	1444	1.5		0.535		8.0	LOS A	5.0	37.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

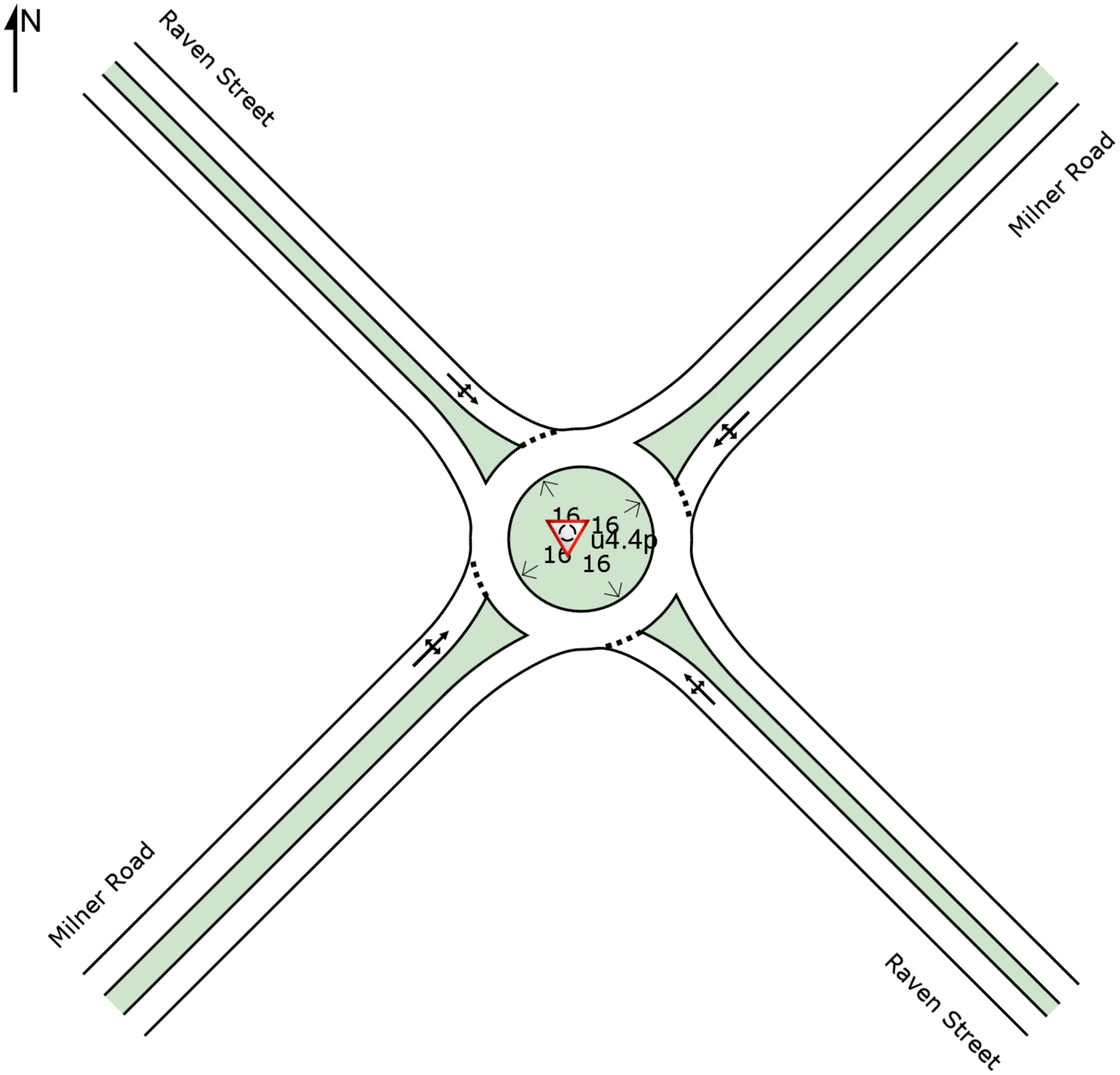
d Dominant lane on roundabout approach

Site: u4.4p [u4.4p Milner Road - Raven Street - 2050 PM - Upgrade for safety reasons (Site Folder: 2050)]

u4.4p Milner Road - Raven Street - 2050 PM - Upgrade
Site Category: (None)
Roundabout

Site Layout

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

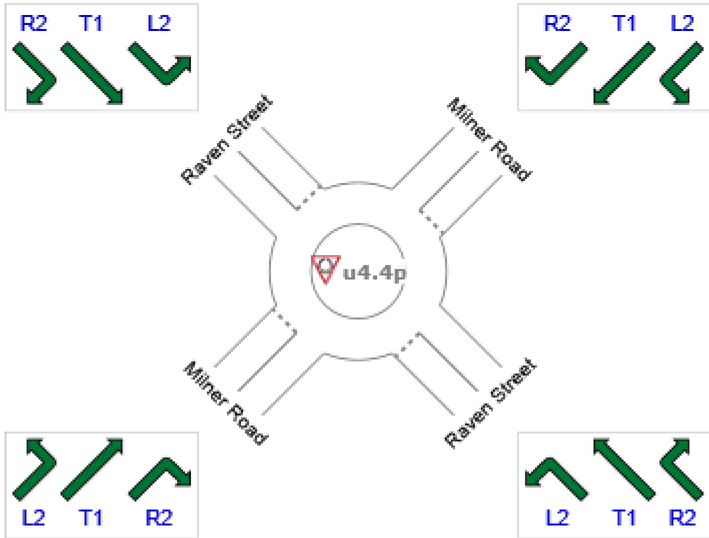


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	7	213	1
LV	14%	0%	100%
HV	0%	0%	0%
D1	86%	100%	0%
U2			
U3			

	R2	T1	L2
Tot	1	216	113
LV	100%	35%	1%
HV	0%	0%	0%
D1	0%	63%	99%
U2		2%	
U3		0%	



	L2	T1	R2
Tot	60	465	144
LV	60%	69%	1%
HV	0%	0%	0%
D1	40%	26%	99%
U2		4%	
U3		1%	

	L2	T1	R2
Tot	26	77	74
LV	4%	1%	1%
HV	0%	0%	0%
D1	96%	99%	99%
U2			
U3			

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Raven Street	177	3	0	174	-	-
NE: Milner Road	330	78	0	247	4	1
NW: Raven Street	221	3	0	218	-	-
SW: Milner Road	669	358	0	290	17	3
Total	1397	443	0	929	21	4

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Raven Street													
Lane 1[d]	186	0.0	1045	0.178	100	6.5	LOS A	1.2	9.0	Full	150	0.0	0.0
Approach	186	0.0		0.178		6.5	LOS A	1.2	9.0				
NorthEast: Milner Road													
Lane 1[d]	347	1.5	922	0.377	100	7.3	LOS A	2.8	20.7	Full	240	0.0	0.0
Approach	347	1.5		0.377		7.3	LOS A	2.8	20.7				
NorthWest: Raven Street													
Lane 1[d]	233	0.0	631	0.369	100	9.8	LOS A	2.8	20.3	Full	130	0.0	0.0
Approach	233	0.0		0.369		9.8	LOS A	2.8	20.3				
SouthWest: Milner Road													
Lane 1[d]	704	3.1	1222	0.576	100	6.9	LOS A	5.8	44.2	Full	280	0.0	0.0
Approach	704	3.1		0.576		6.9	LOS A	5.8	44.2				
Intersection	1471	1.8		0.576		7.4	LOS A	5.8	44.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

USER REPORT FOR SITE

All Movement Classes

Project: KC00604.000 M05 Milner Road - TOD Connector | **Template: Single Site User Report**

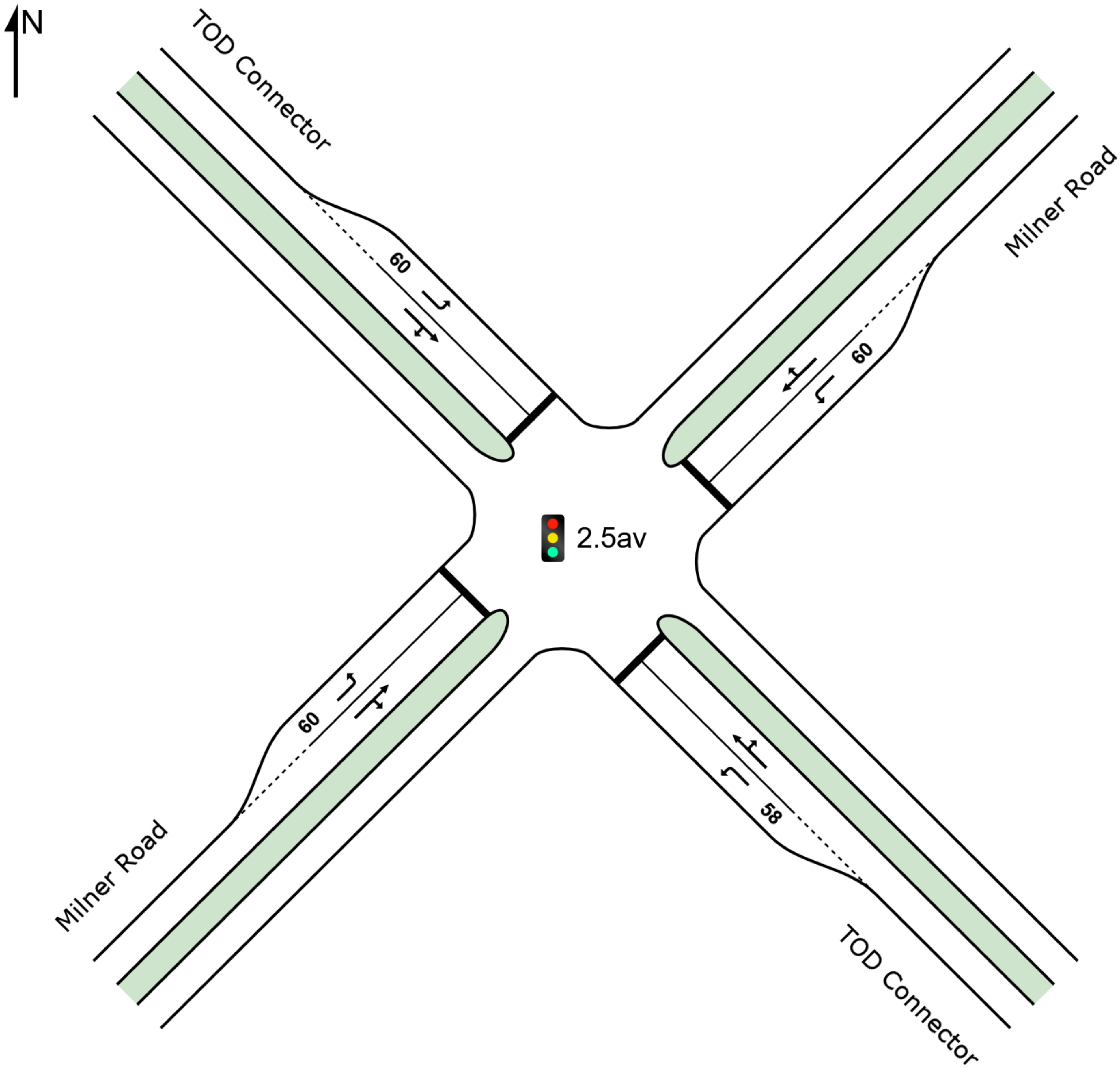
Site: 2.5av [2.5a Milner Road - TOD Connector - 2031 AM - Conversion (Site Folder: 2031)]

2.5a Milner Road - TOD Connector - 2031 AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 30 seconds (Site Practical Cycle Time)

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

Site Layout

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

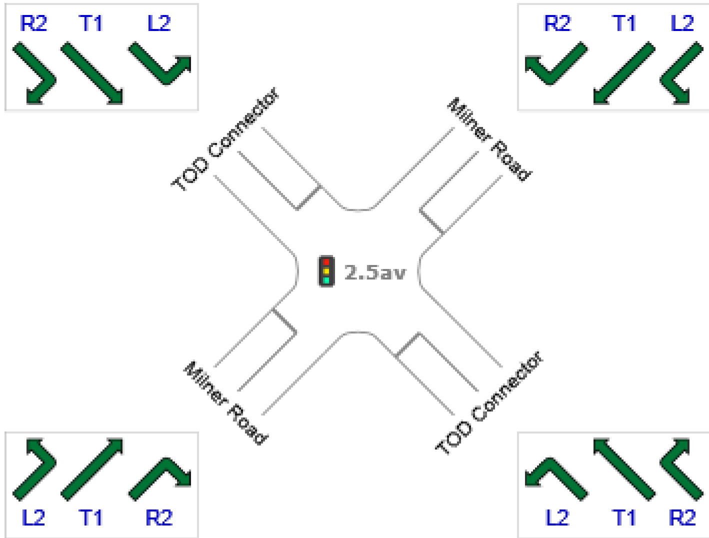


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	56	4	5
LV	87%	24%	19%
HV	0%	0%	0%
D1	11%	75%	80%
U2	3%	1%	1%
U3	0%	0%	0%

	R2	T1	L2
Tot	1	258	9
LV	92%	79%	10%
HV	0%	0%	0%
D1	0%	11%	89%
U2	8%	7%	1%
U3	0%	2%	0%



	L2	T1	R2
Tot	1	93	5
LV	92%	80%	18%
HV	0%	0%	0%
D1	0%	11%	80%
U2	8%	7%	2%
U3	0%	2%	0%

	L2	T1	R2
Tot	74	14	53
LV	59%	7%	48%
HV	0%	0%	0%
D1	41%	93%	51%
U2	1%	0%	1%
U3	0%	0%	0%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: TOD Connector	141	70	0	70	1	0
NE: Milner Road	268	206	0	37	19	6
NW: TOD Connector	65	50	0	13	2	0
SW: Milner Road	99	76	0	14	7	2
Total	573	402	0	134	29	8

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: TOD Connector													
Lane 1	78	0.8	372	0.209	100	16.2	LOS B	1.0	7.6	Short	58	0.0	NA
Lane 2	71	1.2	371	0.190	100	15.2	LOS B	0.9	6.9	Full	300	0.0	0.0
Approach	148	1.0		0.209		15.8	LOS B	1.0	7.6				
NorthEast: Milner Road													
Lane 1	9	0.9	743	0.013	100	11.5	LOS B	0.1	0.6	Short	60	0.0	NA
Lane 2	273	9.5	704	0.387	100	7.3	LOS A	3.0	24.7	Full	250	0.0	0.0
Approach	282	9.3		0.387		7.4	LOS A	3.0	24.7				
NorthWest: TOD Connector													
Lane 1	5	0.6	373	0.014	100	15.4	LOS B	0.1	0.5	Short	60	0.0	NA
Lane 2	63	2.6	339	0.187	100	16.0	LOS B	0.8	6.3	Full	155	0.0	0.0
Approach	68	2.4		0.187		15.9	LOS B	0.8	6.3				
SouthWest: Milner Road													
Lane 1	1	8.3	689	0.002	100	11.5	LOS B	0.0	0.1	Short	60	0.0	NA
Lane 2	103	9.2	677	0.152	100	6.8	LOS A	1.0	8.3	Full	120	0.0	0.0
Approach	104	9.2		0.152		6.8	LOS A	1.0	8.3				
Intersection	603	6.4		0.387		10.3	LOS B	3.0	24.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

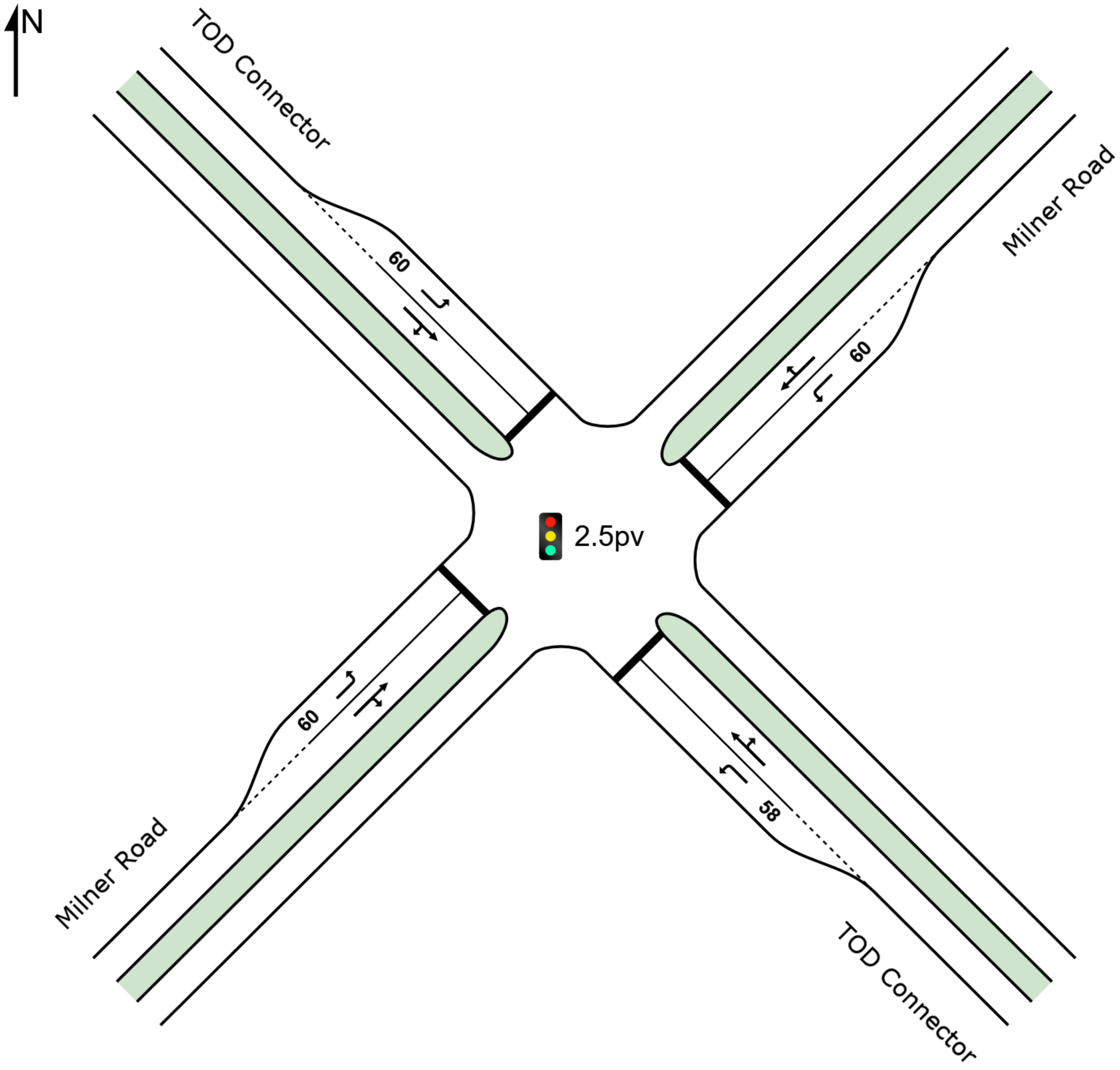
Site: 2.5pv [2.5p Milner Road - TOD Connector - 2031 PM - Conversion (Site Folder: 2031)]

2.5p Milner Road - TOD Connector - 2031 PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 30 seconds (Site Practical Cycle Time)

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

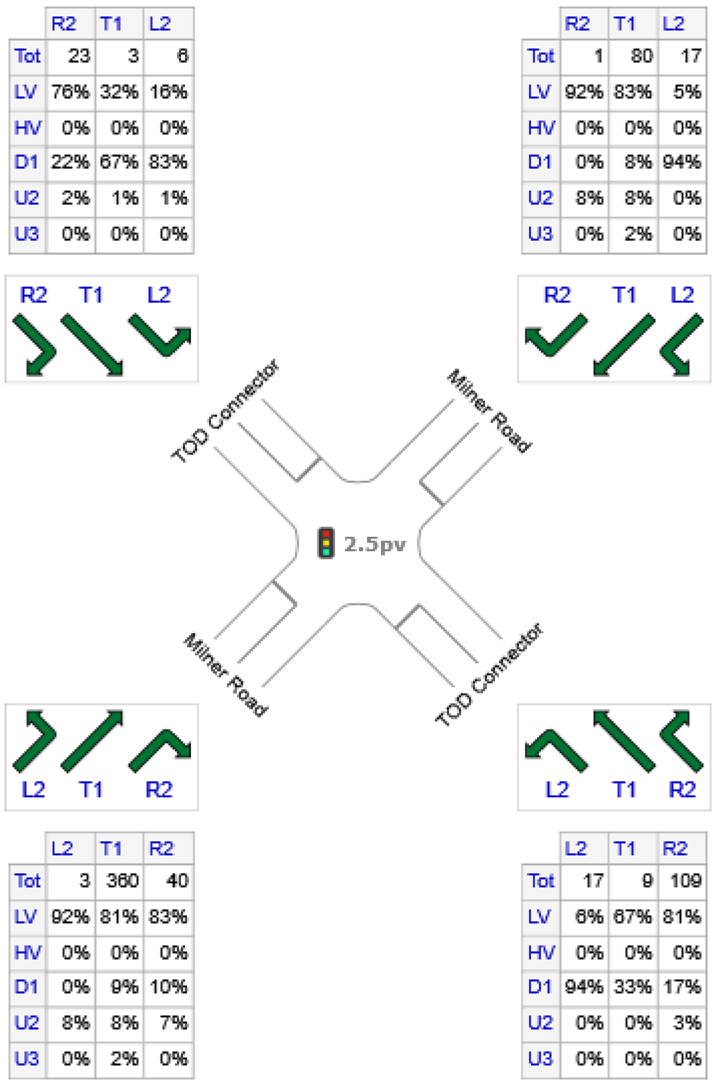
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: TOD Connector	135	95	0	37	3	0
NE: Milner Road	98	68	0	22	6	2
NW: TOD Connector	32	19	0	12	1	0
SW: Milner Road	403	327	0	38	30	8
Total	668	509	0	109	40	10

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: TOD Connector													
Lane 1	18	0.2	375	0.048	100	15.6	LOS B	0.2	1.7	Short	58	0.0	NA
Lane 2	124	2.3	383	0.325	100	16.3	LOS B	1.7	12.7	Full	300	0.0	0.0
Approach	142	2.0		0.325		16.2	LOS B	1.7	12.7				
NorthEast: Milner Road													
Lane 1	18	0.5	747	0.024	100	11.6	LOS B	0.2	1.2	Short	60	0.0	NA
Lane 2	85	10.0	692	0.123	100	6.5	LOS A	0.8	6.8	Full	250	0.0	0.0
Approach	103	8.3		0.123		7.3	LOS A	0.8	6.8				
NorthWest: TOD Connector													
Lane 1	6	0.5	373	0.017	100	15.4	LOS B	0.1	0.6	Short	60	0.0	NA
Lane 2	27	2.2	370	0.074	100	15.3	LOS B	0.3	2.6	Full	155	0.0	0.0
Approach	34	1.9		0.074		15.3	LOS B	0.3	2.6				
SouthWest: Milner Road													
Lane 1	3	8.3	689	0.005	100	11.5	LOS B	0.0	0.2	Short	60	0.0	NA
Lane 2	421	9.5	674	0.625	100	9.2	LOS A	5.4	44.7	Full	120	0.0	0.0
Approach	424	9.5		0.625		9.3	LOS A	5.4	44.7				
Intersection	703	7.5		0.625		10.7	LOS B	5.4	44.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

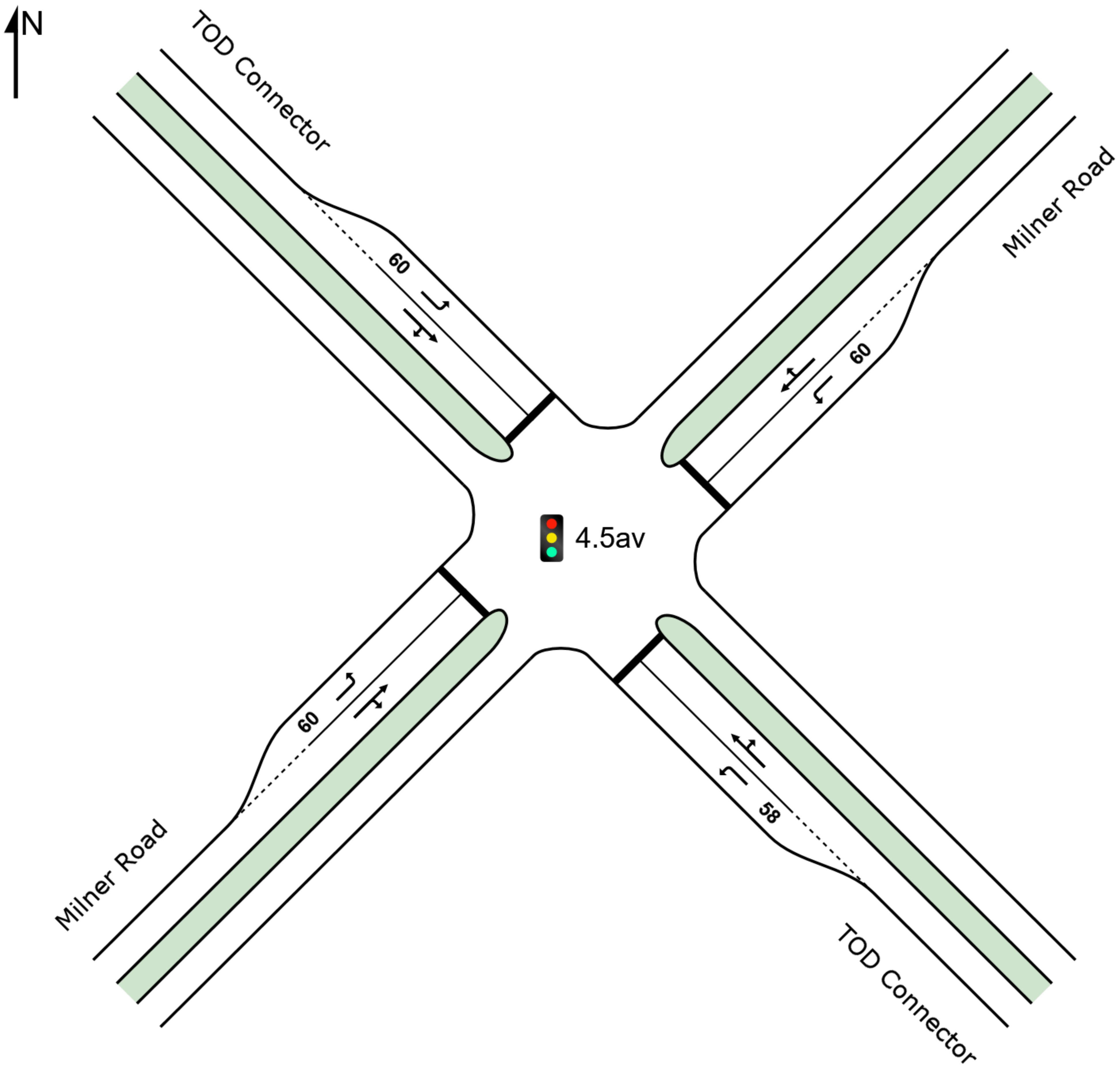
Site: 4.5av [4.5a Milner Road - TOD Connector - 2050 AM - Conversion (Site Folder: 2050)]

4.5a Milner Road - TOD Connector - 2050 AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 30 seconds (Site Practical Cycle Time)

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

Site Layout

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

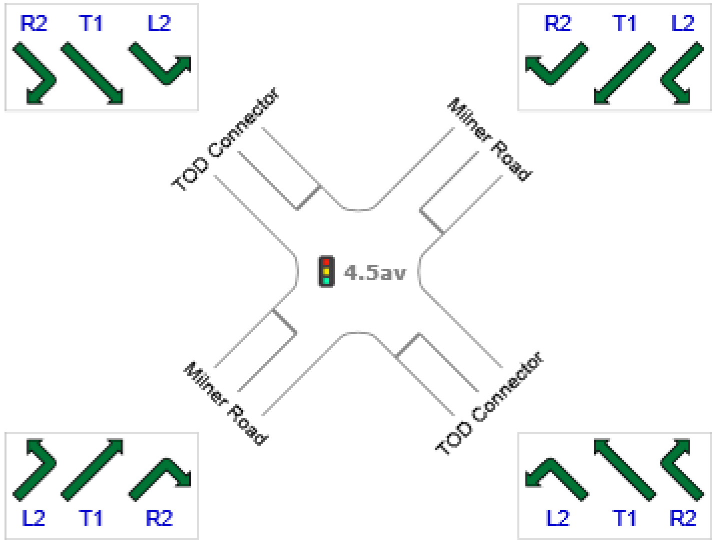


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	62	26	21
LV	47%	4%	5%
HV	0%	0%	0%
D1	52%	96%	95%
U2	1%	0%	0%
U3	0%	0%	0%

	R2	T1	L2
Tot	9	438	123
LV	10%	60%	1%
HV	0%	0%	0%
D1	89%	33%	99%
U2	1%	6%	0%
U3	0%	2%	0%



	L2	T1	R2
Tot	1	154	72
LV	92%	51%	8%
HV	0%	0%	0%
D1	0%	43%	92%
U2	8%	5%	1%
U3	0%	1%	0%

	L2	T1	R2
Tot	271	61	136
LV	15%	2%	10%
HV	0%	0%	0%
D1	85%	98%	90%
U2	0%	0%	0%
U3	0%	0%	0%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: TOD Connector	468	55	0	411	2	0
NE: Milner Road	570	263	0	275	24	7
NW: TOD Connector	109	31	0	77	1	0
SW: Milner Road	227	85	0	132	8	2
Total	1374	434	0	895	35	10

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: TOD Connector													
Lane 1	285	0.5	436	0.655	100	17.5	LOS B	4.3	31.7	Short	58	0.0	NA
Lane 2	207	0.2	297	0.697	100	18.5	LOS B	3.4	24.8	Full	300	0.0	0.0
Approach	493	0.4		0.697		17.9	LOS B	4.3	31.7				
NorthEast: Milner Road													
Lane 1	129	0.1	688	0.188	100	12.8	LOS B	1.4	9.9	Short	60	0.0	NA
Lane 2	471	7.1	649	0.725	100	11.3	LOS B	7.0	56.1	Full	250	0.0	0.0
Approach	600	5.6		0.725		11.6	LOS B	7.0	56.1				
NorthWest: TOD Connector													
Lane 1	22	0.2	437	0.051	100	14.7	LOS B	0.3	1.9	Short	60	0.0	NA
Lane 2	93	1.1	256	0.361	100	17.5	LOS B	1.4	10.2	Full	155	0.0	0.0
Approach	115	0.9		0.361		16.9	LOS B	1.4	10.2				
SouthWest: Milner Road													
Lane 1	1	8.3	632	0.002	100	12.2	LOS B	0.0	0.1	Short	60	0.0	NA
Lane 2	238	4.4	437	0.545	100	12.9	LOS B	3.3	25.5	Full	120	0.0	0.0
Approach	239	4.4		0.545		12.9	LOS B	3.3	25.5				
Intersection	1446	3.2		0.725		14.4	LOS B	7.0	56.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

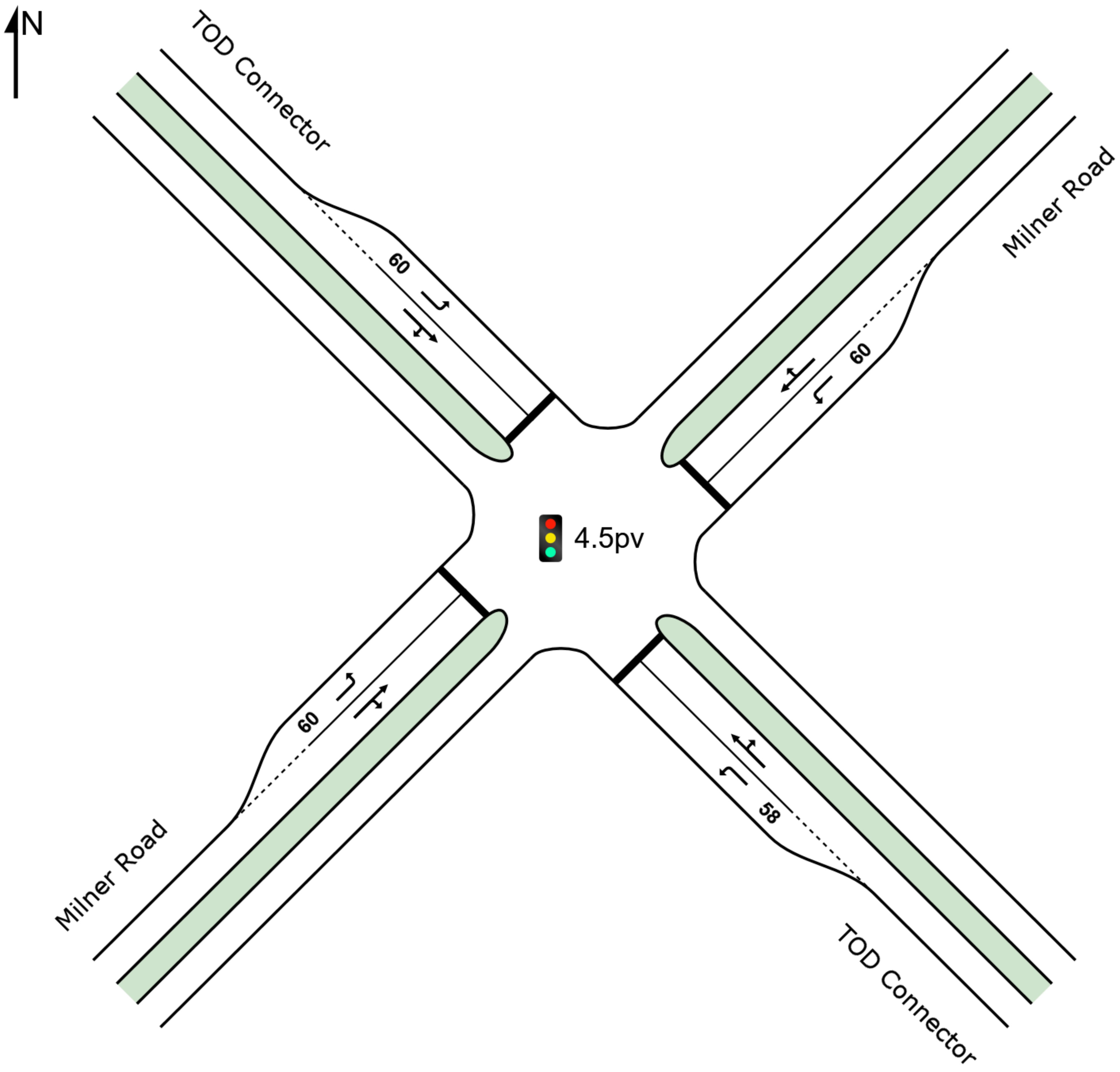
Site: 4.5pv [4.5p Milner Road - TOD Connector - 2050 PM - Conversion (Site Folder: 2050)]

4.5p Milner Road - TOD Connector - 2050 PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 40 seconds (Site Practical Cycle Time)

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

Site Layout

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

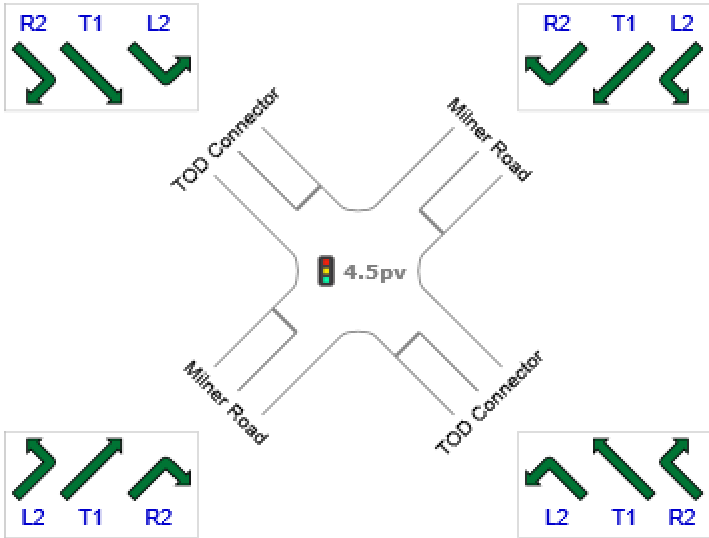


Input Volumes

Volume Display Method: Total and %

	R2	T1	L2
Tot	36	78	56
LV	35%	1%	2%
HV	0%	0%	0%
D1	64%	99%	98%
U2	1%	0%	0%
U3	0%	0%	0%

	R2	T1	L2
Tot	5	148	98
LV	18%	50%	1%
HV	0%	0%	0%
D1	80%	44%	99%
U2	2%	5%	0%
U3	0%	1%	0%



	L2	T1	R2
Tot	4	464	125
LV	92%	60%	28%
HV	0%	0%	0%
D1	0%	33%	70%
U2	8%	6%	3%
U3	0%	2%	0%

	L2	T1	R2
Tot	104	31	166
LV	6%	19%	49%
HV	0%	0%	0%
D1	94%	81%	50%
U2	0%	1%	2%
U3	0%	0%	0%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: TOD Connector	301	92	0	206	3	0
NE: Milner Road	251	76	0	166	7	2
NW: TOD Connector	170	15	0	155	0	0
SW: Milner Road	593	317	0	239	29	8
Total	1315	499	0	766	40	10

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: TOD Connector													
Lane 1	109	0.2	328	0.334	100	21.3	LOS C	2.0	14.8	Short	58	0.0	NA
Lane 2	207	1.4	282	0.734	100	24.2	LOS C	4.5	33.5	Full	300	0.0	0.0
Approach	317	0.9		0.734		23.2	LOS C	4.5	33.5				
NorthEast: Milner Road													
Lane 1	103	0.1	984	0.105	100	10.8	LOS B	1.0	7.5	Short	60	0.0	NA
Lane 2	161	5.9	912	0.177	100	5.6	LOS A	1.7	13.3	Full	250	0.0	0.0
Approach	264	3.6		0.177		7.6	LOS A	1.7	13.3				
NorthWest: TOD Connector													
Lane 1	59	0.1	328	0.180	100	20.7	LOS C	1.0	7.7	Short	60	0.0	NA
Lane 2	120	0.4	288	0.417	100	18.7	LOS B	2.3	16.7	Full	155	0.0	0.0
Approach	179	0.3		0.417		19.3	LOS B	2.3	16.7				
SouthWest: Milner Road													
Lane 1	4	8.3	904	0.005	100	10.5	LOS B	0.0	0.3	Short	60	0.0	NA
Lane 2	620	6.3	837	0.741	100	11.6	LOS B	10.9	86.6	Full	120	0.0	0.0
Approach	624	6.3		0.741		11.6	LOS B	10.9	86.6				
Intersection	1384	3.8		0.741		14.5	LOS B	10.9	86.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR SITE

All Movement Classes

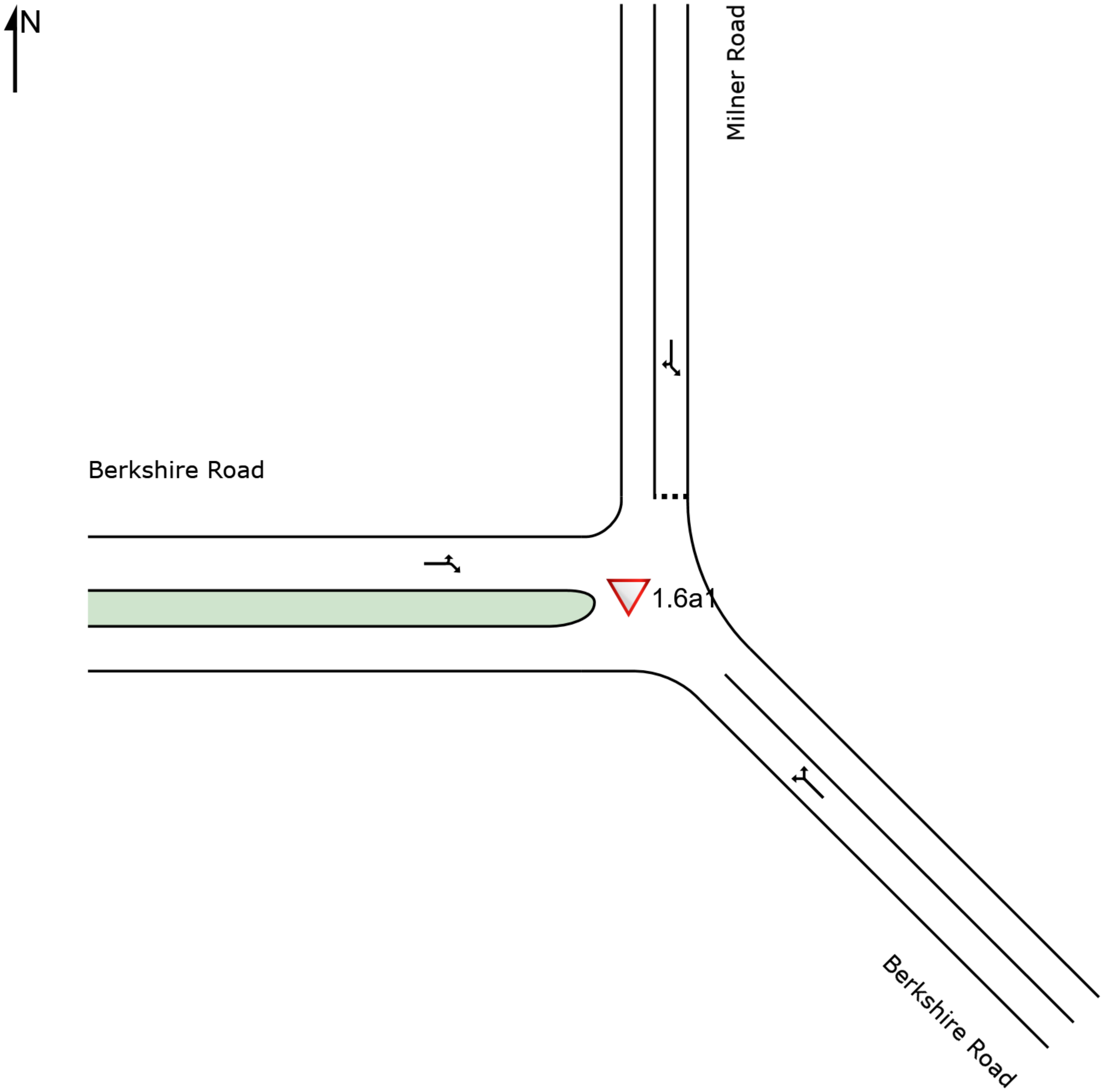
Project: KC00604.000 M06 Milner Road - Dundas Road - Berkshire Road **Template: Single Site User Report**

Site: 1.6a1 [1.6a1 Milner Road - Berkshire Road 2016 AM (Site Folder: General)]

1.6a1 Milner Road - Berkshire Road 2016 AM
Site Category: Existing Design
Give-Way (Two-Way)

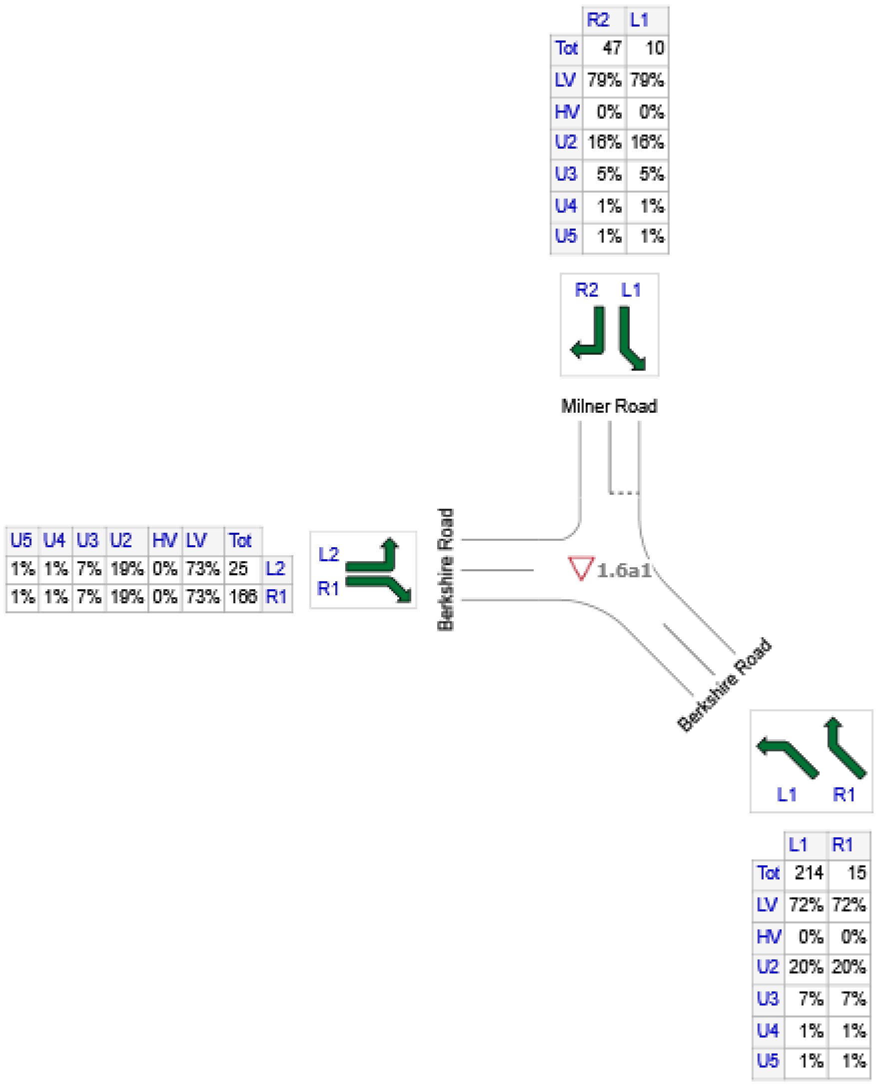
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	AustroadsClass 11 (U5)
SE: Berkshire Road	229	165	0	46	16	2	1
N: Milner Road	57	45	0	9	3	0	0
W: Berkshire Road	191	139	0	37	13	1	1
Total	477	348	0	91	32	3	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road													
Lane 1	241	28.0	1397	0.173	100	6.4	LOS A	0.2	1.6	Full	330	0.0	0.0
Approach	241	28.0		0.173		6.4	NA	0.2	1.6				
North: Milner Road													
Lane 1	60	21.5	1068	0.056	100	7.7	LOS A	0.2	1.4	Full	375	0.0	0.0
Approach	60	21.5		0.056		7.7	LOS A	0.2	1.4				
West: Berkshire Road													
Lane 1	201	27.4	1487	0.135	100	2.2	LOS A	0.0	0.0	Full	25	0.0	0.0
Approach	201	27.4		0.135		2.2	NA	0.0	0.0				
Intersection	502	27.0		0.173		4.9	NA	0.2	1.6				

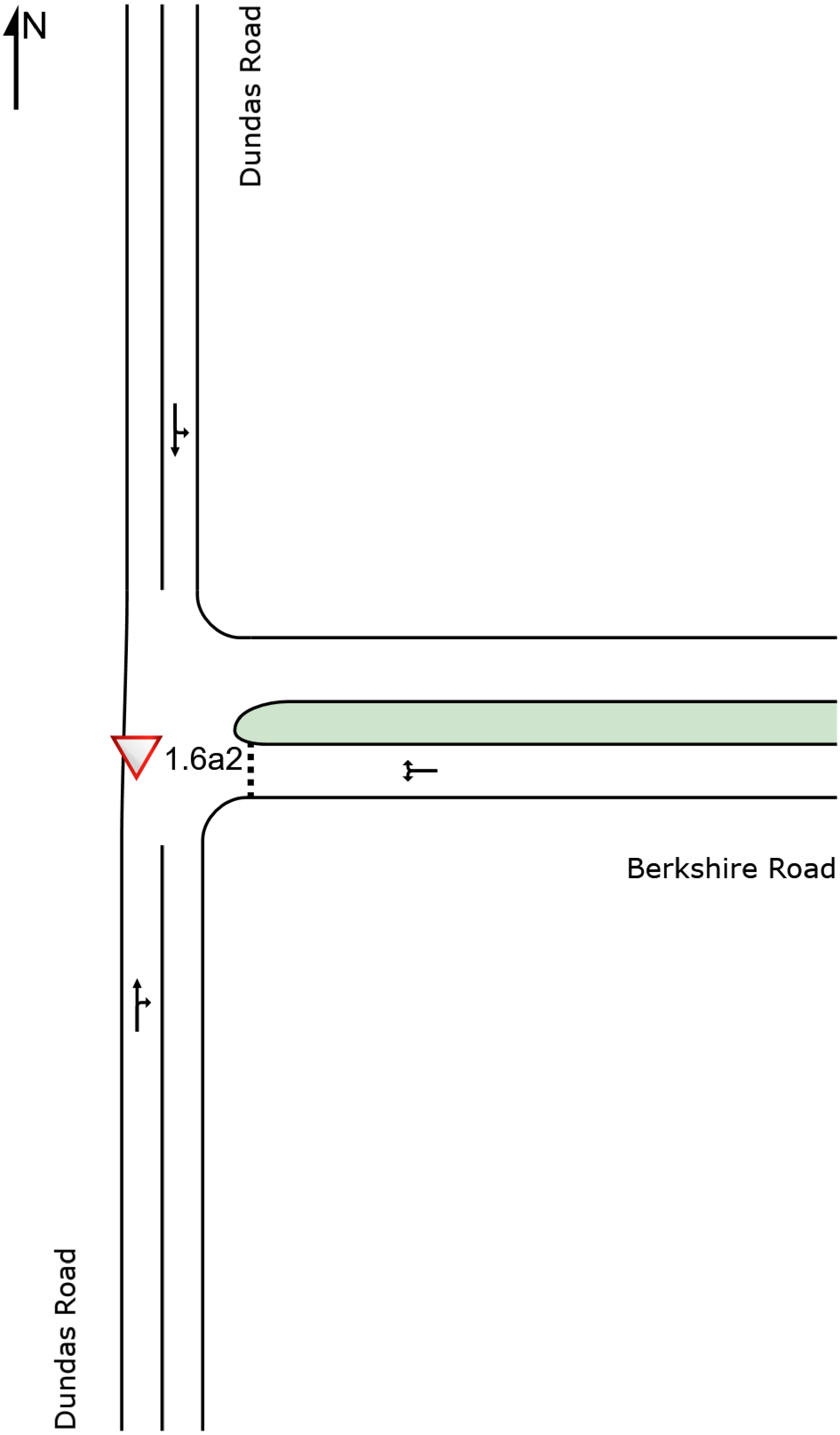
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

▽ Site: 1.6a2 [1.6a2 Berkshire Road - Dundas Road - 2016 AM (Site Folder: General)]

1.6a2 Berkshire Road - Dundas Road - 2016 AM
Site Category: Existing Design
Give-Way (Two-Way)

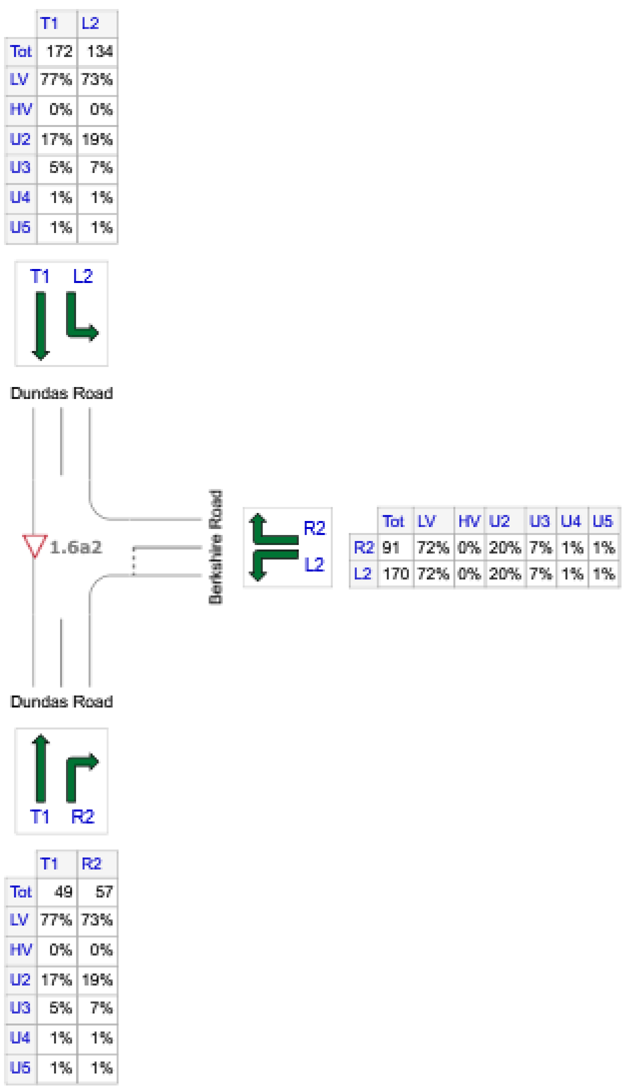
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	AustroadsClass 11 (U5)
S: Dundas Road	106	79	0	19	6	1	1
E: Berkshire Road	261	188	0	52	18	2	2
N: Dundas Road	306	230	0	55	18	2	2
Total	673	497	0	126	42	4	4

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Dundas Road													
Lane 1	112	25.4	1152	0.097	100	5.6	LOS A	0.5	4.6	Full	400	0.0	0.0
Approach	112	25.4		0.097		5.6	NA	0.5	4.6				
East: Berkshire Road													
Lane 1	275	27.9	1269	0.217	100	3.9	LOS A	0.9	9.2	Full	25	0.0	0.0
Approach	275	27.9		0.217		3.9	LOS A	0.9	9.2				
North: Dundas Road													
Lane 1	322	24.9	1416	0.227	100	3.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	322	24.9		0.227		3.1	NA	0.0	0.0				
Intersection	708	26.2		0.227		3.8	NA	0.9	9.2				

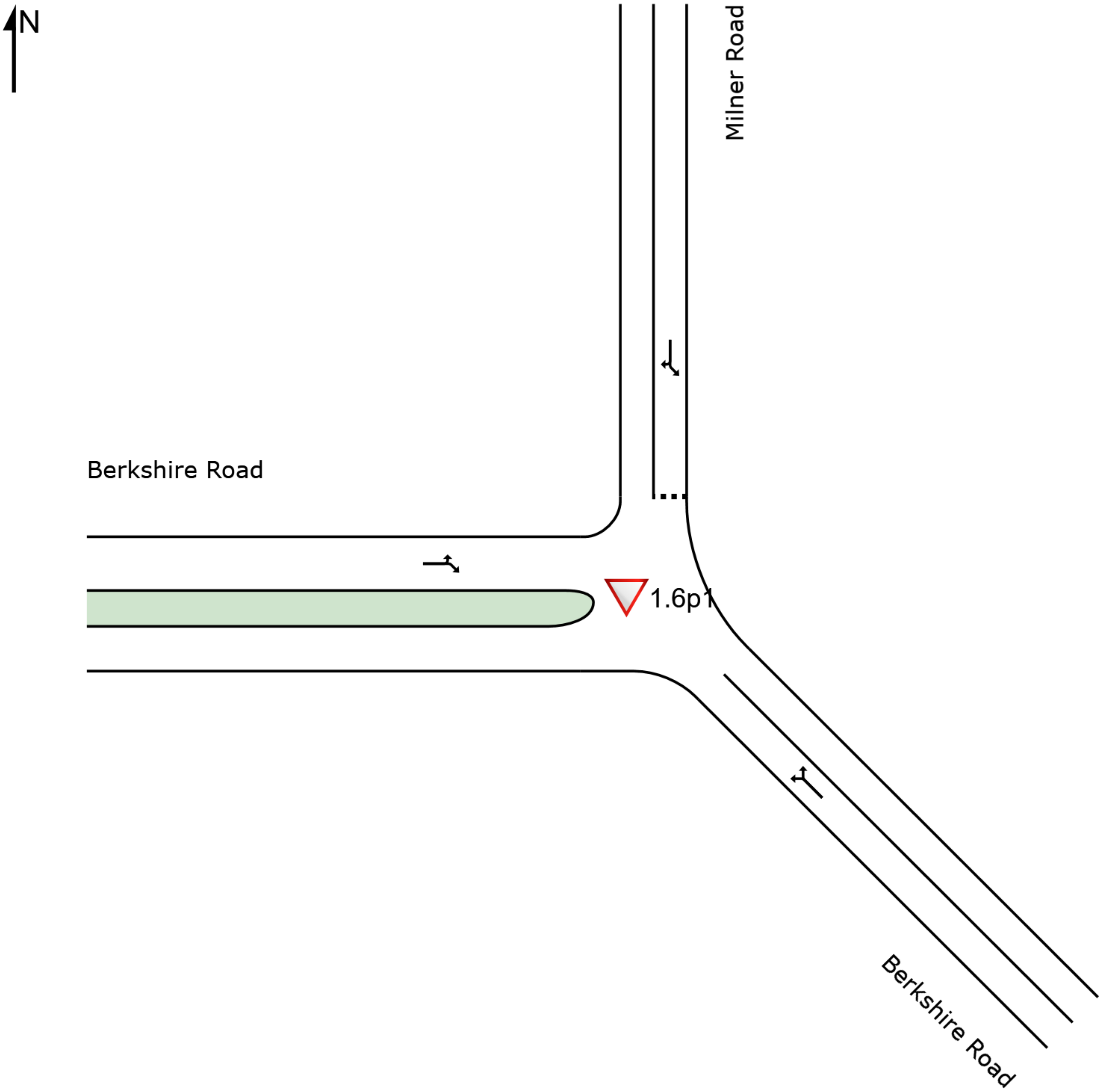
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 1.6p1 [1.6p1 Milner Road - Berkshire Road 2016 PM (Site Folder: General)]

1.6p1 Milner Road - Berkshire Road 2016 PM
Site Category: Existing Design
Give-Way (Two-Way)

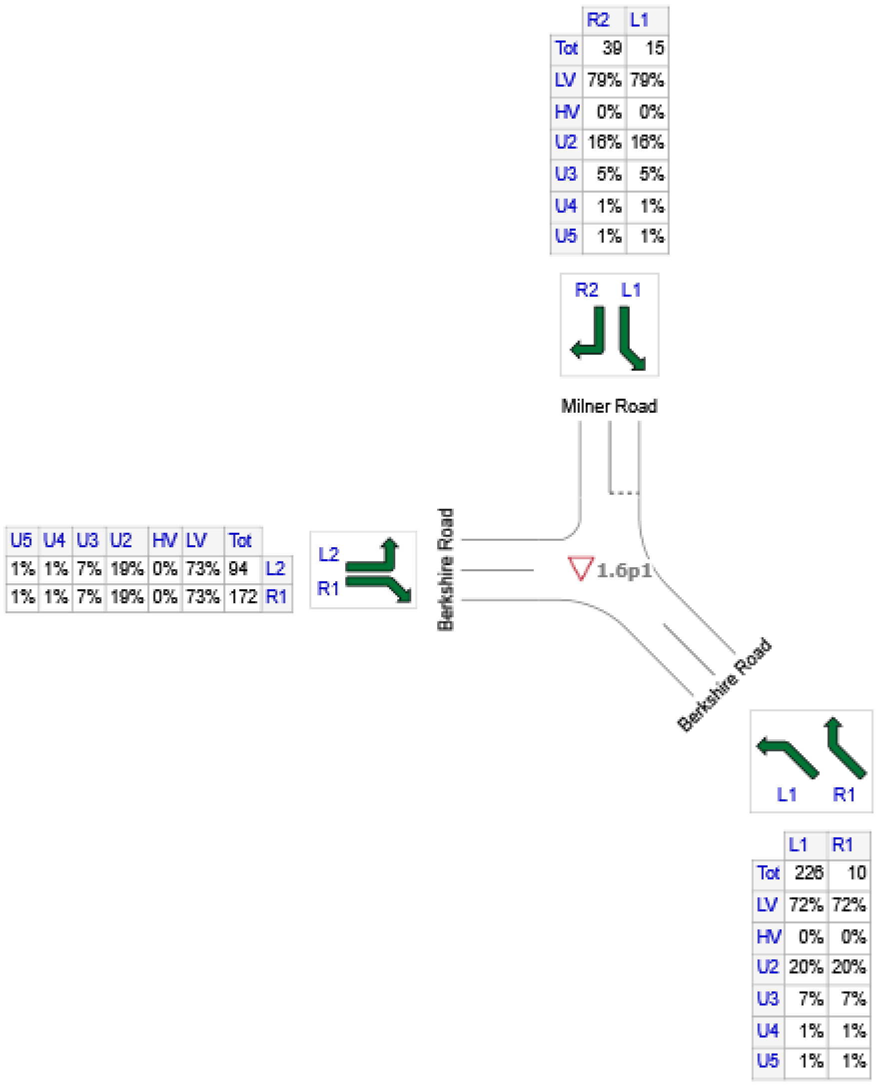
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	AustroadsClass 11 (U5)
SE: Berkshire Road	236	170	0	47	16	1	1
N: Milner Road	54	42	0	8	3	0	0
W: Berkshire Road	266	193	0	51	18	2	2
Total	556	406	0	106	37	4	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road													
Lane 1	248	27.9	1398	0.178	100	6.4	LOS A	0.1	1.2	Full	330	0.0	0.0
Approach	248	27.9		0.178		6.4	NA	0.1	1.2				
North: Milner Road													
Lane 1	57	21.5	1072	0.053	100	7.8	LOS A	0.2	1.4	Full	375	0.0	0.0
Approach	57	21.5		0.053		7.8	LOS A	0.2	1.4				
West: Berkshire Road													
Lane 1	280	27.4	1476	0.190	100	2.4	LOS A	0.0	0.0	Full	25	0.0	0.0
Approach	280	27.4		0.190		2.4	NA	0.0	0.0				
Intersection	585	27.0		0.190		4.6	NA	0.2	1.4				

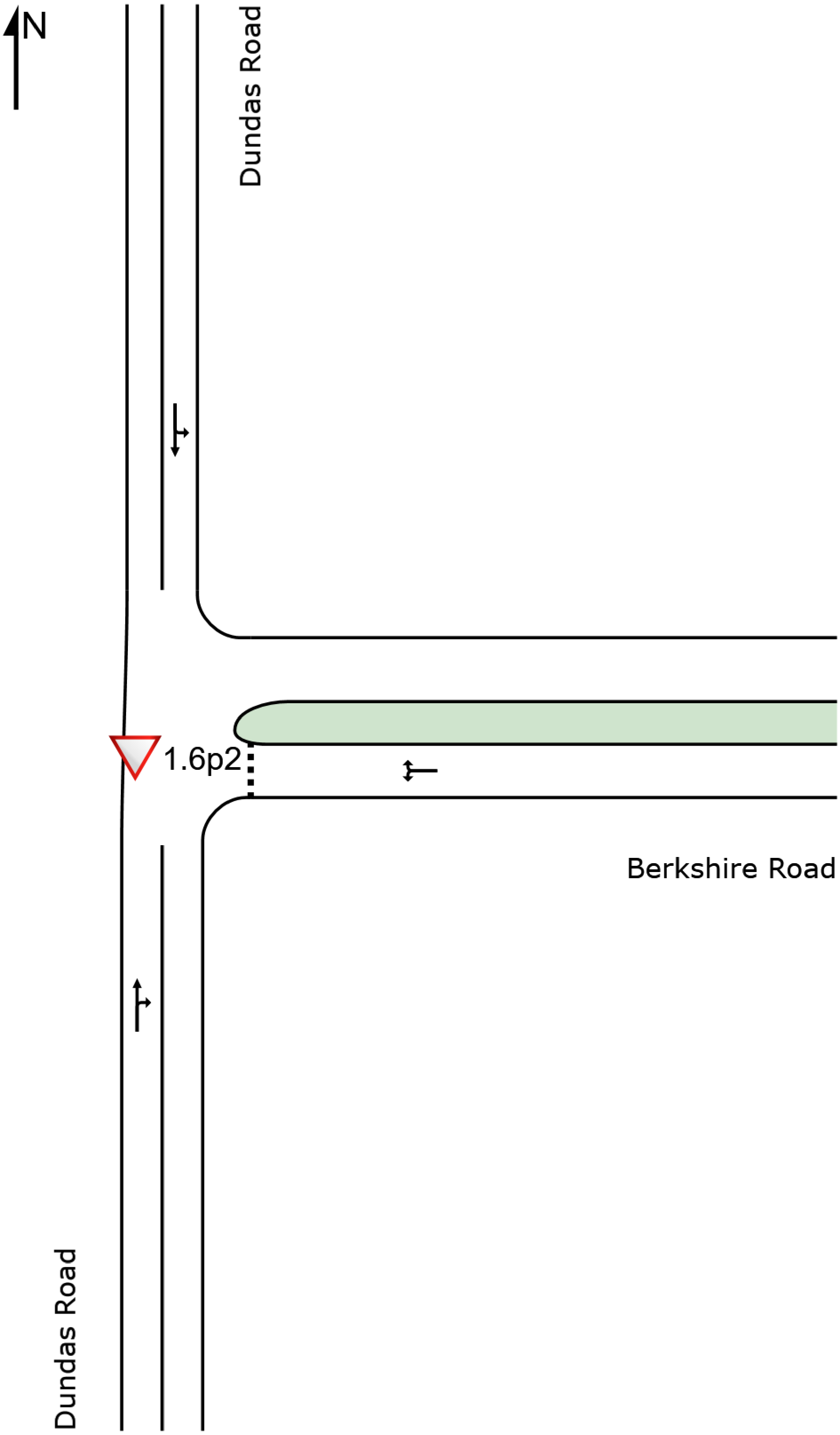
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 1.6p2 [1.6p2 Berkshire Road - Dundas Road - 2016 PM (Site Folder: General)]

1.6p2 Berkshire Road - Dundas Road - 2016 PM
Site Category: Existing Design
Give-Way (Two-Way)

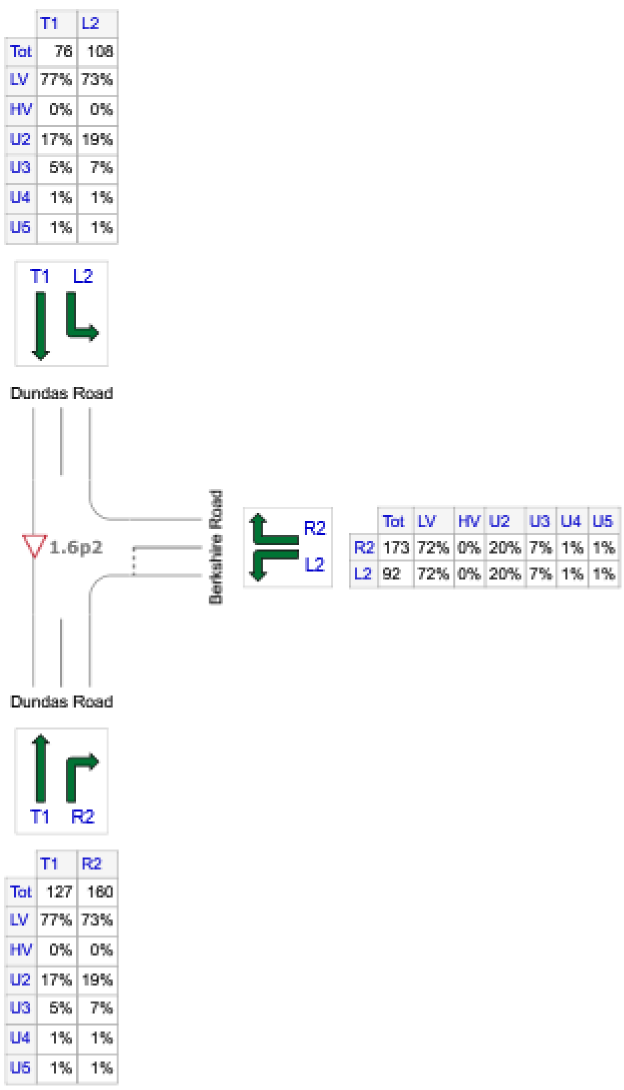
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	AustroadsClass 11 (U5)
S: Dundas Road	287	214	0	52	17	2	2
E: Berkshire Road	265	191	0	53	18	2	2
N: Dundas Road	184	137	0	34	11	1	1
Total	736	542	0	139	47	4	4

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Dundas Road													
Lane 1	302	25.5	1286	0.235	100	5.0	LOS A	1.2	12.2	Full	400	0.0	0.0
Approach	302	25.5		0.235		5.0	NA	1.2	12.2				
East: Berkshire Road													
Lane 1	279	27.9	1110	0.251	100	4.1	LOS A	0.9	8.8	Full	25	0.0	0.0
Approach	279	27.9		0.251		4.1	LOS A	0.9	8.8				
North: Dundas Road													
Lane 1	194	25.6	1392	0.139	100	4.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	194	25.6		0.139		4.1	NA	0.0	0.0				
Intersection	775	26.4		0.251		4.4	NA	1.2	12.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR SITE

All Movement Classes

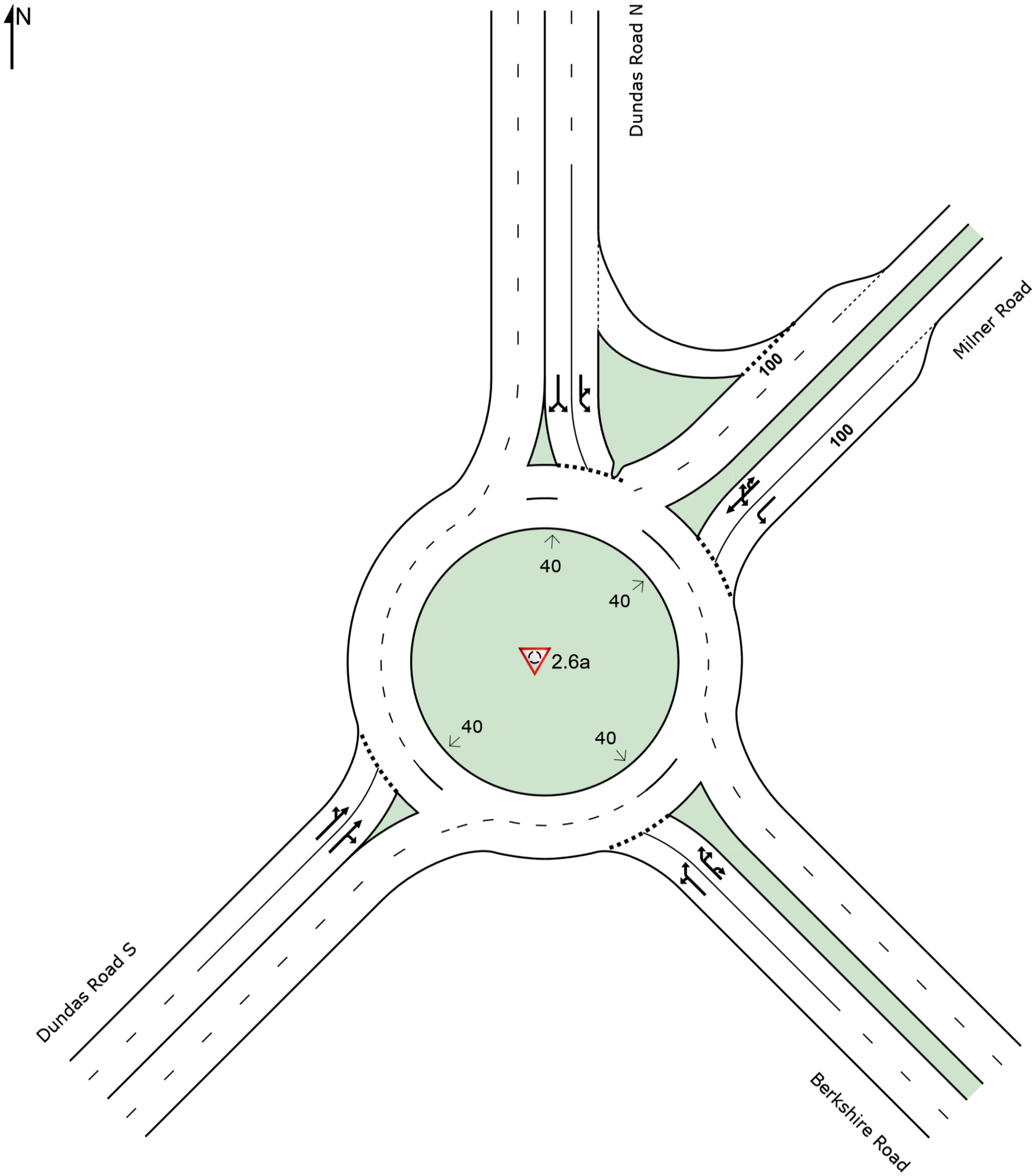
Project: KC00604.000 M06 Milner Road - Berkshire Road - Dundas Road **Template: Single Site User Report**

Site: 2.6a [2.6a Milner Road - Berkshire Road - Dundas Road - 2031 AM (Site Folder: 2031)]

2.6a Milner Road - Berkshire Road - Dundas Road - 2031 AM
Site Category: (None)
Roundabout

Site Layout

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

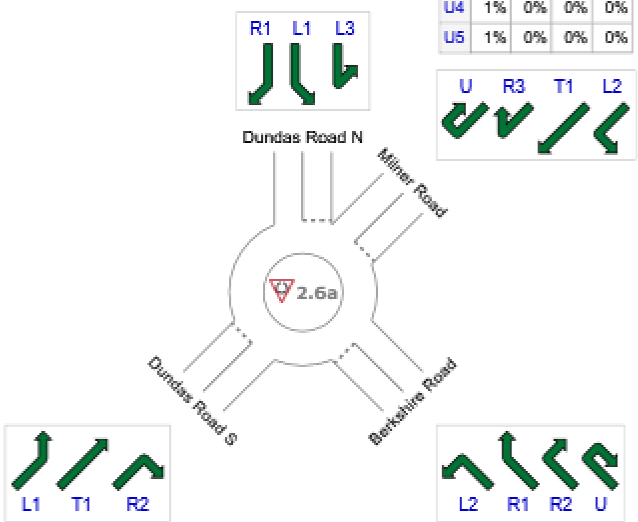


Input Volumes

Volume Display Method: Total and %

	R1	L1	L3
Tot	295	358	176
LV	76%	72%	77%
HV	0%	0%	0%
D1	1%	6%	0%
U2	17%	16%	17%
U3	5%	5%	5%
U4	1%	0%	1%
U5	0%	0%	1%

	U	R3	T1	L2
Tot	7	45	180	155
LV	79%	77%	70%	15%
HV	0%	0%	0%	0%
D1	0%	2%	11%	81%
U2	16%	15%	14%	3%
U3	5%	5%	4%	1%
U4	1%	0%	0%	0%
U5	1%	0%	0%	0%



	L1	T1	R2
Tot	119	159	183
LV	47%	75%	77%
HV	0%	0%	0%
D1	39%	3%	0%
U2	10%	17%	17%
U3	3%	5%	5%
U4	0%	0%	1%
U5	0%	0%	1%

	L2	R1	R2	U
Tot	317	452	261	179
LV	72%	37%	66%	72%
HV	0%	0%	0%	0%
D1	0%	49%	8%	0%
U2	20%	10%	18%	20%
U3	7%	3%	6%	7%
U4	1%	0%	1%	1%
U5	1%	0%	1%	1%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	Aus
SE: Berkshire Road	1209	696	0	243	192	66	6	
NE: Milner Road	387	189	0	146	37	12	1	
N: Dundas Road N	829	618	0	27	136	40	4	
SW: Dundas Road S	461	316	0	50	70	21	2	
Total	2886	1820	0	466	436	138	13	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road													
Lane 1[d]	713	20.6	900	0.792	100	16.5	LOS B	11.2	106.8	Full	500	0.0	0.0
Lane 2	560	24.4	707	0.792	100	23.2	LOS C	10.1	99.9	Full	500	0.0	0.0
Approach	1273	22.3		0.792		19.4	LOS B	11.2	106.8				
NorthEast: Milner Road													
Lane 1	163	4.0	563	0.290	80[5]	8.4	LOS A	1.6	12.2	Short	100	0.0	NA
Lane 2[d]	244	19.6	673	0.363	100	9.8	LOS A	2.2	21.0	Full	500	0.0	0.0
Approach	407	13.4		0.363		9.3	LOS A	2.2	21.0				
North: Dundas Road N													
Lane 1	414	22.2	662	0.626	100	11.3	LOS B	5.1	49.2	Full	500	0.0	0.0
Lane 2[d]	458	22.3	732	0.626	100	14.8	LOS B	5.7	54.6	Full	500	0.0	0.0
Approach	873	22.3		0.626		13.1	LOS B	5.7	54.6				
SouthWest: Dundas Road S													
Lane 1	182	16.7	513	0.355	78[6]	7.8	LOS A	1.9	17.2	Full	500	0.0	0.0
Lane 2[d]	303	22.8	670	0.453	100	11.6	LOS B	2.9	28.1	Full	500	0.0	0.0
Approach	485	20.5		0.453		10.2	LOS B	2.9	28.1				
Intersection	3038	20.8		0.792		14.8	LOS B	11.2	106.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

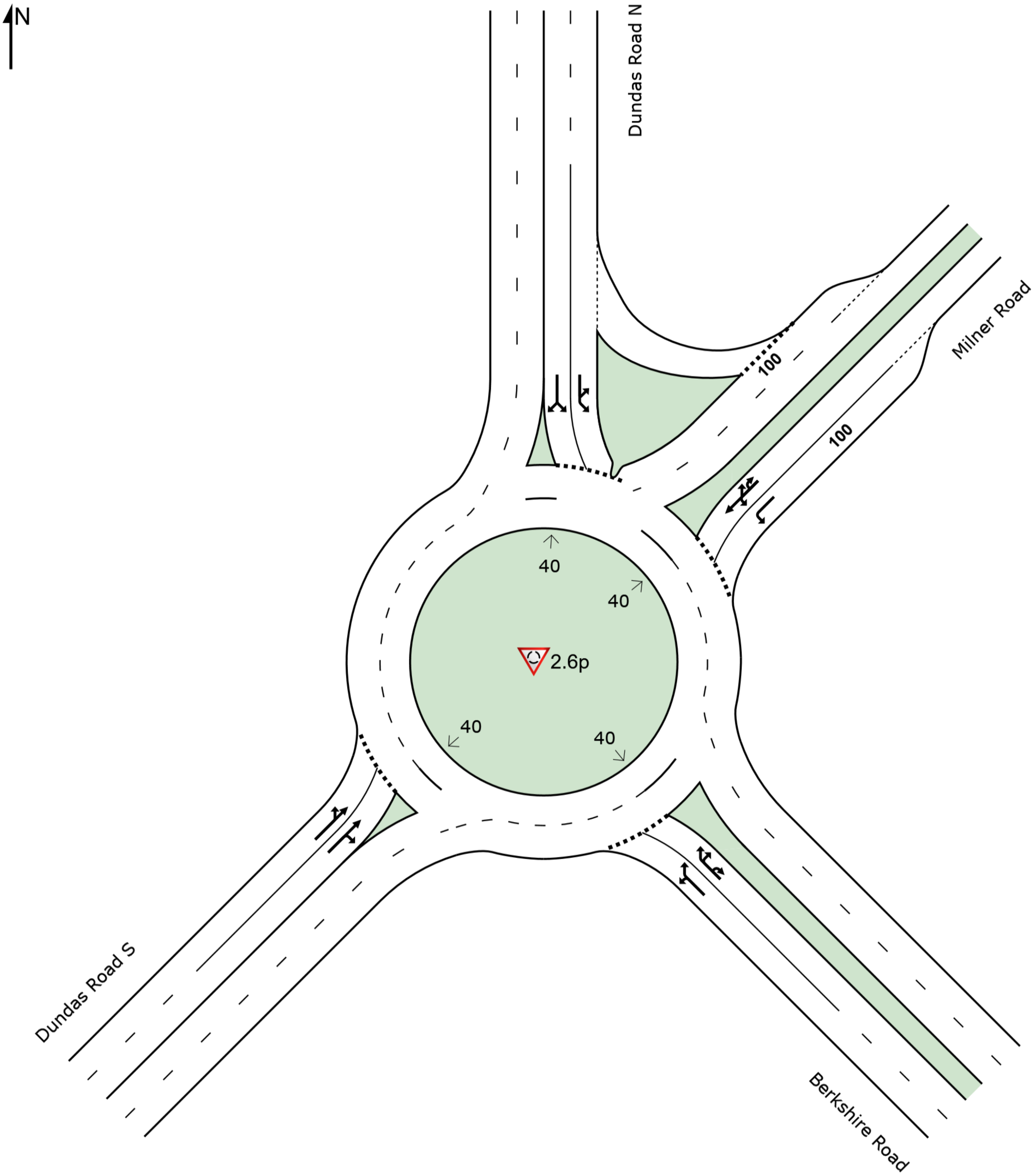
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

Site: 2.6p [2.6p Milner Road - Berkshire Road - Dundas Road - 2031 PM (Site Folder: 2031)]

2.6p Milner Road - Berkshire Road - Dundas Road - 2031 PM
Site Category: (None)
Roundabout

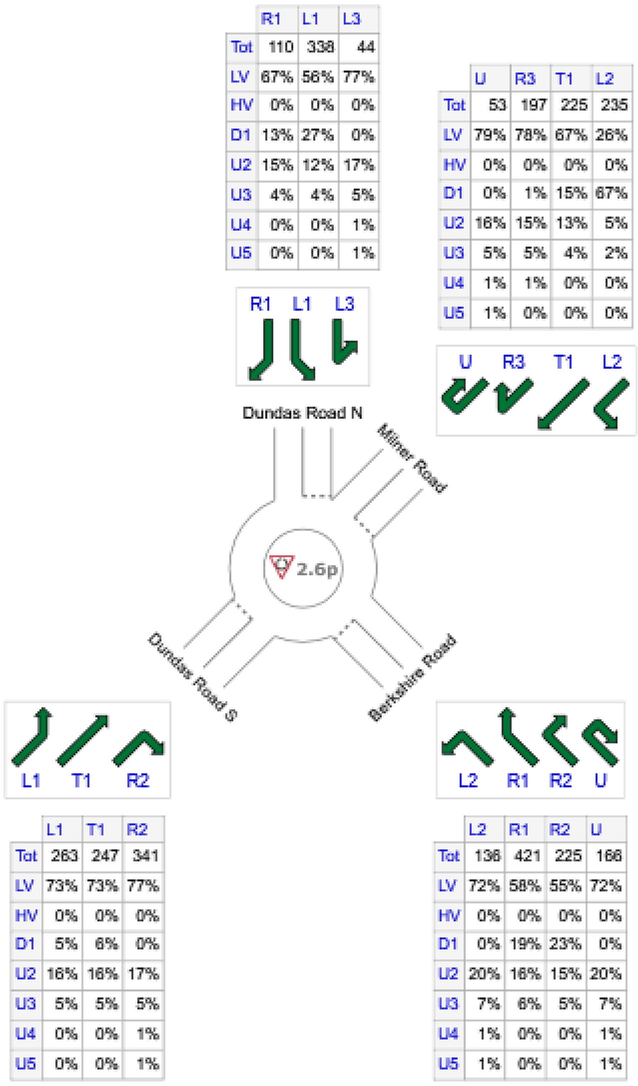
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	Aus
SE: Berkshire Road	948	588	0	132	162	56	5	
NE: Milner Road	710	406	0	193	80	26	3	
N: Dundas Road N	492	299	0	104	66	19	2	
SW: Dundas Road S	851	635	0	27	140	41	4	
Total	3001	1928	0	456	449	142	14	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road													
Lane 1[d]	554	24.0	782	0.709	100	16.2	LOS B	8.2	81.0	Full	500	0.0	0.0
Lane 2	444	24.1	626	0.709	100	21.5	LOS C	7.4	73.0	Full	500	0.0	0.0
Approach	998	24.0		0.709		18.6	LOS B	8.2	81.0				
NorthEast: Milner Road													
Lane 1	247	7.1	595	0.416	61[5]	9.7	LOS A	2.5	20.1	Short	100	0.0	NA
Lane 2[d]	500	19.9	733	0.682	100	17.0	LOS B	6.3	59.5	Full	500	0.0	0.0
Approach	747	15.7		0.682		14.6	LOS B	6.3	59.5				
North: Dundas Road N													
Lane 1	232	18.1	464	0.501	100	14.7	LOS B	3.6	33.3	Full	500	0.0	0.0
Lane 2[d]	286	18.1	570	0.501	100	15.8	LOS B	4.2	38.6	Full	500	0.0	0.0
Approach	518	18.1		0.501		15.3	LOS B	4.2	38.6				
SouthWest: Dundas Road S													
Lane 1	321	21.8	459	0.700	78[6]	14.3	LOS B	5.0	48.1	Full	500	0.0	0.0
Lane 2[d]	575	22.5	642	0.894	100	25.7	LOS C	11.6	112.1	Full	500	0.0	0.0
Approach	896	22.3		0.894		21.7	LOS C	11.6	112.1				
Intersection	3159	20.6		0.894		18.0	LOS B	11.6	112.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

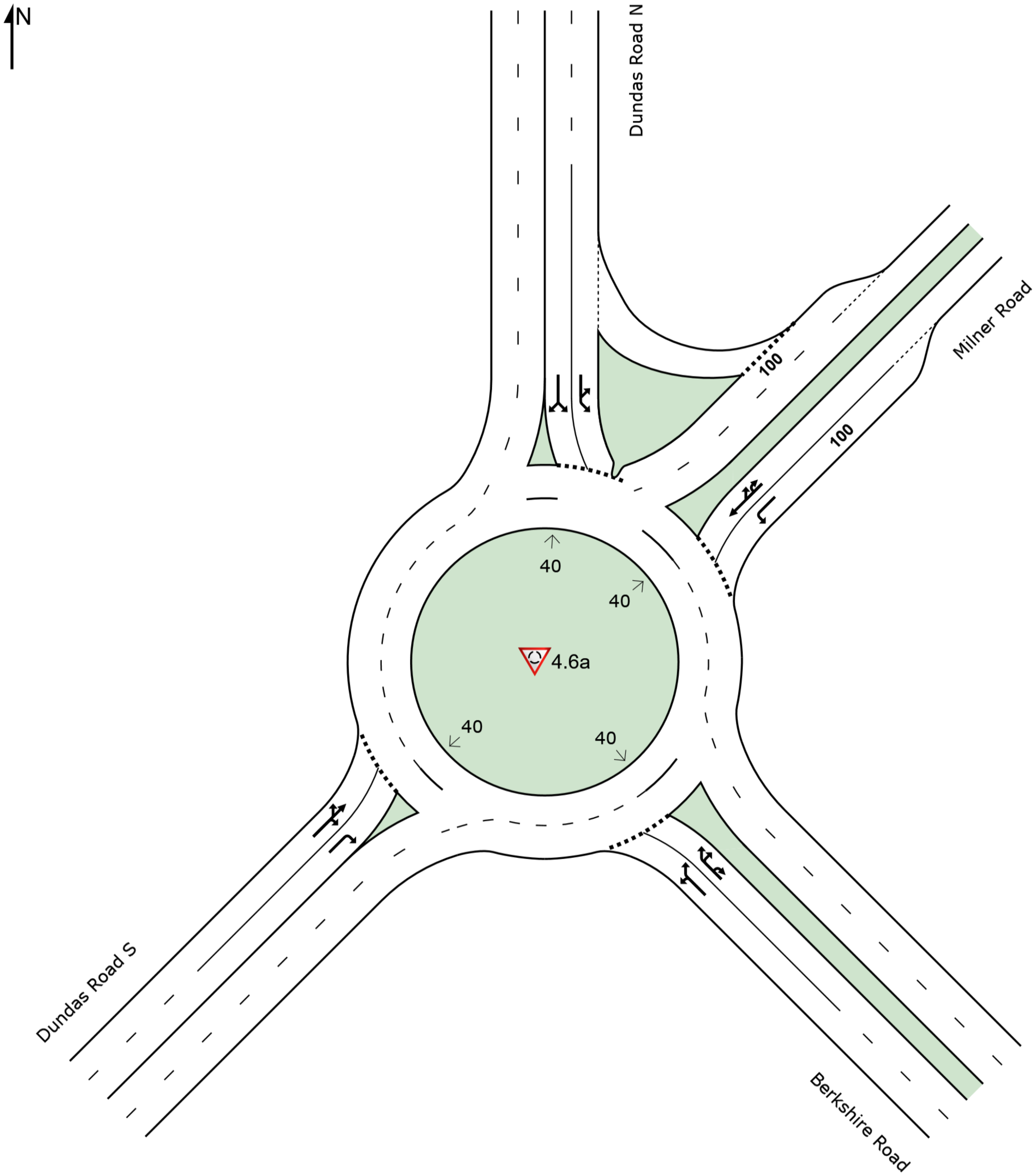
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

Site: 4.6a [4.6a Milner Road - Berkshire Road - Dundas Road - 2050 AM (Site Folder: 2050)]

4.6a Milner Road - Berkshire Road - Dundas Road - 2050 AM
Site Category: (None)
Roundabout

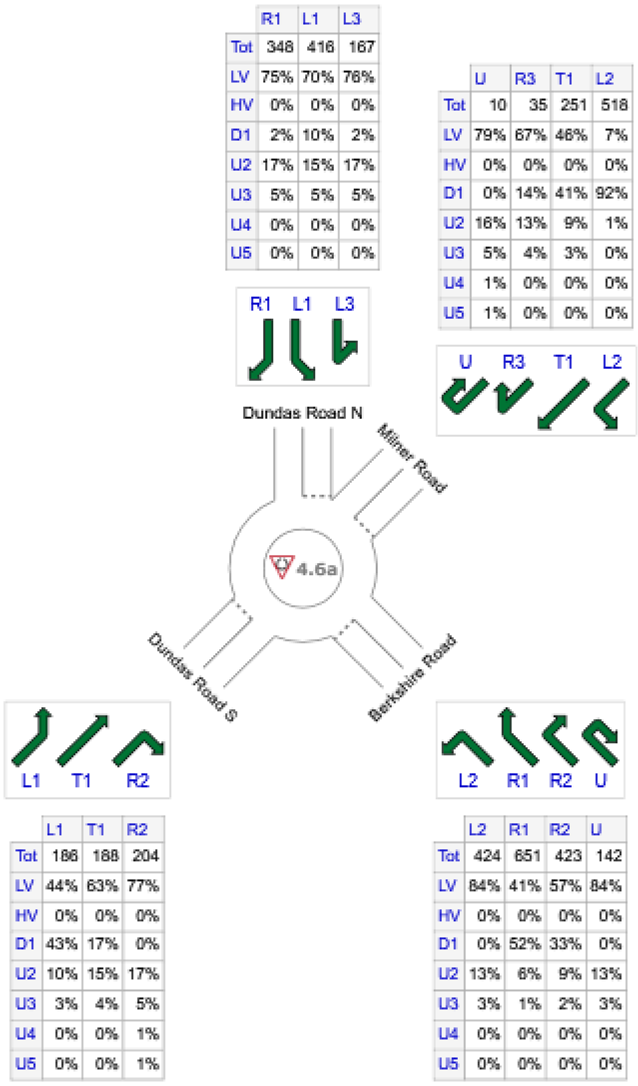
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	Aus
SE: Berkshire Road	1640	981	0	474	151	29	3	
NE: Milner Road	814	181	0	583	36	12	1	
N: Dundas Road N	931	678	0	50	150	44	4	
SW: Dundas Road S	578	357	0	112	81	23	2	
Total	3963	2197	0	1219	417	108	11	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road													
Lane 1[d]	958	11.5	867	1.105	100	125.1	LOS F	83.2	703.6	Full	500	0.0	16.2
Lane 2	768	11.0	695	1.105	100	132.2	LOS F	68.6	576.6	Full	500	0.0	9.4
Approach	1726	11.3		1.105		128.2	LOS F	83.2	703.6				
NorthEast: Milner Road													
Lane 1[d]	545	1.8	730	0.747	100	14.8	LOS B	8.1	61.2	Short	100	0.0	NA
Lane 2	312	13.6	471	0.661	100	16.8	LOS B	5.0	44.1	Full	500	0.0	0.0
Approach	857	6.1		0.747		15.5	LOS B	8.1	61.2				
North: Dundas Road N													
Lane 1	447	21.5	610	0.732	100	13.4	LOS B	6.3	60.6	Full	500	0.0	0.0
Lane 2[d]	533	22.0	729	0.732	100	16.1	LOS B	7.1	68.0	Full	500	0.0	0.0
Approach	980	21.8		0.732		14.9	LOS B	7.1	68.0				
SouthWest: Dundas Road S													
Lane 1[d]	394	16.6	615	0.640	100	10.8	LOS B	5.0	44.8	Full	500	0.0	0.0
Lane 2	215	23.0	412	0.521	81[5]	17.6	LOS B	3.1	29.7	Full	500	0.0	0.0
Approach	608	18.9		0.640		13.2	LOS B	5.0	44.8				
Intersection	4172	13.8		1.105		61.7	LOS E	83.2	703.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

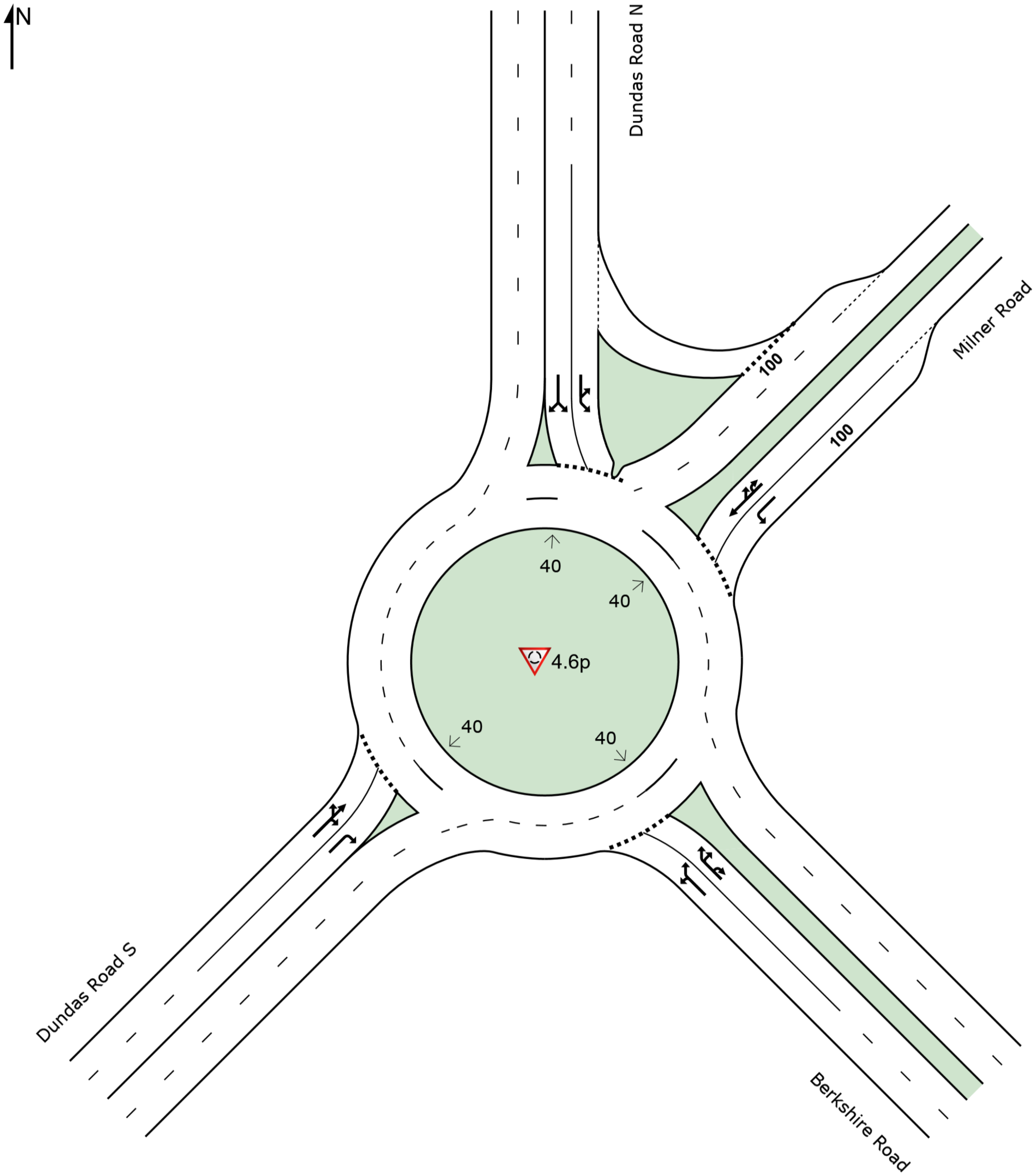
5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

Site: 4.6p [4.6p Milner Road - Berkshire Road - Dundas Road - 2050 PM (Site Folder: 2050)]

4.6p Milner Road - Berkshire Road - Dundas Road - 2050 PM
Site Category: (None)
Roundabout

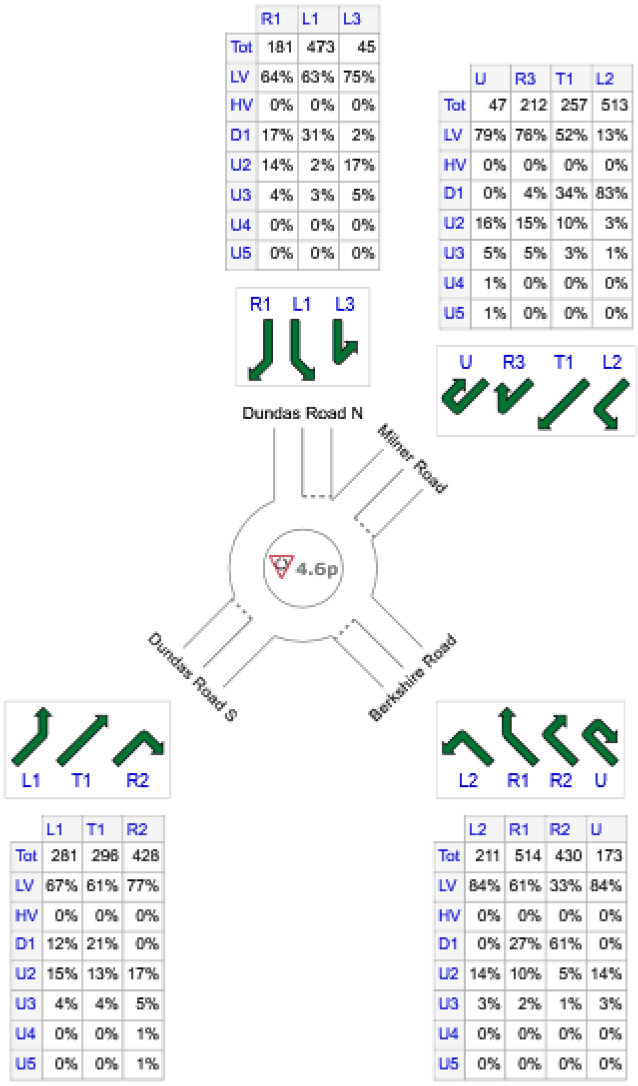
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	Aus
SE: Berkshire Road	1328	775	0	400	125	23	2	
NE: Milner Road	1029	399	0	521	79	25	3	
N: Dundas Road N	699	447	0	180	41	26	3	
SW: Dundas Road S	1005	700	0	96	155	45	5	
Total	4061	2321	0	1197	399	120	12	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road													
Lane 1[d]	763	13.4	744	1.026	98[5]	75.5	LOS F	44.6	384.5	Full	500	0.0	0.0
Lane 2	635	9.3	608	1.044	100	93.3	LOS F	42.8	352.3	Full	500	0.0	0.0
Approach	1398	11.5		1.044		83.6	LOS F	44.6	384.5				
NorthEast: Milner Road													
Lane 1	540	3.6	528	1.022	100	75.4	LOS F	29.3	226.6	Short	100	0.0	NA
Lane 2[d]	543	17.5	653	0.832	100	26.3	LOS C	10.4	96.0	Full	500	0.0	0.0
Approach	1083	10.6		1.022		50.8	LOS E	29.3	226.6				
North: Dundas Road N													
Lane 1	320	8.3	481	0.666	100	16.5	LOS B	5.2	43.5	Full	500	0.0	0.0
Lane 2[d]	415	11.9	624	0.666	100	17.3	LOS B	6.0	52.7	Full	500	0.0	0.0
Approach	736	10.3		0.666		17.0	LOS B	6.0	52.7				
SouthWest: Dundas Road S													
Lane 1[d]	635	19.3	551	1.154	100	163.3	LOS F	66.4	619.6	Full	500	0.0	11.7
Lane 2	423	23.0	366	1.154	100	175.3	LOS F	45.9	446.1	Full	500	0.0	1.7
Approach	1058	20.8		1.154		168.1	LOS F	66.4	619.6				
Intersection	4275	13.4		1.154		84.7	LOS F	66.4	619.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

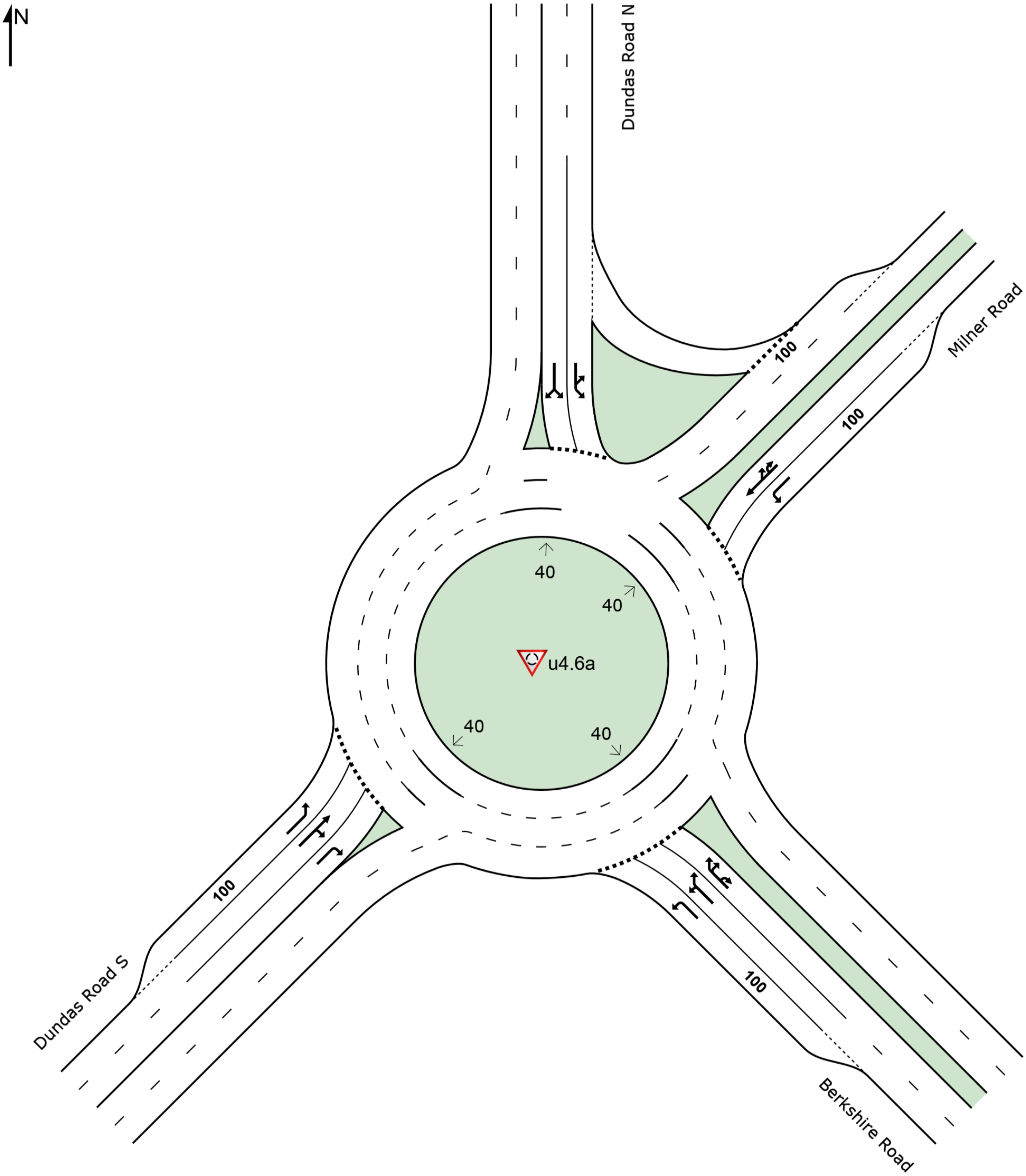
Site: u4.6a [u4.6a Milner Road - Berkshire Road - Dundas Road - 2050 AM - Upgrade (Site Folder: 2050)]

u4.6a Milner Road - Berkshire Road - Dundas Road - 2050 AM - Upgrade

Site Category: (None)
Roundabout

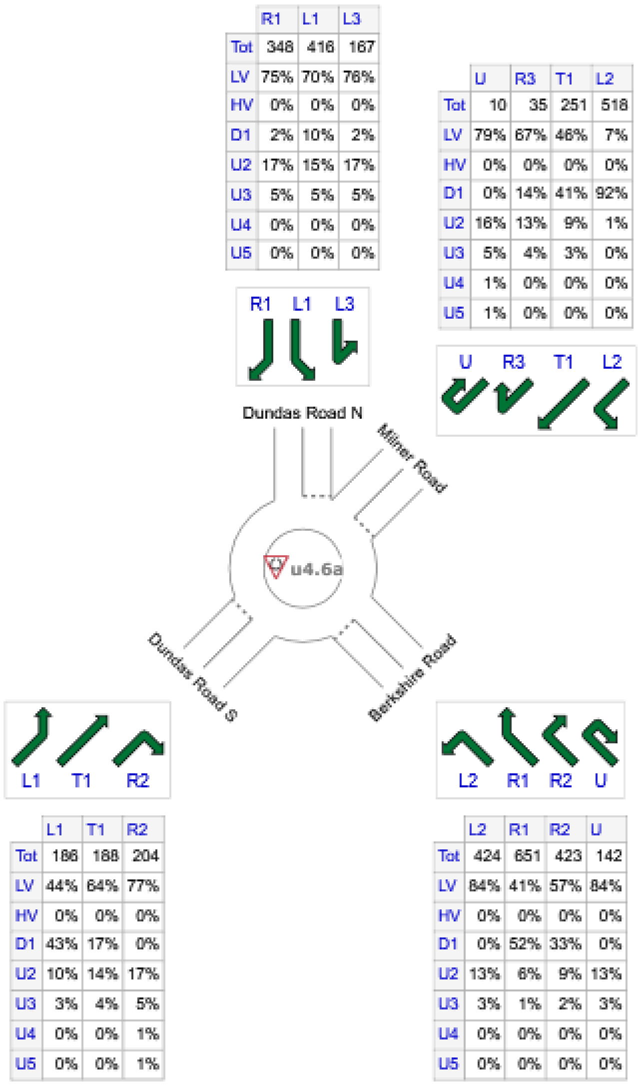
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	Aus
SE: Berkshire Road	1640	981	0	474	151	29	3	
NE: Milner Road	814	181	0	583	36	12	1	
N: Dundas Road N	931	678	0	50	150	44	4	
SW: Dundas Road S	578	359	0	112	79	23	2	
Total	3963	2200	0	1219	415	107	11	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road													
Lane 1	446	15.9	733	0.609	79[5]	10.5	LOS B	5.1	45.0	Short	100	0.0	NA
Lane 2[d]	685	7.6	983	0.697	90[5]	15.5	LOS B	7.9	64.1	Full	500	0.0	0.0
Lane 3	595	12.0	772	0.771	100	21.0	LOS C	9.1	77.3	Full	500	0.0	0.0
Approach	1726	11.3		0.771		16.1	LOS B	9.1	77.3				
NorthEast: Milner Road													
Lane 1[d]	545	1.8	731	0.746	100	10.1	LOS B	5.7	42.9	Short	100	0.0	NA
Lane 2	312	13.6	508	0.613	100	11.3	LOS B	3.4	29.6	Full	500	0.0	0.0
Approach	857	6.1		0.746		10.5	LOS B	5.7	42.9				
North: Dundas Road N													
Lane 1	478	21.4	609	0.785	100	13.0	LOS B	6.5	62.4	Full	500	0.0	0.0
Lane 2[d]	502	22.1	639	0.785	100	17.0	LOS B	6.8	65.8	Full	500	0.0	0.0
Approach	980	21.8		0.785		15.0	LOS B	6.8	65.8				
SouthWest: Dundas Road S													
Lane 1	196	13.1	533	0.367	100	6.7	LOS A	1.8	15.6	Short	100	0.0	NA
Lane 2[d]	243	19.8	706	0.345	100	8.4	LOS A	1.8	17.3	Full	500	0.0	0.0
Lane 3	169	23.0	491	0.345	100	13.9	LOS B	1.6	15.6	Full	500	0.0	0.0
Approach	608	18.5		0.367		9.4	LOS A	1.8	17.3				
Intersection	4172	13.7		0.785		13.7	LOS B	9.1	77.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

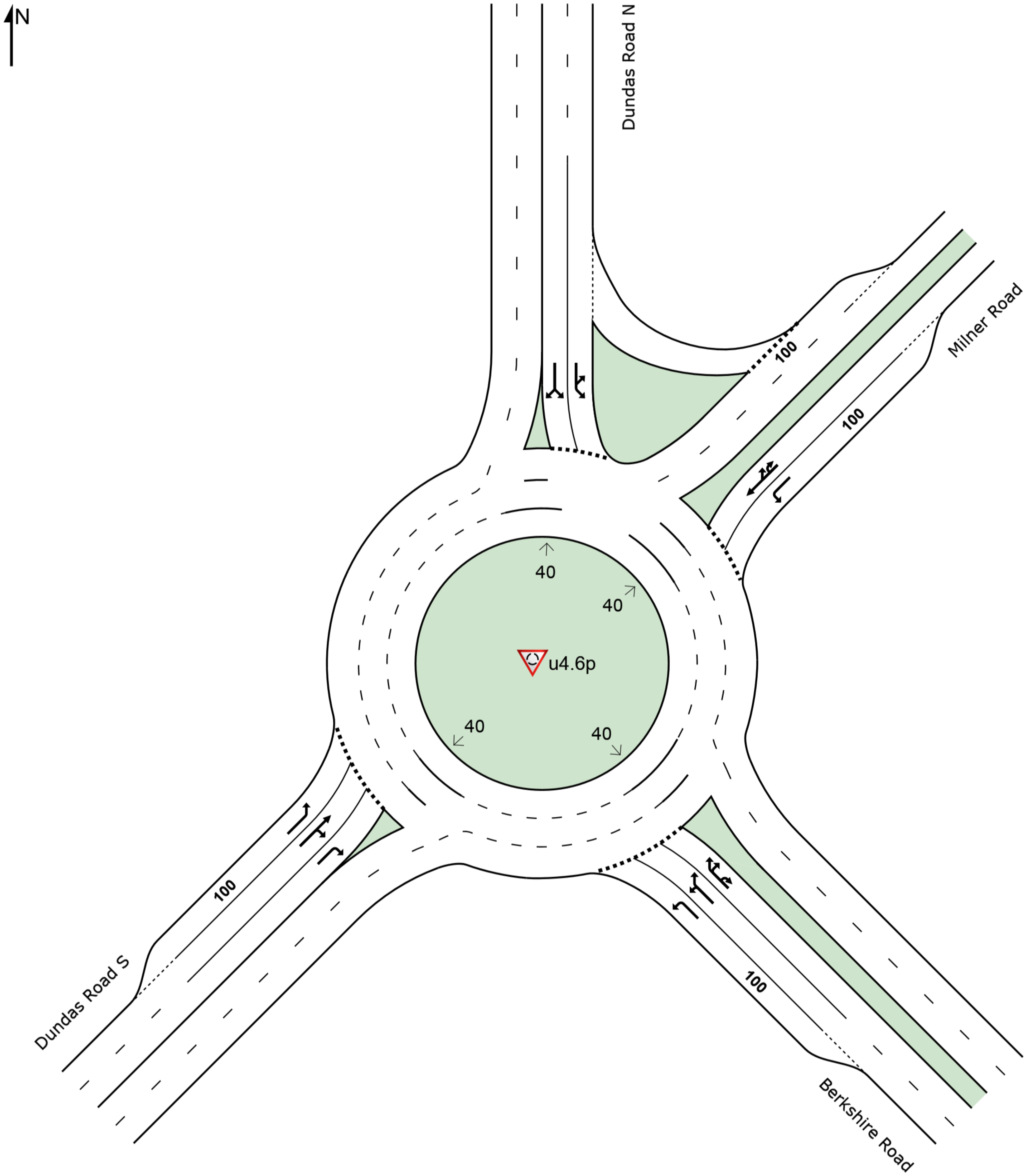
5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

Site: u4.6p [u4.6p Milner Road - Berkshire Road - Dundas Road - 2050 PM - Upgrade (Site Folder: 2050)]

u4.6p Milner Road - Berkshire Road - Dundas Road - 2050 PM - Upgrade
Site Category: (None)
Roundabout

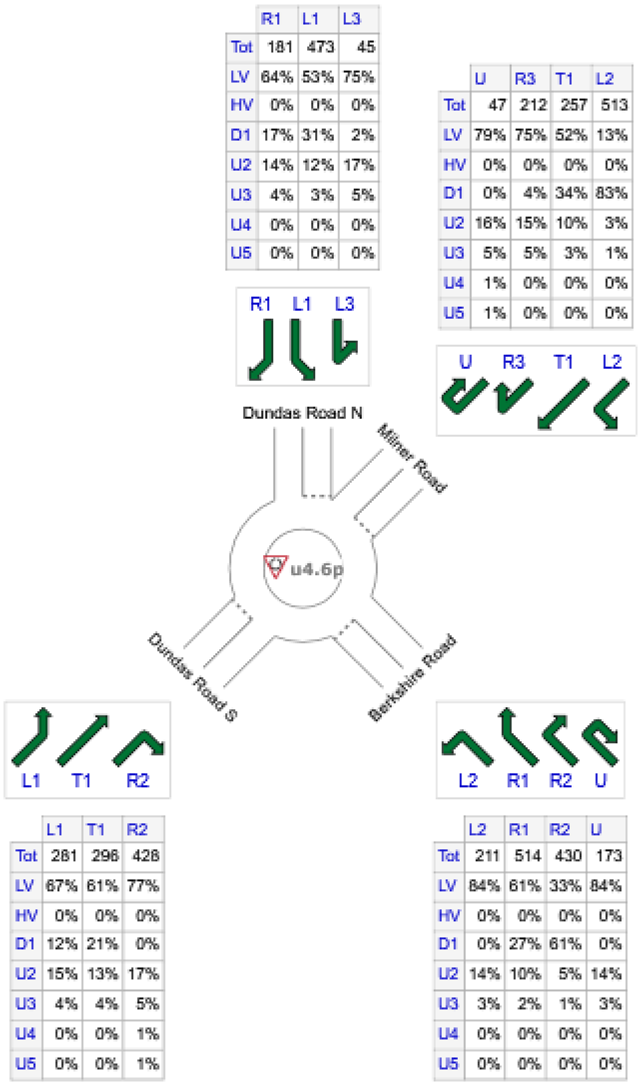
Site Layout

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



Input Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (D1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)	Aus
SE: Berkshire Road	1328	775	0	400	125	23	2	
NE: Milner Road	1029	399	0	521	79	26	3	
N: Dundas Road N	699	399	0	180	88	26	3	
SW: Dundas Road S	1005	700	0	96	155	45	5	
Total	4061	2273	0	1197	447	121	12	

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road													
Lane 1	222	16.5	602	0.369	46 [5]	8.4	LOS A	2.2	19.7	Short	100	0.0	NA
Lane 2	541	12.1	681	0.794	100	21.6	LOS C	9.9	83.9	Full	500	0.0	0.0
Lane 3 [d]	635	9.3	866	0.733	92 [5]	19.7	LOS B	9.2	75.5	Full	500	0.0	0.0
Approach	1398	11.5		0.794		18.6	LOS B	9.9	83.9				
NorthEast: Milner Road													
Lane 1	540	3.6	604	0.894	100	19.1	LOS B	9.0	69.3	Short	100	0.0	NA
Lane 2 [d]	543	17.6	649	0.837	100	18.5	LOS B	7.2	65.8	Full	500	0.0	0.0
Approach	1083	10.6		0.894		18.8	LOS B	9.0	69.3				
North: Dundas Road N													
Lane 1	337	16.7	452	0.747	100	17.6	LOS B	5.4	49.2	Full	500	0.0	0.0
Lane 2 [d]	398	17.5	533	0.747	100	19.2	LOS B	6.0	55.3	Full	500	0.0	0.0
Approach	736	17.2		0.747		18.5	LOS B	6.0	55.3				
SouthWest: Dundas Road S													
Lane 1	296	20.2	490	0.603	100	8.8	LOS A	3.3	30.7	Short	100	0.0	NA
Lane 2 [d]	455	19.7	707	0.644	100	11.1	LOS B	4.2	39.4	Full	500	0.0	0.0
Lane 3	307	23.0	477	0.644	100	16.4	LOS B	3.6	34.6	Full	500	0.0	0.0
Approach	1058	20.8		0.644		12.0	LOS B	4.2	39.4				
Intersection	4275	14.6		0.894		17.0	LOS B	9.9	83.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

Organisation: KC TRAFFIC AND TRANSPORT | Licence: NETWORK / 1PC | Created: Thursday, December 15, 2022 15:14:51
Project: C:\Users\Nemanja\Box\KCTT Projects\KC00000 Current Projects\KC00604.000 Forrestfield North - Structure Plan Preparation\Outgoing\SIDRA\Residential Precinct\221213 Rev D\Future Models\KC00604.000 M06 Milner Road - Berkshire Road - Dundas Road.sip9

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M07 Roe Highway - Berkshire Road **Template: Site Report**

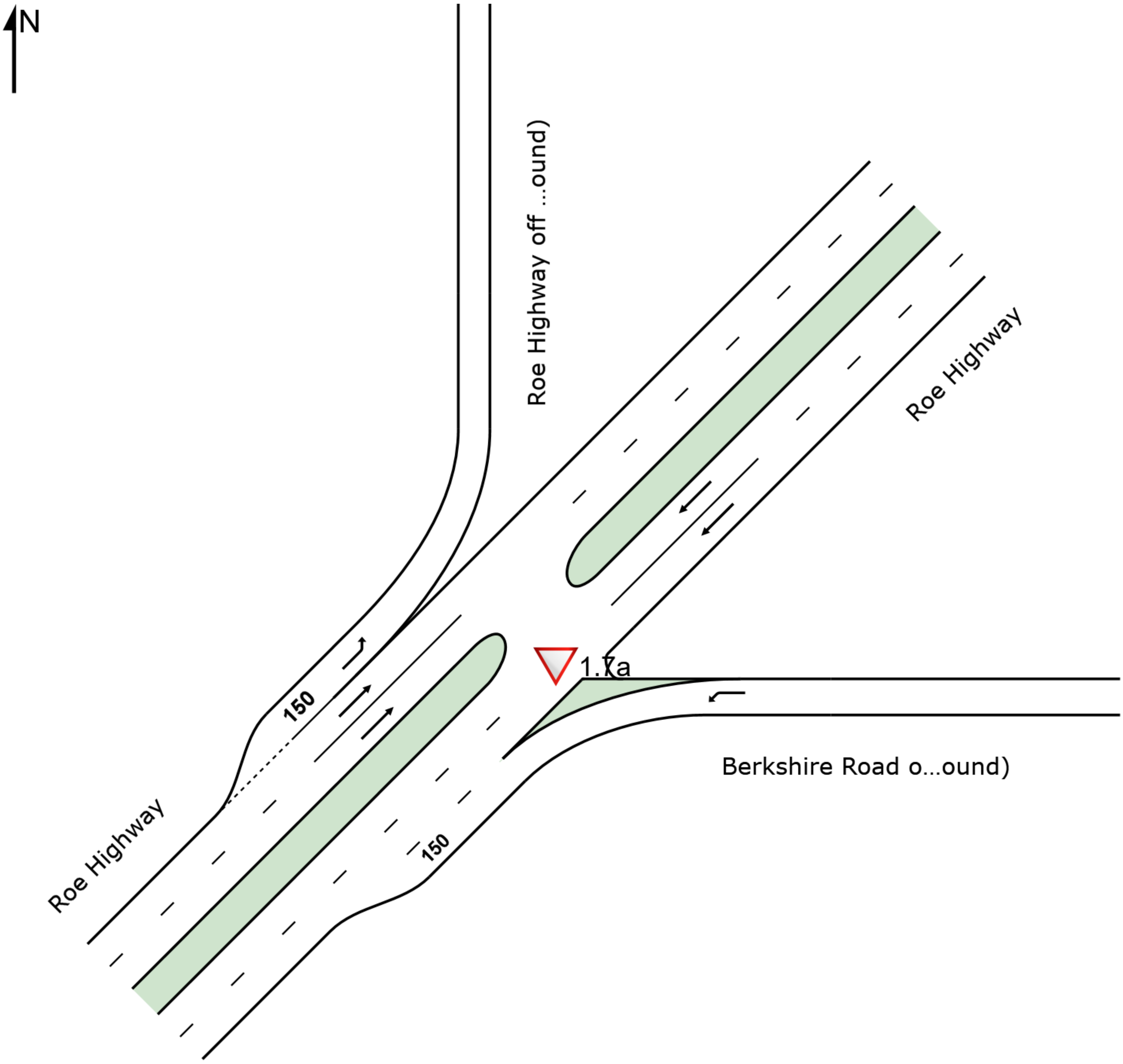
Site: 1.7a [1.7a Roe Highway Interchange with Berkshire Road - 2016 AM (South) (Site Folder: AM)]

Network: 1 [n1.3a Roe Highway - Berkshire Road - 2016 AM (Network Folder: General)]

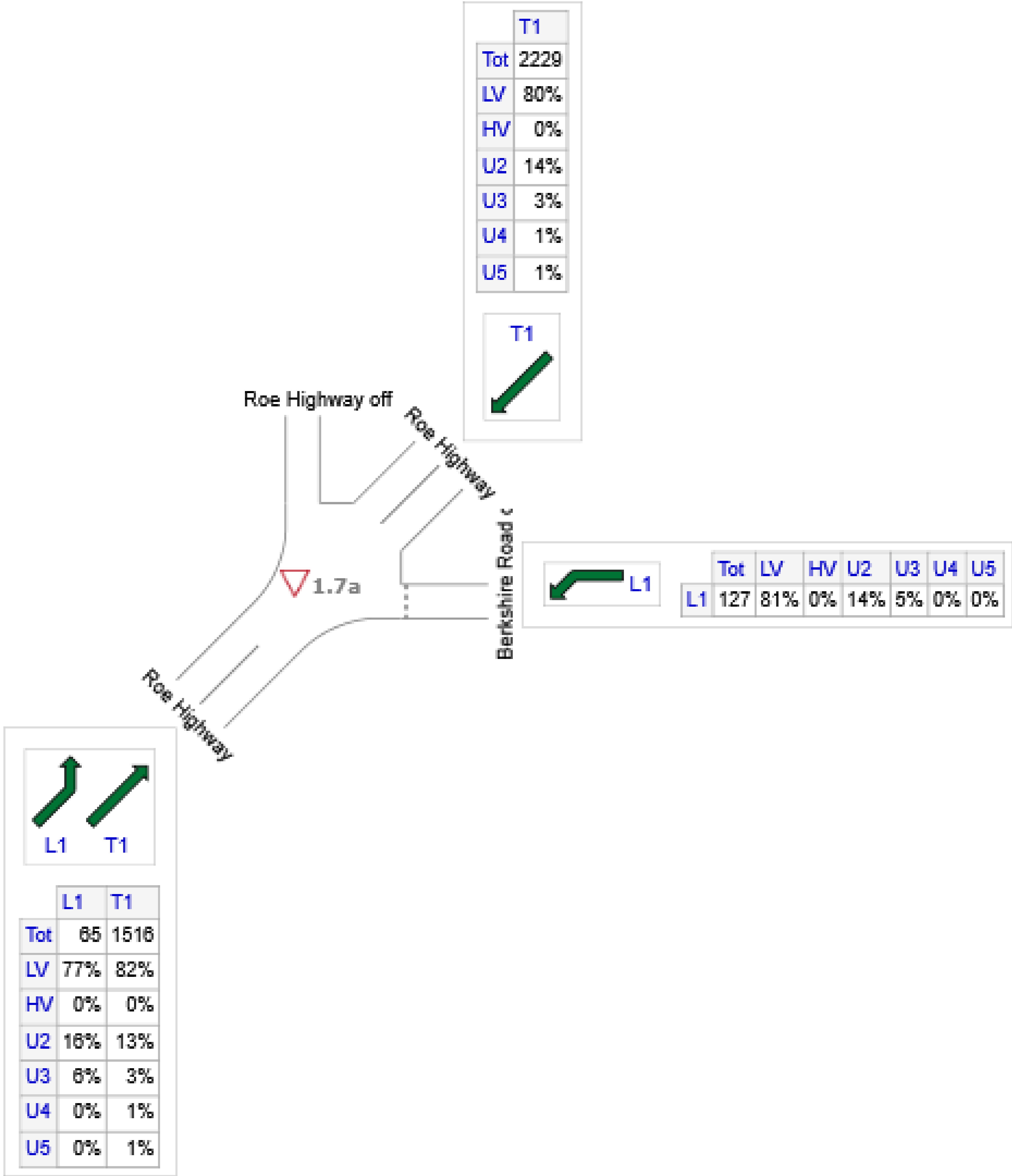
1.7a Roe Highway Interchange with Berkshire Road - 2016 AM (South)
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Berkshire Road on to Roe Highway (Southbound)	127	103	0	18	6	0
NE: Roe Highway	2229	1795	0	319	69	25
SW: Roe Highway	1581	1289	0	207	51	17
Total	3938	3186	0	544	126	42

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Berkshire Road on to Roe Highway (Southbound)															
Lane 1	127	19.5	127	19.5	1534	0.083	100	6.2	LOS A	0.0	0.0	Full	500	0.0	0.0

Approach	127	19.5	127	19.5		0.083		6.2	NA	0.0	0.0				
NorthEast: Roe Highway															
Lane 1	1115	19.5	1115	19.5	1818	0.613	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1115	19.5	1115	19.5	1818	0.613	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	2229	19.5	2229	19.5		0.613		0.2	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	65	22.6	65	22.6	1505	0.043	100	8.4	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	758	18.3	758	18.3	1831	0.414	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	758	18.3	758	18.3	1831	0.414	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1581	18.5	1581	18.5		0.414		0.4	NA	0.0	0.0				
Intersection	3938	19.1	3938	19.1		0.613		0.4	NA	0.0	0.0				

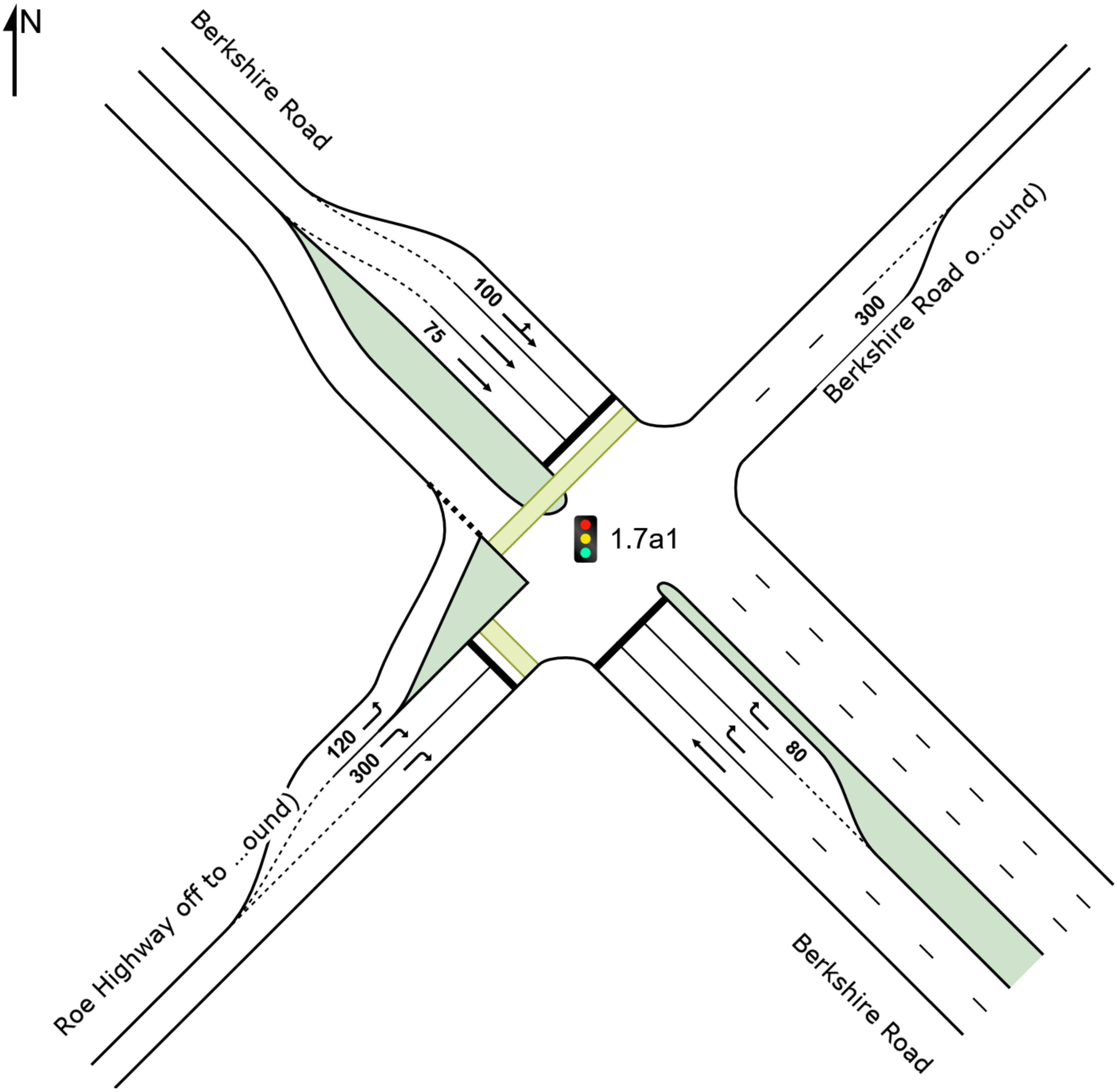
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1.7a1 Berkshire Road - Roe Highway off to Berkshire Road - 2016 AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated   Cycle Time = 40 seconds (Network Practical Cycle Time)

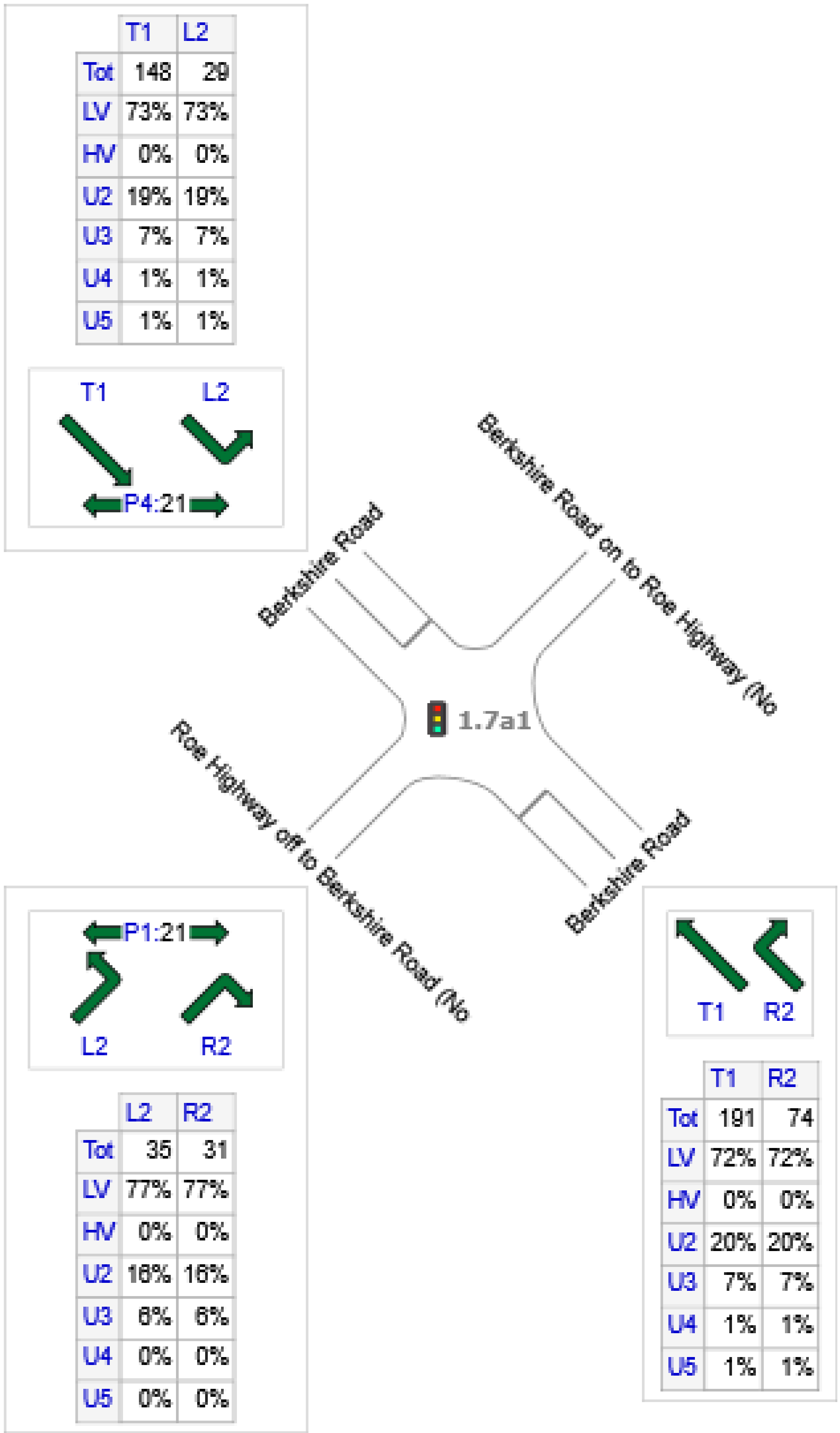
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4
SE: Berkshire Road	264	190	0	53	18	2
NW: Berkshire Road	178	129	0	34	12	1
SW: Roe Highway off to Berkshire Road (Northbound)	65	51	0	10	4	0
Total	507	370	0	97	34	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	191	27.9	191	27.9	787	0.242	100	2.7	LOS A	1.0	10.1	Full	150	0.0	0.0

Lane 2	37	27.9	37	27.9	201	0.184	100	26.4	LOS C	0.8	8.0	Full	150	0.0	0.0
Lane 3	37	27.9	37	27.9	201	0.184	100	26.5	LOS C	0.8	8.0	Short	80	0.0	NA
Approach	264	27.9	264	27.9		0.242		9.3	LOS A	1.0	10.1				
NorthWest: Berkshire Road															
Lane 1	58	27.5	58	27.5	346	0.168	100	16.0	LOS B	0.9	9.3	Short	100	0.0	NA
Lane 2	60	27.5	60	27.5	358	0.168	100	13.5	LOS B	1.0	10.0	Full	500	0.0	0.0
Lane 3	60	27.5	60	27.5	358	0.168	100	13.5	LOS B	1.0	10.0	Short	75	0.0	NA
Approach	178	27.5	178	27.5		0.168		14.3	LOS B	1.0	10.0				
SouthWest: Roe Highway off to Berkshire Road (Northbound)															
Lane 1	35	22.6	35	22.6	868	0.040	100	7.2	LOS A	0.1	1.2	Short	120	0.0	NA
Lane 2	15	22.6	15	22.6	213	0.072	100	22.9	LOS C	0.3	2.7	Short	300	0.0	NA
Lane 3	15	22.6	15	22.6	213	0.072	100	22.9	LOS C	0.3	2.7	Full	500	0.0	0.0
Approach	65	22.6	65	22.6		0.072		14.6	LOS B	0.3	2.7				
Intersection	507	27.1	507	27.1		0.242		11.8	LOS B	1.0	10.1				

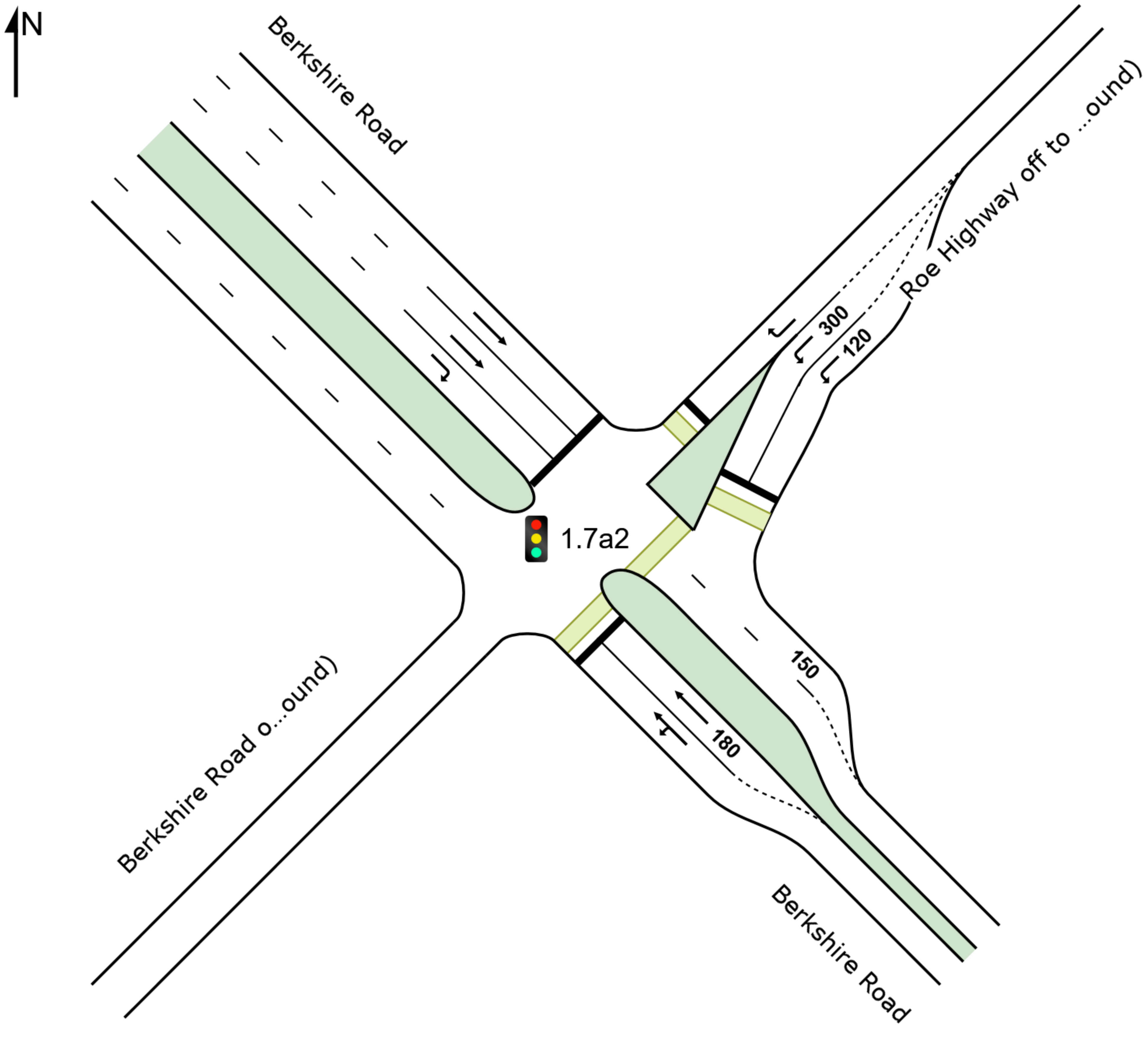
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1.7a2 Berkshire Road - Berkshire Road on to Roe Highway - 2016 AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated   Cycle Time = 40 seconds (Network Practical Cycle Time)

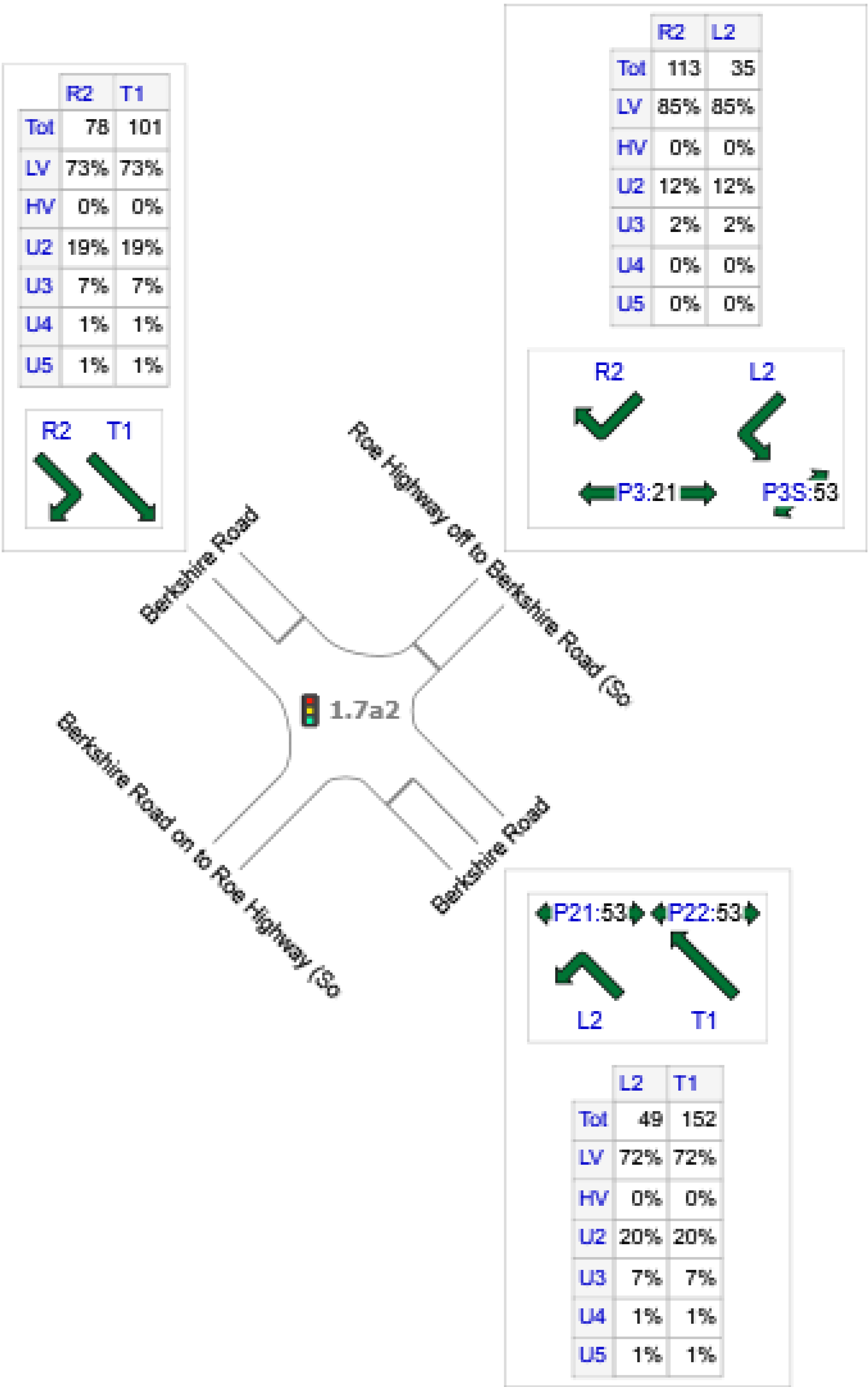
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4
SE: Berkshire Road	201	145	0	40	14	1
NE: Roe Highway off to Berkshire Road (Southbound)	147	125	0	18	3	0
NW: Berkshire Road	179	130	0	34	12	1
Total	527	400	0	93	29	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	112	27.9	112	27.9	313	0.357	100	17.1	LOS B	1.9	20.0	Full	300	0.0	0.0

Lane 2	89	27.9	89	27.9	250	0.357	100	17.2	LOS B	1.7	17.3	Short	180	0.0	NA
Approach	201	27.9	201	27.9		0.357		17.1	LOS B	1.9	20.0				
NorthEast: Roe Highway off to Berkshire Road (Southbound)															
Lane 1	16	15.1	16	15.1	313	0.051	85[6]	20.7	LOS C	0.3	2.3	Short	120	0.0	NA
Lane 2	19	15.1	19	15.1	313	0.060	100	20.6	LOS C	0.3	2.8	Short	300	0.0	NA
Lane 3	113	15.1	113	15.1	313	0.360	100	21.9	LOS C	2.1	18.1	Full	500	0.0	0.0
Approach	147	15.1	147	15.1		0.360		21.6	LOS C	2.1	18.1				
NorthWest: Berkshire Road															
Lane 1	45	27.4	45	27.4	716	0.063	80[6]	10.0	LOS B	0.8	8.1	Full	150	0.0	0.0
Lane 2	56	27.4	56	27.4	716	0.078	100	9.8	LOS A	1.0	10.0	Full	150	0.0	0.0
Lane 3	78	27.4	78	27.4	235	0.332	100	23.1	LOS C	1.5	15.1	Full	150	0.0	0.0
Approach	179	27.4	179	27.4		0.332		15.7	LOS B	1.5	15.1				
Intersection	527	24.2	527	24.2		0.360		17.9	LOS B	2.1	20.0				

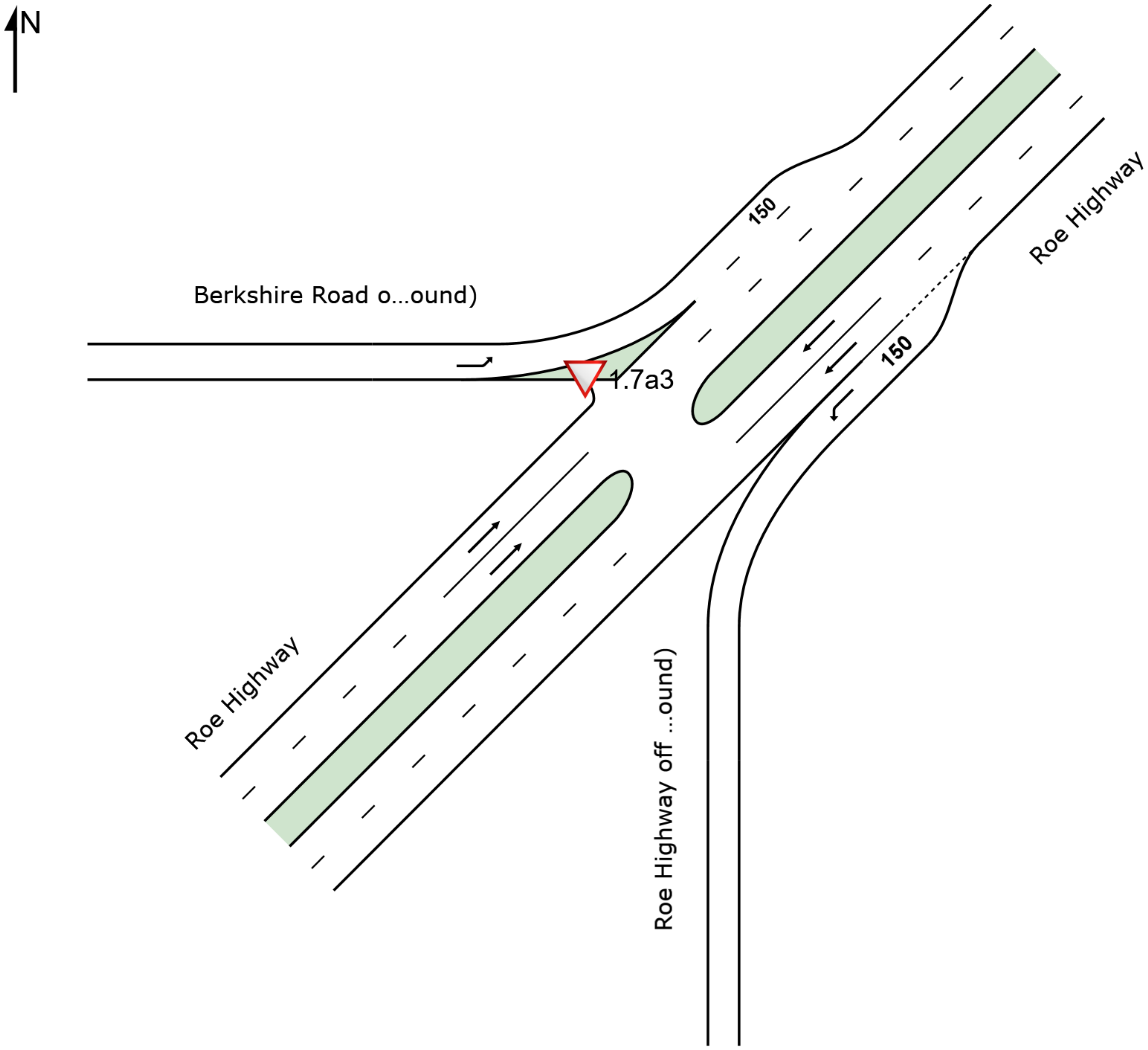
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects

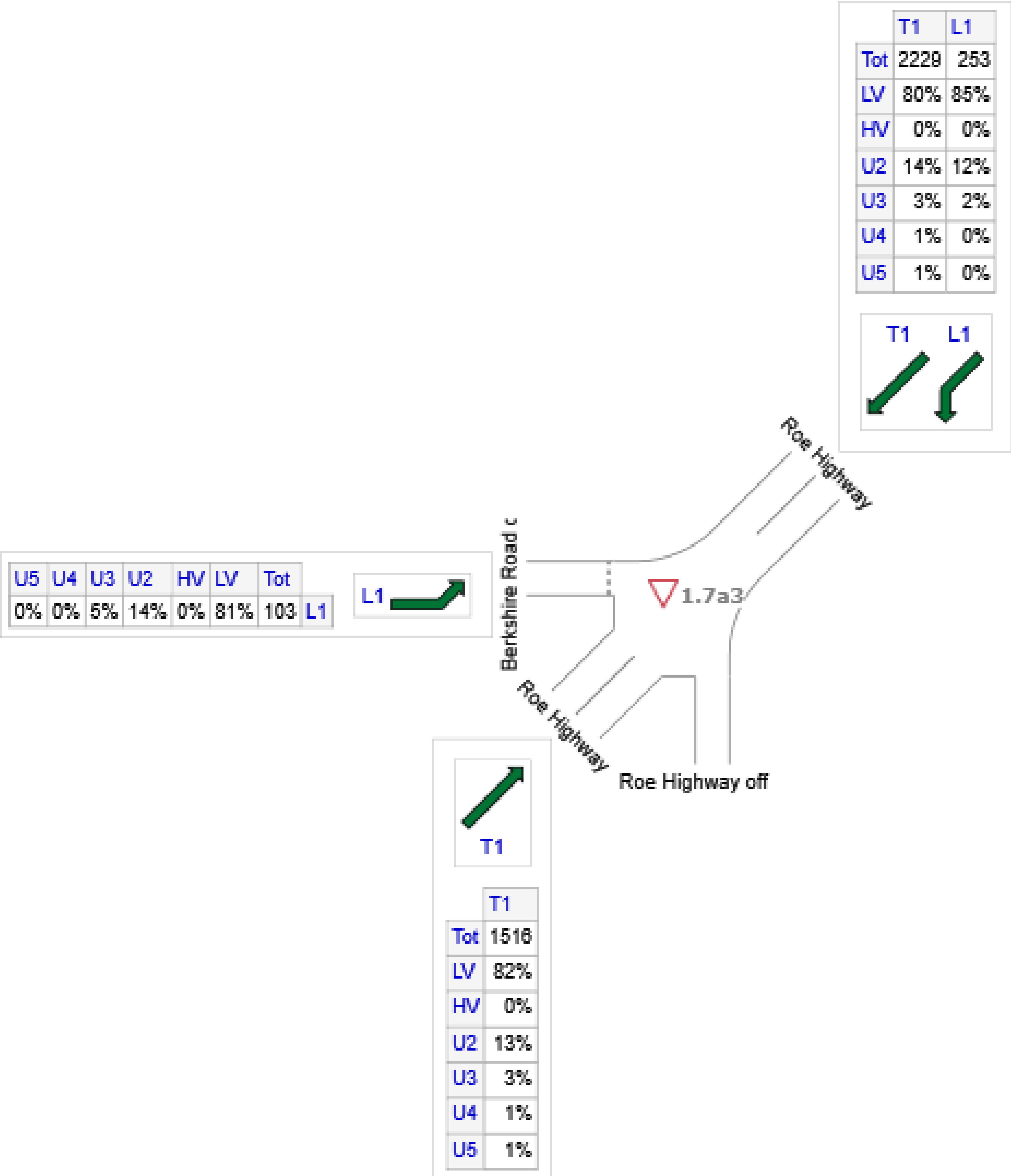
1.7a3 Roe Highway Interchange with Berkshire Road - 2016 AM (North)
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
NE: Roe Highway	2482	2010	0	350	74	25
W: Berkshire Road on to Roe Highway (Northbound)	103	83	0	14	5	0
SW: Roe Highway	1516	1238	0	197	47	17
Total	4101	3331	0	562	126	42

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
NorthEast: Roe Highway															
Lane 1	253	14.9	253	14.9	1667	0.152	100	7.8	LOS A	0.0	0.0	Short	150	0.0	NA

Lane 2	1115	19.5	1115	19.5	1818	0.613	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1115	19.5	1115	19.5	1818	0.613	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	2482	19.0	2482	19.0		0.613		1.4	NA	0.0	0.0				
West: Berkshire Road on to Roe Highway (Northbound)															
Lane 1	103	19.5	103	19.5	1534	0.067	100	5.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	103	19.5	103	19.5		0.067		5.1	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	758	18.3	758	18.3	1831	0.414	100	0.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	758	18.3	758	18.3	1831	0.414	100	0.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1516	18.3	1516	18.3		0.414		0.6	NA	0.0	0.0				
Intersection	4101	18.8	4101	18.8		0.613		1.2	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M07 Roe Highway - Berkshire Road | **Template: Site Report**

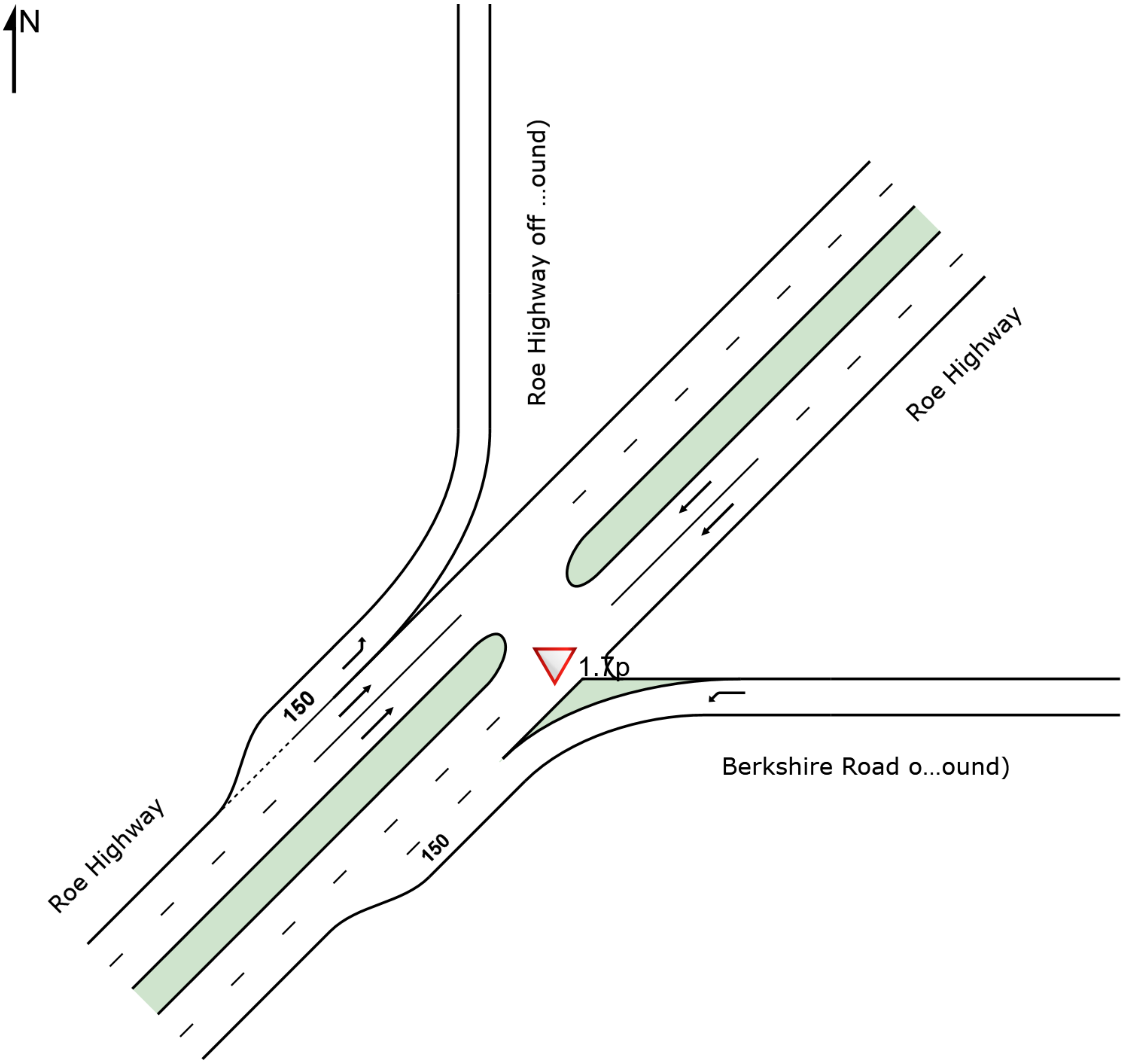
Site: 1.7p [1.7p Roe Highway Interchange with Berkshire Road - 2016 PM (South) (Site Folder: PM)]

Network: 2 [n1.3p Roe Highway - Berkshire Road - 2016 PM (Network Folder: General)]

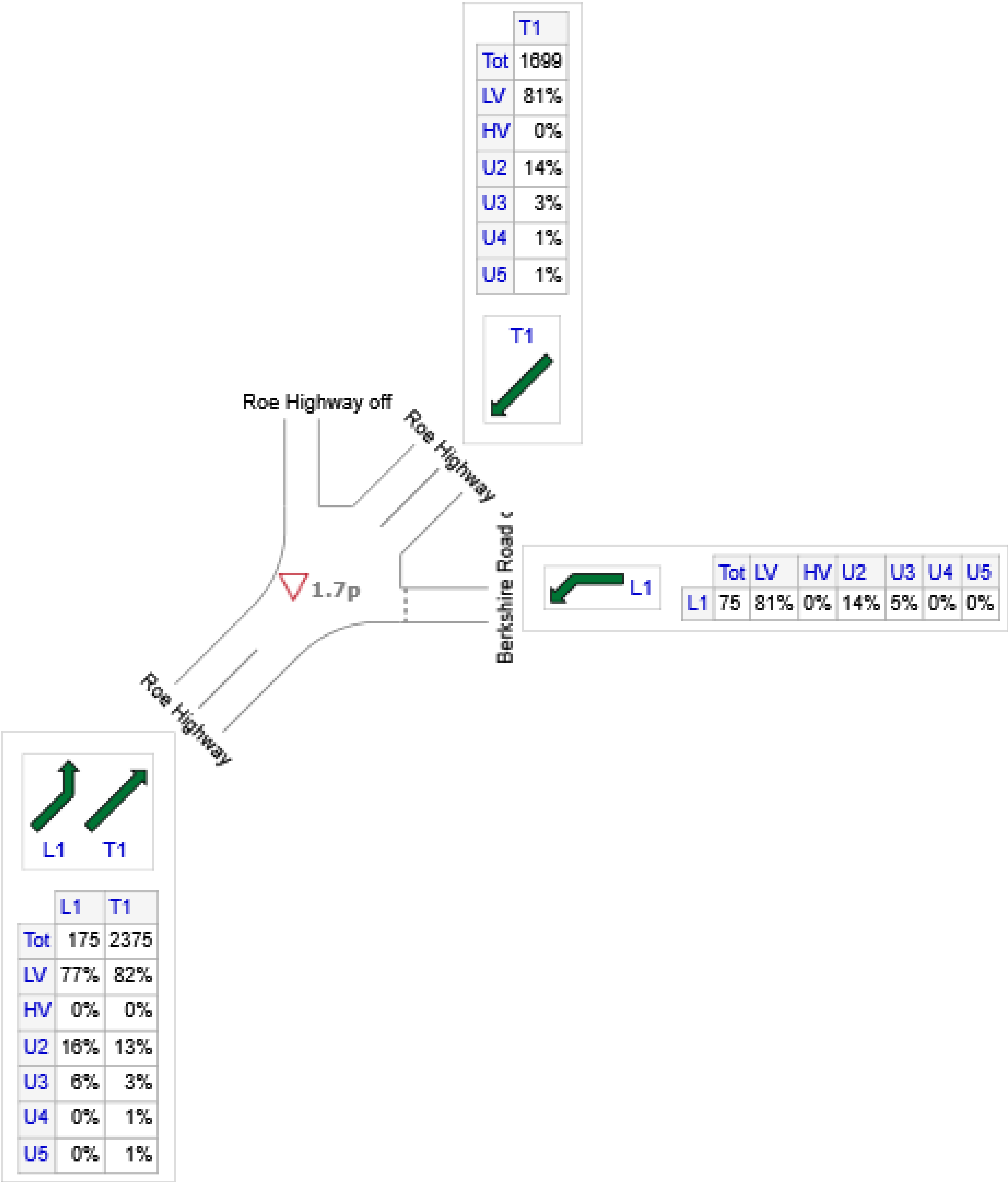
1.7p Roe Highway Interchange with Berkshire Road - 2016 PM (South)
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
E: Berkshire Road on to Roe Highway (Southbound)	75	60	0	10	4	0
NE: Roe Highway	1699	1368	0	243	53	19
SW: Roe Highway	2549	2075	0	336	85	27
Total	4323	3503	0	590	141	46

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Berkshire Road on to Roe Highway (Southbound)															
Lane 1	75	19.5	75	19.5	1541	0.048	100	5.3	LOS A	0.0	0.0	Full	500	0.0	0.0

Approach	75	19.5	75	19.5		0.048		5.3	NA	0.0	0.0				
NorthEast: Roe Highway															
Lane 1	849	19.5	849	19.5	1849	0.459	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	849	19.5	849	19.5	1849	0.459	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1699	19.5	1699	19.5		0.459		0.1	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	175	22.6	175	22.6	1511	0.116	100	8.4	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	1187	18.3	1187	18.3	1864	0.637	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1187	18.3	1187	18.3	1864	0.637	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	2549	18.6	2549	18.6		0.637		0.7	NA	0.0	0.0				
Intersection	4323	19.0	4323	19.0		0.637		0.5	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 1.7p1 [1.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2016 PM (Site Folder: PM)]

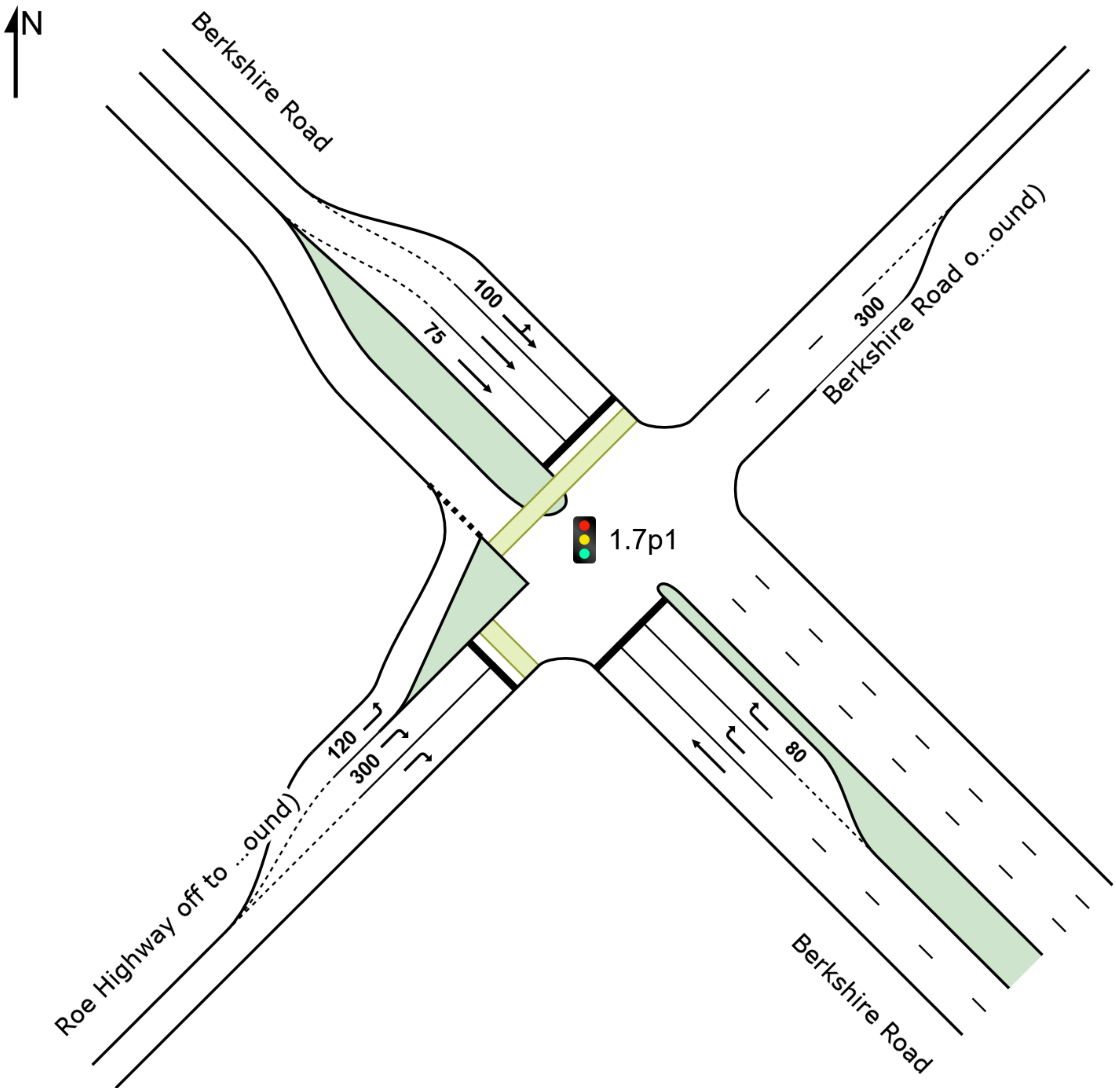
Network: 2 [n1.3p Roe Highway - Berkshire Road - 2016 PM (Network Folder: General)]

1.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2016 PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated   Cycle Time = 40 seconds (Network Practical Cycle Time)

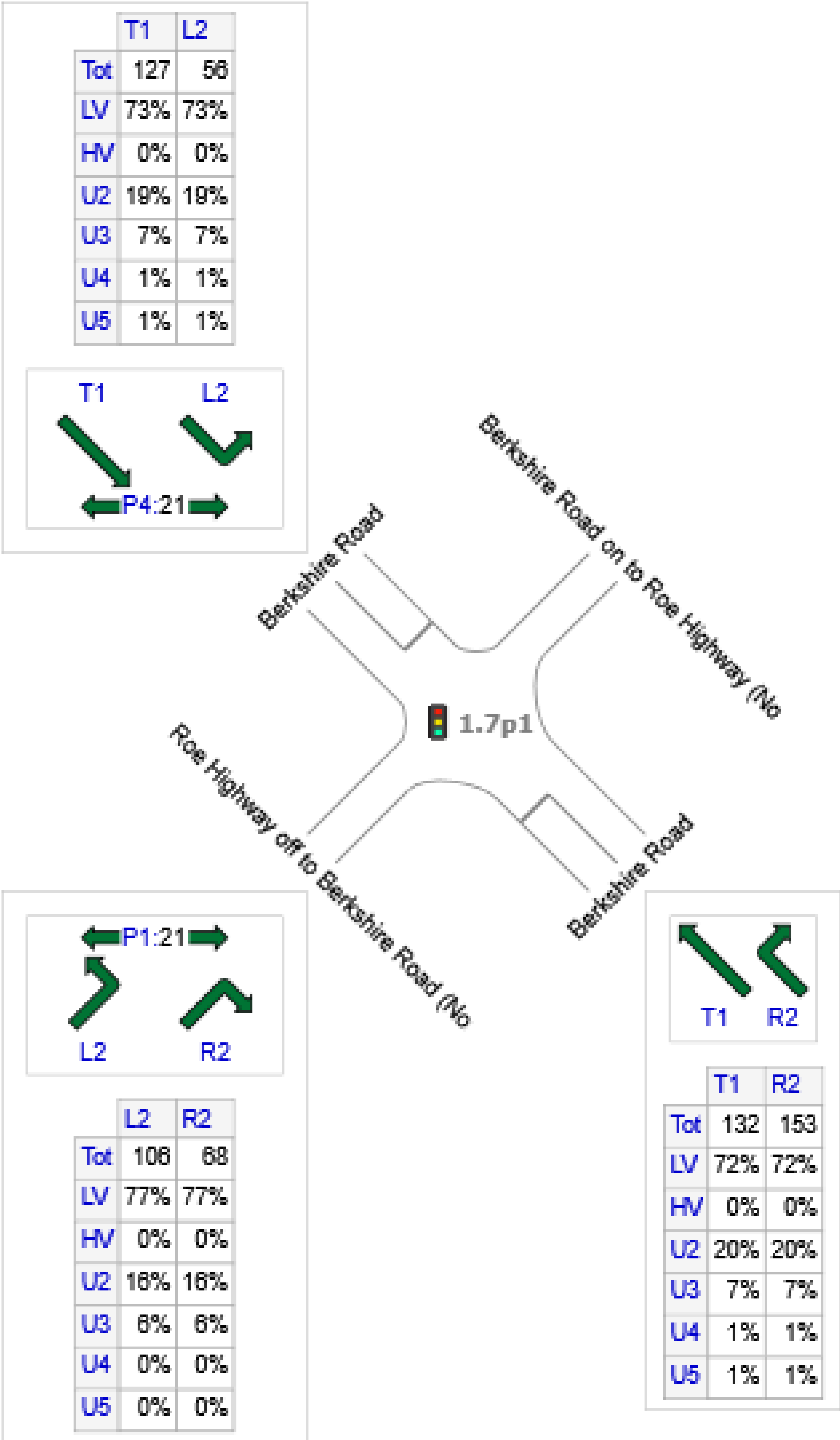
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4
SE: Berkshire Road	284	205	0	57	19	2
NW: Berkshire Road	183	133	0	35	13	1
SW: Roe Highway off to Berkshire Road (Northbound)	175	135	0	28	11	1
Total	642	473	0	119	43	4

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	132	27.9	132	27.9	794	0.166	100	4.3	LOS A	1.0	10.3	Full	150	0.0	0.0

Lane 2	76	27.9	76	27.9	304	0.251	100	21.6	LOS C	1.5	14.9	Full	150	0.0	0.0
Lane 3	76	27.9	76	27.9	304	0.251	100	21.8	LOS C	1.5	14.9	Short	80	0.0	NA
Approach	284	27.9	284	27.9		0.251		13.6	LOS B	1.5	14.9				
NorthWest: Berkshire Road															
Lane 1	58	27.4	58	27.4	238	0.246	100	21.8	LOS C	1.0	10.6	Short	100	0.0	NA
Lane 2	62	27.4	62	27.4	253	0.246	100	16.7	LOS B	1.1	11.7	Full	500	0.0	0.0
Lane 3	62	27.4	62	27.4	253	0.246	100	16.7	LOS B	1.1	11.7	Short	75	0.0	NA
Approach	183	27.4	183	27.4		0.246		18.3	LOS B	1.1	11.7				
SouthWest: Roe Highway off to Berkshire Road (Northbound)															
Lane 1	106	22.6	106	22.6	903	0.118	100	7.3	LOS A	0.4	3.9	Short	120	0.0	NA
Lane 2	34	22.6	34	22.6	214	0.160	100	23.4	LOS C	0.6	6.2	Short	300	0.0	NA
Lane 3	34	22.6	34	22.6	214	0.160	100	23.4	LOS C	0.6	6.2	Full	500	0.0	0.0
Approach	175	22.6	175	22.6		0.160		13.6	LOS B	0.6	6.2				
Intersection	642	26.3	642	26.3		0.251		15.0	LOS B	1.5	14.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 1.7p2 [1.7p2 Berkshire Road - Berkshire Road on to Roe Highway - 2016 PM (Site Folder: PM)]

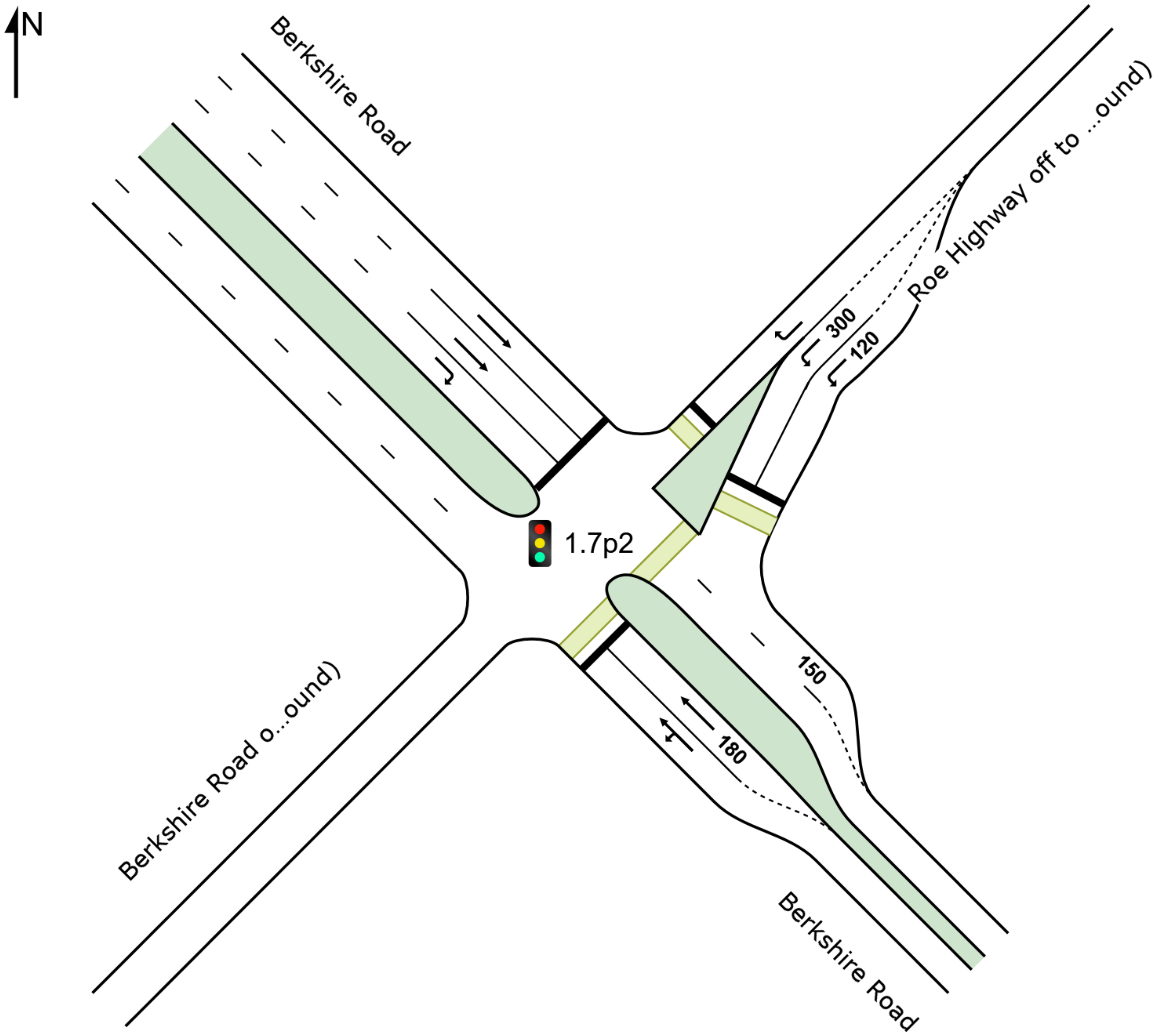
Network: 2 [n1.3p Roe Highway - Berkshire Road - 2016 PM (Network Folder: General)]

1.7p2 Berkshire Road - Berkshire Road on to Roe Highway - 2016 PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated   Cycle Time = 40 seconds (Network Practical Cycle Time)

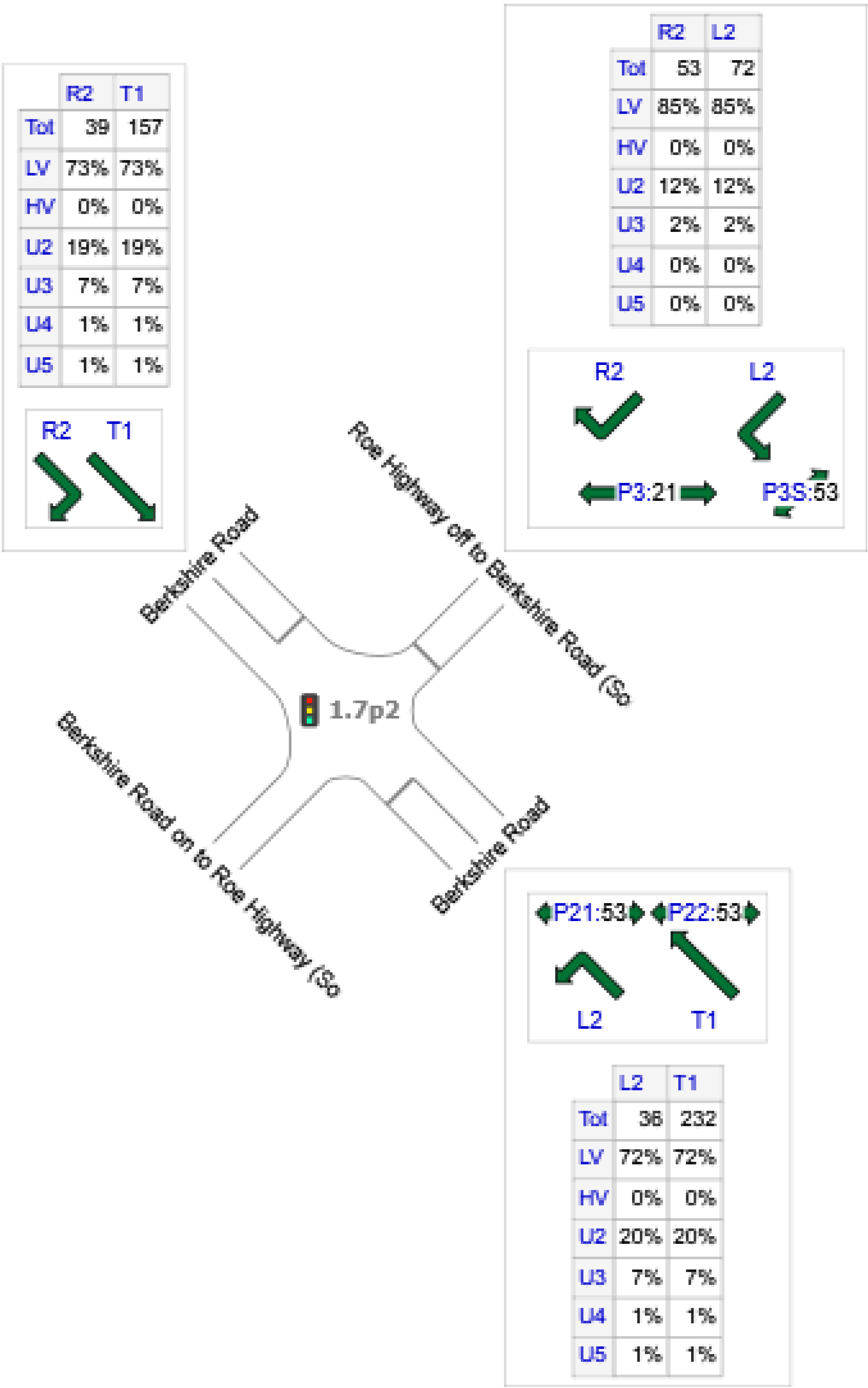
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4
SE: Berkshire Road	267	193	0	53	18	2
NE: Roe Highway off to Berkshire Road (Southbound)	124	105	0	15	3	0
NW: Berkshire Road	196	142	0	38	14	1
Total	587	440	0	106	34	3

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	138	27.9	138	27.9	386	0.358	100	15.0	LOS B	2.3	23.9	Full	300	0.0	0.0

Lane 2	129	27.9	129	27.9	361	0.358	100	14.3	LOS B	2.2	22.9	Short	180	0.0	NA
Approach	267	27.9	267	27.9		0.358		14.7	LOS B	2.3	23.9				
NorthEast: Roe Highway off to Berkshire Road (Southbound)															
Lane 1	33	15.1	33	15.1	236	0.140	85[6]	23.3	LOS C	0.6	5.3	Short	120	0.0	NA
Lane 2	39	15.1	39	15.1	236	0.164	100	23.2	LOS C	0.7	6.3	Short	300	0.0	NA
Lane 3	53	15.1	53	15.1	236	0.223	100	23.4	LOS C	1.0	8.7	Full	500	0.0	0.0
Approach	124	15.1	124	15.1		0.223		23.3	LOS C	1.0	8.7				
NorthWest: Berkshire Road															
Lane 1	70	27.4	70	27.4	796	0.088	80[6]	4.4	LOS A	0.5	5.2	Full	150	0.0	0.0
Lane 2	87	27.4	87	27.4	796	0.110	100	7.8	LOS A	1.3	13.5	Full	150	0.0	0.0
Lane 3	39	27.4	39	27.4	203	0.192	100	26.3	LOS C	0.8	8.5	Full	150	0.0	0.0
Approach	196	27.4	196	27.4		0.192		10.2	LOS B	1.3	13.5				
Intersection	587	25.0	587	25.0		0.358		15.0	LOS B	2.3	23.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects

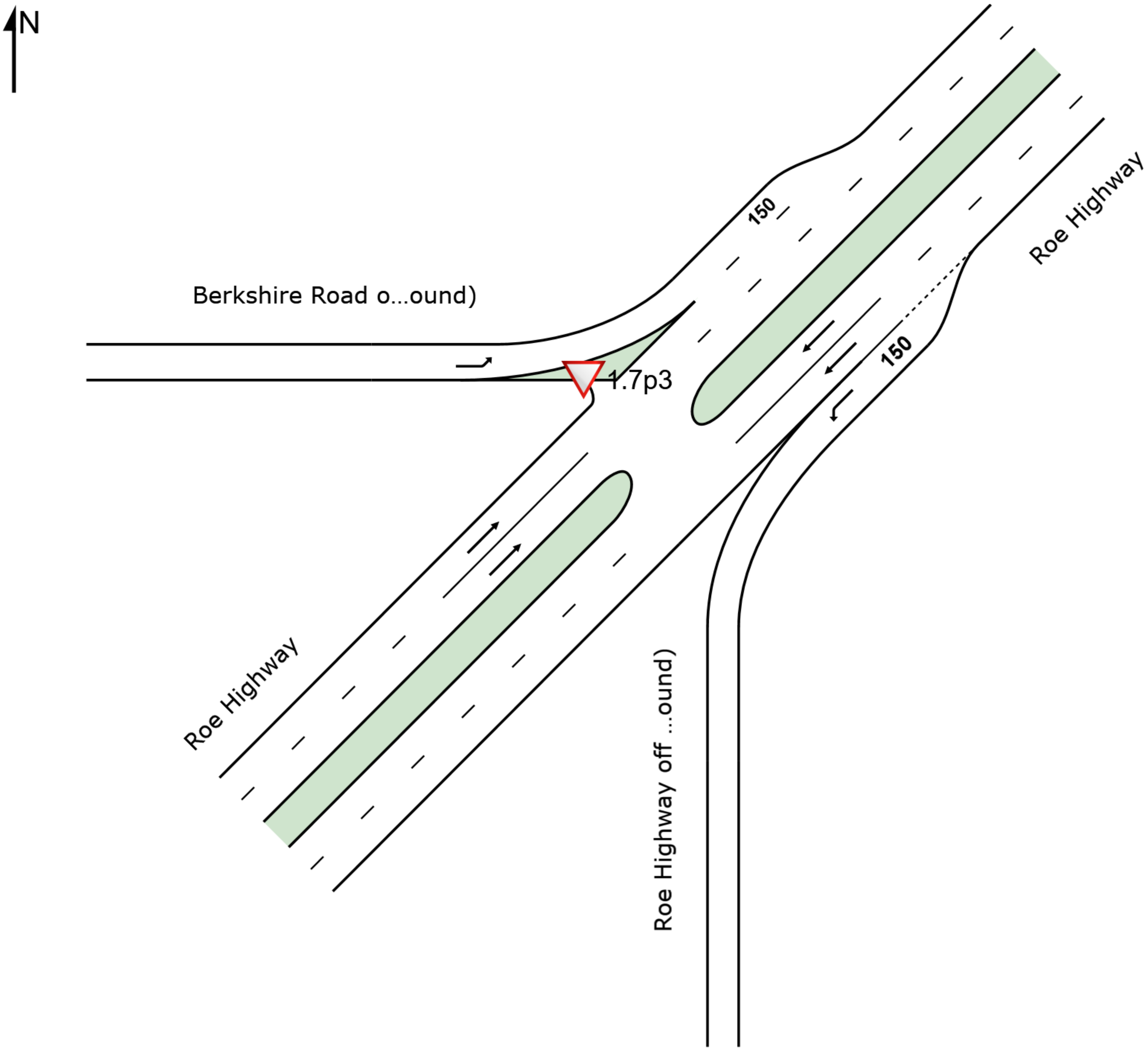
Site: 1.7p3 [1.7p3 Roe Highway Interchange with Berkshire Road - 2016 PM (North) (Site Folder: PM)]

Network: 2 [n1.3p Roe Highway - Berkshire Road - 2016 PM (Network Folder: General)]

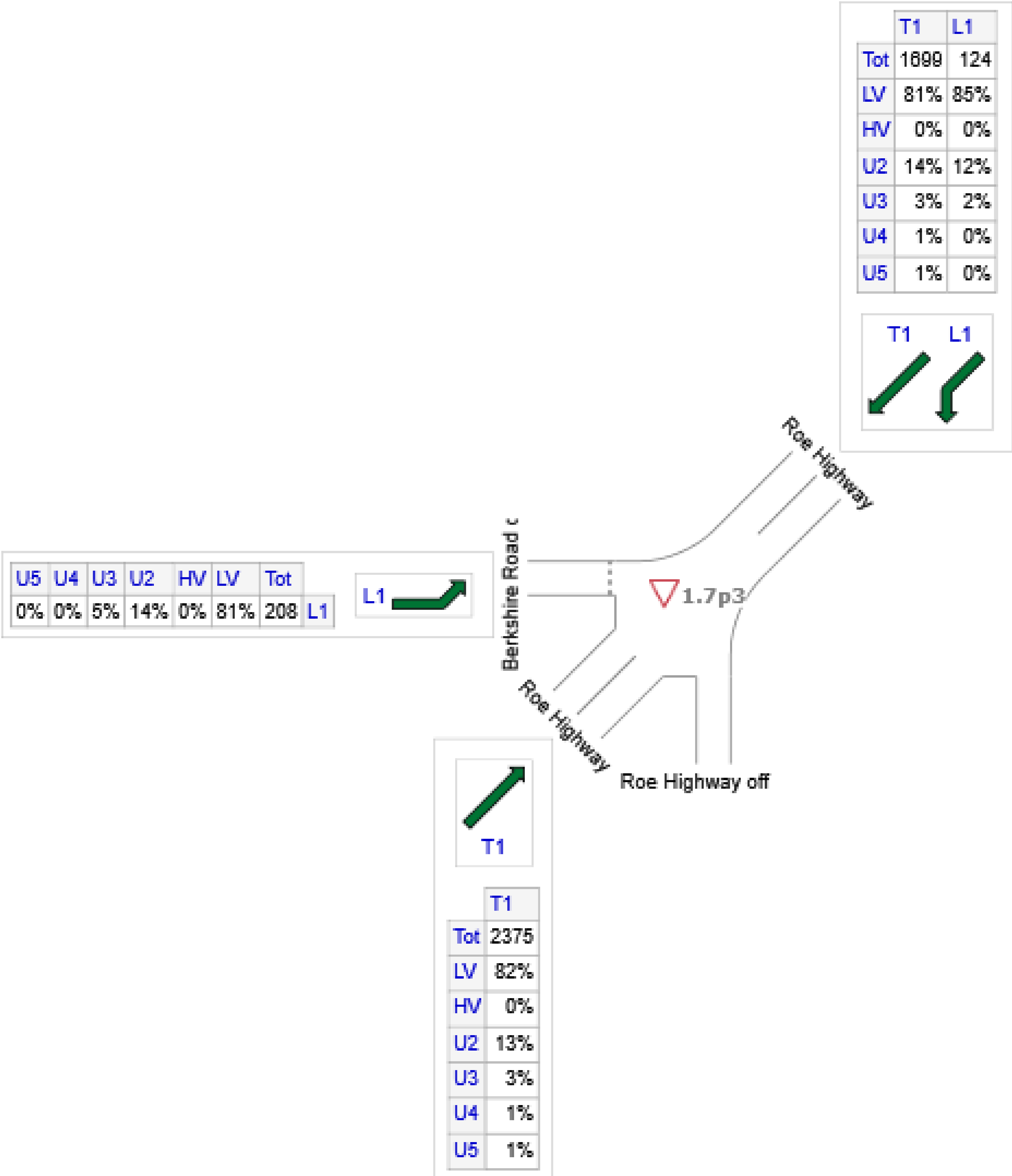
1.7p3 Roe Highway Interchange with Berkshire Road - 2016 PM (North)
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)	AustroadsClass 10 (U4)
NE: Roe Highway	1823	1473	0	258	55	19
W: Berkshire Road on to Roe Highway (Northbound)	208	168	0	29	10	1
SW: Roe Highway	2375	1940	0	309	74	26
Total	4406	3581	0	596	139	46

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
NorthEast: Roe Highway															
Lane 1	124	15.1	124	15.1	1664	0.075	100	7.8	LOS A	0.0	0.0	Short	150	0.0	NA

Lane 2	849	19.5	849	19.5	1849	0.459	100	0.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	849	19.5	849	19.5	1849	0.459	100	0.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1823	19.2	1823	19.2		0.459		1.1	NA	0.0	0.0				
West: Berkshire Road on to Roe Highway (Northbound)															
Lane 1	208	19.5	208	19.5	1541	0.135	100	6.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	208	19.5	208	19.5		0.135		6.7	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	1187	18.3	1187	18.3	1864	0.637	100	0.8	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1187	18.3	1187	18.3	1864	0.637	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	2375	18.3	2375	18.3		0.637		0.7	NA	0.0	0.0				
Intersection	4406	18.7	4406	18.7		0.637		1.2	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK

All Movement Classes

Project: KC00604.000 M07 Roe Highway - Berkshire Road **Template: Network Site Report**

Network: n1.3a [n1.3a Roe Highway - Berkshire Road - 2016 AM (Network Folder: General)]

n1.3a Roe Highway - Berkshire Road - 2016 AM
Network Category: (None)
Network Cycle Time = 40 seconds (Network Practical Cycle Time)
Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 1.7a1 [1.7a1 Berkshire Road - Roe Highway off to Berkshire Road - 2016 AM]

Sites in Network

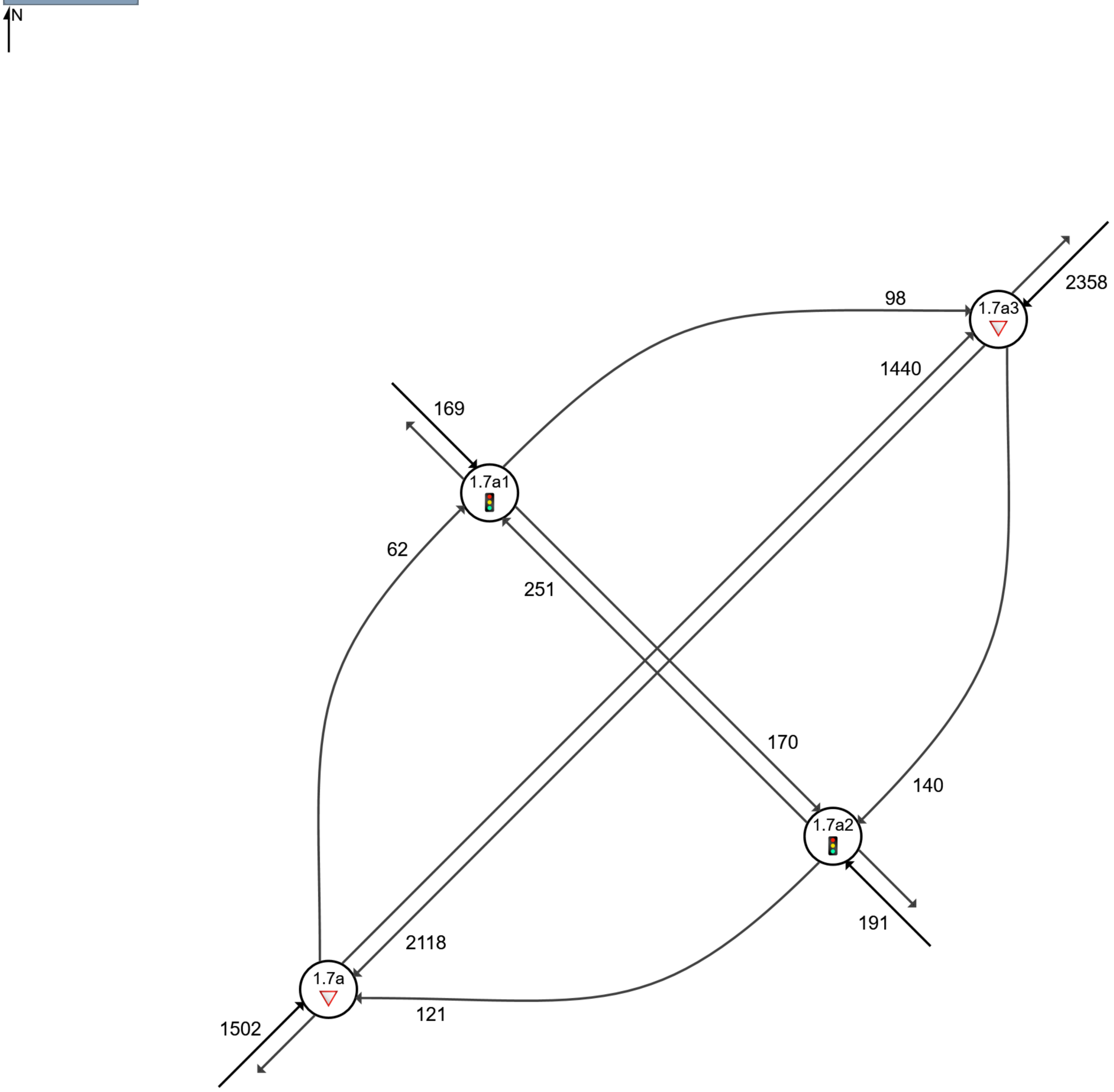
SITES IN NETWORK

Site ID	CCG ID	Site Name
1.7a	NA	1.7a Roe Highway Interchange with Berkshire Road - 2016 AM (South)
1.7a1	NA	1.7a1 Berkshire Road - Roe Highway off to Berkshire Road - 2016 AM
1.7a2	NA	1.7a2 Berkshire Road - Berkshire Road on to Roe Highway - 2016 AM
1.7a3	NA	1.7a3 Roe Highway Interchange with Berkshire Road - 2016 AM (North)

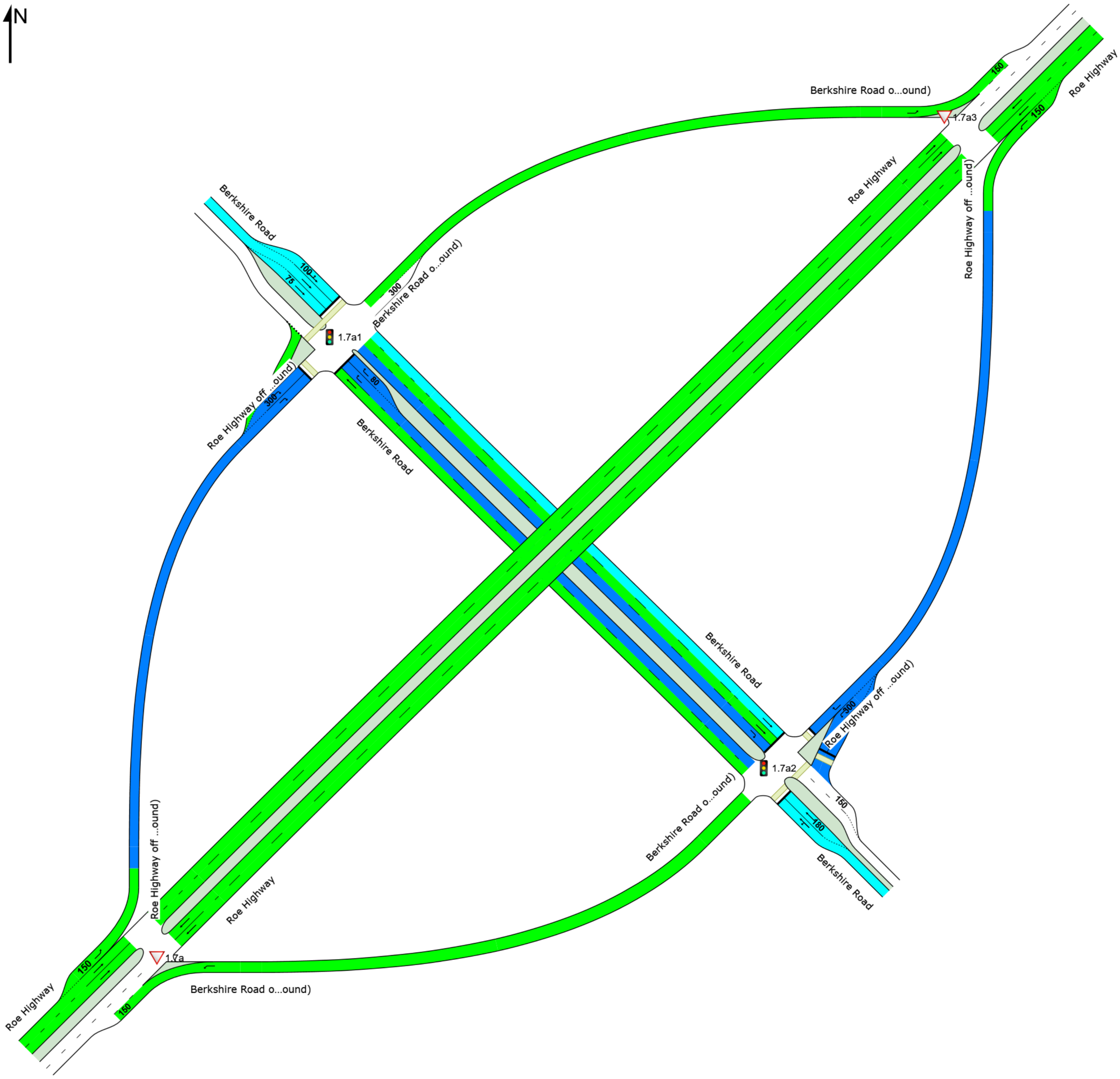
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Network: n1.3p [n1.3p Roe Highway - Berkshire Road - 2016 PM (Network Folder: General)]

n1.3p Roe Highway - Berkshire Road - 2016 PM
Network Category: (None)
Network Cycle Time = 40 seconds (Network Practical Cycle Time)
Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 1.7p1 [1.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2016 PM]

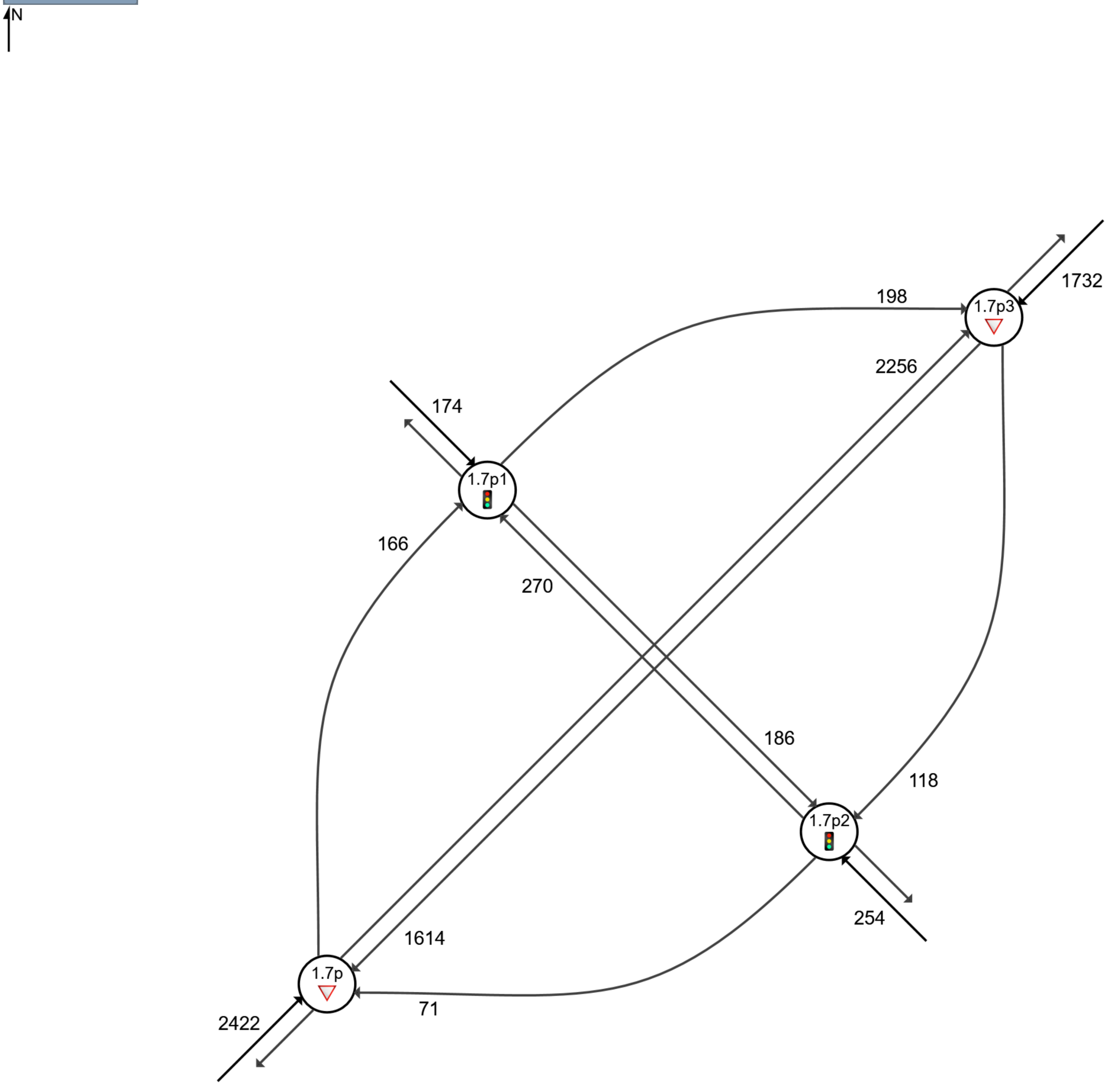
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
1.7p	NA	1.7p Roe Highway Interchange with Berkshire Road - 2016 PM (South)
1.7p1	NA	1.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2016 PM
1.7p2	NA	1.7p2 Berkshire Road - Berkshire Road on to Roe Highway - 2016 PM
1.7p3	NA	1.7p3 Roe Highway Interchange with Berkshire Road - 2016 PM (North)

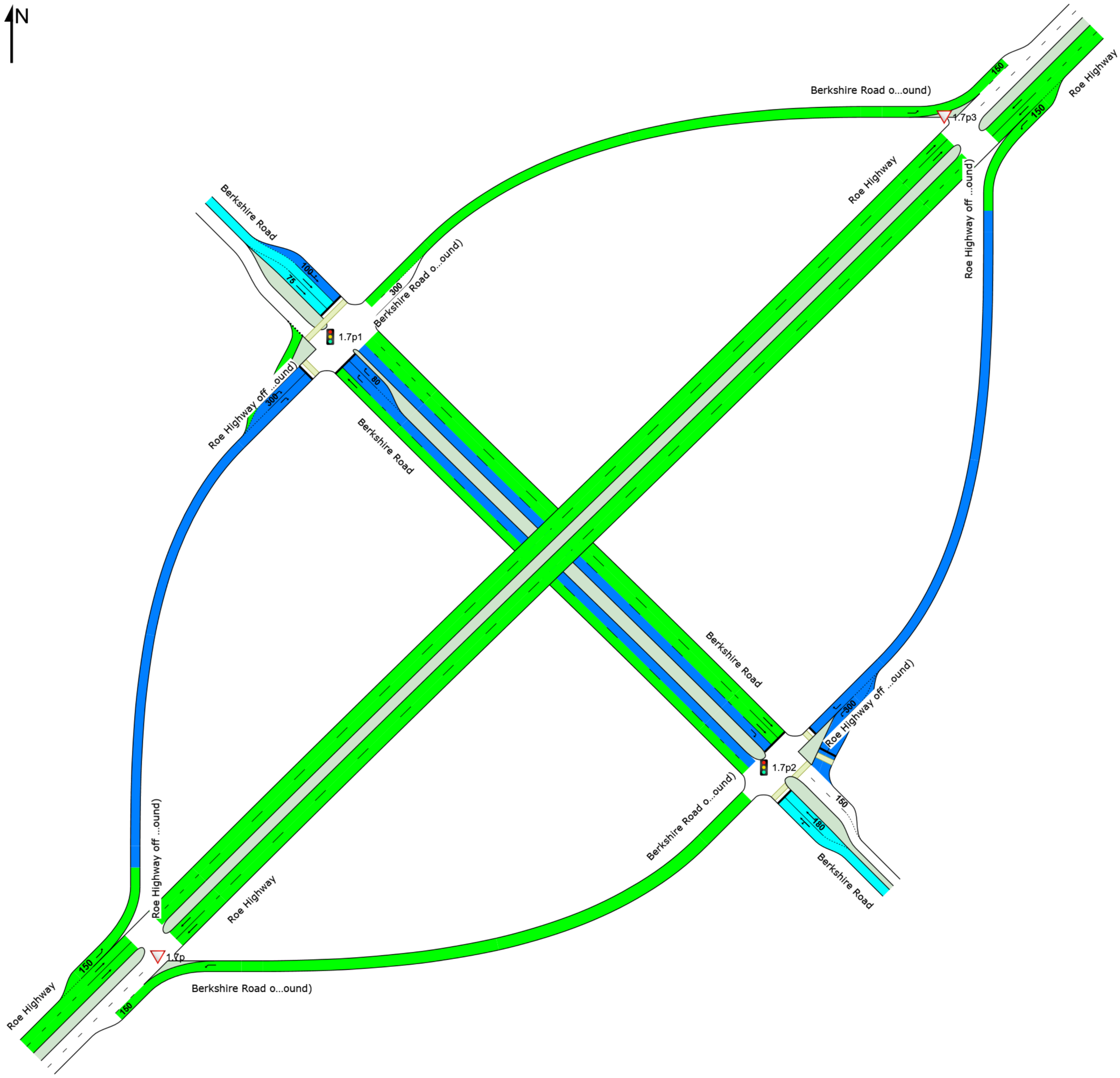
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Organisation: KC TRAFFIC AND TRANSPORT | Licence: NETWORK / 1PC | Created: Monday, January 16, 2023 14:32:28
Project: C:\Users\Nemanja\Box\KCTT Projects\KC00000 Current Projects\KC00604.000 Forrestfield North - Structure Plan Preparation\Outgoing\SIDRA\Residential Precinct\221213 Rev D\Base Models\KC00604.000 M07 Roe Highway - Berkshire Road.sip9

USER REPORT FOR NETWORK SITE

All Movement Classes

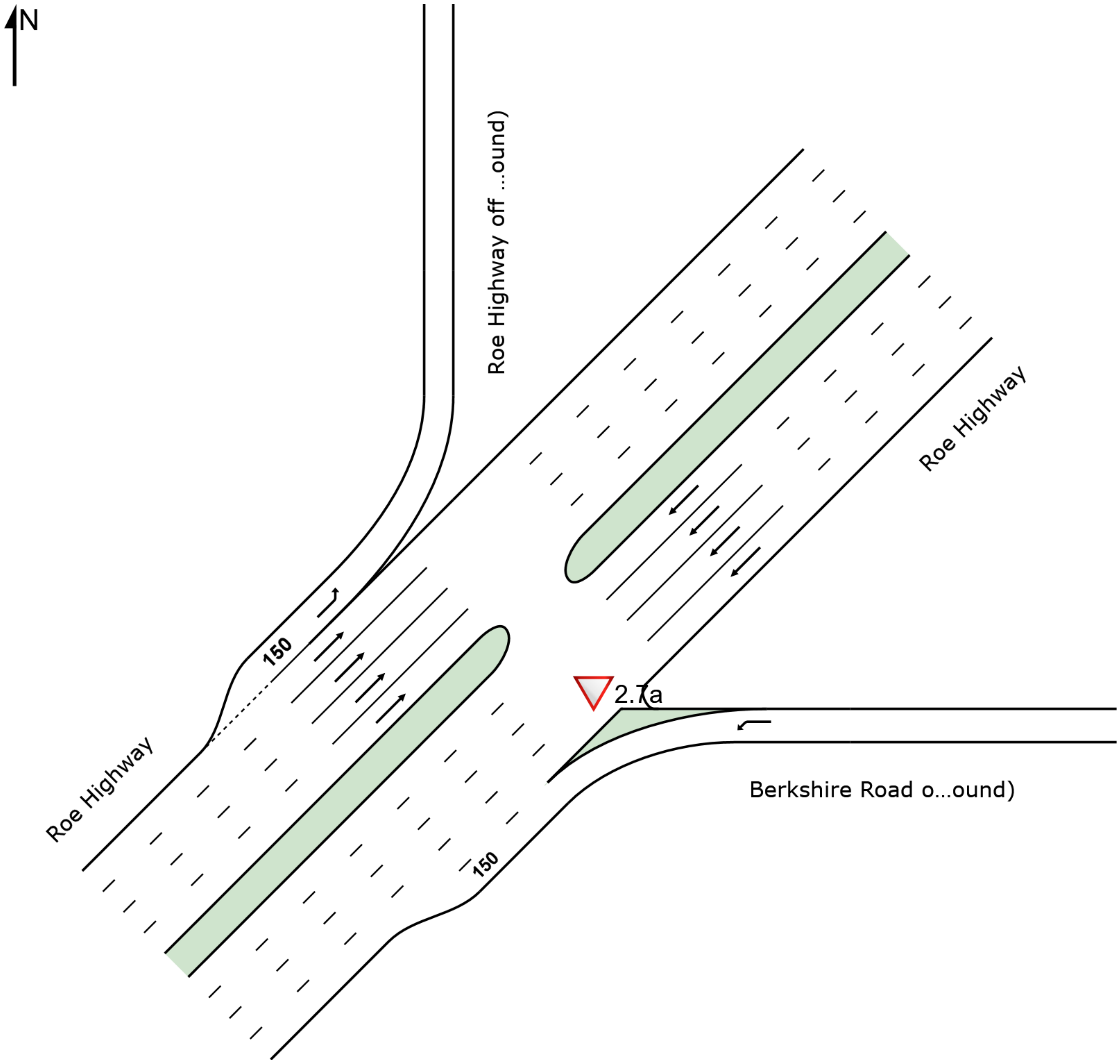
Project: KC00604.000 M07 Roe Highway - Berkshire Road **Template: Site Report**

Site: 2.7a [2.7a Roe Highway Interchange with Berkshire Road - 2031 AM (South) (Site Folder: 2031 AM)] **Network: 1 [n2.2a Roe Highway - Berkshire Road - 2031 AM (Network Folder: 2031)]**

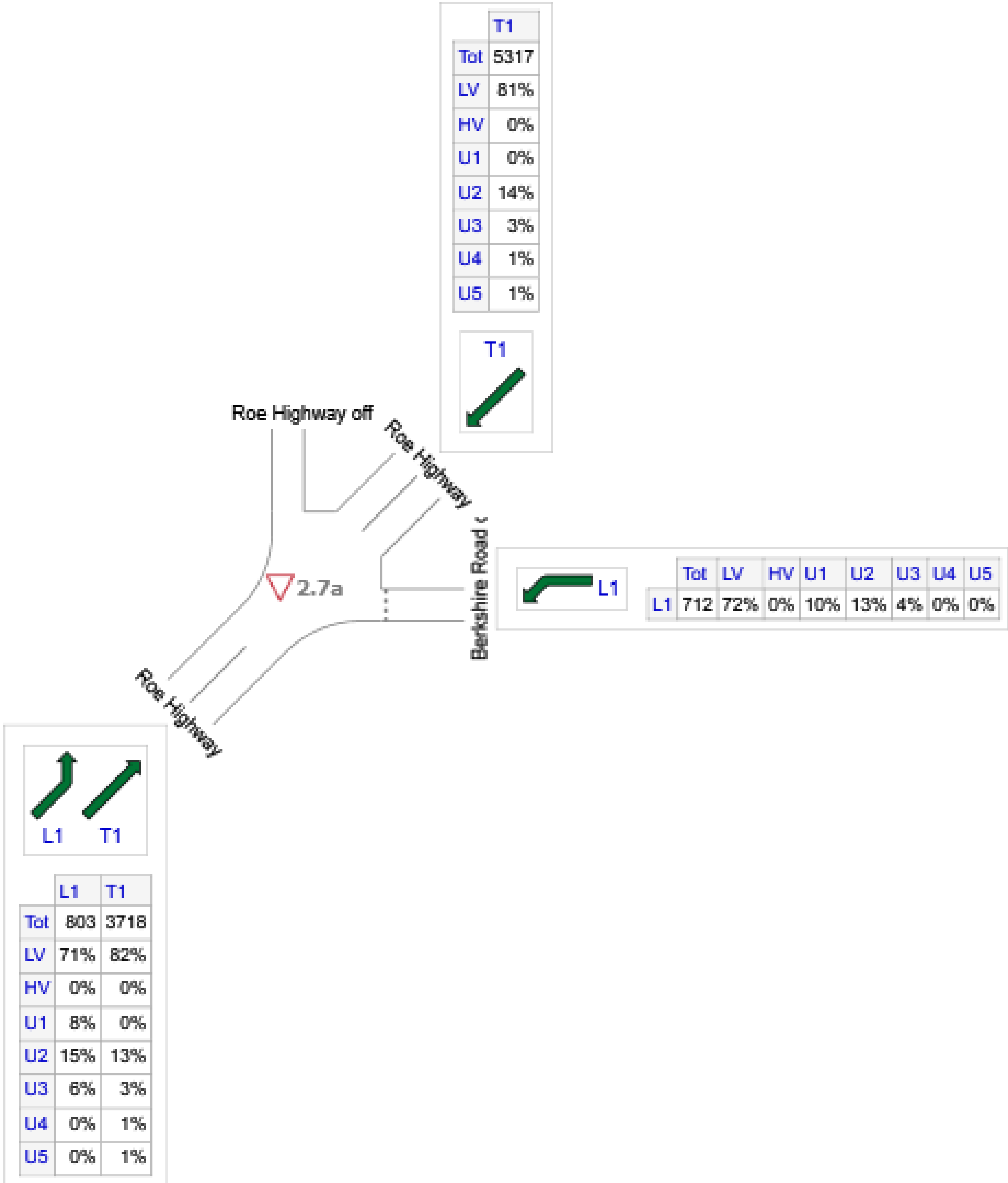
2.7a Roe Highway Interchange with Berkshire Road - 2031 AM (South)
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
E: Berkshire Road on to Roe Highway (Southbound)	712	514	0	74	89	31
NE: Roe Highway	5317	4280	0	0	760	165
SW: Roe Highway	4521	3609	0	64	600	162
Total	10549	8403	0	138	1450	358

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Berkshire Road on to Roe Highway (Southbound)															
Lane 1	712	17.5	712	17.5	1569	0.454	100	4.6	LOS A	0.0	0.0	Full	500	0.0	0.0

Approach	712	17.5	712	17.5		0.454		4.6	NA	0.0	0.0				
NorthEast: Roe Highway															
Lane 1	409	19.5	409	19.5	1818	0.225	25 [7]	0.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1636	19.5	1636	19.5	1818	0.900	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1636	19.5	1636	19.5	1818	0.900	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1636	19.5	1636	19.5	1818	0.900	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	5317	19.5	5317	19.5		0.900		0.7	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	803	20.9	803	20.9	1533	0.524	100	8.4	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	929	18.3	929	18.3	1831	0.508	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	929	18.3	929	18.3	1831	0.508	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	929	18.3	929	18.3	1831	0.508	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	929	18.3	929	18.3	1831	0.508	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	4521	18.7	4521	18.7		0.524		1.6	NA	0.0	0.0				
Intersection	10549	19.0	10549	19.0		0.900		1.3	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

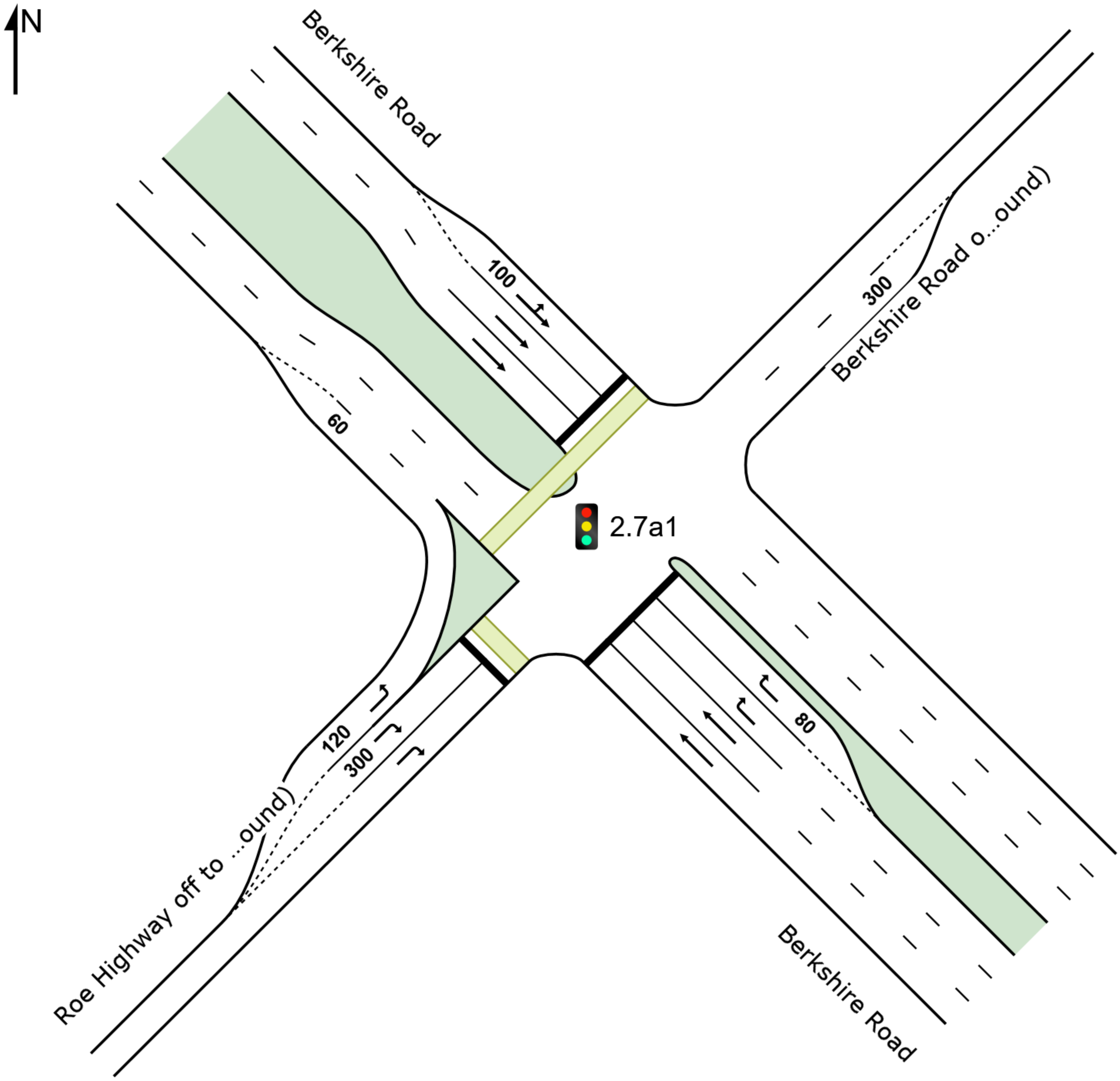
7 Lane under-utilisation specified by the user

2.7a1 Berkshire Road - Roe Highway off to Berkshire Road - 2031 AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 40 seconds (Site Practical Cycle Time)

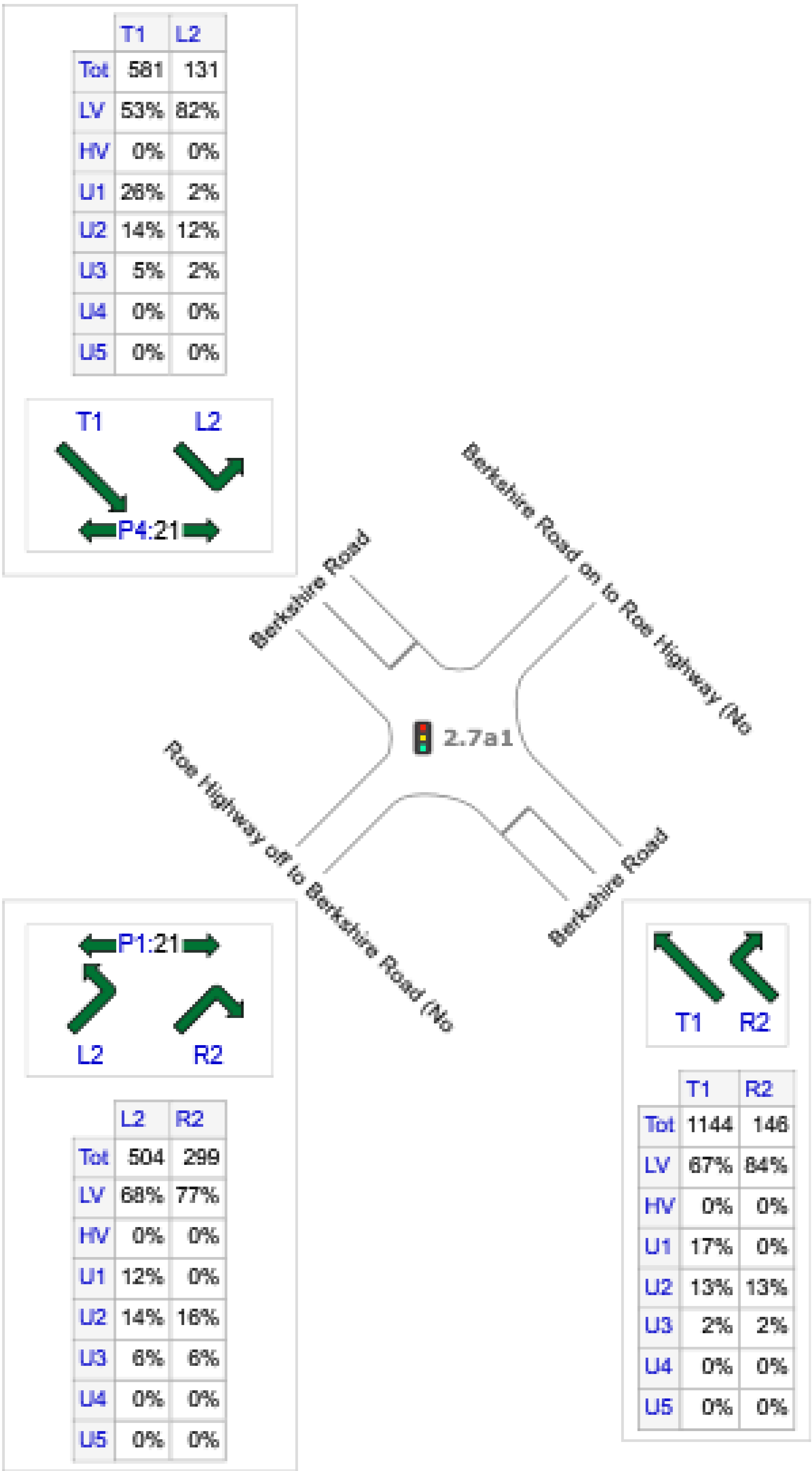
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Berkshire Road	1291	885	0	194	170	32
NW: Berkshire Road	712	418	0	157	98	33
SW: Roe Highway off to Berkshire Road (Northbound)	803	574	0	62	117	47
Total	2805	1876	0	413	385	111

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	572	16.5	572	16.5	854	0.670	100	8.3	LOS A	8.8	79.2	Full	150	0.0	0.0

Lane 2	572	16.5	572	16.5	854	0.670	100	8.3	LOS A	8.8	79.2	Full	150	0.0	0.0
Lane 3	73	15.7	73	15.7	233	0.314	100	23.7	LOS C	1.4	12.4	Full	150	0.0	0.0
Lane 4	73	15.7	73	15.7	233	0.314	100	24.1	LOS C	1.4	12.4	Short	80	0.0	NA
Approach	1291	16.4	1291	16.4		0.670		10.1	LOS B	8.8	79.2				
NorthWest: Berkshire Road															
Lane 1	238	17.5	238	17.5	349	0.682	100	20.0	LOS C	4.6	41.9	Short	100	0.0	NA
Lane 2	237	20.2	237	20.2	347	0.682	100	17.8	LOS B	4.8	45.8	Full	500	0.0	0.0
Lane 3	237	20.2	237	20.2	347	0.682	100	17.8	LOS B	4.8	45.8	Full	500	0.0	0.0
Approach	712	19.3	712	19.3		0.682		18.5	LOS B	4.8	45.8				
SouthWest: Roe Highway off to Berkshire Road (Northbound)															
Lane 1	504	19.8	504	19.8	1464	0.344	100	8.4	LOS A	0.0	0.0	Short	120	0.0	NA
Lane 2	149	22.6	149	22.6	248	0.602	100	24.6	LOS C	3.0	29.4	Short	300	0.0	NA
Lane 3	149	22.6	149	22.6	248	0.602	100	24.6	LOS C	3.0	29.4	Full	500	0.0	0.0
Approach	803	20.9	803	20.9		0.602		14.4	LOS B	3.0	29.4				
Intersection	2805	18.4	2805	18.4		0.682		13.5	LOS B	8.8	79.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 2.7a2 [2.7a2 Berkshire Road - Berkshire Road on to Roe Highway - 2031 AM (Site Folder: 2031 AM)]

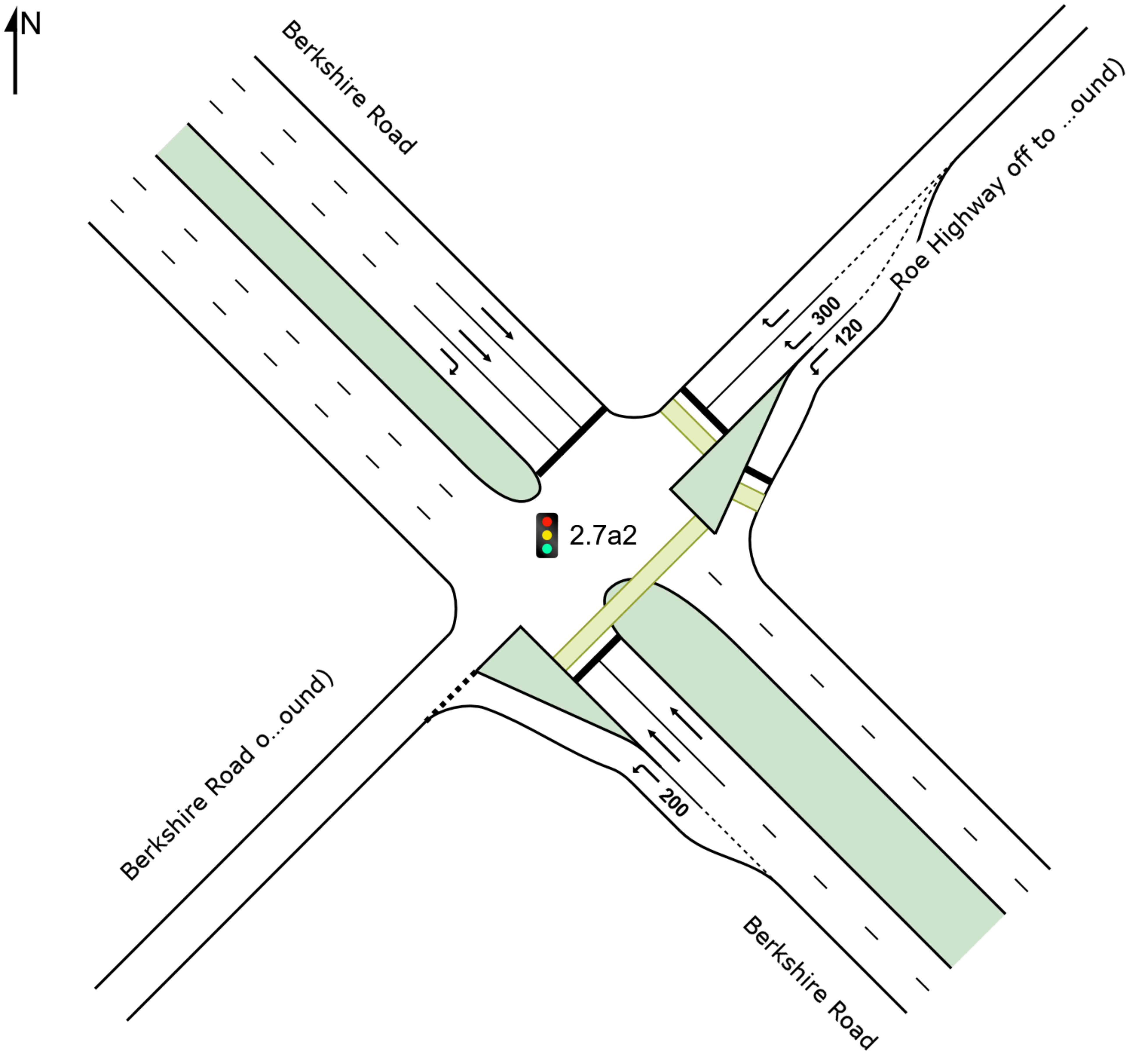
Network: 1 [n2.2a Roe Highway - Berkshire Road - 2031 AM (Network Folder: 2031)]

2.7a2 Berkshire Road - Berkshire Road on to Roe Highway - 2031 AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 50 seconds (Site Practical Cycle Time)

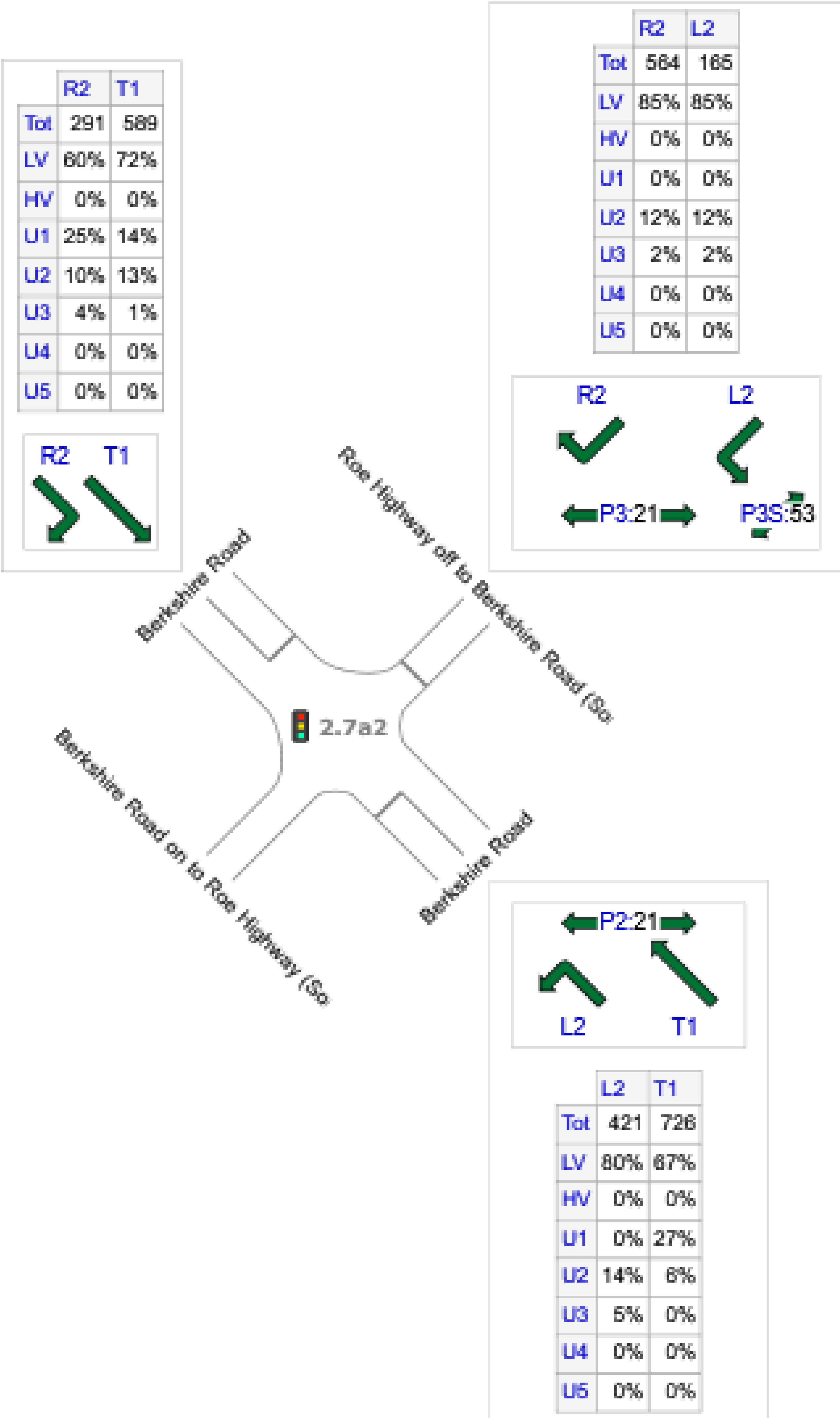
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Berkshire Road	1147	828	0	194	99	23
NE: Roe Highway off to Berkshire Road (Southbound)	729	619	0	0	90	15
NW: Berkshire Road	880	601	0	154	109	15
Total	2757	2049	0	347	299	54

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	421	19.5	421	19.5	933	0.451	100	9.5	LOS A	4.0	37.7	Short	200	0.0	NA

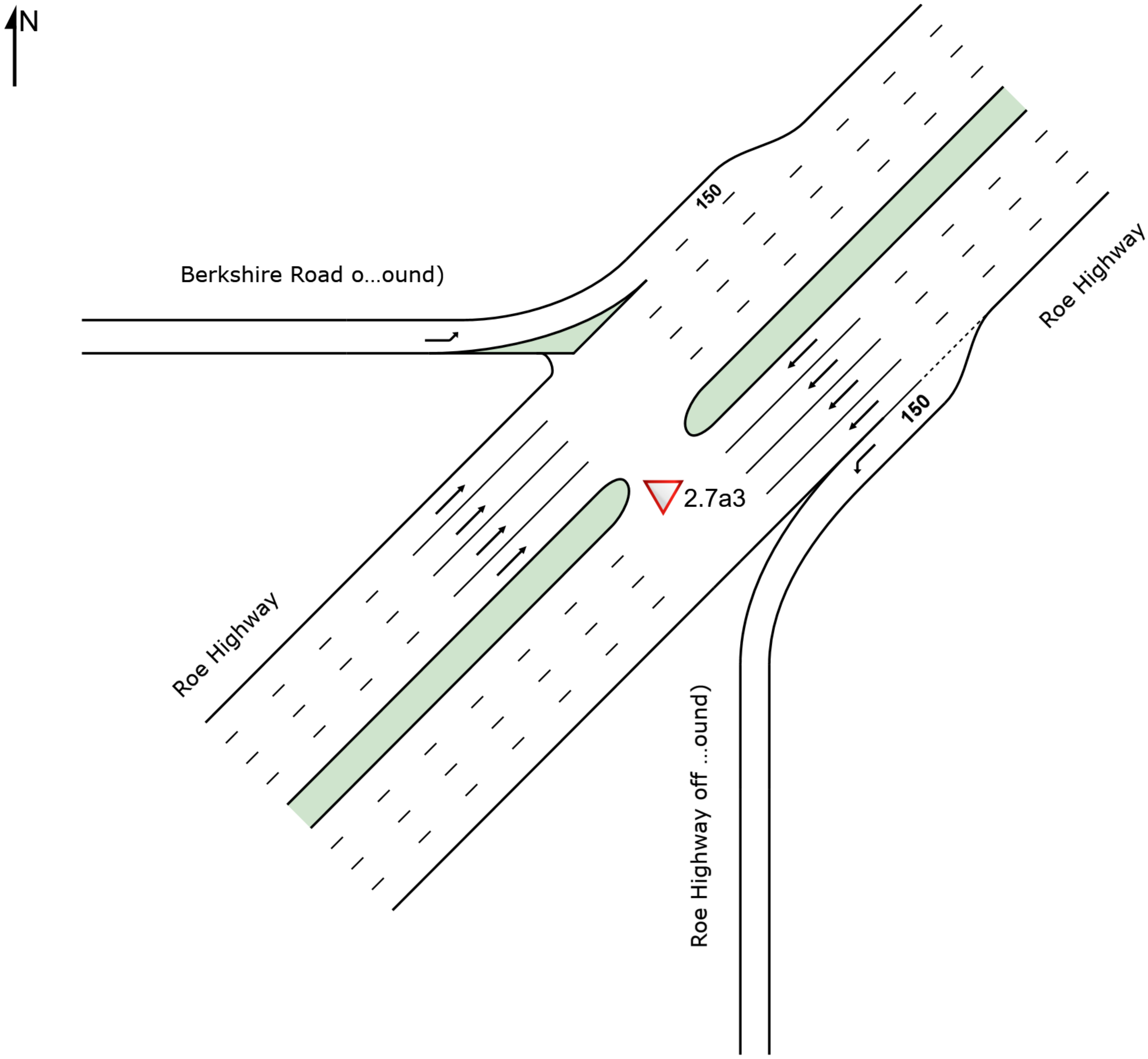
Lane 2	363	5.9	363	5.9	408	0.891	100	31.1	LOS C	11.3	88.8	Full	300	0.0	0.0
Lane 3	363	5.9	363	5.9	408	0.891	100	31.1	LOS C	11.3	88.8	Full	300	0.0	0.0
Approach	1147	10.9	1147	10.9		0.891		23.2	LOS C	11.3	88.8				
NorthEast: Roe Highway off to Berkshire Road (Southbound)															
Lane 1	165	15.1	165	15.1	313	0.528	100	26.5	LOS C	3.9	34.0	Short	120	0.0	NA
Lane 2	282	15.1	282	15.1	313	0.902	100	39.8	LOS D	9.2	81.1	Short	300	0.0	NA
Lane 3	282	15.1	282	15.1	313	0.902	100	39.8	LOS D	9.2	81.1	Full	500	0.0	0.0
Approach	729	15.1	729	15.1		0.902		36.8	LOS D	9.2	81.1				
NorthWest: Berkshire Road															
Lane 1	295	14.1	295	14.1	961	0.307	100	6.4	LOS A	3.9	32.9	Full	150	0.0	0.0
Lane 2	295	14.1	295	14.1	961	0.307	100	6.4	LOS A	3.9	32.9	Full	150	0.0	0.0
Lane 3	291	14.6	291	14.6	342	0.849	100	34.0	LOS C	8.6	75.9	Full	150	0.0	0.0
Approach	880	14.2	880	14.2		0.849		15.5	LOS B	8.6	75.9				
Intersection	2757	13.1	2757	13.1		0.902		24.3	LOS C	11.3	88.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

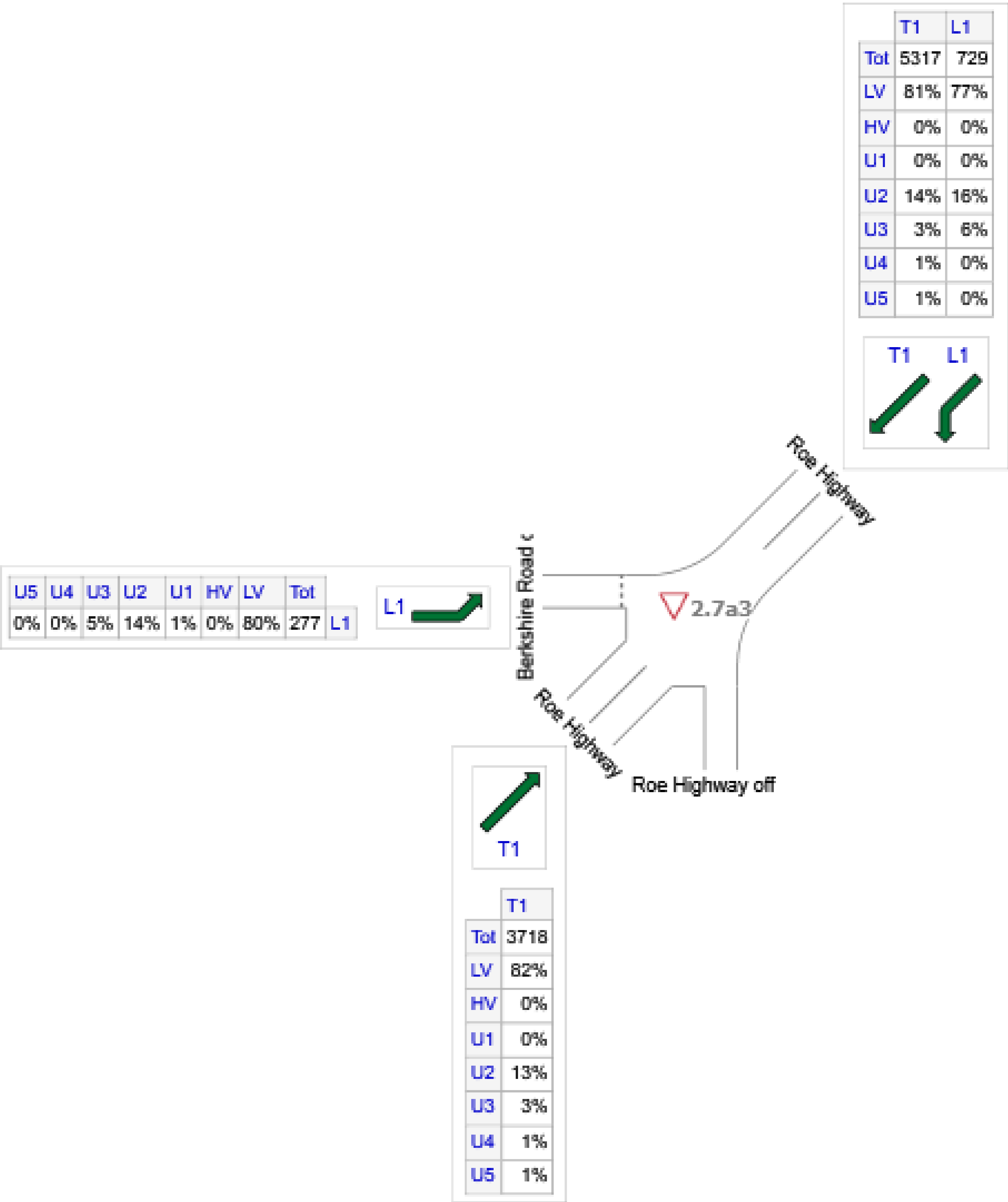
2.7a3 Roe Highway Interchange with Berkshire Road - 2031 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
NE: Roe Highway	6046	4845	0	0	876	211
W: Berkshire Road on to Roe Highway (Northbound)	277	220	0	3	38	13
SW: Roe Highway	3718	3036	0	2	483	115
Total	10041	8101	0	5	1397	339

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
NorthEast: Roe Highway															
Lane 1	729	22.6	729	22.6	1504	0.485	100	8.4	LOS A	0.0	0.0	Short	150	0.0	NA

Lane 2	1329	19.5	1329	19.5	1818	0.731	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1329	19.5	1329	19.5	1818	0.731	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1329	19.5	1329	19.5	1818	0.731	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1329	19.5	1329	19.5	1818	0.731	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	6046	19.9	6046	19.9		0.731		1.2	NA	0.0	0.0				
West: Berkshire Road on to Roe Highway (Northbound)															
Lane 1	277	19.3	277	19.3	1538	0.180	100	4.4	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	277	19.3	277	19.3		0.180		4.4	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	286	18.3	286	18.3	1831	0.156	25 [7]	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1144	18.3	1144	18.3	1831	0.625	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1144	18.3	1144	18.3	1831	0.625	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1144	18.3	1144	18.3	1831	0.625	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	3718	18.3	3718	18.3		0.625		0.1	NA	0.0	0.0				
Intersection	10041	19.3	10041	19.3		0.731		0.9	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

USER REPORT FOR NETWORK SITE

All Movement Classes

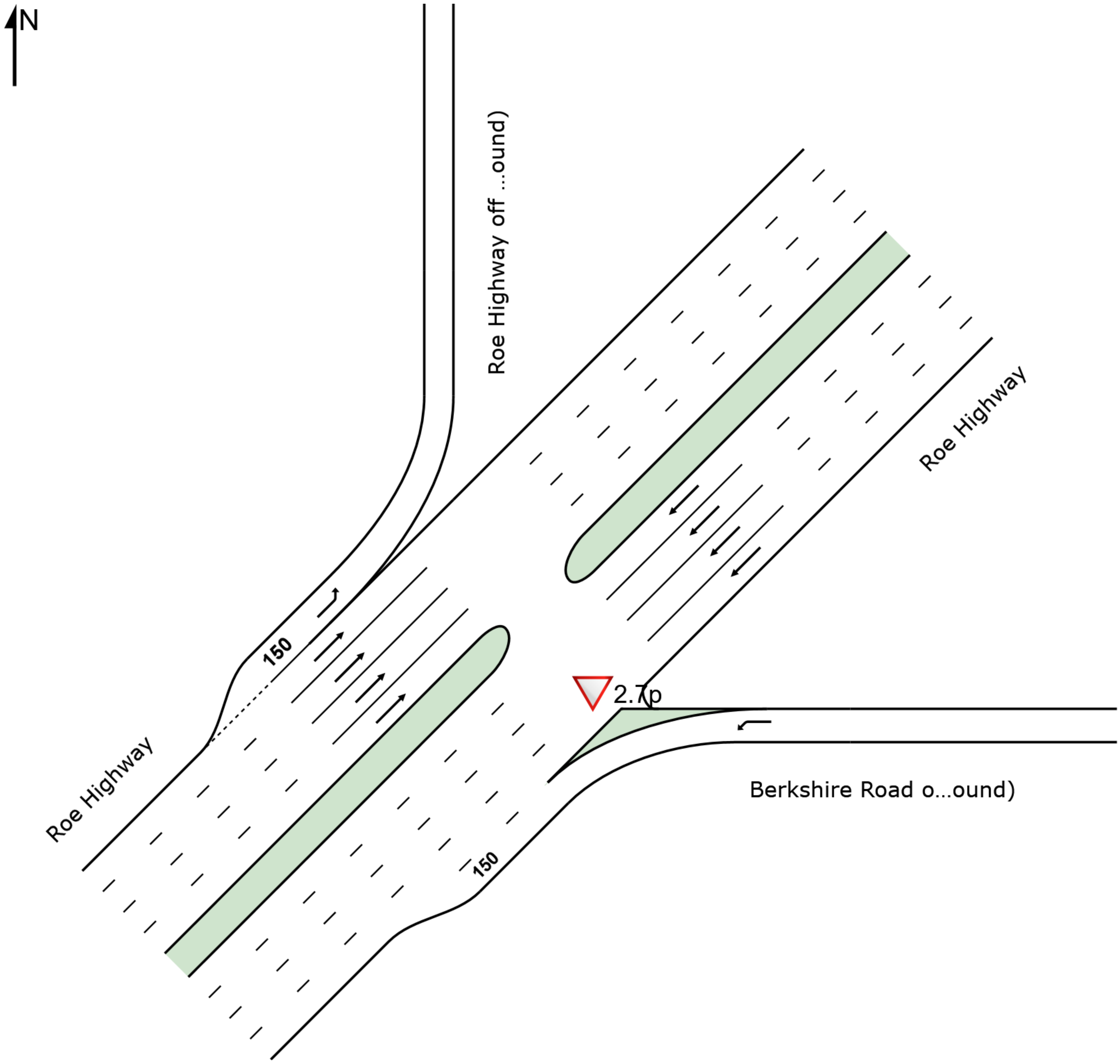
Project: KC00604.000 M07 Roe Highway - Berkshire Road **Template: Site Report**

Site: 2.7p [2.7p Roe Highway Interchange with Berkshire Road - 2031 PM (South) (Site Folder: 2031 PM)] **Network: 2 [n2.2p Roe Highway - Berkshire Road - 2031 PM (Network Folder: 2031)]**

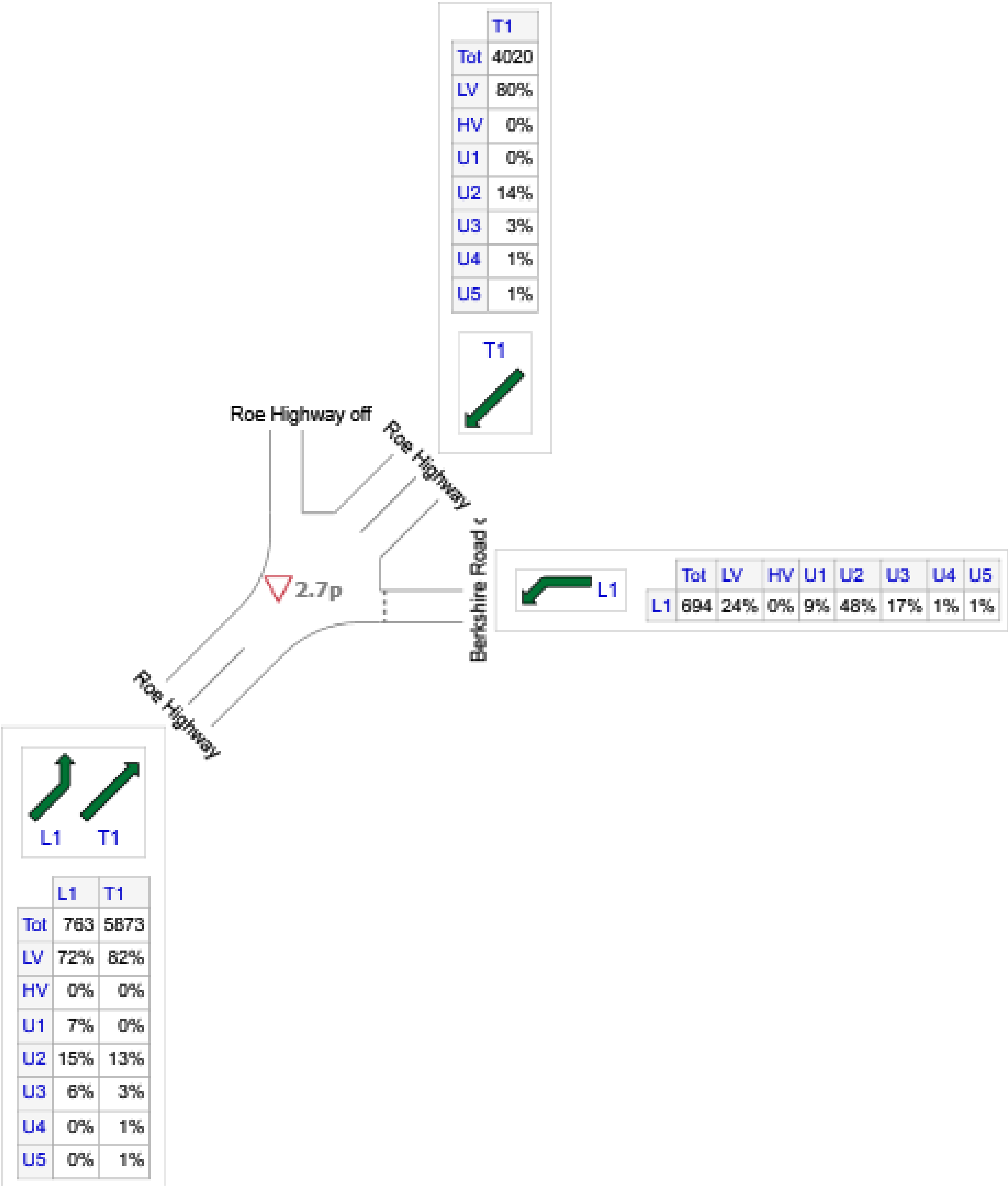
2.7p Roe Highway Interchange with Berkshire Road - 2031 PM (South)
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
E: Berkshire Road on to Roe Highway (Southbound)	694	166	0	60	336	118
NE: Roe Highway	4020	3236	0	0	575	125
SW: Roe Highway	6636	5342	0	59	875	227
Total	11349	8745	0	119	1786	469

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Berkshire Road on to Roe Highway (Southbound)															
Lane 1	694	67.4	694	67.4	1005	0.690	100	5.5	LOS A	0.0	0.0	Full	500	0.0	0.0

Approach	694	67.4	694	67.4		0.690		5.5	NA	0.0	0.0				
NorthEast: Roe Highway															
Lane 1	309	19.5	309	19.5	1818	0.170	25[7]	0.9	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1237	19.5	1237	19.5	1818	0.680	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1237	19.5	1237	19.5	1818	0.680	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1237	19.5	1237	19.5	1818	0.680	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	4020	19.5	4020	19.5		0.680		0.2	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	763	20.9	763	20.9	1532	0.498	100	8.4	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	1468	18.3	1468	18.3	1831	0.802	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1468	18.3	1468	18.3	1831	0.802	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1468	18.3	1468	18.3	1831	0.802	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1468	18.3	1468	18.3	1831	0.802	100	0.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	6636	18.6	6636	18.6		0.802		1.2	NA	0.0	0.0				
Intersection	11349	21.9	11349	21.9		0.802		1.1	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

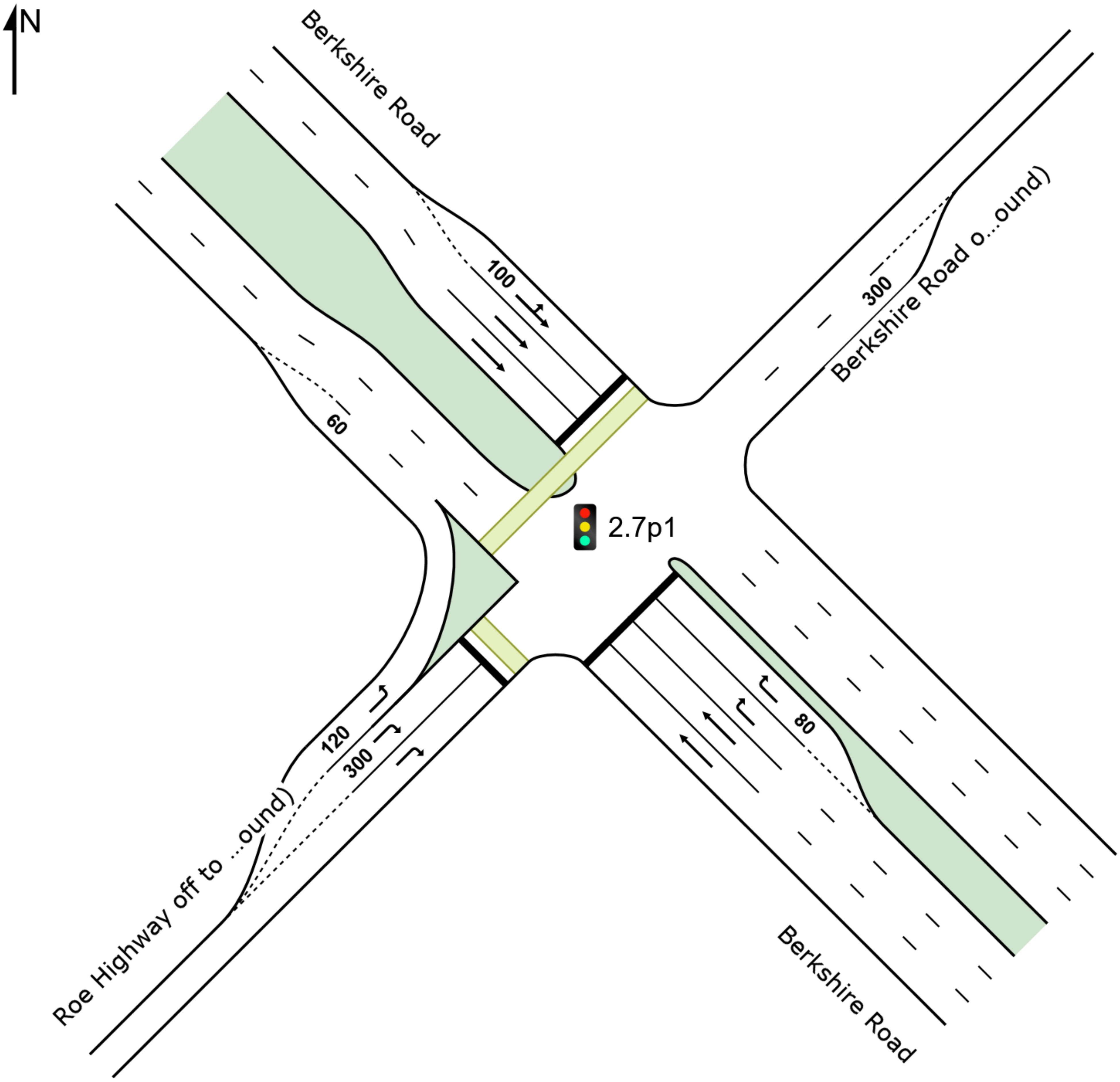
Site: 2.7p1 [2.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2031 PM (Site Folder: 2031 PM)] **Network: 2 [n2.2p Roe Highway - Berkshire Road - 2031 PM (Network Folder: 2031)]**

2.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2031 PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 60 seconds (Site Practical Cycle Time)

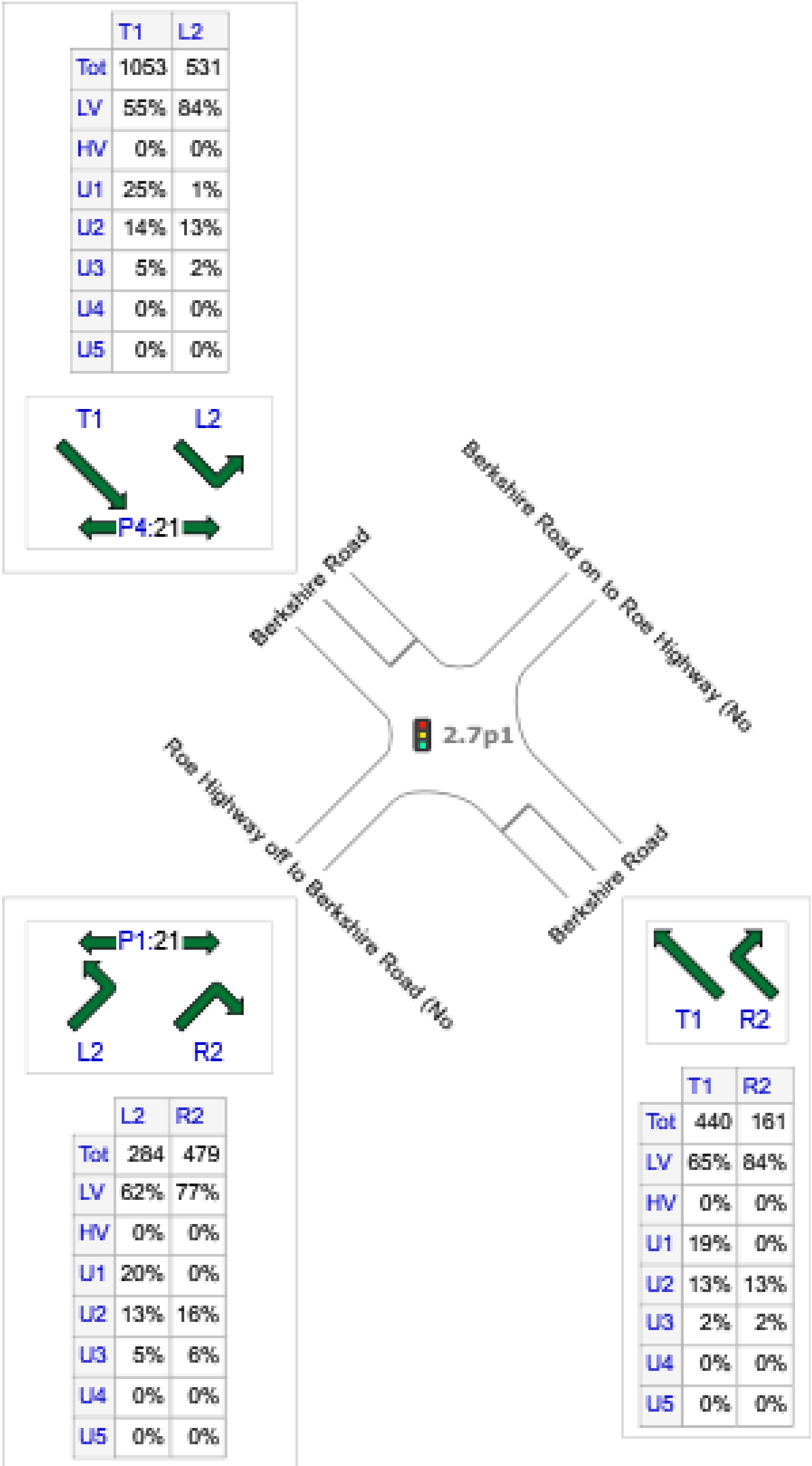
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	T1	L2
Tot	1053	531
LV	55%	84%
HV	0%	0%
U1	25%	1%
U2	14%	13%
U3	5%	2%
U4	0%	0%
U5	0%	0%

	L2	R2
Tot	284	479
LV	62%	77%
HV	0%	0%
U1	20%	0%
U2	13%	16%
U3	5%	6%
U4	0%	0%
U5	0%	0%

	T1	R2
Tot	440	161
LV	65%	84%
HV	0%	0%
U1	19%	0%
U2	13%	13%
U3	2%	2%
U4	0%	0%
U5	0%	0%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Berkshire Road	601	422	0	82	78	15
NW: Berkshire Road	1583	1023	0	261	219	68
SW: Roe Highway off to Berkshire Road (Northbound)	763	547	0	57	112	44
Total	2947	1992	0	400	408	127

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	220	16.2	220	16.2	980	0.225	100	6.0	LOS A	3.0	26.8	Full	150	0.0	0.0

Lane 2	220	16.2	220	16.2	980	0.225	100	6.0	LOS A	3.0	26.8	Full	150	0.0	0.0
Lane 3	81	15.7	81	15.7	155	0.518	100	36.3	LOS D	2.5	21.9	Full	150	0.0	0.0
Lane 4	81	15.7	81	15.7	155	0.518	100	37.8	LOS D	2.5	21.9	Short	80	0.0	NA
Approach	601	16.1	601	16.1		0.518		14.3	LOS B	3.0	26.8				
NorthWest: Berkshire Road															
Lane 1	533	15.4	533	15.4	624	0.855	100	30.8	LOS C	16.5	145.9	Short	100	0.0	NA
Lane 2	525	20.7	525	20.7	614	0.855	100	27.1	LOS C	17.9	171.0	Full	500	0.0	0.0
Lane 3	525	20.7	525	20.7	614	0.855	100	27.1	LOS C	17.9	171.0	Full	500	0.0	0.0
Approach	1583	18.9	1583	18.9		0.855		28.4	LOS C	17.9	171.0				
SouthWest: Roe Highway off to Berkshire Road (Northbound)															
Lane 1	284	18.1	284	18.1	1492	0.190	100	6.4	LOS A	0.0	0.0	Short	120	0.0	NA
Lane 2	239	22.6	239	22.6	284	0.843	100	39.4	LOS D	8.3	80.5	Short	300	0.0	NA
Lane 3	239	22.6	239	22.6	284	0.843	100	39.4	LOS D	8.3	80.5	Full	500	0.0	0.0
Approach	763	20.9	763	20.9		0.843		27.1	LOS C	8.3	80.5				
Intersection	2947	18.9	2947	18.9		0.855		25.2	LOS C	17.9	171.0				

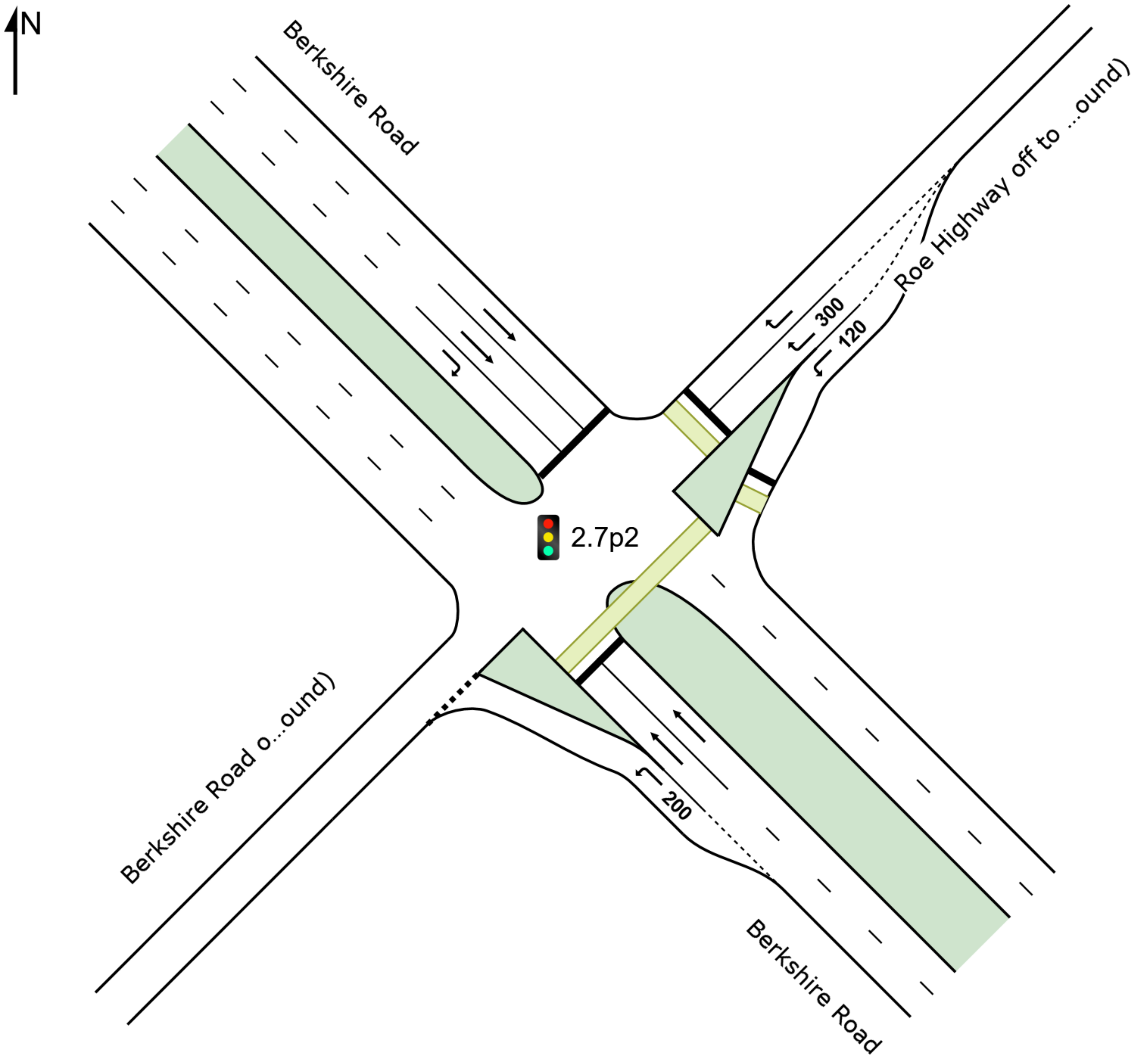
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

2.7p2 Berkshire Road - Berkshire Road on to Roe Highway - 2031 PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

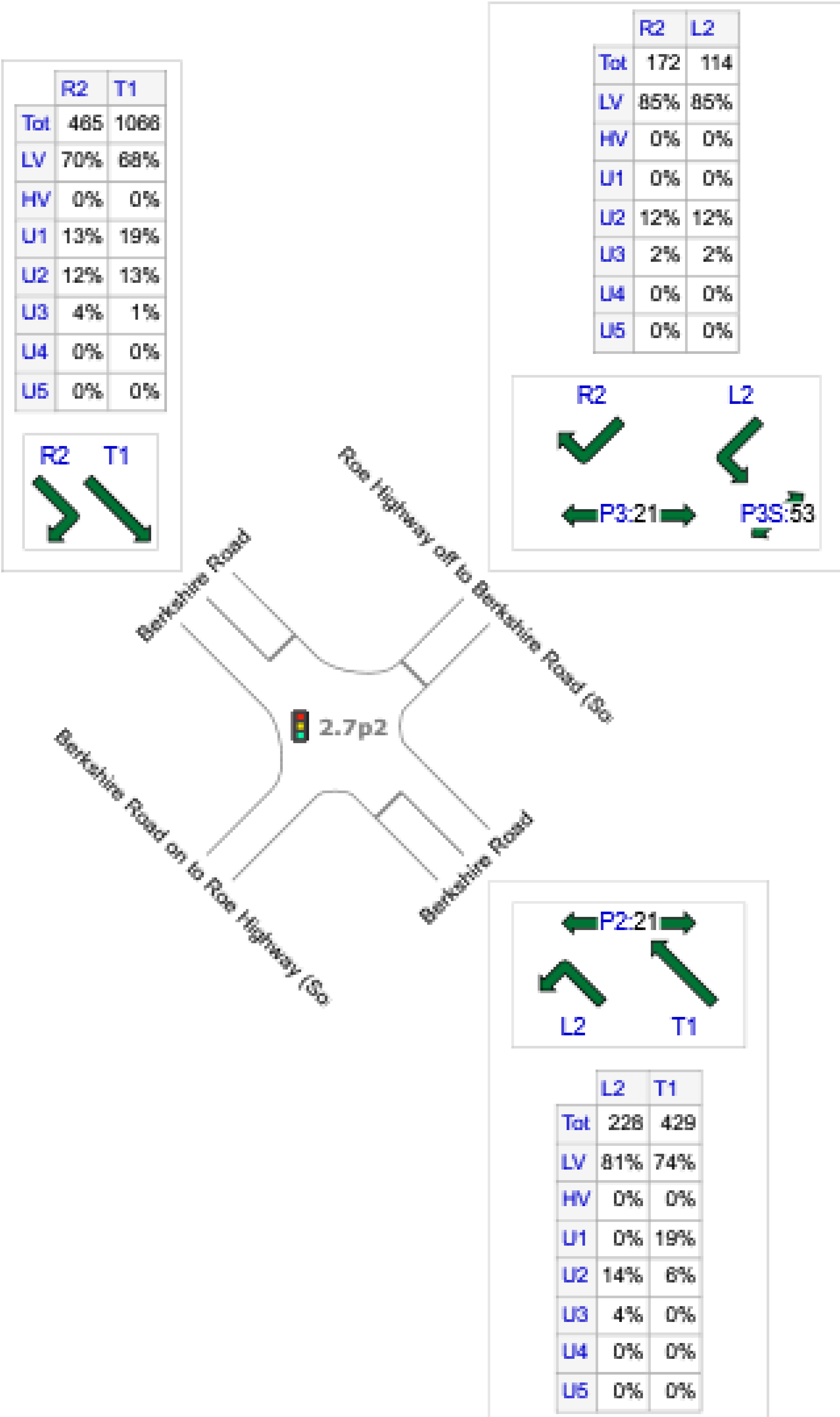
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Berkshire Road	658	504	0	82	58	12
NE: Roe Highway off to Berkshire Road (Southbound)	285	242	0	0	35	6
NW: Berkshire Road	1532	1053	0	258	191	28
Total	2475	1800	0	340	284	45

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	228	18.9	228	18.9	757	0.302	100	11.4	LOS B	2.8	25.5	Short	200	0.0	NA

Lane 2	215	6.6	215	6.6	258	0.833	100	28.8	LOS C	6.1	48.5	Full	300	0.0	0.0
Lane 3	215	6.6	215	6.6	258	0.833	100	28.8	LOS C	6.1	48.5	Full	300	0.0	0.0
Approach	658	10.8	658	10.8		0.833		22.8	LOS C	6.1	48.5				
NorthEast: Roe Highway off to Berkshire Road (Southbound)															
Lane 1	114	15.1	114	15.1	188	0.606	100	31.2	LOS C	3.0	26.0	Short	120	0.0	NA
Lane 2	86	15.1	86	15.1	188	0.457	100	30.1	LOS C	2.1	18.9	Short	300	0.0	NA
Lane 3	86	15.1	86	15.1	188	0.457	100	30.1	LOS C	2.1	18.9	Full	500	0.0	0.0
Approach	285	15.1	285	15.1		0.606		30.5	LOS C	3.0	26.0				
NorthWest: Berkshire Road															
Lane 1	533	13.3	533	13.3	1106	0.482	100	5.1	LOS A	6.9	57.8	Full	150	0.0	0.0
Lane 2	533	13.3	533	13.3	1106	0.482	100	5.1	LOS A	6.9	57.8	Full	150	0.0	0.0
Lane 3	465	17.0	465	17.0	575	0.810	100	26.7	LOS C	12.5	113.4	Full	150	0.0	0.0
Approach	1532	14.4	1532	14.4		0.810		11.7	LOS B	12.5	113.4				
Intersection	2475	13.5	2475	13.5		0.833		16.8	LOS B	12.5	113.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

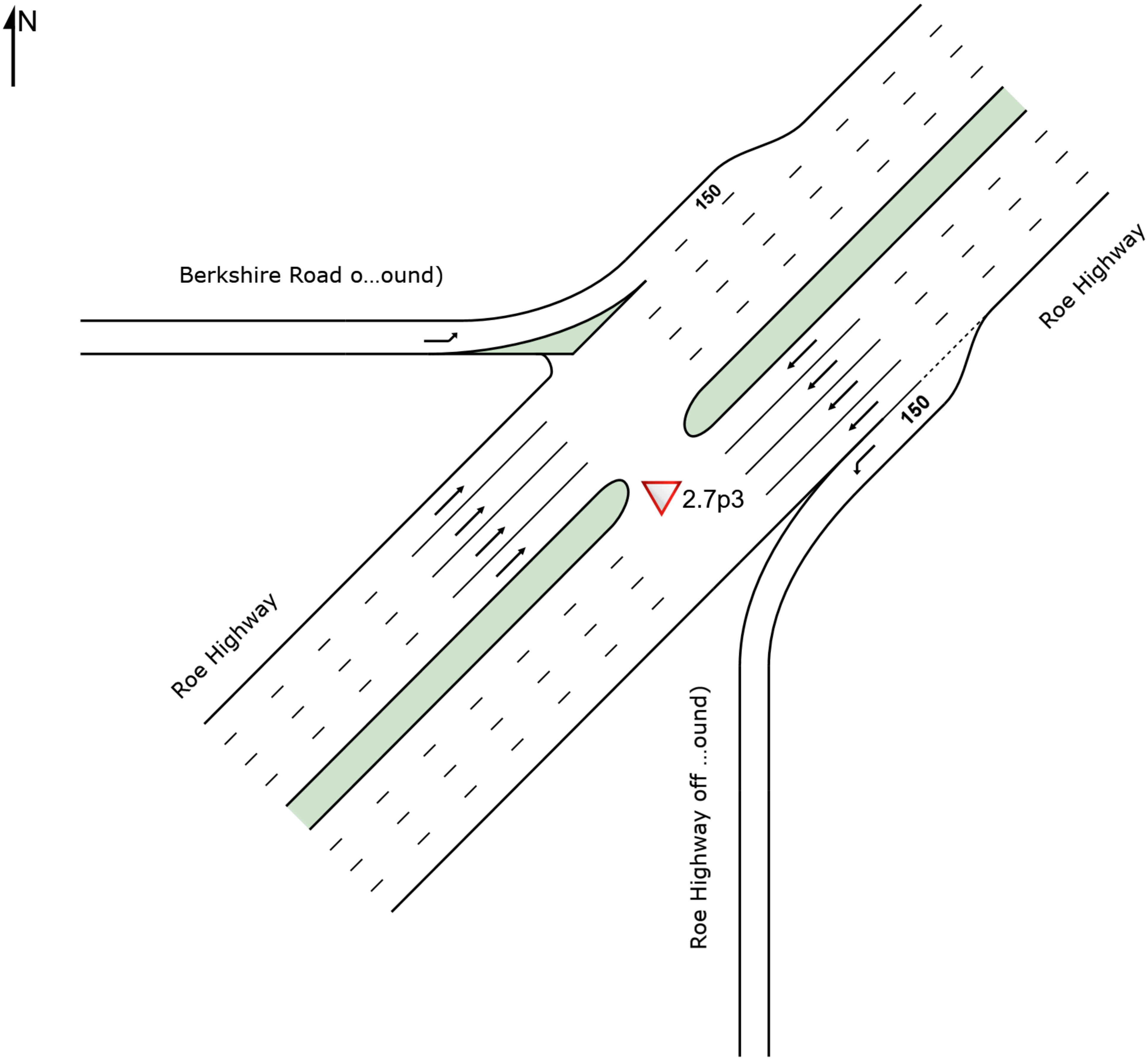
Site: 2.7p3 [2.7p3 Roe Highway Interchange with Berkshire Road - 2031 PM (Site Folder: 2031 PM)]

Network: 2 [n2.2p Roe Highway - Berkshire Road - 2031 PM (Network Folder: 2031)]

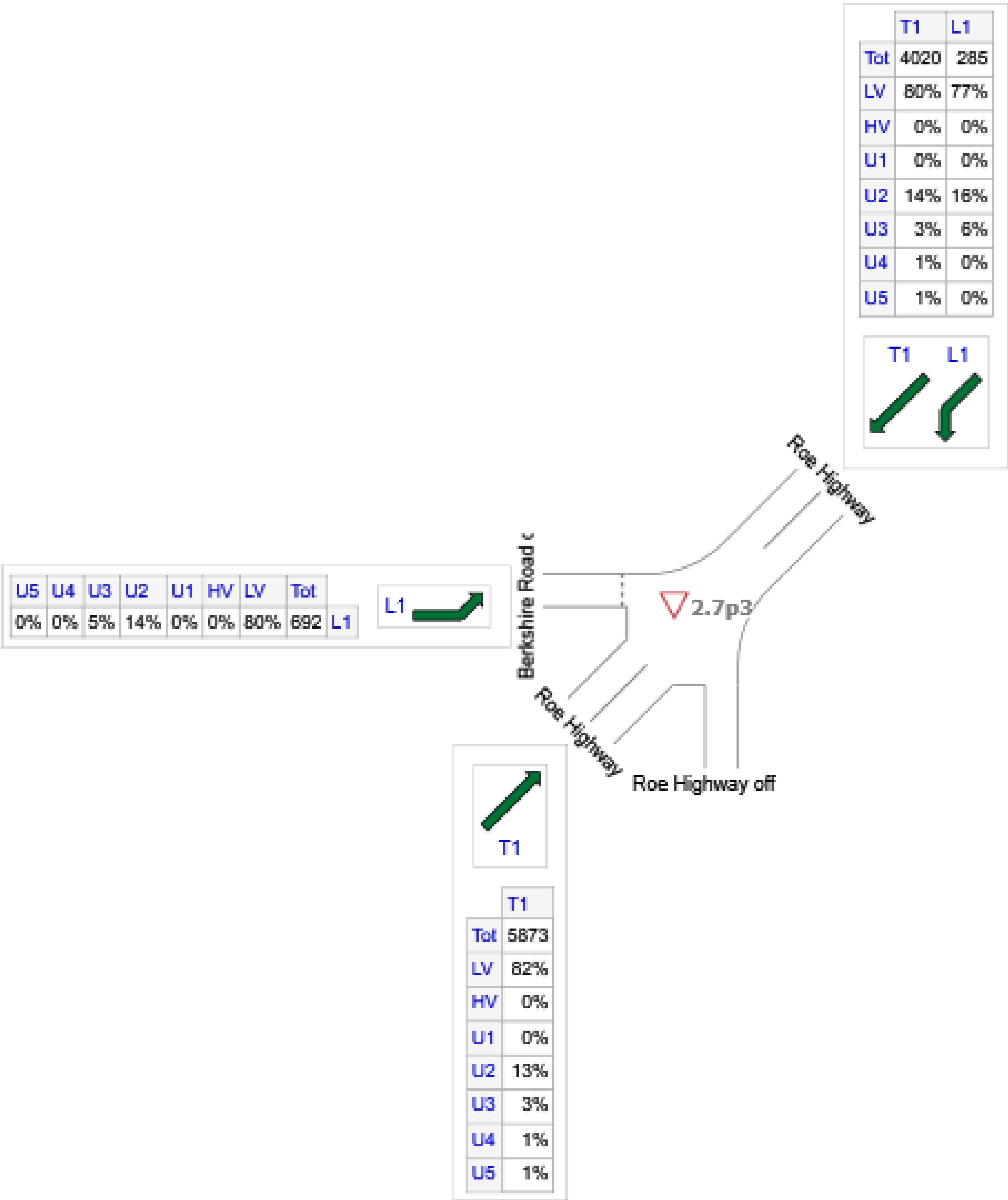
2.7p3 Roe Highway Interchange with Berkshire Road - 2031 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
NE: Roe Highway	4305	3457	0	0	620	143
W: Berkshire Road on to Roe Highway (Northbound)	692	554	0	3	96	34
SW: Roe Highway	5873	4796	0	2	763	182
Total	10869	8807	0	5	1480	358

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
NorthEast: Roe Highway															
Lane 1	285	22.6	285	22.6	1504	0.190	100	8.4	LOS A	0.0	0.0	Short	150	0.0	NA

Lane 2	1005	19.5	1005	19.5	1818	0.553	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1005	19.5	1005	19.5	1818	0.553	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1005	19.5	1005	19.5	1818	0.553	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1005	19.5	1005	19.5	1818	0.553	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	4305	19.7	4305	19.7		0.553		0.6	NA	0.0	0.0				
West: Berkshire Road on to Roe Highway (Northbound)															
Lane 1	692	19.4	692	19.4	1535	0.450	100	4.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	692	19.4	692	19.4		0.450		4.6	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	452	18.3	452	18.3	1831	0.247	25[7]	0.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1807	18.3	1807	18.3	1831	0.987	100	3.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1807	18.3	1807	18.3	1831	0.987	100	3.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1807	18.3	1807	18.3	1831	0.987	100	3.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	5873	18.3	5873	18.3		0.987		3.3	NA	0.0	0.0				
Intersection	10869	18.9	10869	18.9		0.987		2.3	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: KC00604.000 M07 Roe Highway - Berkshire Road | **Template: Site Report**

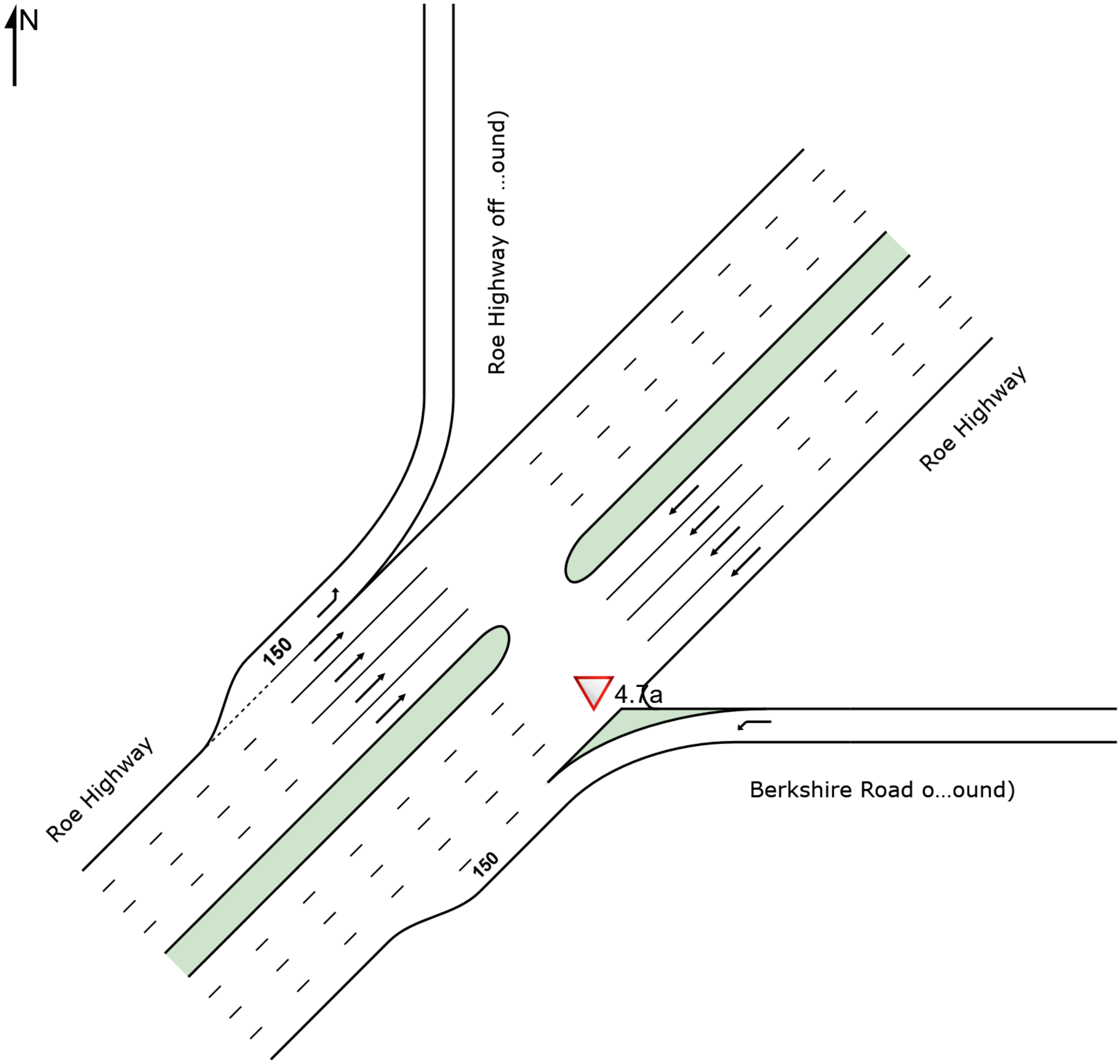
Site: 4.7a [4.7a Roe Highway Interchange with Berkshire Road - 2050 AM (South) (Site Folder: 2050 AM)]

Network: 5 [n4.2a Roe Highway - Berkshire Road - 2050 AM (Network Folder: 2050)]

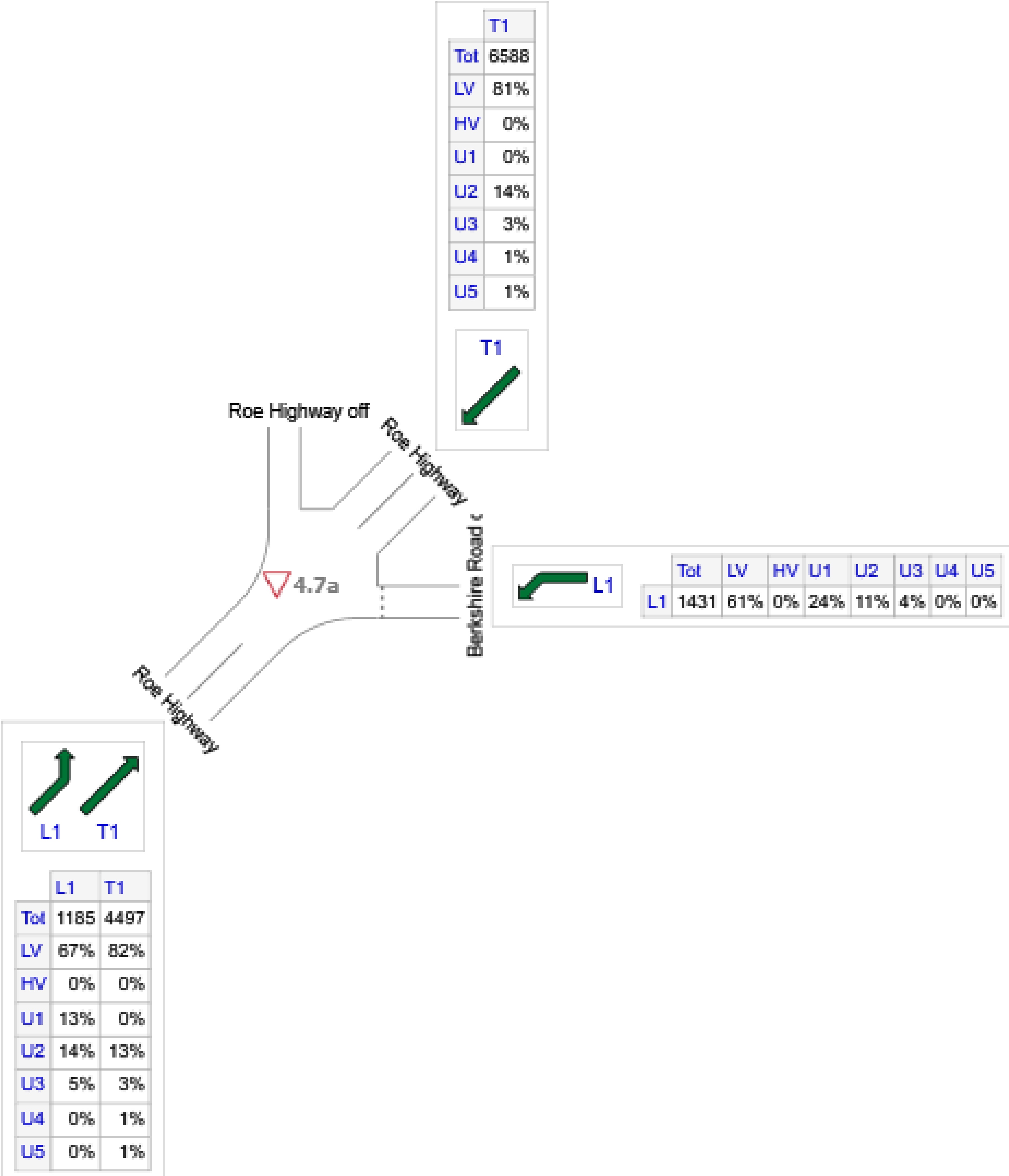
4.7a Roe Highway Interchange with Berkshire Road - 2050 AM (South)
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
E: Berkshire Road on to Roe Highway (Southbound)	1431	880	0	338	153	54
NE: Roe Highway	6588	5304	0	0	942	204
SW: Roe Highway	5682	4465	0	162	746	204
Total	13701	10649	0	500	1841	462

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Berkshire Road on to Roe Highway (Southbound)															
Lane 1	1431	14.9	1431	14.9	1616	0.885	100	7.9	LOS A	0.0	0.0	Full	500	0.0	0.0

Approach	1431	14.9	1431	14.9		0.885		7.9	NA	0.0	0.0				
NorthEast: Roe Highway															
Lane 1	507	19.5	507	19.5	1818	0.279	25[7]	6.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	2027	19.5	2027	19.5	1818	1.115	100	53.4	LOS F	0.0	0.0	Full	500	0.0	0.0
Lane 3	2027	19.5	2027	19.5	1818	1.115	100	53.4	LOS F	0.0	0.0	Full	500	0.0	0.0
Lane 4	2027	19.5	2027	19.5	1818	1.115	100	53.4	LOS F	0.0	0.0	Full	500	0.0	0.0
Approach	6588	19.5	6588	19.5		1.115		49.8	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	1185	19.6	1185	19.6	1554	0.763	100	8.5	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	1124	18.3	1124	18.3	1832	0.614	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1124	18.3	1124	18.3	1832	0.614	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1124	18.3	1124	18.3	1832	0.614	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1124	18.3	1124	18.3	1832	0.614	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	5682	18.6	5682	18.6		0.763		1.9	NA	0.0	0.0				
Intersection	13701	18.6	13701	18.6		1.115		25.6	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

Site: 4.7a1 [4.7a1 Berkshire Road - Roe Highway off to Berkshire Road - 2050 AM (Site Folder: 2050 AM)]

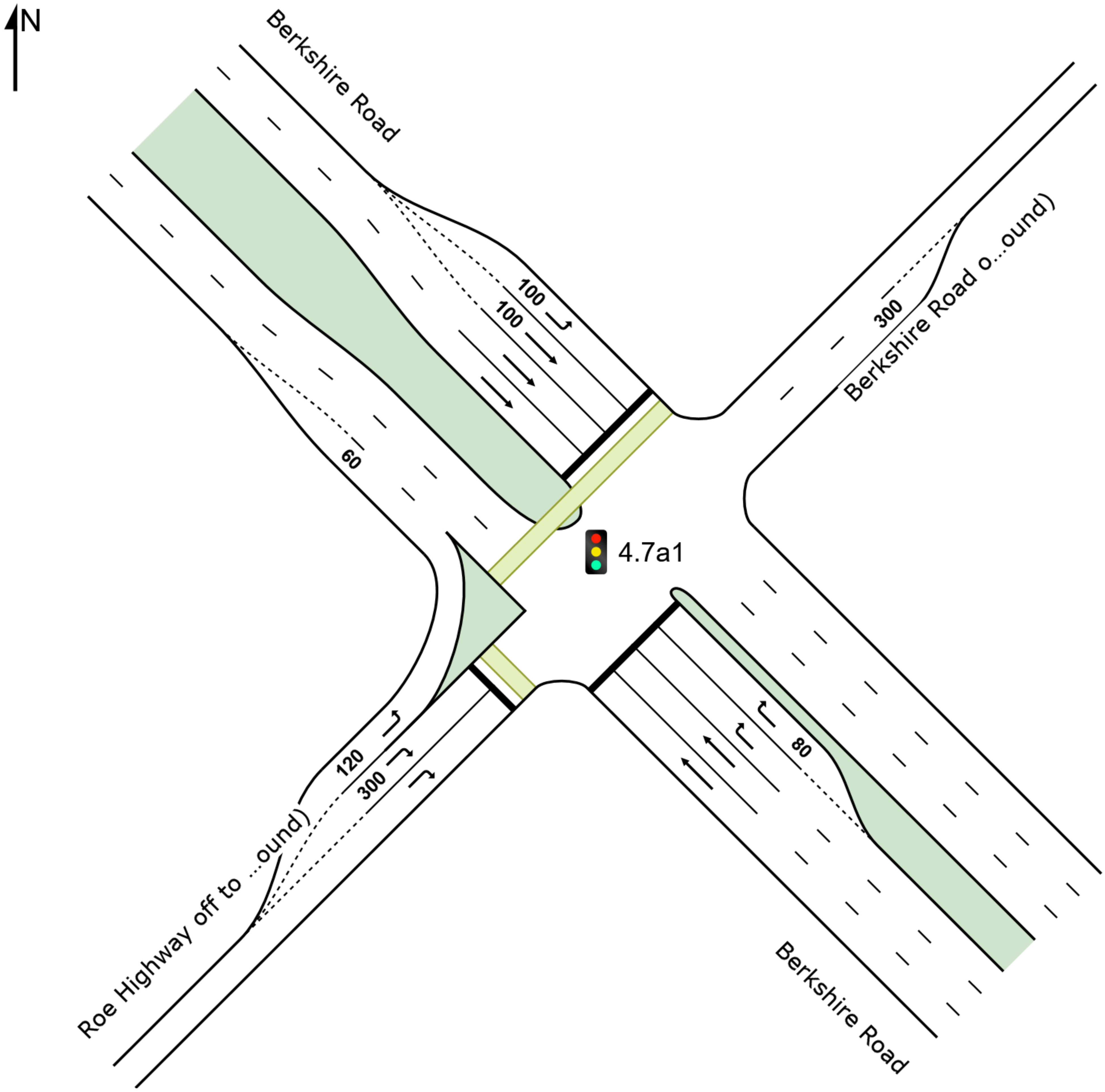
Network: 5 [n4.2a Roe Highway - Berkshire Road - 2050 AM (Network Folder: 2050)]

4.7a1 Berkshire Road - Roe Highway off to Berkshire Road - 2050 AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 50 seconds (Site Practical Cycle Time)

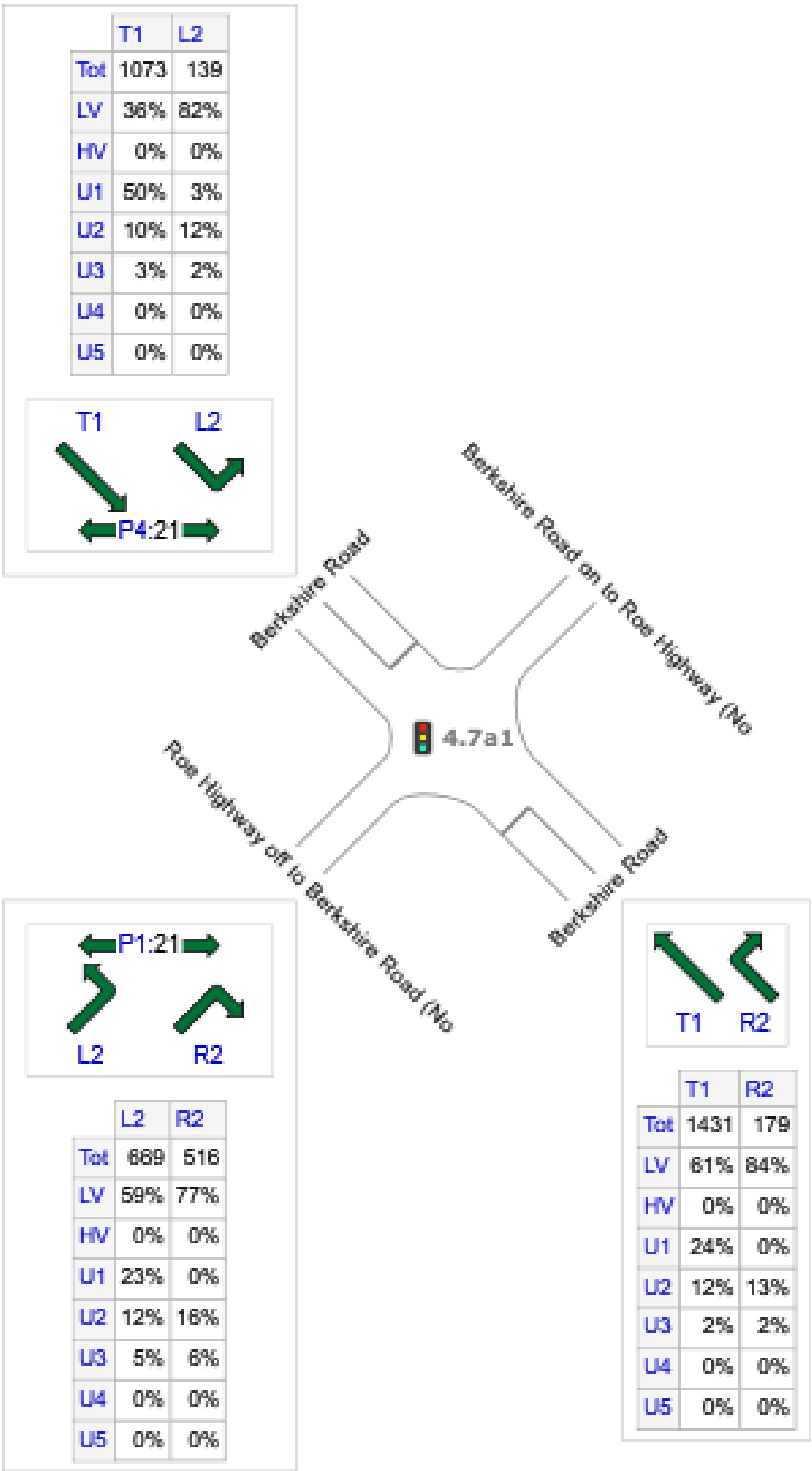
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Berkshire Road	1609	1022	0	343	196	37
NW: Berkshire Road	1212	503	0	541	120	40
SW: Roe Highway off to Berkshire Road (Northbound)	1185	797	0	156	163	65
Total	4006	2321	0	1040	479	142

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	715	15.1	715	15.1	892	0.802	100	14.7	LOS B	17.1	151.4	Full	150	0.0	5.8

Lane 2	715	15.1	715	15.1	892	0.802	100	14.7	LOS B	17.1	151.4	Full	150	0.0	5.8
Lane 3	89	15.7	89	15.7	187	0.480	100	30.2	LOS C	2.2	19.9	Full	150	0.0	0.0
Lane 4	89	15.7	89	15.7	187	0.480	100	30.6	LOS C	2.2	19.9	Short	80	0.0	NA
Approach	1609	15.2	1609	15.2		0.802		16.4	LOS B	17.1	151.4				
NorthWest: Berkshire Road															
Lane 1	139	15.2	139	15.2	1000	0.139	100	9.6	LOS A	1.3	11.9	Short	100	0.0	NA
Lane 2	358	13.7	358	13.7	498	0.718	100	19.3	LOS B	8.7	76.4	Short	100	0.0	NA
Lane 3	358	13.7	358	13.7	498	0.718	100	19.3	LOS B	8.7	76.4	Full	500	0.0	0.0
Lane 4	358	13.7	358	13.7	498	0.718	100	19.3	LOS B	8.7	76.4	Full	500	0.0	0.0
Approach	1212	13.9	1212	13.9		0.718		18.2	LOS B	8.7	76.4				
SouthWest: Roe Highway off to Berkshire Road (Northbound)															
Lane 1	669	17.3	669	17.3	1505	0.445	100	10.7	LOS B	0.0	0.0	Short	120	0.0	NA
Lane 2	258	22.6	258	22.6	312	0.826	100	33.1	LOS C	7.4	72.0	Short	300	0.0	NA
Lane 3	258	22.6	258	22.6	312	0.826	100	33.1	LOS C	7.4	72.0	Full	500	0.0	0.0
Approach	1185	19.6	1185	19.6		0.826		20.5	LOS C	7.4	72.0				
Intersection	4006	16.1	4006	16.1		0.826		18.2	LOS B	17.1	151.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

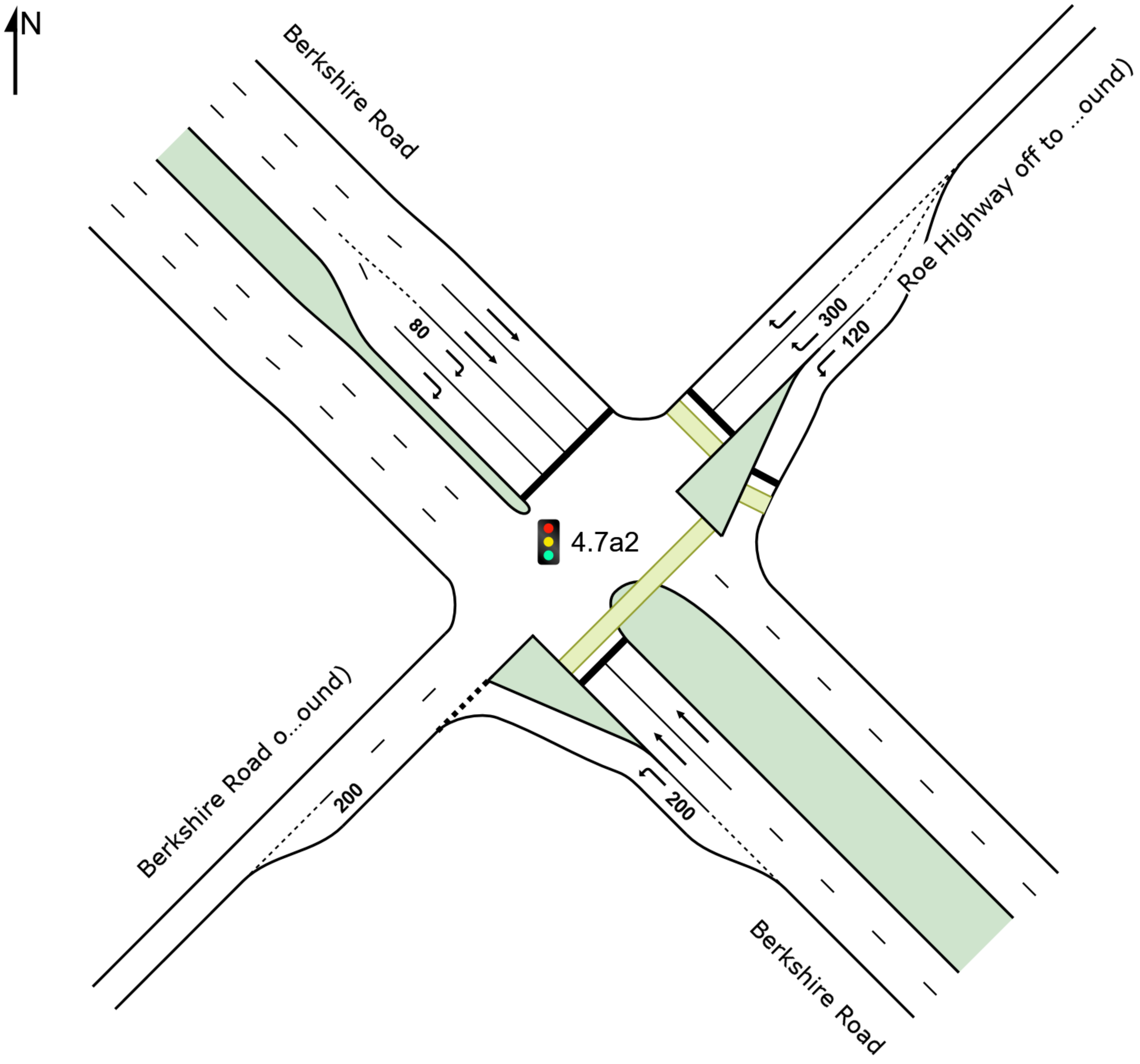
Site: 4.7a2 [4.7a2 Berkshire Road - Berkshire Road on to Roe Highway - 2050 AM (Site Folder: 2050 AM)] **Network: 5 [n4.2a Roe Highway - Berkshire Road - 2050 AM (Network Folder: 2050)]**

4.7a2 Berkshire Road - Berkshire Road on to Roe Highway - 2050 AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

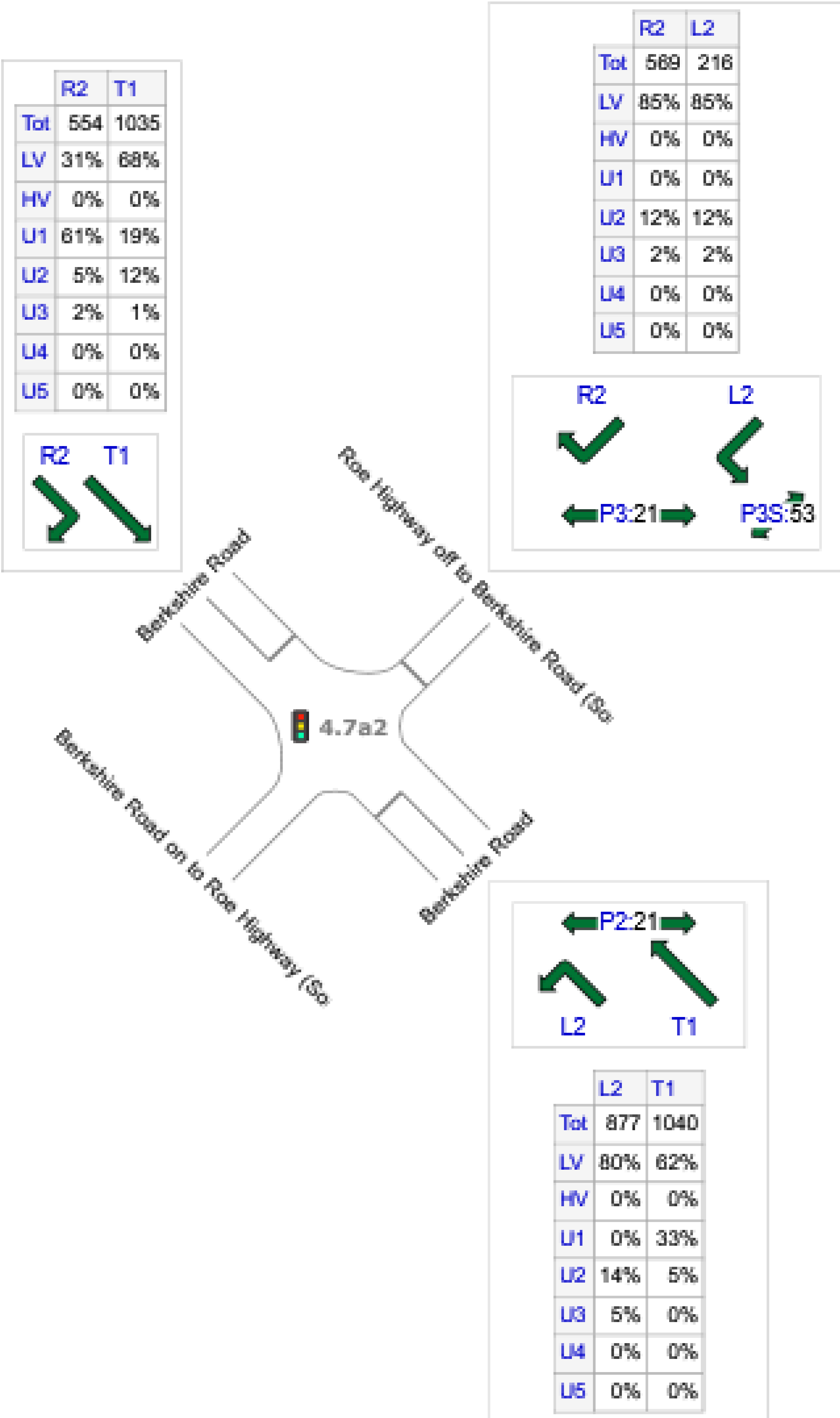
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Berkshire Road	1917	1347	0	342	176	47
NE: Roe Highway off to Berkshire Road (Southbound)	785	666	0	1	97	16
NW: Berkshire Road	1588	873	0	537	159	18
Total	4291	2886	0	880	432	81

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	877	19.5	877	19.5	1046	0.838	100	22.9	LOS C	22.9	214.2	Short	200	0.0	NA

Lane 2	512	5.4	512	5.4	576	0.889	100	36.5	LOS D	21.3	166.2	Full	300	-5.8[N3]	0.0
Lane 3	528	5.4	528	5.4	594	0.889	100	36.2	LOS D	21.9	170.4	Full	300	-3.0[N3]	0.0
Approach	1917	11.9	1917	11.9		0.889		30.2	LOS C	22.9	214.2				
NorthEast: Roe Highway off to Berkshire Road (Southbound)															
Lane 1	216	15.1	216	15.1	357	0.604	100	33.1	LOS C	6.9	60.9	Short	120	0.0	NA
Lane 2	285	15.1	285	15.1	337	0.846	100	42.6	LOS D	11.3	99.3	Short	300	-5.8[N3]	NA
Lane 3	285	15.1	285	15.1	337	0.846	100	42.6	LOS D	11.3	99.3	Full	500	-5.8[N3]	0.0
Approach	785	15.1	785	15.1		0.846		40.0	LOS D	11.3	99.3				
NorthWest: Berkshire Road															
Lane 1	517	13.2	517	13.2	1038	0.498	100	8.6	LOS A	10.1	85.0	Full	150	0.0	0.0
Lane 2	517	13.2	517	13.2	1038	0.498	100	8.6	LOS A	10.1	85.0	Full	150	0.0	0.0
Lane 3	277	7.6	277	7.6	315	0.880	100	49.4	LOS D	11.4	92.8	Short	80	0.0	NA
Lane 4	277	7.6	277	7.6	315	0.880	100	46.5	LOS D	11.4	92.8	Full	150	0.0	0.0
Approach	1588	11.2	1588	11.2		0.880		22.3	LOS C	11.4	92.8				
Intersection	4291	12.2	4291	12.2		0.889		29.1	LOS C	22.9	214.2				

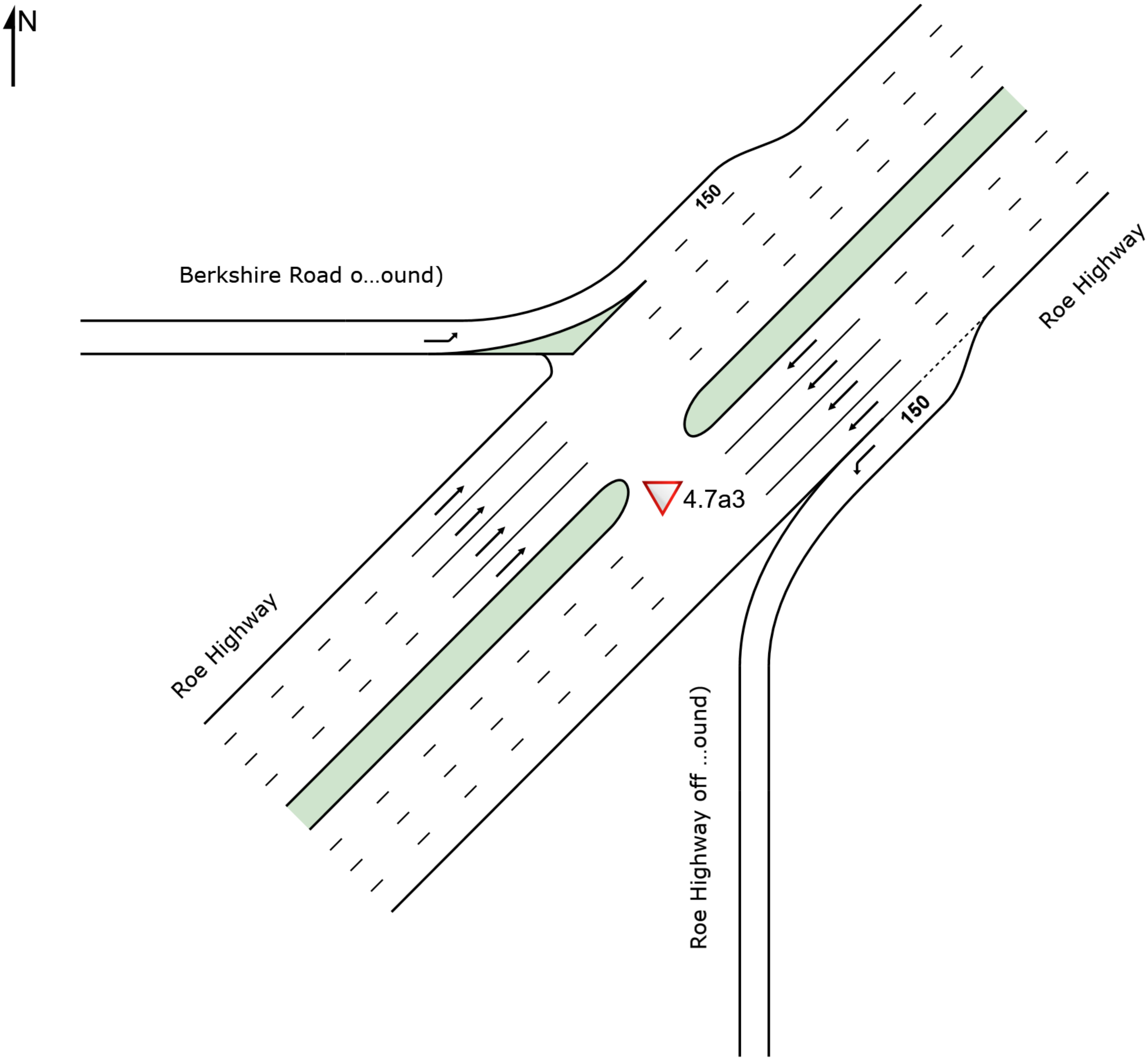
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

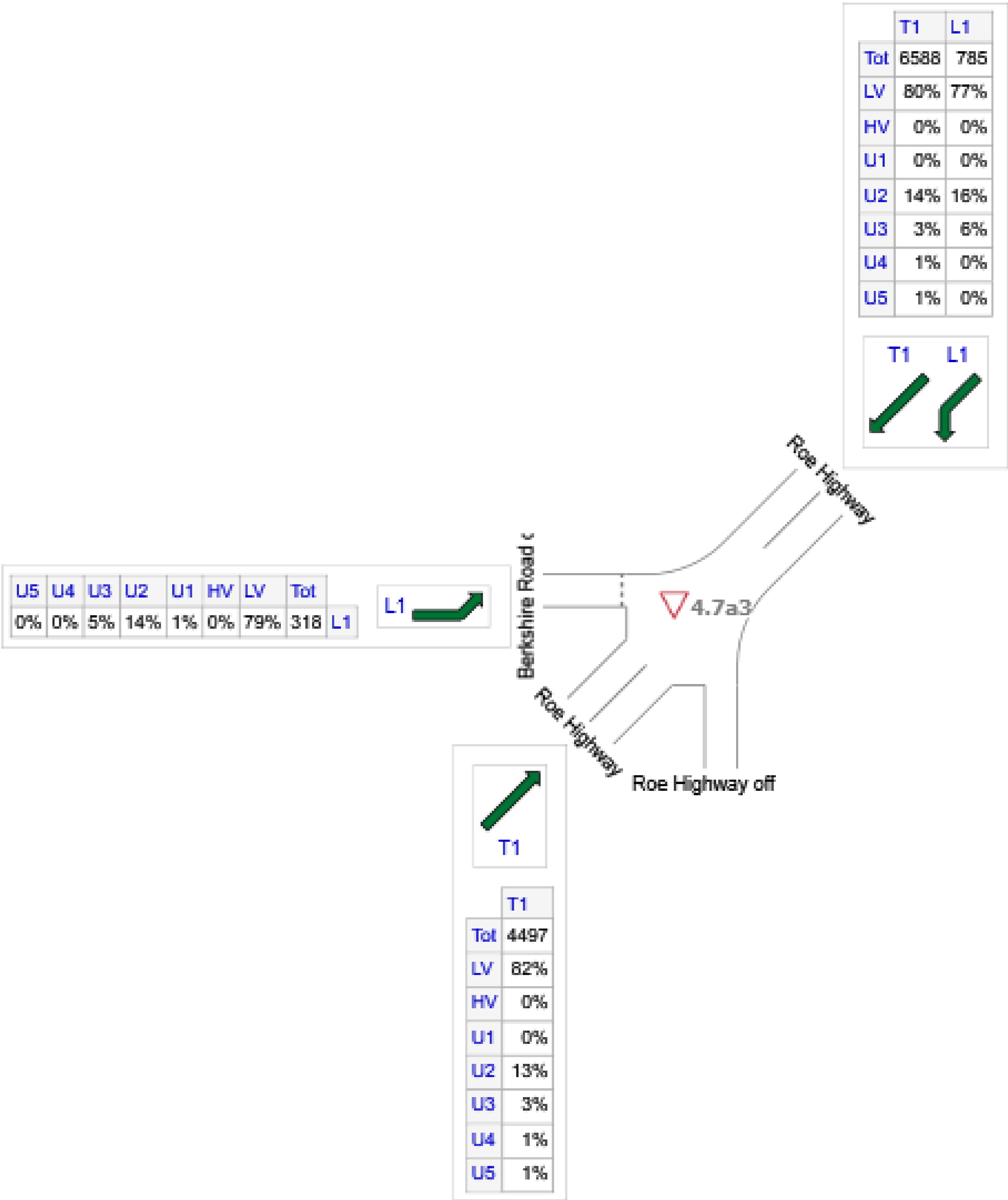
4.7a3 Roe Highway Interchange with Berkshire Road - 2050 AM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
NE: Roe Highway	7374	5911	0	1	1066	254
W: Berkshire Road on to Roe Highway (Northbound)	318	252	0	4	44	15
SW: Roe Highway	4497	3669	0	6	584	139
Total	12188	9832	0	12	1694	408

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
NorthEast: Roe Highway															
Lane 1	785	22.6	785	22.6	1505	0.522	100	8.4	LOS A	0.0	0.0	Short	150	0.0	NA

Lane 2	1647	19.5	1647	19.5	1818	0.906	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1647	19.5	1647	19.5	1818	0.906	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1647	19.5	1647	19.5	1818	0.906	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1647	19.5	1647	19.5	1818	0.906	100	0.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	7374	19.8	7374	19.8		0.906		1.5	NA	0.0	0.0				
West: Berkshire Road on to Roe Highway (Northbound)															
Lane 1	318	19.3	318	19.3	1538	0.207	100	4.4	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	318	19.3	318	19.3		0.207		4.4	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	346	18.3	346	18.3	1832	0.189	25[7]	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1384	18.3	1384	18.3	1832	0.755	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1384	18.3	1384	18.3	1832	0.755	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1384	18.3	1384	18.3	1832	0.755	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	4497	18.3	4497	18.3		0.755		0.2	NA	0.0	0.0				
Intersection	12188	19.2	12188	19.2		0.906		1.1	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

Organisation: KC TRAFFIC AND TRANSPORT | Licence: NETWORK / 1PC | Created: Monday, January 16, 2023 15:53:24
Project: C:\Users\Nemanja\Box\KCTT Projects\KC00000 Current Projects\KC00604.000 Forrestfield North - Structure Plan Preparation\Outgoing\SIDRA\Residential Precinct\221213 Rev D\Future Models\KC00604.000 M07 Roe Highway - Berkshire Road.sip9

USER REPORT FOR NETWORK SITE

All Movement Classes

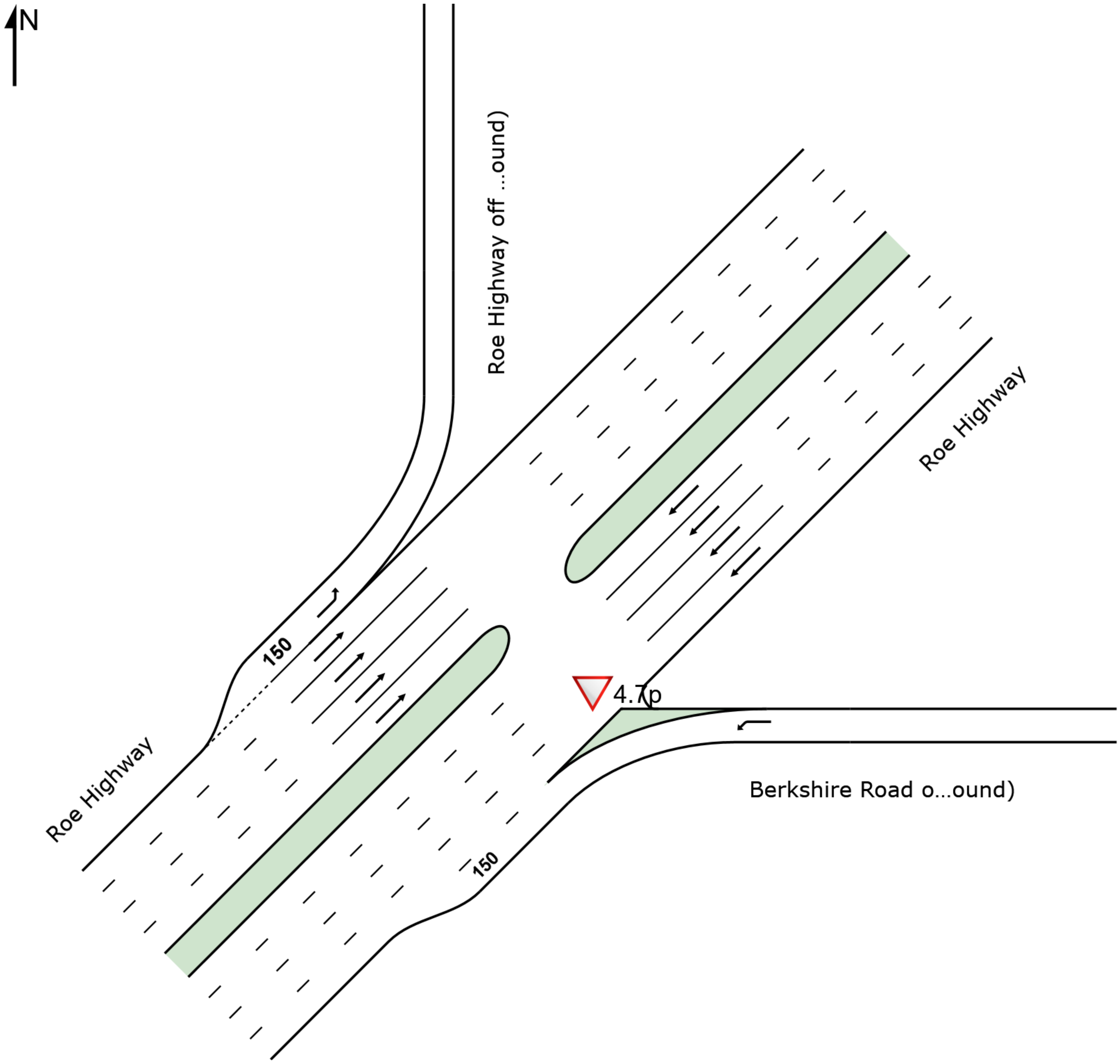
Project: KC00604.000 M07 Roe Highway - Berkshire Road **Template: Site Report**

Site: 4.7p [4.7p Roe Highway Interchange with Berkshire Road - 2050 PM (South) (Site Folder: 2050 PM)] **Network: 6 [n4.2p Roe Highway - Berkshire Road - 2050 PM (Network Folder: 2050)]**

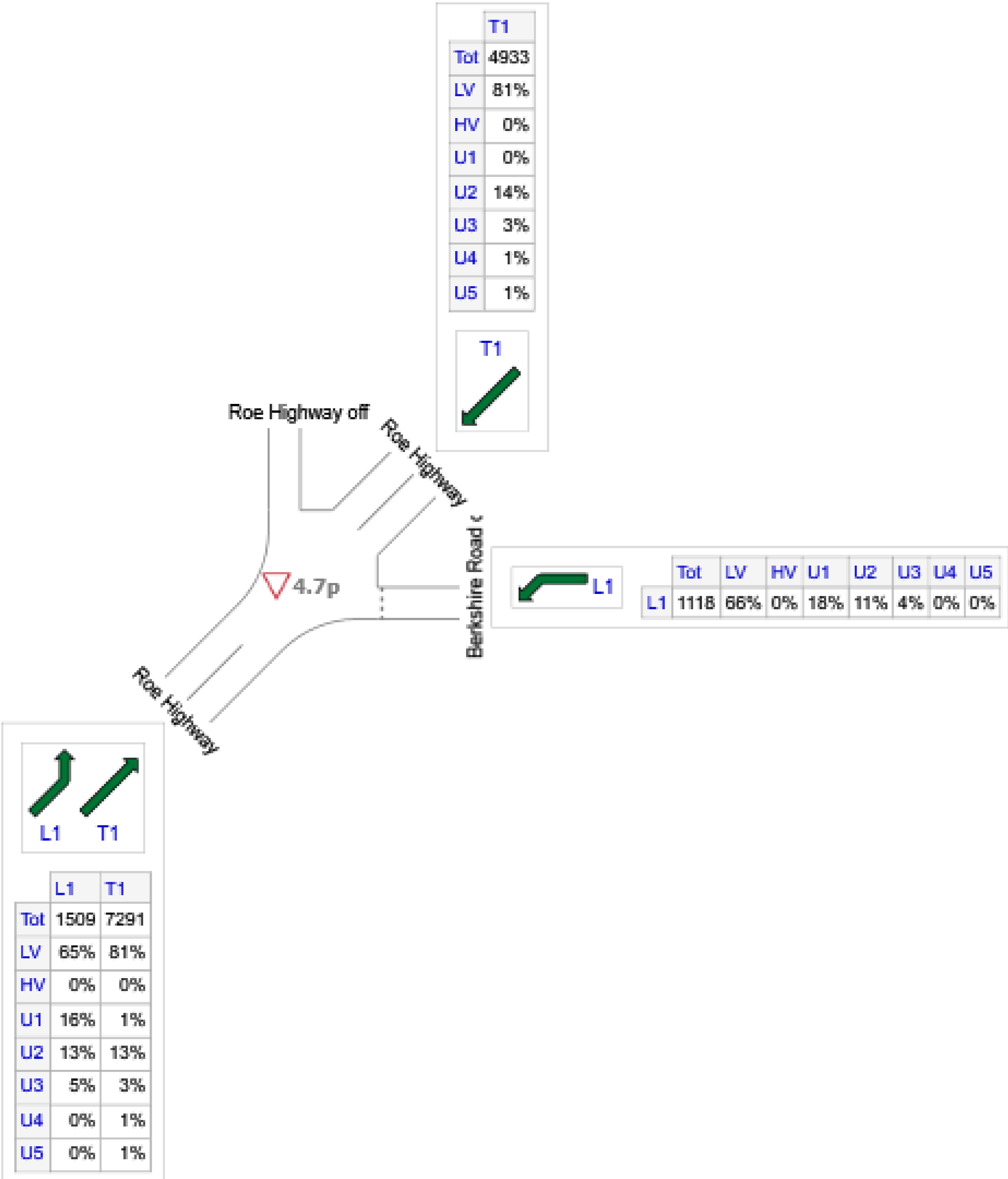
4.7p Roe Highway Interchange with Berkshire Road - 2050 PM (South)
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
E: Berkshire Road on to Roe Highway (Southbound)	1118	739	0	200	128	45
NE: Roe Highway	4933	3971	0	0	705	153
SW: Roe Highway	8800	6902	0	285	1143	304
Total	14851	11611	0	485	1977	502

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Berkshire Road on to Roe Highway (Southbound)															
Lane 1	1118	16.0	1118	16.0	1595	0.701	100	5.0	LOS A	0.0	0.0	Full	500	0.0	0.0

Approach	1118	16.0	1118	16.0		0.701		5.0	NA	0.0	0.0				
NorthEast: Roe Highway															
Lane 1	379	19.5	379	19.5	1818	0.209	25[7]	2.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1518	19.5	1518	19.5	1818	0.835	100	0.4	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1518	19.5	1518	19.5	1818	0.835	100	0.4	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1518	19.5	1518	19.5	1818	0.835	100	0.4	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	4933	19.5	4933	19.5		0.835		0.5	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	1509	19.0	1509	19.0	1565	0.965	100	9.9	LOS A	0.0	0.0	Short	150	0.0	NA
Lane 2	1823	18.2	1823	18.2	1833	0.994	100	4.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1823	18.2	1823	18.2	1833	0.994	100	4.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1823	18.2	1823	18.2	1833	0.994	100	4.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1823	18.2	1823	18.2	1833	0.994	100	4.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	8800	18.3	8800	18.3		0.994		5.6	NA	0.0	0.0				
Intersection	14851	18.5	14851	18.5		0.994		3.8	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

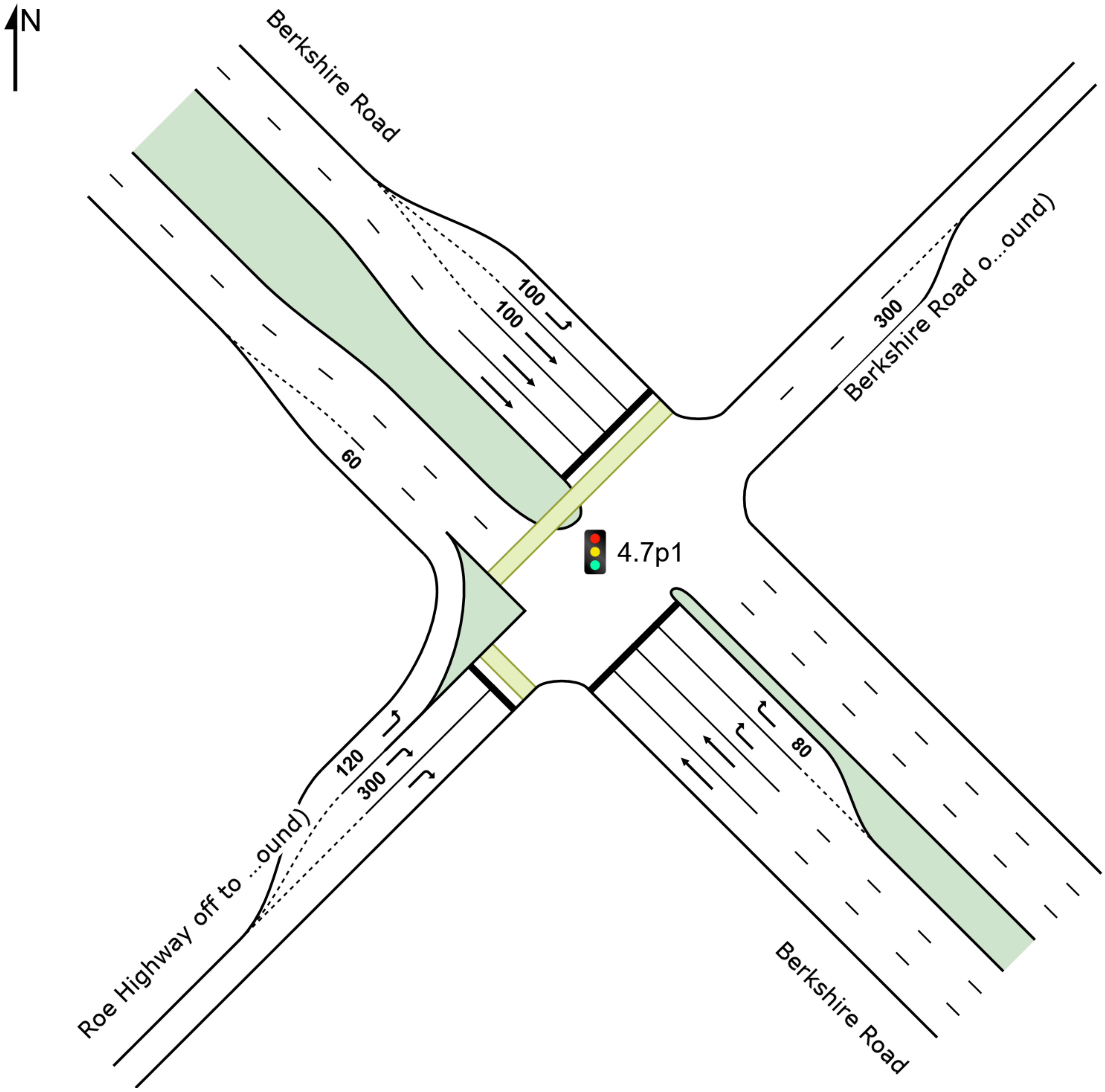
Site: 4.7p1 [4.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2050 PM (Site Folder: 2050 PM)] **Network: 6 [n4.2p Roe Highway - Berkshire Road - 2050 PM (Network Folder: 2050)]**

4.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2050 PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site Practical Cycle Time)

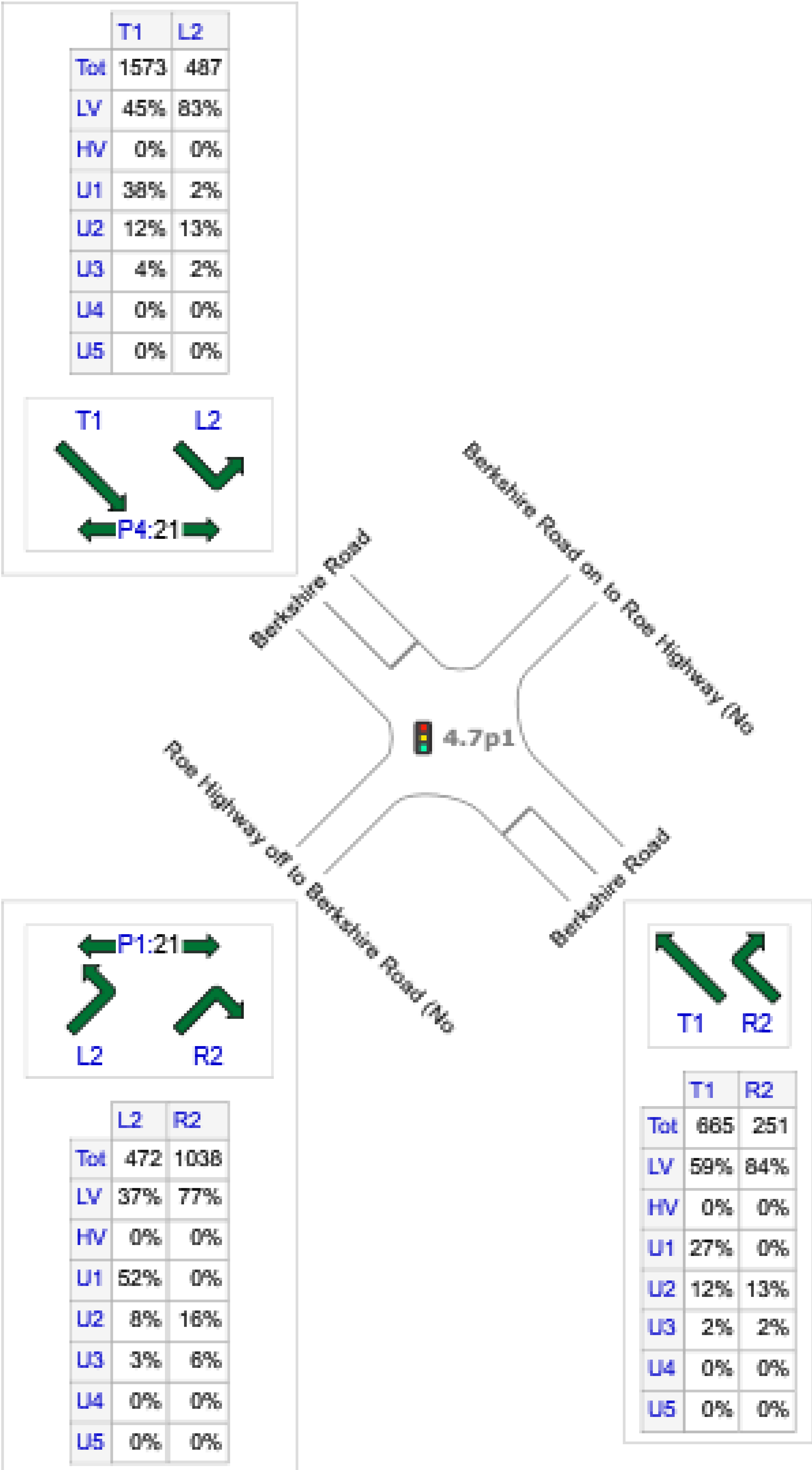
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Berkshire Road	916	602	0	178	110	21
NW: Berkshire Road	2060	1113	0	604	249	79
SW: Roe Highway off to Berkshire Road (Northbound)	1509	980	0	243	200	80
Total	4485	2695	0	1025	558	179

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	333	14.6	333	14.6	1329	0.250	100	3.4	LOS A	5.1	45.3	Full	150	0.0	0.0

Lane 2	333	14.6	333	14.6	1329	0.250	100	3.4	LOS A	5.1	45.3	Full	150	0.0	0.0
Lane 3	125	15.7	125	15.7	144	0.873	100	80.8	LOS F	9.0	79.7	Full	150	0.0	0.0
Lane 4	125	15.7	125	15.7	144	0.873	100	82.4	LOS F	9.0	79.7	Short	80	0.0	NA
Approach	916	14.9	916	14.9		0.873		24.8	LOS C	9.0	79.7				
NorthWest: Berkshire Road															
Lane 1	487	15.5	487	15.5	1271	0.383	100	9.2	LOS A	8.1	71.6	Short	100	0.0	NA
Lane 2	393	17.0	393	17.0	529	0.744	100	17.4	LOS B	17.3	158.5	Short	100	-50.0[N3]	NA
Lane 3	393	17.0	393	17.0	529	0.744	100	17.4	LOS B	17.3	158.5	Full	500	-50.0[N3]	0.0
Lane 4	786	17.0	786	17.0	1057	0.744	100	15.5	LOS B	32.7	299.9	Full	500	0.0	0.0
Approach	2060	16.6	2060	16.6		0.744		14.7	LOS B	32.7	299.9				
SouthWest: Roe Highway off to Berkshire Road (Northbound)															
Lane 1	472	10.9	472	10.9	1624	0.290	100	6.8	LOS A	0.0	0.0	Short	120	0.0	NA
Lane 2	516	22.6	516	22.6	572	0.902	100	46.2	LOS D	33.8	326.8	Short	300	-50.0[N3]	NA
Lane 3	522	22.6	522	22.6	579	0.902	100	46.2	LOS D	34.9	337.6	Full	500	-50.0[N3]	0.0
Approach	1509	19.0	1509	19.0		0.902		33.9	LOS C	34.9	337.6				
Intersection	4485	17.1	4485	17.1		0.902		23.2	LOS C	34.9	337.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

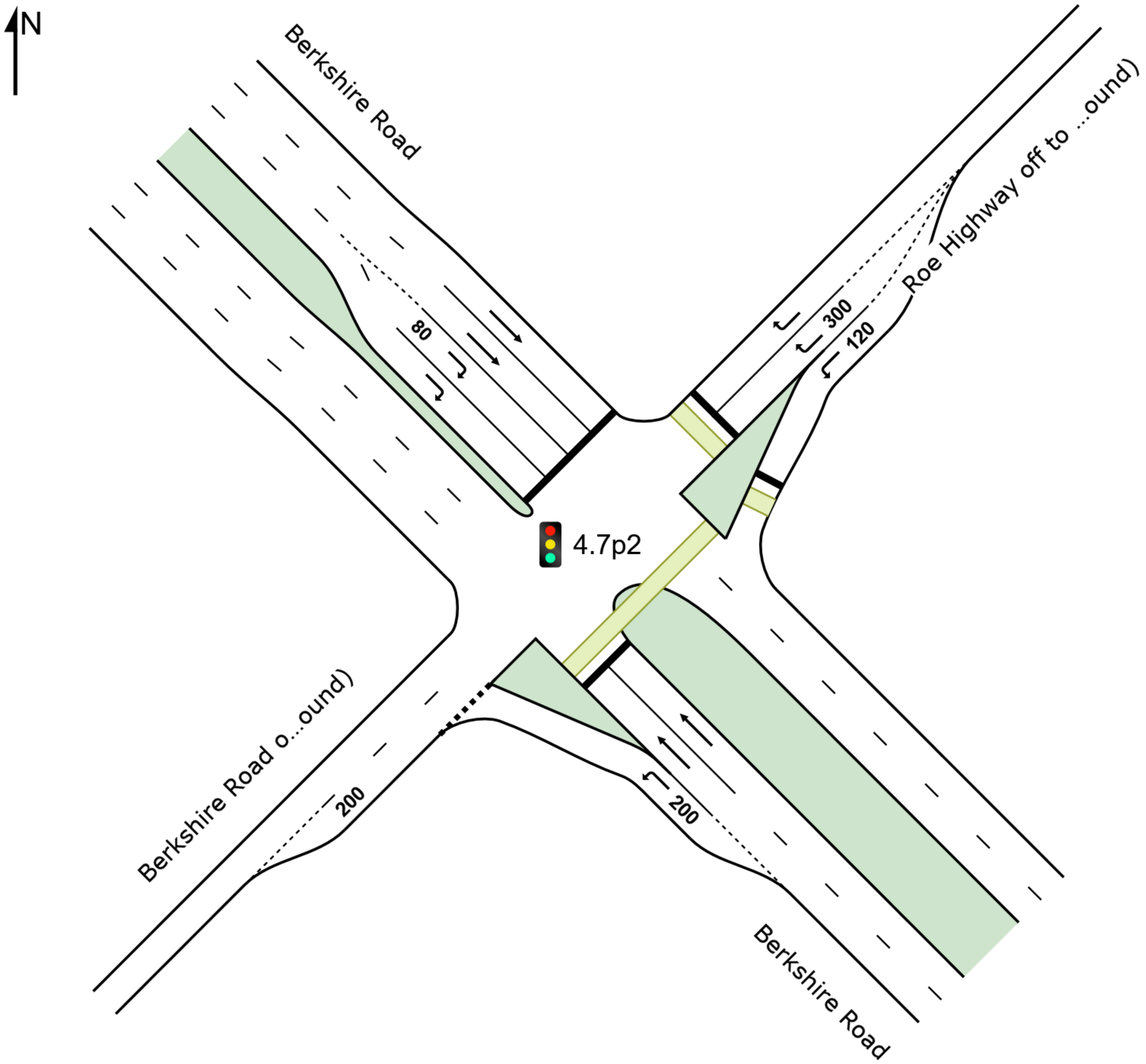
N3 Capacity Adjustment due to downstream lane blockage determined by the program.

4.7p2 Berkshire Road - Berkshire Road on to Roe Highway - 2050 PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 60 seconds (Site Practical Cycle Time)

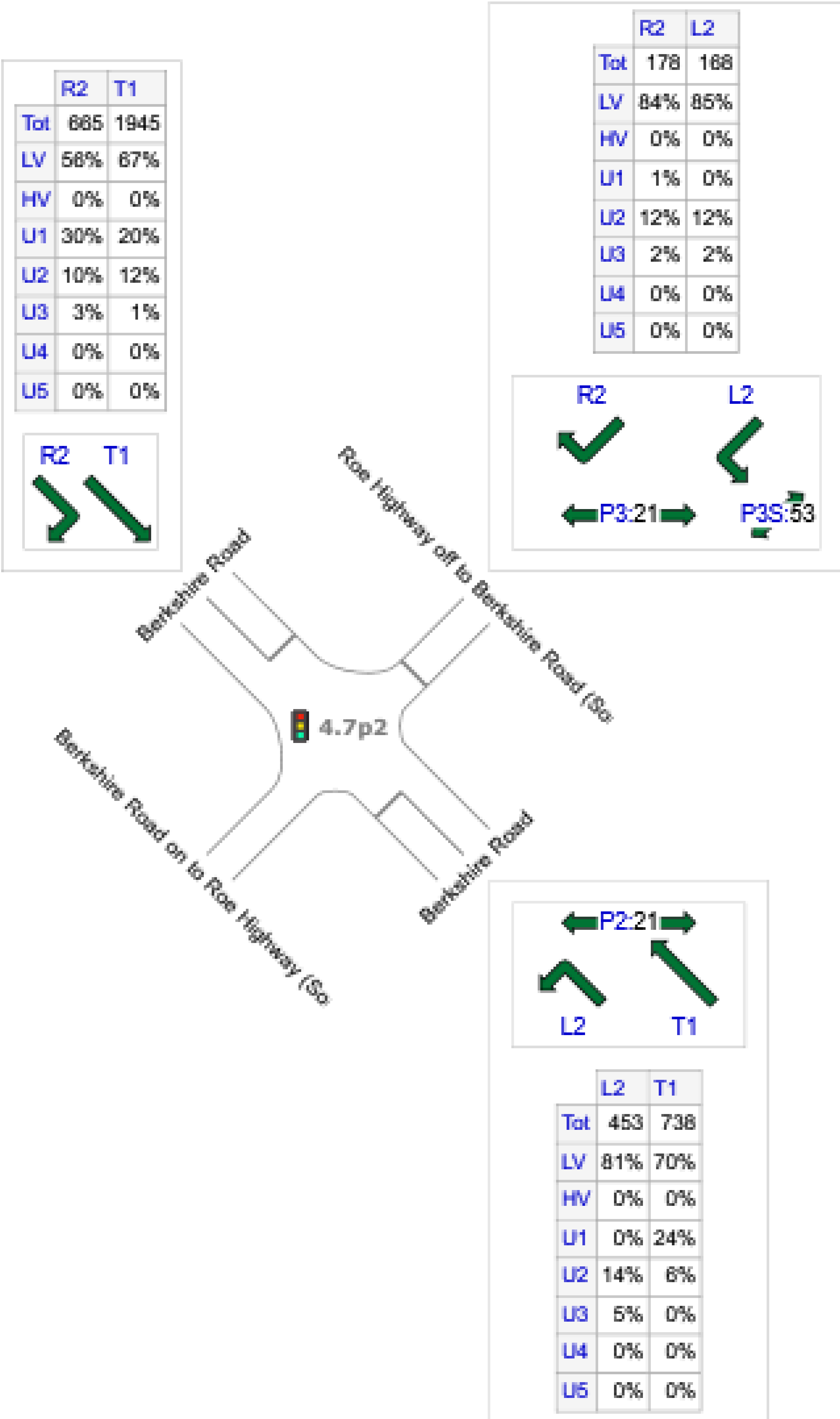
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase B
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
SE: Berkshire Road	1191	880	0	177	106	25
NE: Roe Highway off to Berkshire Road (Southbound)	346	293	0	1	43	7
NW: Berkshire Road	2611	1670	0	597	304	37
Total	4147	2844	0	775	452	69

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Berkshire Road															
Lane 1	453	19.5	453	19.5	905	0.500	100	12.6	LOS B	6.0	55.8	Short	200	0.0	NA

Lane 2	369	6.2	369	6.2	493	0.748	100	24.7	LOS C	10.9	85.8	Full	300	0.0	0.0
Lane 3	369	6.2	369	6.2	493	0.748	100	24.7	LOS C	10.9	85.8	Full	300	0.0	0.0
Approach	1191	11.2	1191	11.2		0.748		20.1	LOS C	10.9	85.8				
NorthEast: Roe Highway off to Berkshire Road (Southbound)															
Lane 1	168	15.1	168	15.1	209	0.808	100	39.3	LOS D	5.7	49.8	Short	120	0.0	NA
Lane 2	89	15.0	89	15.0	209	0.426	100	33.6	LOS C	2.6	22.7	Short	300	0.0	NA
Lane 3	89	15.0	89	15.0	209	0.426	100	33.6	LOS C	2.6	22.7	Full	500	0.0	0.0
Approach	346	15.1	346	15.1		0.808		36.4	LOS D	5.7	49.8				
NorthWest: Berkshire Road															
Lane 1	1050	13.0	1050	13.0	1155	0.909	100	25.4	LOS C	29.2[N4]	244.8[N4]	Full	150	0.0	50.0
Lane 2	896	13.0	896	13.0	986[1]	0.909	100	26.0	LOS C	29.2[N4]	244.8[N4]	Full	150	0.0	50.0
Lane 3	333	13.6	333	13.6	472	0.705	100	29.8	LOS C	9.4	82.5	Short	80	0.0	NA
Lane 4	333	13.6	333	13.6	472	0.705	100	28.1	LOS C	9.4	82.5	Full	150	0.0	0.0
Approach	2611	13.1	2611	13.1		0.909		26.5	LOS C	29.2	244.8				
Intersection	4147	12.8	4147	12.8		0.909		25.5	LOS C	29.2	244.8				

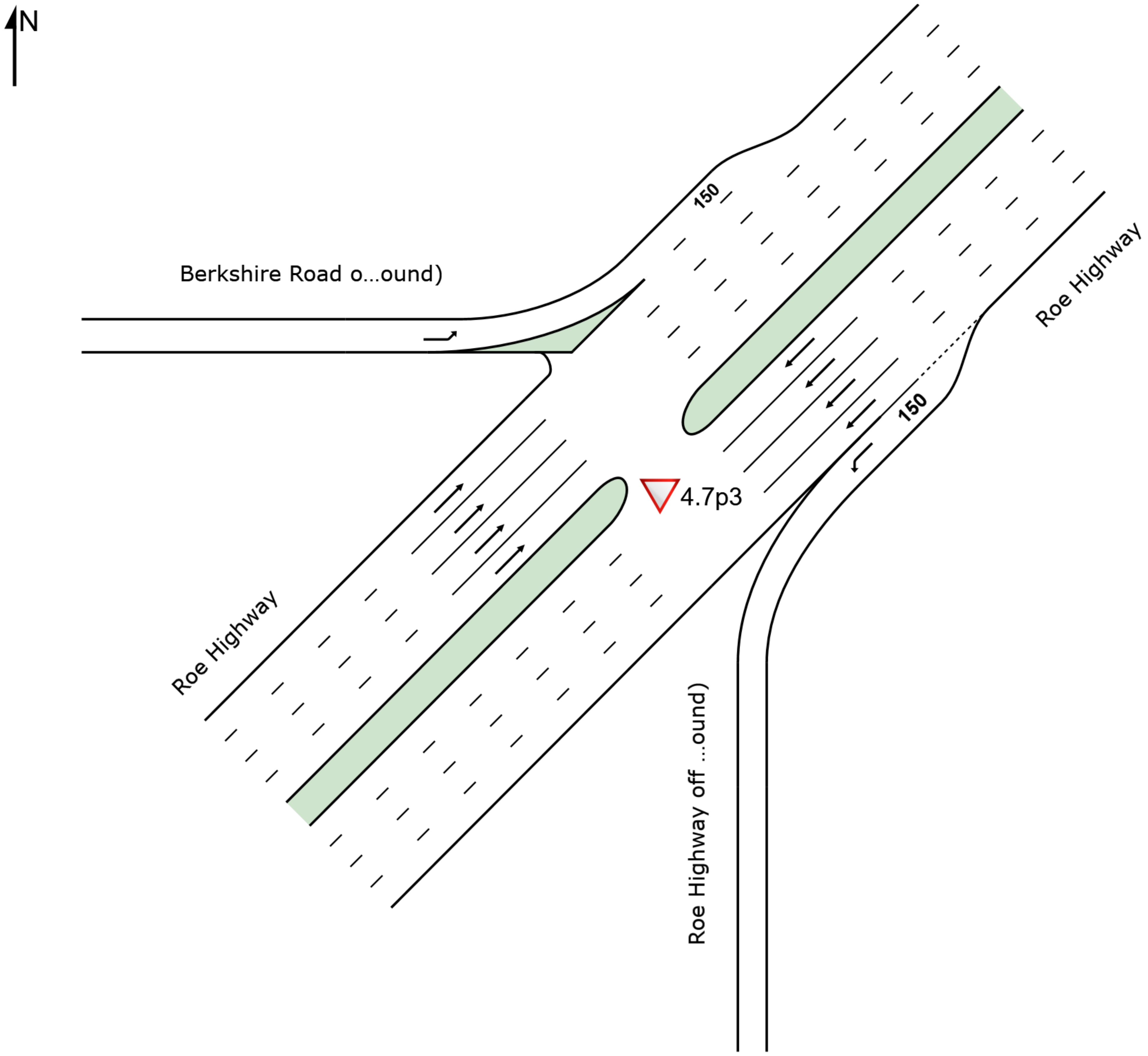
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
N4 Average back of queue has been restricted to the available queue storage space.

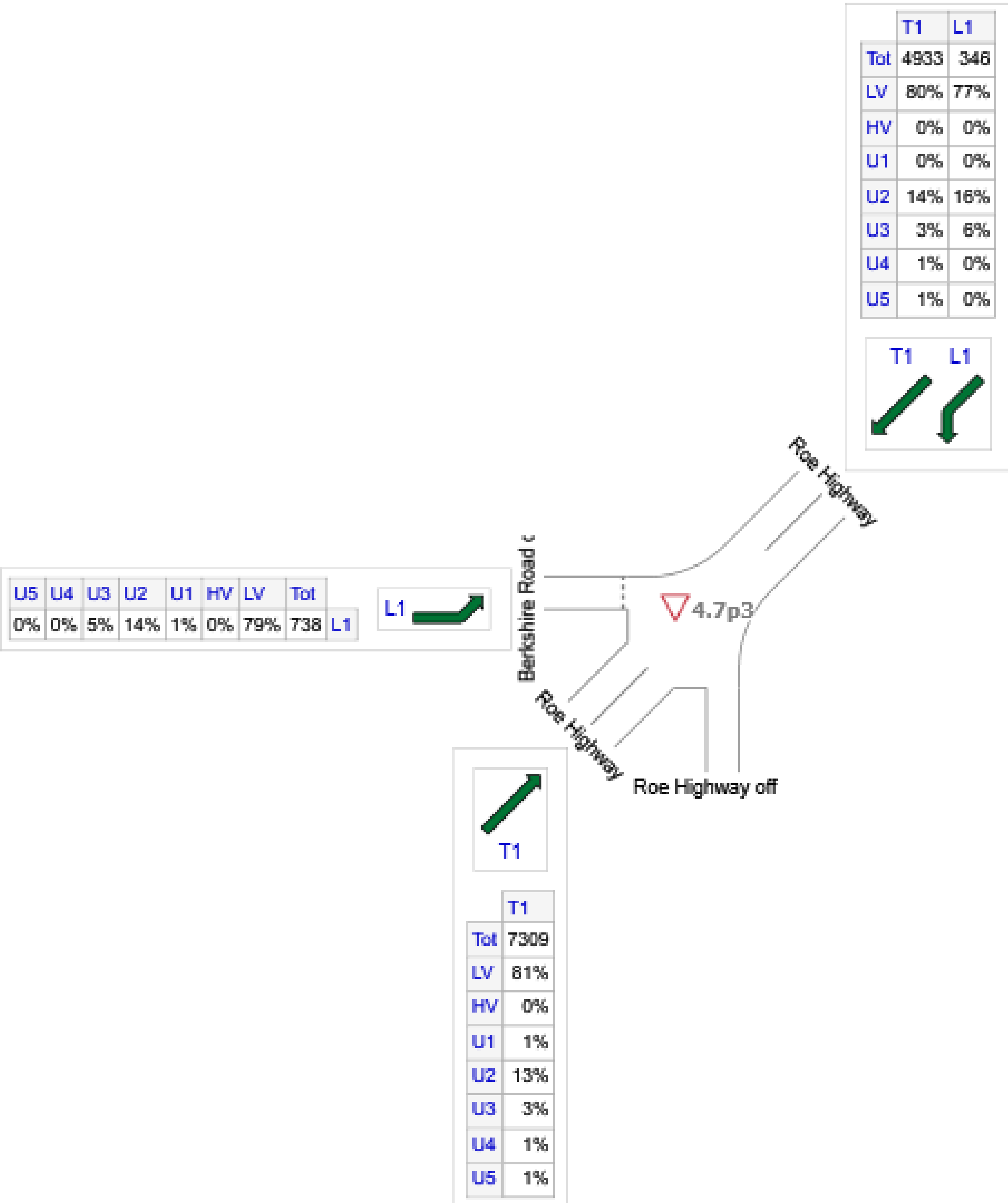
4.7p3 Roe Highway Interchange with Berkshire Road - 2050 PM
Site Category: (None)
Give-Way (Two-Way)

Site Layout

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



OD Arrival Flows



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development LV (U1)	AustroadsClass 2-5 (U2)	AustroadsClass 6-9 (U3)
NE: Roe Highway	5279	4238	0	1	760	175
W: Berkshire Road on to Roe Highway (Northbound)	738	584	0	7	105	37
SW: Roe Highway	7309	5935	0	42	947	226
Total	13326	10757	0	51	1812	437

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
NorthEast: Roe Highway															
Lane 1	346	22.6	346	22.6	1505	0.230	100	8.4	LOS A	0.0	0.0	Short	150	0.0	NA

Lane 2	1233	19.5	1233	19.5	1818	0.678	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1233	19.5	1233	19.5	1818	0.678	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	1233	19.5	1233	19.5	1818	0.678	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 5	1233	19.5	1233	19.5	1818	0.678	100	0.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	5279	19.7	5279	19.7		0.678		0.7	NA	0.0	0.0				
West: Berkshire Road on to Roe Highway (Northbound)															
Lane 1	738	19.8	738	19.8	1529	0.483	100	4.8	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	738	19.8	738	19.8		0.483		4.8	NA	0.0	0.0				
SouthWest: Roe Highway															
Lane 1	562	18.2	562	18.2	1833	0.307	25[7]	0.8	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	2249	18.2	2249	18.2	1833	1.227	100	104.6	LOS F	0.0	0.0	Full	500	0.0	0.0
Lane 3	2249	18.2	2249	18.2	1833	1.227	100	104.6	LOS F	0.0	0.0	Full	500	0.0	0.0
Lane 4	2249	18.2	2249	18.2	1833	1.227	100	104.6	LOS F	0.0	0.0	Full	500	0.0	0.0
Approach	7309	18.2	7309	18.2		1.227		96.6	NA	0.0	0.0				
Intersection	13326	18.9	13326	18.9		1.227		53.5	NA	0.0	0.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

7 Lane under-utilisation specified by the user

USER REPORT FOR NETWORK

All Movement Classes

Project: KC00604.000 M07 Roe Highway - Berkshire Road **Template: Network Site Report**

Network: n2.2a [n2.2a Roe Highway - Berkshire Road - 2031 AM (Network Folder: 2031)]

n2.2a Roe Highway - Berkshire Road - 2031 AM
Network Category: (None)

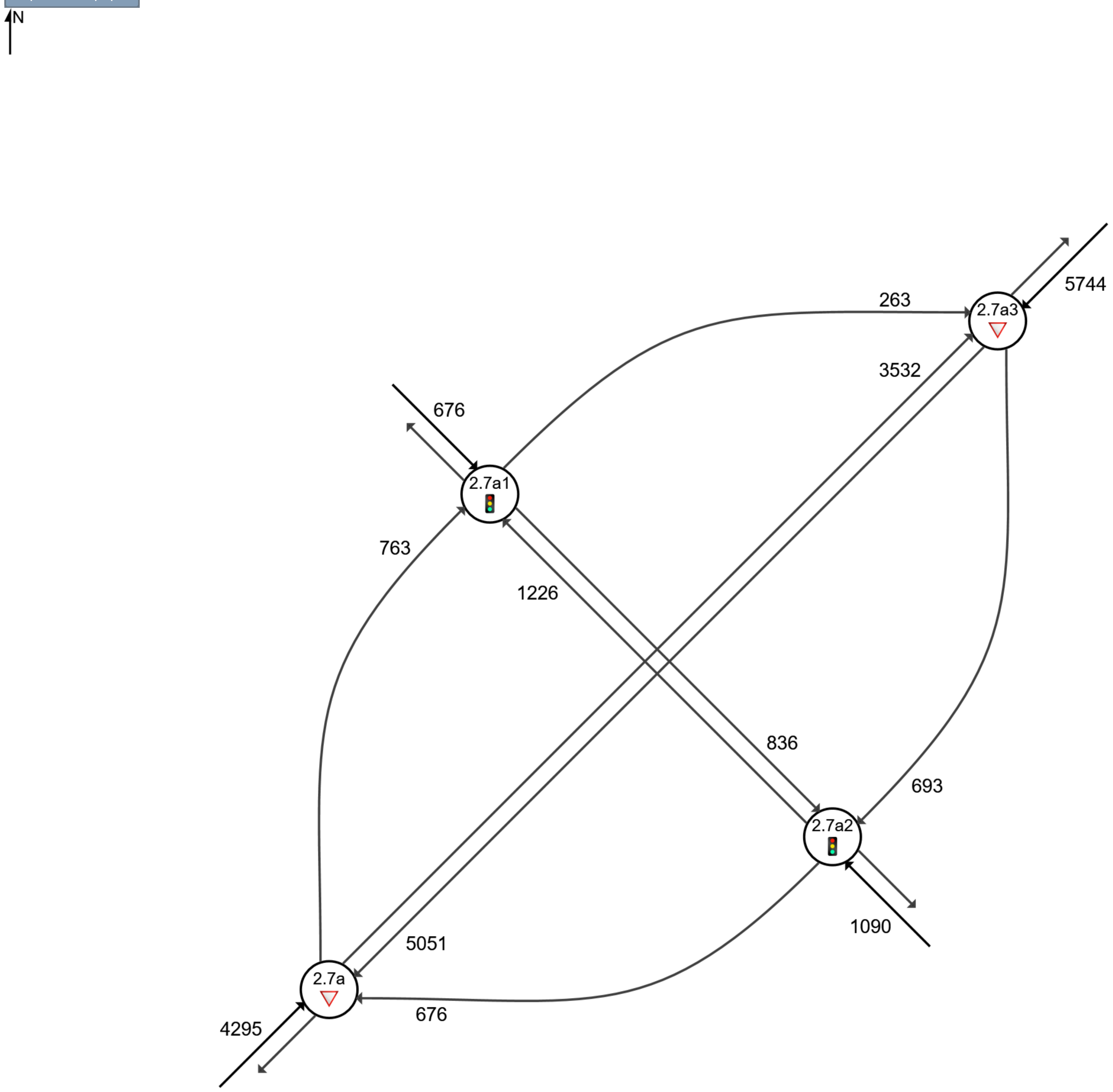
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽2.7a	NA	2.7a Roe Highway Interchange with Berkshire Road - 2031 AM (South)
2.7a1	NA	2.7a1 Berkshire Road - Roe Highway off to Berkshire Road - 2031 AM
2.7a2	NA	2.7a2 Berkshire Road - Berkshire Road on to Roe Highway - 2031 AM
▽2.7a3	NA	2.7a3 Roe Highway Interchange with Berkshire Road - 2031 AM

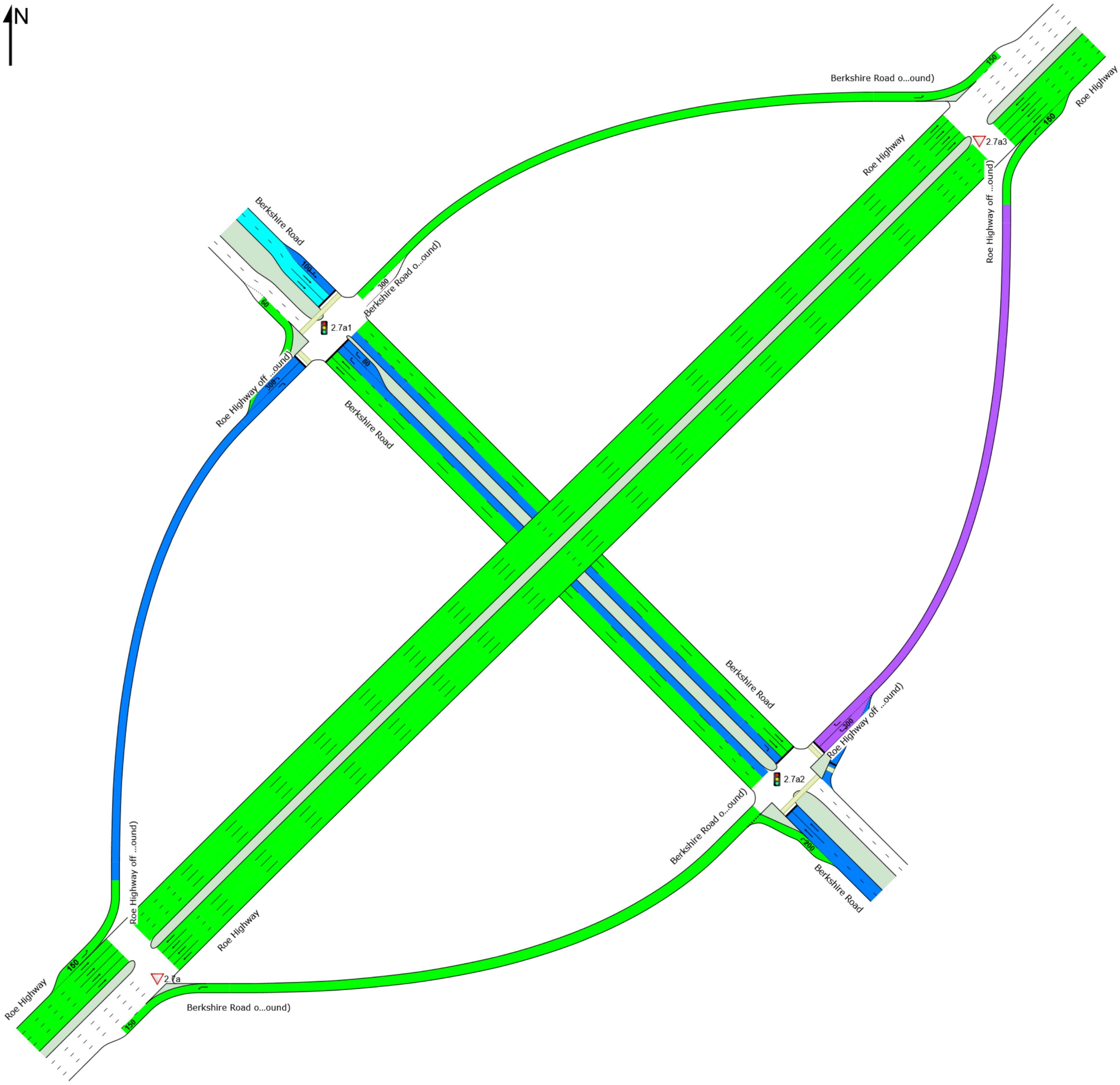
Network Flows - Input

Use the button below to open or close all popups boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Network: n2.2p [n2.2p Roe Highway - Berkshire Road - 2031 PM (Network Folder: 2031)]

n2.2p Roe Highway - Berkshire Road - 2031 PM
Network Category: (None)

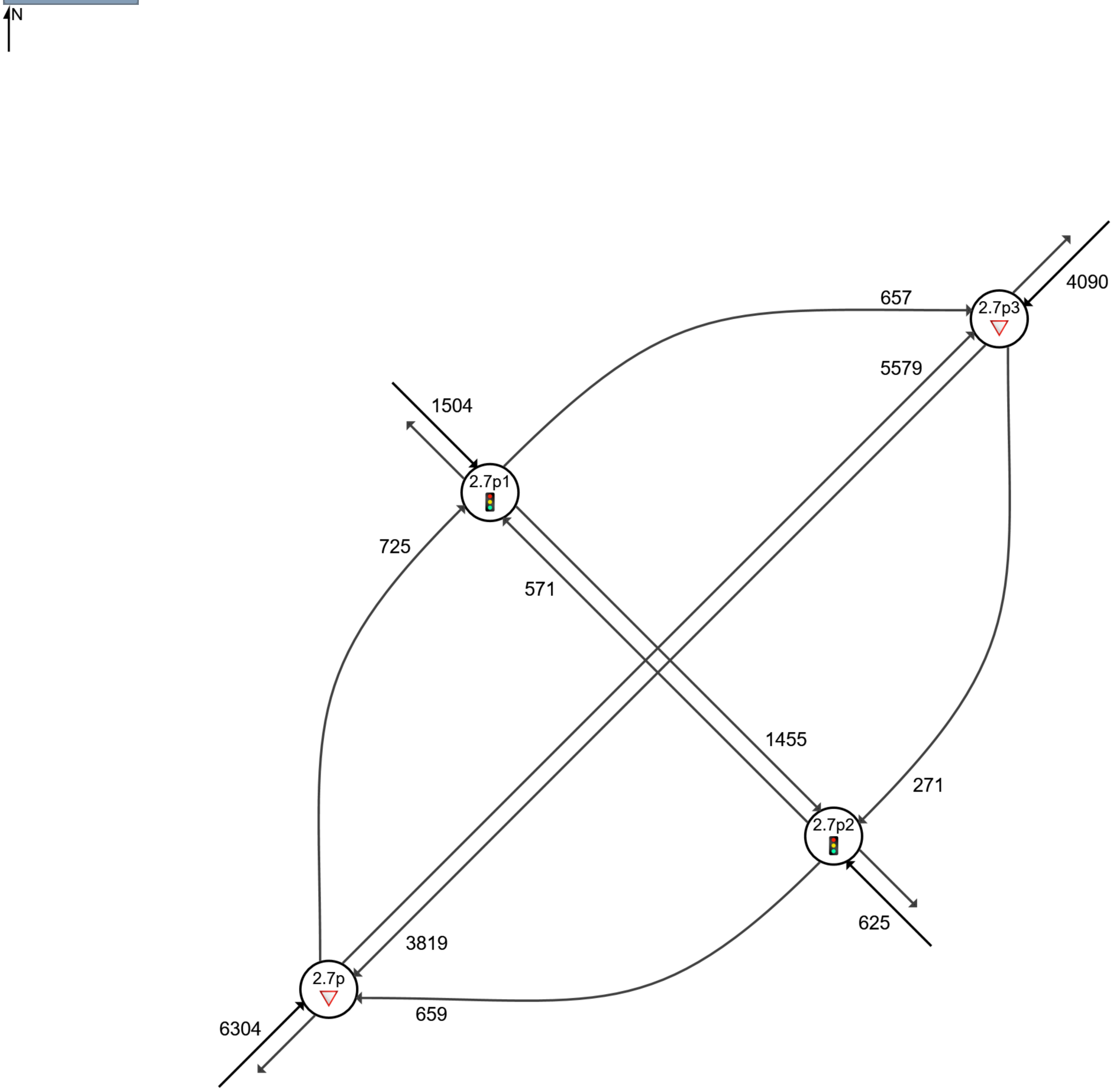
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
2.7p	NA	2.7p Roe Highway Interchange with Berkshire Road - 2031 PM (South)
2.7p1	NA	2.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2031 PM
2.7p2	NA	2.7p2 Berkshire Road - Berkshire Road on to Roe Highway - 2031 PM
2.7p3	NA	2.7p3 Roe Highway Interchange with Berkshire Road - 2031 PM

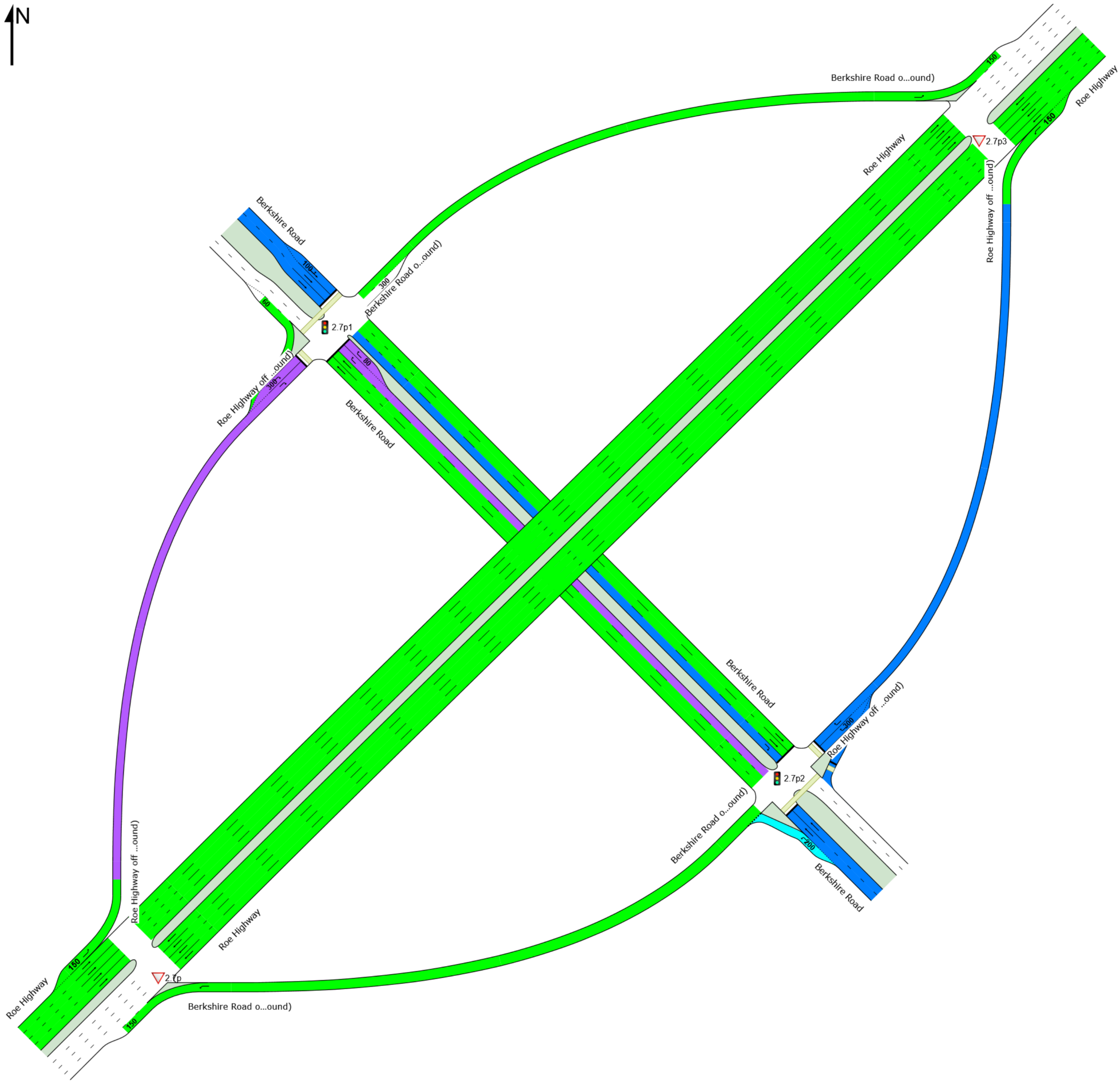
Network Flows - Input

Use the button below to open or close all popups boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Network: n4.2a [n4.2a Roe Highway - Berkshire Road - 2050 AM (Network Folder: 2050)]

n4.2a Roe Highway - Berkshire Road - 2050 AM
Network Category: (None)

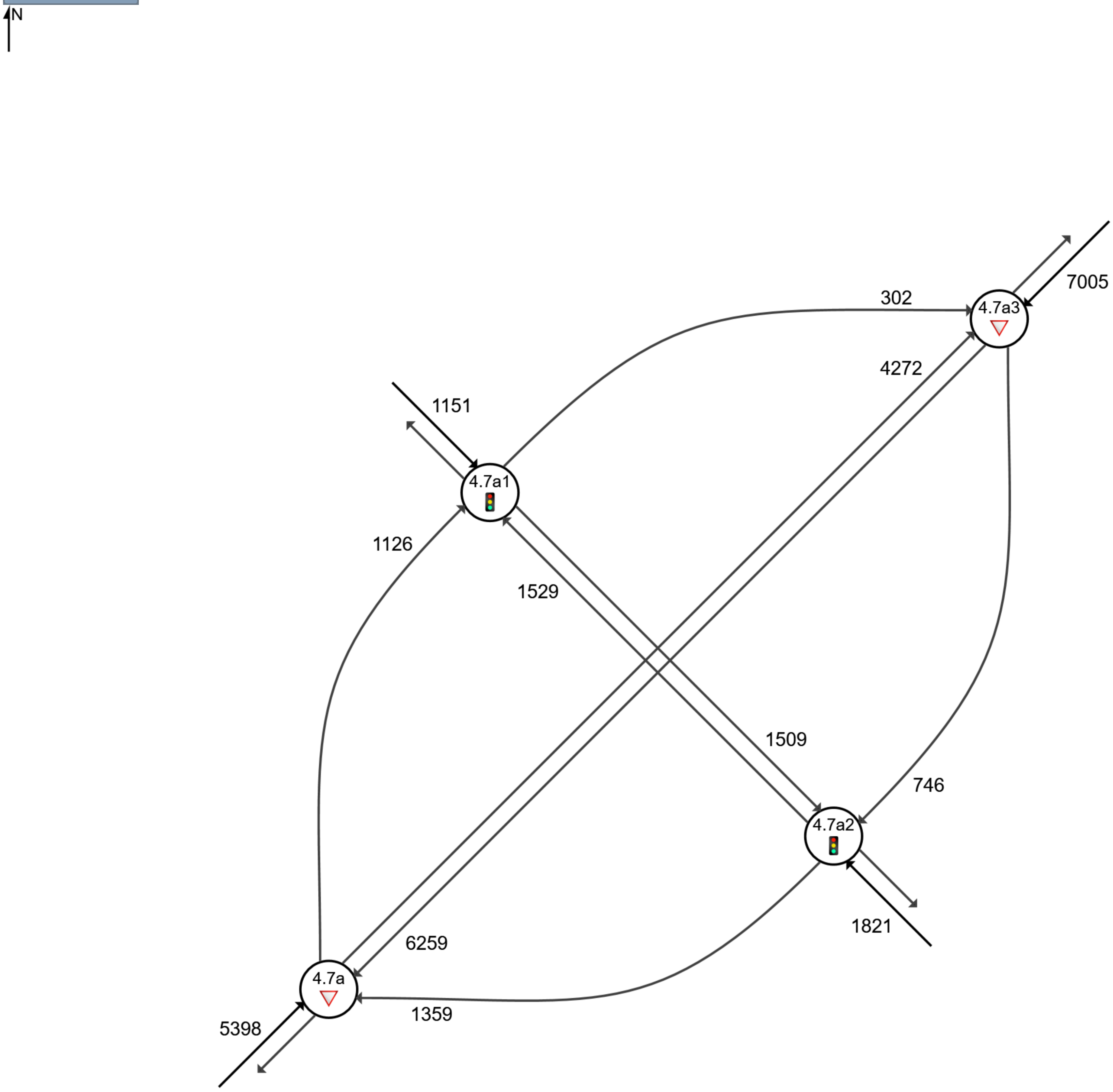
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
4.7a	NA	4.7a Roe Highway Interchange with Berkshire Road - 2050 AM (South)
4.7a1	NA	4.7a1 Berkshire Road - Roe Highway off to Berkshire Road - 2050 AM
4.7a2	NA	4.7a2 Berkshire Road - Berkshire Road on to Roe Highway - 2050 AM
4.7a3	NA	4.7a3 Roe Highway Interchange with Berkshire Road - 2050 AM

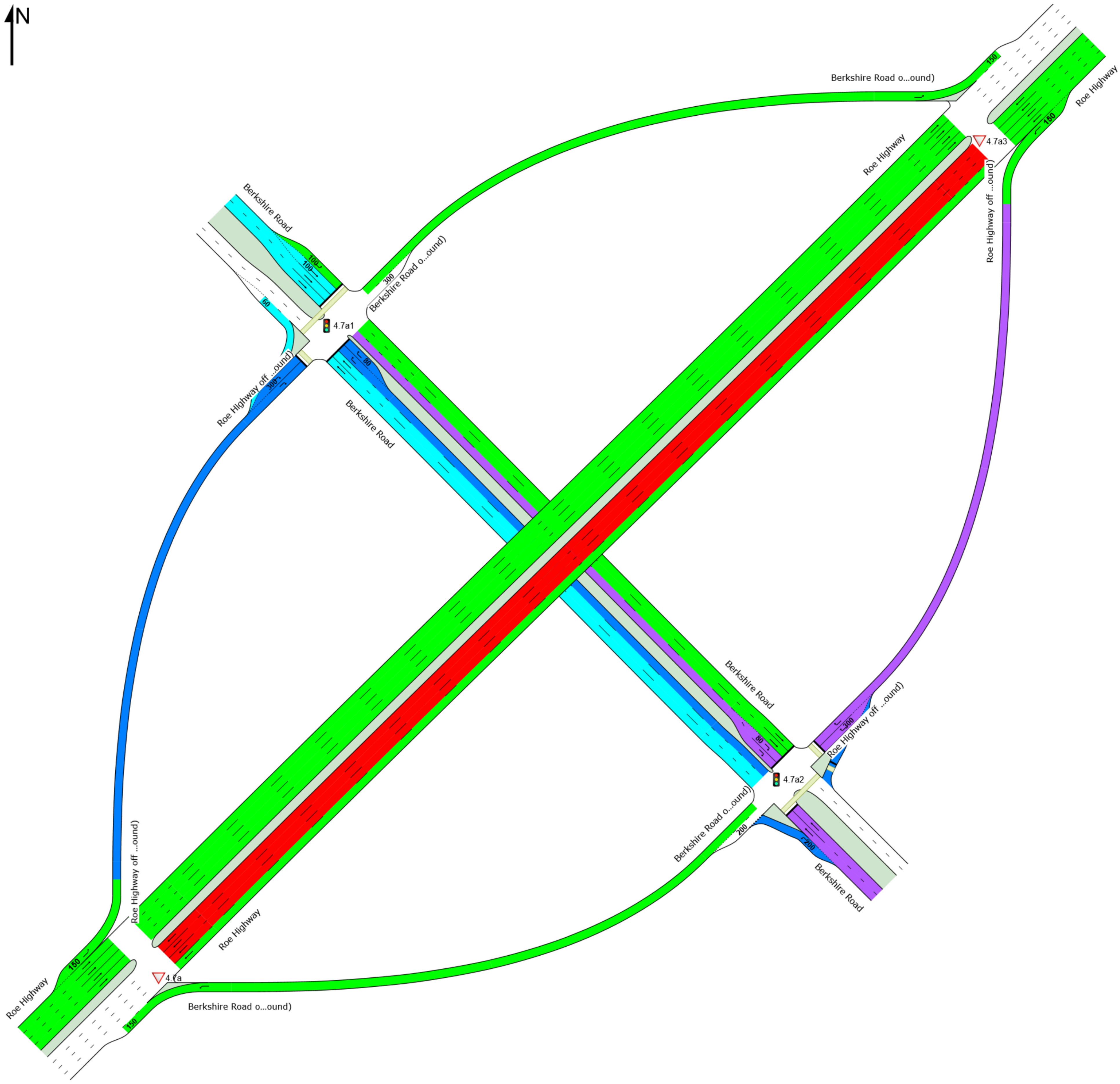
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Network: n4.2p [n4.2p Roe Highway - Berkshire Road - 2050 PM (Network Folder: 2050)]

n4.2p Roe Highway - Berkshire Road - 2050 PM
Network Category: (None)

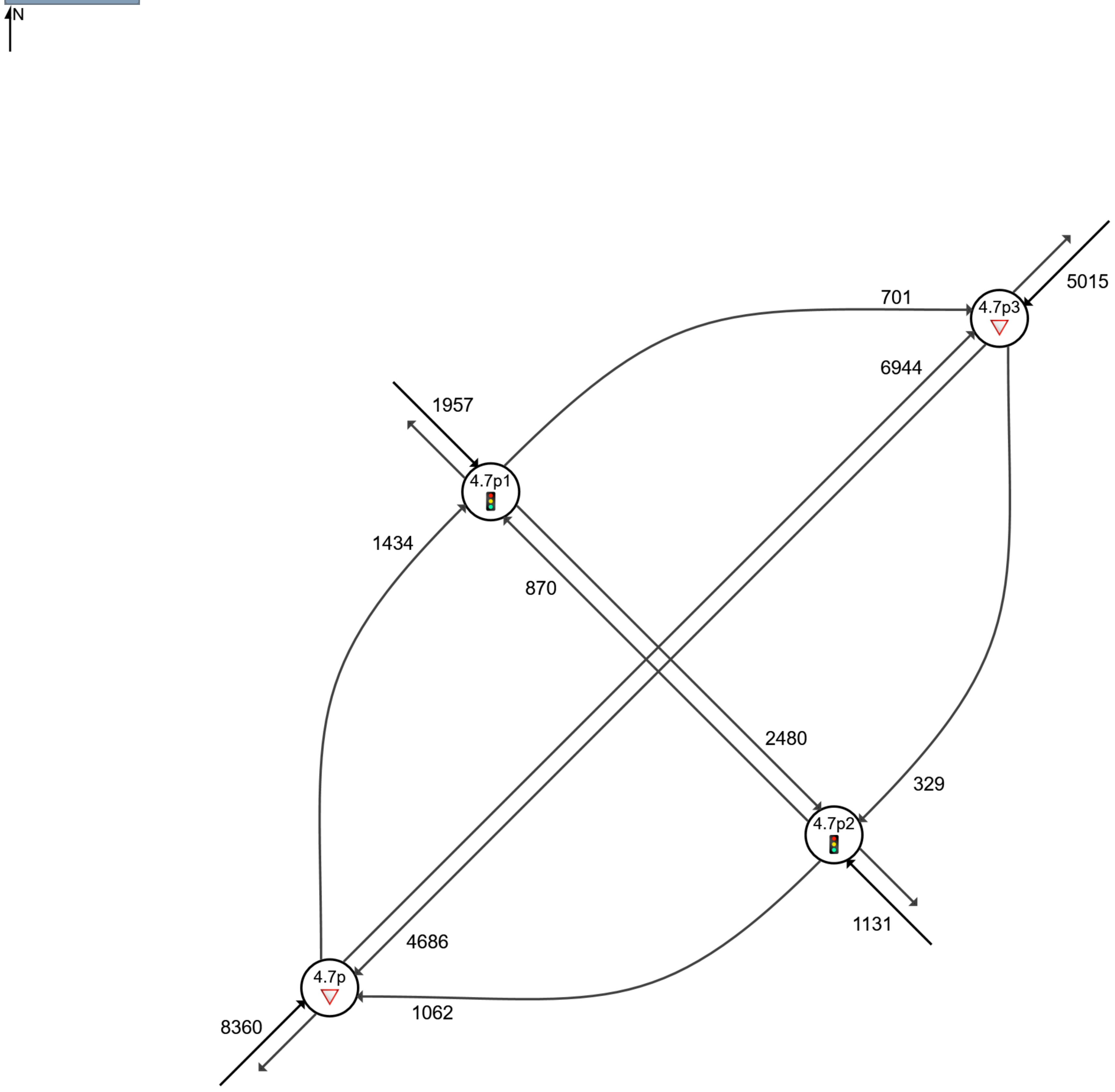
Sites in Network

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
4.7p	NA	4.7p Roe Highway Interchange with Berkshire Road - 2050 PM (South)
4.7p1	NA	4.7p1 Berkshire Road - Roe Highway off to Berkshire Road - 2050 PM
4.7p2	NA	4.7p2 Berkshire Road - Berkshire Road on to Roe Highway - 2050 PM
4.7p3	NA	4.7p3 Roe Highway Interchange with Berkshire Road - 2050 PM

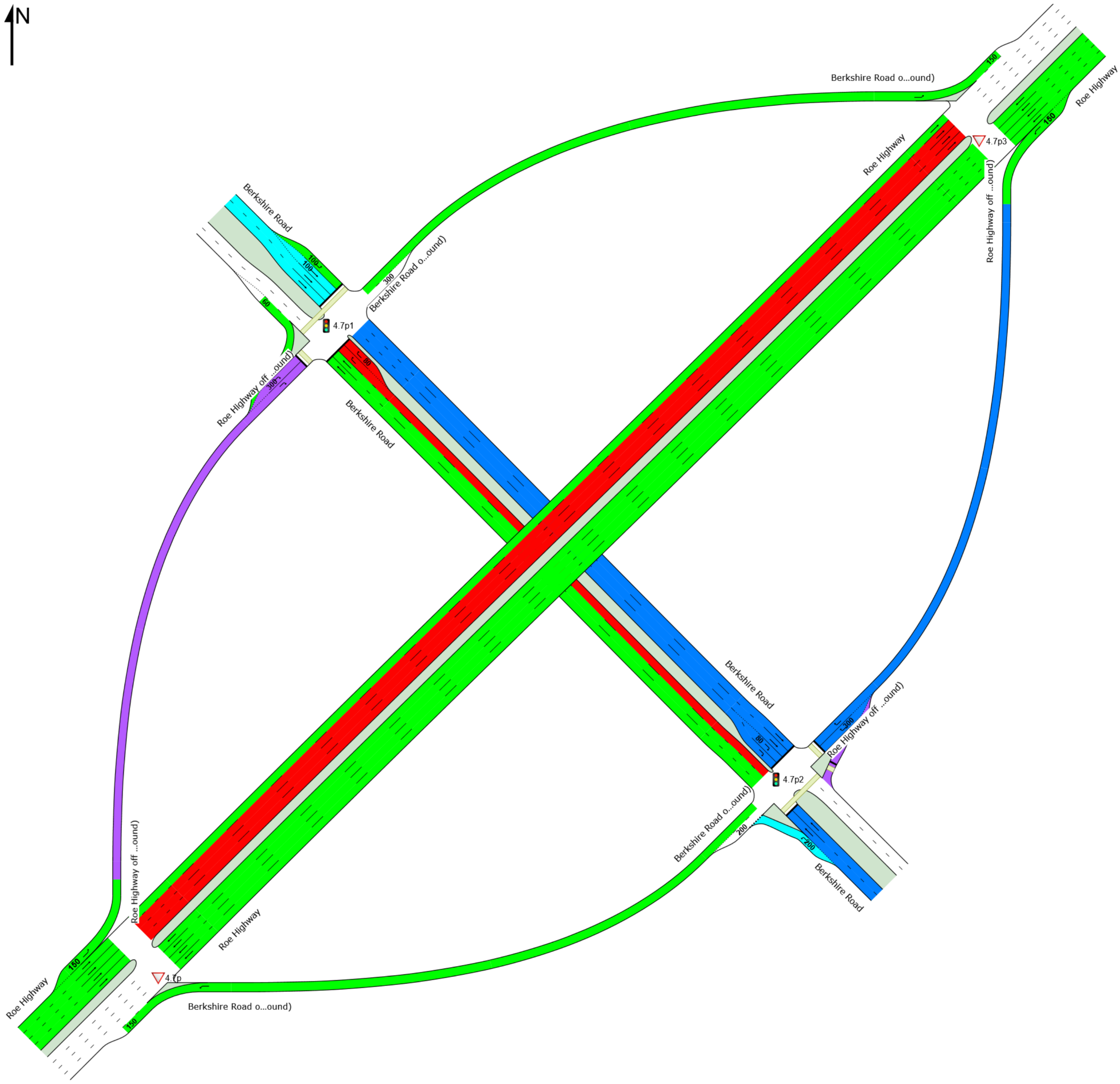
Network Flows - Input

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups



Level of Service



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Organisation: KC TRAFFIC AND TRANSPORT | Licence: NETWORK / 1PC | Created: Monday, January 16, 2023 15:49:37
Project: C:\Users\Nemanja\Box\KCTT Projects\KC00000 Current Projects\KC00604.000 Forrestfield North - Structure Plan Preparation\Outgoing\SIDRA\Residential Precinct\221213 Rev D\Future Models\KC00604.000 M07 Roe Highway - Berkshire Road.sip9

Appendix 4

Traffic Modelling Report

Table of Contents

1. Introduction

This short report provides details on traffic modelling methodology. The existing and proposed roads for Forrestfield North and the surrounding network were modelled in Paramics. Distribution of traffic throughout the network was based on expected routes for accessing and egressing the structure plan area from the TIA report, which this Appendix accompanies. Routes were based on the City of Kalamunda's profile.id (for employment) and research on shopping, education and recreation opportunities in the surrounding area. The existing routes were slightly modified to account for the known proposed developments in the area.

While this report focused on the Residential Precinct, the traffic impact from the future Railway station and proposed TOD and Activity Centre areas was accounted for.

2. Trip Generation

Nominate the assessment year(s)	2031 and 2050 The assumption for 2031 is that 15% of the entire Forrestfield North area would be completed. In 2050 the entire area is expected to reach its full traffic generation.
Base Traffic Volumes forecasting for the assessment year(s)	Traffic from external to external zones was modelled to reflect, as close as possible, obtained data from the latest Main Roads WA ROM MLUFS 1.4 version Model for 2031 and 2041.
Development Generated Trips	Development Generated Trips were assessed utilising the following relevant documents: • WAPC Transport Assessment Guidelines for Developments – Volume 5 – Technical Guidance for residential and retail AM and PM peaks rates • NSW RTA Guide to Traffic Generating Developments for daily residential and retail trip rates • Transportation Engineers (ITE) Common Trip Generation Rates (9^{th} edition) Along with Forrestfield North LSP traffic, trip generation from the proposed development Maida Vale South LSP was included in the model.

2.1 Base Traffic Volumes

Nominate the source(s) for obtaining the traffic data	Main Roads website; Traffic Data from the City of Kalamunda Main Roads WA ROM Model – 2031 and 2041

2.2 Traffic Volumes

Road Name	Location of Traffic Count	Vehicles Per Day (VPD)	Vehicles per Peak Hour (VPH)				Heavy Vehicle %	Year	
			AM Peak VPH	AM Peak Time	PM Peak VPH	PM Peak Time	*If HV count is Not Available, are HV likely to be in higher volumes than generally expected?*	Date of Traffic Count	*If older than 3 years, multiply with a growth rate (3% growth rate per annum)*
Berkshire Road	West of Roe Highway (SLK 0.75)	6,531	552	06:45	564	15:15	26.8%	2019/ 2020	5,035
	East of Roe Highway (SLK 1.58)	5,829	460	07:45	468	14:45	11.2%	Dec 2015	6,757
	40m East of Milner Road *	5,054	383	07:00	463	16:00	15.9%	Aug 2016	5,688
	West of Roe Highway Ramp (Northbound)**	7,919	511	08:00	748	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	East of Roe Highway Ramp (Northbound)**	7,101	522	08:00	640	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	Ramp on to Roe Highway (Northbound) North of Berkshire Road**	2,487	250	08:00	183	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	West of Roe Highway Ramp (Southbound)**	11,569	849	08:00	1,076	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	East of Roe Highway Ramp (Southbound)**	11,292	928	08:00	1,047	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	Ramp on to Roe Highway (Southbound) South of Berkshire Road**	2,551	142	08:00	260	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
Roe Highway	South of Kalamunda Road (SLK 33.94)	44,657	3,624	07:00	3,823	16:15	12.7%	2018/ 2019	-
	North of Berkshire Road	53,578	4,285	07:15	4,848	16:00	17.1%	2019/ 2020	-
	Ramp off to	4,946	293	11:30	480	16:00	11.7%	Dec	5,733

	Maida Vale Road (Northbound) South of Maida Vale Road (SLK 0.26)							2015	
	Ramp off to Berkshire Road (Northbound) South of Berkshire Road**	6,180	457	08:00	527	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
	Ramp off to Berkshire Road (Southbound) North of Berkshire Road**	2,940	248	08:00	241	16:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
Newburn Road	South of Kalamunda Road (SLK 0.08)	5,882	462	08:15	555	16:00	4.8%	2018/ 2019	-
Hawtin Road	South of Maud Road (SLK 1.98)	7,025	592	08:00	668	15:15	8.3%	2019/ 2020	-
	South of Kalamunda Road**	8,944	828	08:00	868	17:00	N/A – HV not likely to be in higher volumes than generally expected	Feb 2020	-
Maida Vale Road	166 m West of Butcher Road*	1,994	137	07:00	220	16:00	9.1%	Jun 2019	-
	67m East of Milner Road*	3,711	278	07:00	359	16:00	8.0%	Mar 2018	-
	20m West of Littlefield Street*	6,162	675	08:00	778	16:00	7.3%	Nov 2018	-
	170m East of Dundas Road*	2,430	187	07:00	254	17:00	7.0%	Mar 2018	-
	78m West of Milner Road*	3,062	211	08:00	299	16:00	7.3%	Apr 2018	-
	65m East of Plover Road*	8,851	659	08:00	971	16:00	7.6%	Sep 2019	-
	100m West of Jaeger Court*	3,870	276	08:00	411	16:00	8.3%	Nov 2020	-
	West of Hawtin Road (SLK 0.10)	7,106	596	08:00	683	17:00	9.2%	Dec 2015	8,237
	Ramp on to Roe Highway (Southbound) South of Maida Vale Road (SLK 0.23)	5,720	511	07:15	436	16:15	17.0%	Dec 2015	6,631
Abernethy Road	South of Dundas Road (SLK 4.96)	21,232	1,663	07:15	1,720	15:45	23.6%	Dec 2015	24,613
	South of Kalamunda Rd (SLK 6.54)	17,958	1,335	07:30	1,472	15:45	21.7%	2018/ 2019	-
Apricot Street	57 M South West of Fruit Tree Crescent*	1,538	109	08:00	142	17:00	5.6%	Apr 2016	1,731
Dundas Road	205m North of Maida Vale Road*	5,687	373	08:00	506	16:00	12.3%	Mar 2018	-

	165m North of Berkshire Road*	4,267	311	07:00	347	15:00	19.4%	Mar 2018	-
	25m South of Kapok Court*	5,953	422	07:00	615	16:00	11.5%	Nov 2020	-
Sultana Road West	60m North of Milner Road *	260	20	11:00	28	15:00	18.9%	Oct 2016	292
Harrison Road	35m East of Dundas Road *	971	80	11:00	101	14:00	24.1%	Aug 2016	1,092
Milner Road	32m South West of Sultana Road West *	2,397	228	07:00	236	16:00	14.1%	Mar 2018	-
	120m South of Raven Street *	1,537	163	07:00	151	16:00	9.2%	Mar 2018	-
	45m North East of Stewart Road *	1807	182	07:00	173	16:00	9.4%	Mar 2018	-
	150m South of Eureka Street *	3,864	360	07:00	346	16:00	19.3%	Sep 2019	3,003
Brae Road	295m North of Sultana Road *	149	13	07:00	14	14:00	17.1%	Oct 2016	167

Note - These traffic counts have been received from the City of Kalamunda*

*Note**- These traffic volumes have been derived from SCATS data obtained through Main Roads. Although SCATS should not be used as a sole source of data, it is a good tool to verify fluctuations inflow.*

2.3 All Precincts Generated Trips – TOD, Activity Centre and Residential Precincts

2.3.1 Residential Precinct

Land Use Type	Rate above	Yield	Daily Traffic Generation VPD	Peak Hour Traffic Generation	
				AM VPH	PM VPH
Residential (R30 and R40 Houses)	8.0 VPD per unit Peak - 10% of VPD	938	7,504	750	750
Residential (R60 Houses and Apartments)	6.5 VPD per unit Peak - 10% of VPD	1,056 units	6,864	686	686
Residential (R80 Houses and Apartments)	5.5 VPD per unit Peak - 10% of VPD	423 units (150 apartments)	2,327	233	233
	Total Residential:	***2,417 units***	***16,691***	***1,669***	***1,669***
Primary School	2 VPD per student Peak – 1 VPH per student *(based the local use - 80% reciprocity applied**)*	540 students	216	108	108
			1,080	540	540
District Open Space (Sporting Precinct)	71.33 VPD per court AM Peak – 1.4 VPH per court PM Peak – 20.67 VPH per court *(based on the proximity of the primary school and the local use - 50% reciprocity applied)*	2 courts (as per Sporting Precinct Preliminary Concept Plan)	71	2	21
			143	3	41
		Total traffic with reciprocity applied:	**16,978**	**1,779**	**1,798**
		Total traffic without reciprocity:	**17,914**	**2,212**	**2,250**

***Note * - Strategy City of Kalamunda Forrestfield North Structure Plan Community Infrastructure Strategy** outlines concept plans for the Education and Sporting Precincts and the Community Centre and Town Park Precinct and the yields have been sourced from this document.*

***Note ** -** It is anticipated that only 20% of school trips will be generated from outside of the LSP area.*

The estimated yield of 2,417 dwellings is expected within the LSP area. The LSP report indicates an estimated population of 5,998 in the FFN Residential Precinct based on the information received from the City of Kalamunda. According to the City of Kalamunda's household summary on profile.id.com.au, 9% of the City's residents are of primary school age.

80% of the assumed 540 children is 432, which is approximately 7.2% of the expected number of future FFN residents, less than the City of Kalamunda average. This more than accounts for the likely reduction in school-age children within higher-density housing forms. Even if the ratio is changed in favour of trips outside of the LSP area, this will not significantly impact traffic distribution and the surrounding road network. The school is expected to generate only up to 1,080 VPD, which is less than 6.5% of the total Residential Precinct traffic generation.

Based on the above, KCTT believe that the distribution of 80% local / 20% outside LSP area) should be applied.

It should also be noted that while the cumulative peak volumes represent the most conservative scenario, in reality, peak times of various uses may coincide only partially.

Does the site have existing trip generation/attraction?	YES
No of Daily Trips	50 units * 9 VPD = 450 VPD
No of AM Peak Hour Trips	50 units * 0.8 VPH = 40 VPH
No of PM Peak Hour Trips	50 units * 0.8 VPH = 40 VPH

What is the total impact of the new proposed development? High impact

Total additional daily traffic to the surrounding road network	16,978 – 450 = **16,528 VPD**
Total additional AM peak traffic to the surrounding road network	1,779 – 40 = **1,739 VPH**
Total additional PM peak traffic to the surrounding road network	1,798 – 40 = **1,758 VPH**

2.3.2 TOD Precinct

Development Type	Rate Above	Yield	Total VPD	PM Peak VPH	AM Peak VPH
Residential *25% expected to be attracted by the TOD precinct cells	5.5 vehicular trips per dwelling and 5 vehicular trips per dwelling Peak – 0.55 and 0.5 vehicular trips per $100m^2$ per hour	207 - 5.5 vpd dwellings; 301 - 5 vpd dwellings	2,644* (1,983)**	265* (199)**	265* (199)**
Commercial *5% expected to be generated by the future residents of FFN area	10 vehicular trips per $100m^2$ Peak – 2 vehicular trips per $100m^2$ per hour	$1,200m^2$	120* (114)**	24* (23)**	24* (23)**
Retail with Food Component *45% expected to be generated by the future residents of FFN area	121 vehicular trips per $100m^2$ AM Peak – 2.5 vehicular trips per $100m^2$ per hour PM Peak – 10 vehicular trips per $100m^2$ per hour	Assumed 70% of total retail = $3,612m^2$	4,371* (2,404)**	90* (50)**	361* (199)**

Retail without Food Component (including Showroom Retail) *20% expected to be generated by the future residents of FFN area	17 vehicular trips per $100m^2$ AM Peak – 2.7 vehicular trips per $100m^2$ per hour PM Peak – 2.7 vehicular trips per $100m^2$ per hour	Assumed 30% of total retail = $1,548m^2$ + 2,500 Showroom = $4,048m^2$	688* (551)**	110* (96)**	110* (96)**
Medical Centre *25% expected to be generated by the future residents of FFN area	72 vehicular trips per GP; 30 vehicular trips per day per specialist 15% VPD = VPH	4 General Practitioners; 8 Specialists	528* (396)**	79* (59)**	79* (59)**
Childcare Centre *25% expected to be generated by the future residents of FFN area	4 VPD per child and 2 VPD per staff member AM Peak - 0.8 VPH per child PM Peak - 0.7 VPH per child	125 children; 25 staff members	550* (413)**	100* (75)**	88* (66)**
Community Facilities (Potential Aquatic Centre) *20% expected to be generated by future residents of the FFN area	1.5 vehicular trips per day per person; 0.15 vehicular trips per person per hour	Assumed 1,256 persons per day as per information received from the planner	1,884* (1,507)**	188* (150)**	188* (150)**
Forrestfield Station Parking *20% expected to be generated	Peak Traffic obtained from 'Forrestfield Station Multi-Storey Car Park Traffic Impact	1,200 spaces	2,400* (1,920)**	840* (672)**	840* (672)**

by future residents of the FFN area	Assessment'; Daily Traffic assumed 2 VPD per parking space				
Kiss'n'Ride Parking *20% expected to be generated by future residents of the FFN area	Peak Traffic obtained from 'Forrestfield Station - Multi-Storey Car Park Traffic Impact Assessment' Assumed that Peak traffic is 25% of Daily Traffic	N/A	4,000* (3,200)**	1,000* (800)**	1,000* (800)**
Total - The Proposed Development			**17,185*** **(12,488)****	**2,696*** **(2,124**)**	**2,955*** **(2,264)****

3. Trip Distribution

3.1 Zones

How many zones were created for the model?	47 Zones were created in Paramics. External zones were created to match the expected desire lines in accordance with the existing statistical data (sourced from Community ID profile for the City of Kalamunda).
Nominate external zones	33 zones external to the Forrestfield North area: **Zone 1.** To/from the north via Roe Highway (south of Berkshire Road) **Zone 2.** To/from the south via Hawtin Road (south of Berkshire Road) **Zone 3.** To/from the east via Kalamunda Road **Zone 4.** To/from the north via Roe Highway (north of Kalamunda Road) **Zone 5.** To/from the west via Kalamunda Road (west of Abernethy Road) **Zone 6.** To/from the south via Abernethy Road (south of Dundas Road) **Zone 7.** To/from the south via Dundas Road (south of Berkshire Road) **Zone 8.** To/from the east via Gooseberry Hill Road (east of Kalamunda Road) Forrestfield North Industrial Precinct Zones: **Zones 23 – 26** Forrestfield North Industrial Precinct Zones **Zone 27.** Maida Vale Cell 1 **Zone 28.** Maida Vale Cell 2 **Zone 29.** Maida Vale Cell 3 **Zone 30.** Maida Vale Cell 4 **Zone 31.** Maida Vale Cell 5 **Zone 32.** Maida Vale Cell 6 **Zone 33.** Maida Vale Neighbourhood Centre **Zone 34.** Maida Vale Primary School **Zones 35 – 44** External Residential zones located north to the Forrestfield North DSP (High Wycombe) **Zones 45-47** Industrial developments south of Berkshire Road
Nominate internal zones and traffic generation	**14 internal zones:**

Zone 9.	Residential Zone	Cell 1 - Residential Precinct
Zone 10.	Residential Zone	Cell 2- Residential Precinct
Zone 11.	Residential Zone	Cell 3 - Residential Precinct
Zone 12.	Residential Zone	Cell 4 - Residential Precinct
Zone 13.	Residential Zone	Cell 5 - Residential Precinct
Zone 14.	Residential Zone	Cell 6 - Residential Precinct
Zone 15.	Residential Zone	Cell 7 - Residential Precinct
Zone 16.	Residential Zone	Cell 2 - TOD Precinct
Zone 17.	Residential Zone	Cell 1a - TOD Precinct
Zone 18.	Mixed-use zone: Community	Cell 1b - TOD Precinct

	facilities; Medical Centre; Childcare Centre; Residential; Retail	
Zone 19.	Ecological Precinct	Cell 1c - TOD Precinct
Zone 20.	Forrestfield North Station	Cell 1d - TOD Precinct
Zone 21.	Showroom Retail	Cell 1e - TOD Precinct
Zone 22.	Primary School and DOS	Residential Precinct

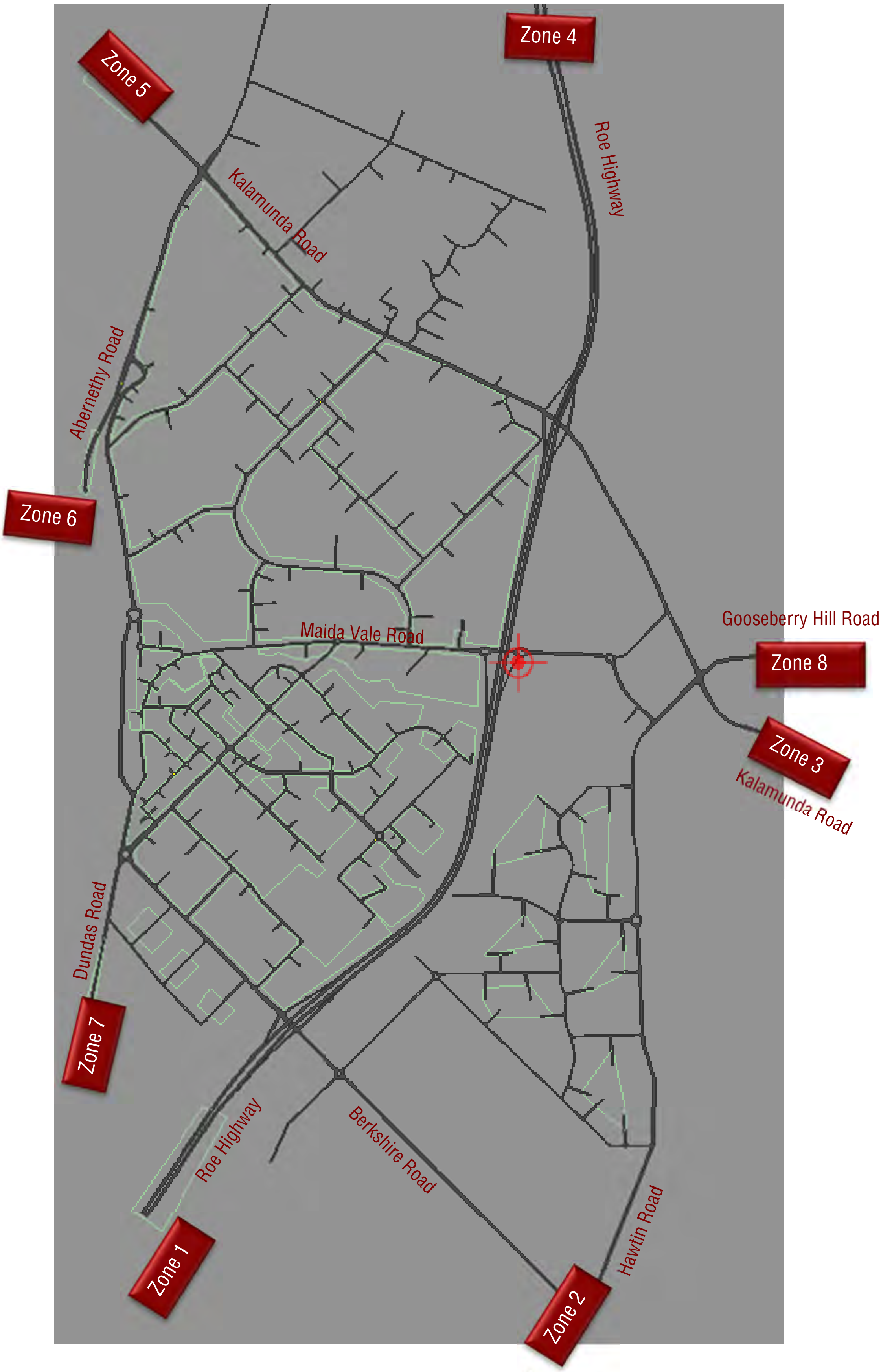


Figure 1 External Zones Location

3.2 Traffic Flow Distribution onto External Road Networks

ZONE	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	FFN Industrial	Internal Traffic
Forrestfield North Residential Zones	20%	5%	7.5%	15%	10%	8%	6%	2%	1.5%	25%

**Note*: It was assumed that internal trips will make approximately 25% of the total generated trips because of the large attractors such as Forrestfield North Station, large Activity Centre and other education, shopping and employment opportunities within the Forrestfield North area.*

3.3 Traffic Flow Distribution onto Internal Road Network

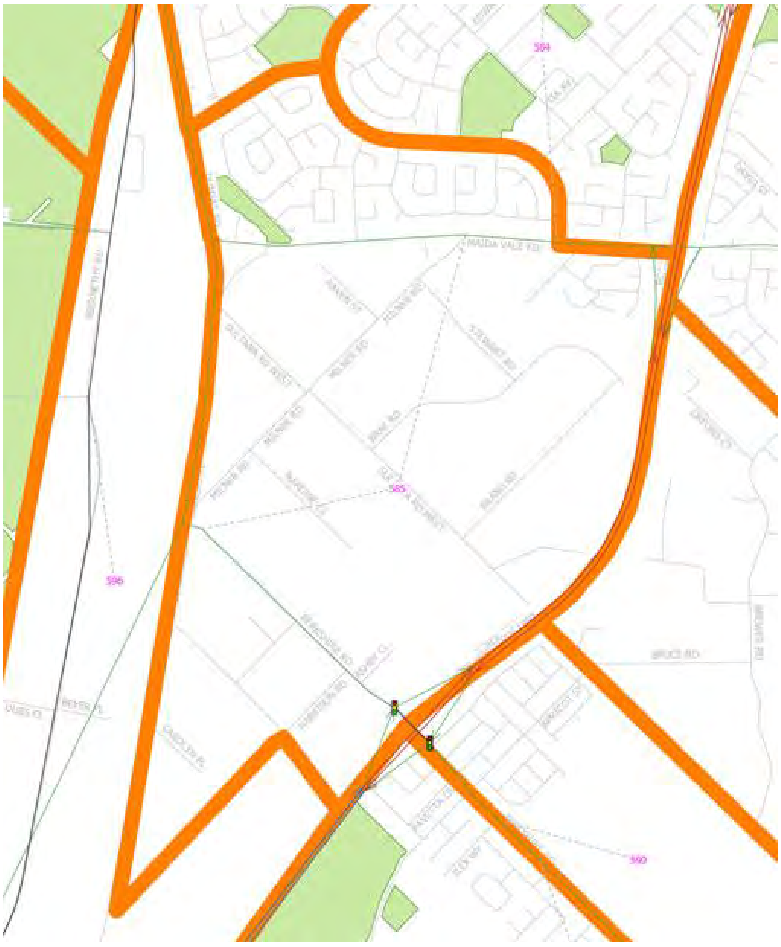
ZONE	Zone 17 - Retail	Zone 18 - Mixed Use Cell	Zone 19 - Conservation Sub-Precinct	Zone 20 - Forrestfield Station	Zone 21 - Showroom Retail	Primary School
Residential Zones	0.5% (20%)	13.5% (35%)	0% (0%)	6% (20%)	0.5% (15%)	4.5% (80%)

**Note*: It was assumed that internal trips will make 25% of the total generated trips because of the large attractors such as Forrestfield North Station, large Activity Centre and other education, shopping and employment opportunities within the Forrestfield North area.*
***Note*: Percentage in the brackets represent the share of FFN residential zones in the total traffic generated by the above land uses.*

3.4 External to External Traffic Distribution

Traffic from external to external zones was modelled to reflect, as closely as possible, the obtained data from the latest Main Roads WA ROM MLUFS 1.4 Model for 2031 and 2041. The difference between results may occur due to the network level of detail. Furthermore, KCTT has modified the projected volumes on Dundas Road and Berkshire Road based on the following items:

- Zone 585 comprises Forrestfield North Project Area, Forrestfield North Industrial Area, a portion of the residential area in the southern portion of High Wycombe and a portion of the Forrestfield Industrial Area. The image, for ease of reference, is shown below.



Given the location of the links in question (Berkshire Road, west of Roe Highway; Dundas Road, south of Berkshire Road and Dundas Road, north of Berkshire Road), and their relative position to the Zone 585; in the traffic discharged from the Zone 585 to either of these links is improbable. Therefore, to estimate the impact of Zone 585 on this section of the network, discharged traffic can be added.

Based on the ROM model plots, Zone 585 discharges cumulatively 46,000 VPD on these three links via one of the connectors. This volume does not include traffic discharged on Maida Vale Road as the key remaining distributor.

<u>Proposal for further modelling:</u>

Passing traffic is to be established by removing the immediate impact of zone 585 on the links mentioned above from the ROM plots. The network model is finer grain than the ROM model; therefore, Zone 585 was split between several zones. The Industrial, High Wycombe residential, and Forrestfield North Project Area are modelled as separate zones.

The most recent traffic count data indicate annual growth of 2.22% on Dundas Road. This growth is in line with our initial assumptions. The most recent traffic count data on Berkshire Road indicate a significant growth (approximately 11% per annum); however, early traffic counts were taken at the time when the Berkshire Road / Roe Highway interchange was in construction. For this reason, recorded traffic growth may appear to be skewed.

We ran a quick analysis on Dundas Road south of Berkshire Road as follows:

- The ROM model shows total anticipated traffic as 23,100 VPD;
- Approximately 17,400 VPD originates from Zone 585:
- Therefore, passing traffic can be estimated as 5,700 VPD
- The most recent traffic recorded on this section of Dundas Road by MRWA is 3,974 VPD. Applying a 2.22% growth rate over 20 years, we arrive at 5,863 VPD. This volume corresponds to a 5,700 VPD estimate, notwithstanding that some traffic from the Forrestfield Industrial Area may be included in this set of counts.

In summary, we propose that passing traffic targets should be derived by removing Zone 585 impacts as recorded in the ROM model.

-

KCTT have utilised the ROM24 2031 daily volumes to create the demand matrix and distribute the traffic between the 8 external zones. The traffic demands between any two zones were estimated and calibrated using Paramics modelling software, until the traffic flows reflected the ROM24 data as closely as possible, expect for the volumes specified above.

Annual growth rate was derived from calibration plot sheets and Model 2031 plot sheets through comparison of the projected traffic volumes on the same locations. Base traffic volumes for 2050 were calculated by applying the derived annual growth rate to the traffic volumes for 2031 and 2041.

4. Structure Plan Impact on Internal and Surrounding External Road Network

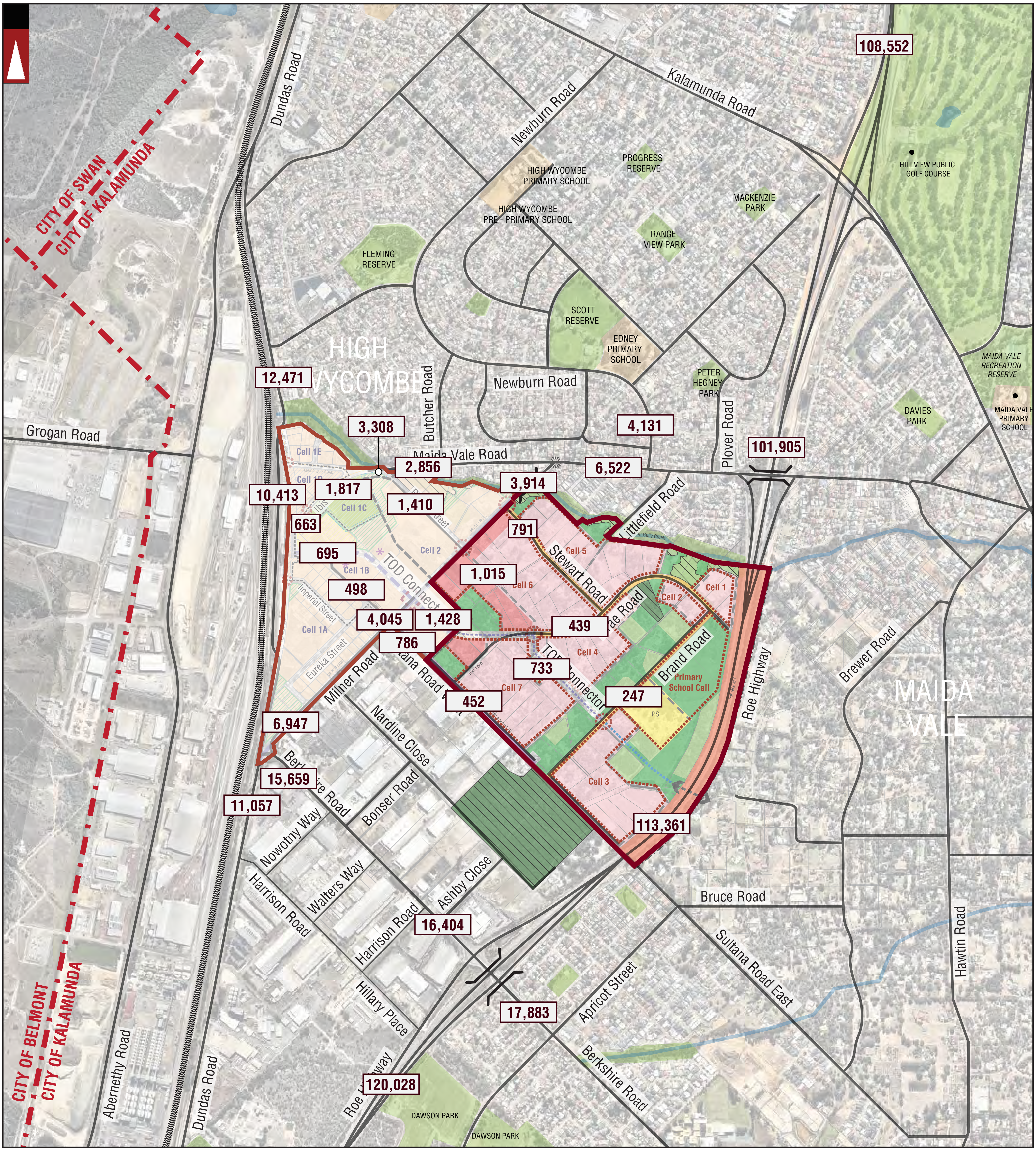
The table below shows anticipated traffic on all major roads within the precinct. Traffic generated by the Residential Precinct was expressed as volume and percentage of total traffic volumes.

Road (Link)	Section	Total Daily Traffic (2031)	External Daily Traffic (2031)	Residential Precinct (2031)	Total Daily Traffic (2050)	External Daily Traffic (2050)	Residential Precinct (2050)
Roe Highway	South of Berkshire Road	120,028	119,171 99.29%	561 0.47%	158,183	153,824 97.24%	3,296 2.08%
	Between Berkshire Rd and Maida Vale Rd	113,361	113,310 99.96%	44 0.04%	140,469	140,182 99.80%	233 0.17%
	North of Maida Vale Road	101,905	101,898 99.99%	0 0.00%	125,922	125,868 99.96%	0 0.00%
	North of Kalamunda Road	108,552	108,026 99.52%	483 0.44%	139,007	136256 98.02%	2,543 1.83%
Berkshire Road	West of Roe Hwy	16,404	14,422 87.92%	681 4.15%	25,843	18,302 70.82%	4,017 15.54%
	East of Roe Hwy	17,883	16,721 93.50%	164 0.92%	31,805	28,444 89.43%	954 3.00%
	South of Milner Rd	15,659	13,606 86.89%	741 4.73%	24,915	17301 69.44%	4,078 16.37%
Dundas Road	South of Berkshire Road	11,057	10,443 94.45%	325 2.94%	15,169	13,236 87.26%	1,173 7.73%
	South-west from Old Dundas Road alignment	10,413	9,600 92.19%	0 0.00%	13,680	12,306 89.96%	0 0.00%
	North of Old Dundas Road alignment	12,471	10530 84.44%	599 4.80%	19,964	13407 67.16%	3,045 15.25%
Maida Vale Road	East of Ibis Place	3,308	930 28.11%	682 20.62%	7,620	1,101 14.45%	3,600 47.24%
	East of Raven Street	2,856	1,154 40.41%	0 0.00%	4,422	1,231 27.84%	32 0.72%
	East of Milner Rd	6,522	4114 63.08%	789 12.10%	13,072	4178 31.96%	4,892 37.42%
Milner Road	South of Maida Vale Rd	3,914	2,864.00 73.17%	789 20.16%	9,288	2,747 29.58%	4,892 52.67%

	South of TOD Connector	4,045	3,001	882	8,110	2,820	4,393
			74.19%	21.80%		34.77%	54.17%
	North of Berkshire Rd	6,947	5217	1,066	12,928	5073	5,437
			75.10%	15.34%		39.24%	42.06%
Enterprise Boulevard	West of Maida Vale Rd	1,817	0	51	3,631	0	302
			0.00%	2.81%		0.00%	8.32%
	North of TOD Connector	663	0	21	1,924	0	103
			0.00%	3.17%		0.00%	5.35%
Raven Street	South of Maida Vale Rd	1,410	456	682	5,602	396	3,632
			32.34%	48.37%		7.07%	64.83%
	South of Milner Rd	1,015	0	1,015	5,984	0	5,984
			0.00%	100.00%		0.00%	100.00%
Stewart Road	East of Milner Rd	791	0	791	4,739	0	4,739
			0.00%	100.00%		0.00%	100.00%
TOD Connector	East of Milner Rd	1,428	319	804	6,432	323	4,464
			22.34%	56.30%		5.02%	69.40%
	South of Ibis Pl	695	0	129	2,322	0	555
			0.00%	18.56%		0.00%	23.90%
	South of Brae Rd	733	0	733	4,520	0	3,765
			0.00%	100.00%		0.00%	83.30%
Sultana Road West	West of Milner Rd	498	0	20	1,586	0	338
			0.00%	4.02%		0.00%	21.31%
	East of Milner Rd	786	564	184	1,872	554	1,081
			71.76%	23.41%		29.59%	57.75%
	West of Brae Street	452	217	209	1,664	180	1,332
			48.01%	46.24%		10.82%	80.05%
Newburn Road	North of Maida Vale Road	4,131	3534	483	6,568	3593	2,567
			85.55%	11.69%		54.70%	39.08%
Brae Road	East of TOD Connector	439	0	439	2,599	0	2,698
			0.00%	100.00%		0.00%	103.81%
Brand Road	North of TOD Connector	247	0	247	2,011	0	2,386
			0.00%	100.00%		0.00%	118.65%

5. Paramics Output

The following pages show graphs with extracted traffic volumes from Paramics models for 2031 and 2050. Graphs are also divided into volumes for internal and volumes for the internal networks.



LEGEND

PARKS AND RECREATION

WATERWAYS

PUBLIC PURPOSE

FORRESTFIELD SUBURB

ROAD

Hay Street STREET NAME

RAILWAY

ROAD BRIDGE

DISTANCE FROM LOCATION

RESIDENTIAL PRECINCT BOUNDARY

TOD PRECINCT BOUNDARY

CITY OF KALAMUNDA LOCAL GOVERNMENT NAME

LOCAL AUTHORITY BOUNDARY

30,500 TOTAL DAILY ANTICIPATED TRAFFIC - 2031

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

MANAGEMENT SYSTEMS REGISTERED TO ISO 9001

No	DATE	AMENDMENT
E	27-07-2021	PROPOSED LAYOUT AMENDED
D	23-04-2020	PROPOSED LAYOUT AMENDED
C	08-04-2020	PROPOSED LAYOUT AMENDED
B	12-04-2018	PROPOSED LAYOUT AMENDED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: TOTAL DAILY ANTICIPATED TRAFFIC - 2031

DRAWING NUMBER: KC00604.000_ S06A

DRAWN BY: J.S.

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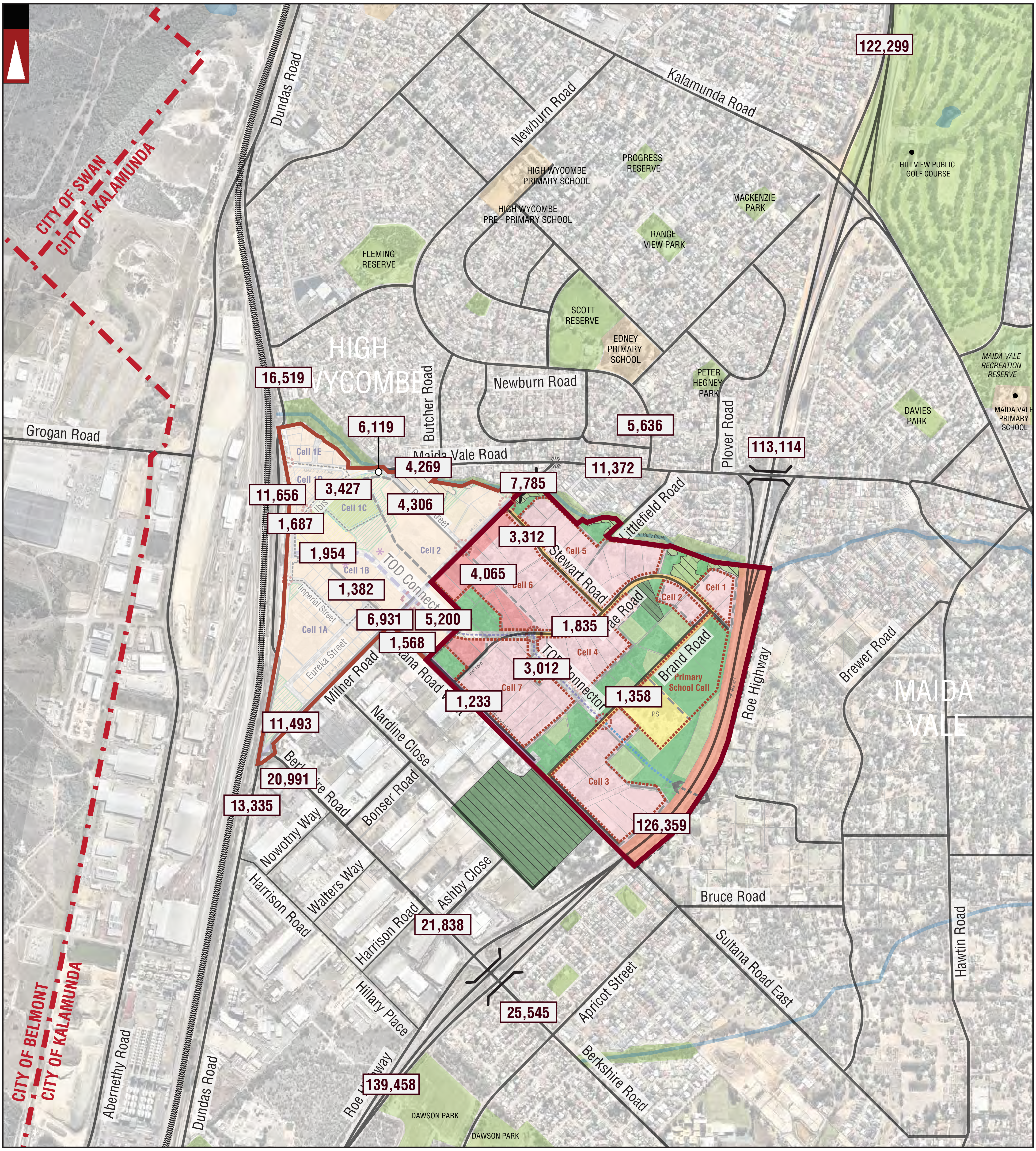

LEGEND

PARKS AND RECREATION	ROAD	RESIDENTIAL PRECINCT BOUNDARY			
WATERWAYS	Hay Street — STREET NAME	TOD PRECINCT BOUNDARY	30,500	TOTAL DAILY ANTICIPATED TRAFFIC - 2041	
PUBLIC PURPOSE	RAILWAY	CITY OF KALAMUNDA — LOCAL GOVERNMENT NAME			
FORRESTFIELD — SUBURB	ROAD BRIDGE	LOCAL AUTHORITY BOUNDARY			
	DISTANCE FROM LOCATION				

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

MANAGEMENT SYSTEMS REGISTERED TO ISO 9001

No	DATE	AMENDMENT
E	27-07-2021	PROPOSED LAYOUT AMENDED
D	23-04-2020	PROPOSED LAYOUT AMENDED
C	08-04-2020	PROPOSED LAYOUT AMENDED
B	12-04-2018	PROPOSED LAYOUT AMENDED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: TOTAL DAILY ANTICIPATED TRAFFIC - 2041

DRAWING NUMBER: KC00604.000_ S06B

DRAWN BY: J.S.

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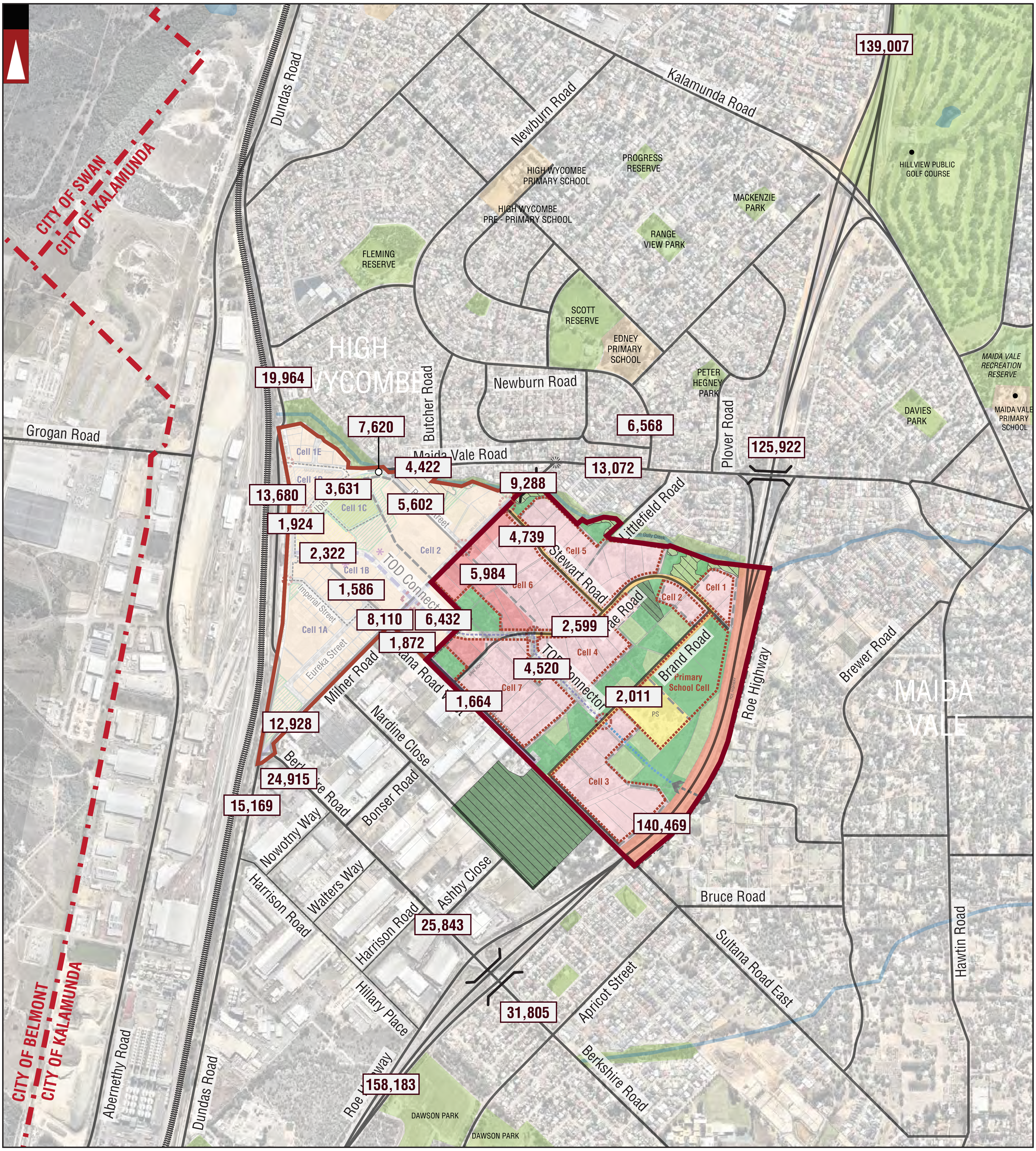

LEGEND

PARKS AND RECREATION	ROAD	RESIDENTIAL PRECINCT BOUNDARY	30,500 TOTAL DAILY ANTICIPATED TRAFFIC - 2050+
WATERWAYS	Hay Street STREET NAME	TOD PRECINCT BOUNDARY	
PUBLIC PURPOSE	RAILWAY	CITY OF KALAMUNDA LOCAL GOVERNMENT NAME	
FORRESTFIELD SUBURB	ROAD BRIDGE		
	DISTANCE FROM LOCATION	LOCAL AUTHORITY BOUNDARY	

NOTE: THE PLAN IS COURTEOUSY OF ELEMENT

MANAGEMENT SYSTEMS REGISTERED TO ISO 9001

No	DATE	AMENDMENT
E	27-07-2021	PROPOSED LAYOUT AMENDED
D	23-04-2020	PROPOSED LAYOUT AMENDED
C	08-04-2020	PROPOSED LAYOUT AMENDED
B	12-04-2018	PROPOSED LAYOUT AMENDED

PROJECT: FORRESTFIELD NORTH - RESIDENTIAL PRECINCT

TITLE: TOTAL DAILY ANTICIPATED TRAFFIC - 2050+

DRAWING NUMBER: KC00604.000_ S06C

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