8) Appendix H

Traffic and Transport Assessment
Prepared by
The Transport Planning Partnership

Dural Health Hub
679-685 Old Northern Road, Dural
Transport Impact Assessment

Prepared for:

Healing ONR

9 March 2022

The Transport Planning Partnership

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Dural Health Hub
679-685 Old Northern Road, Dural
Transport Impact Assessment

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V03	09/03/22	Ashwini Uthishtran	Oasika Faiz	Ken Hollyoak	

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1 Introduction

1.1 Background

This traffic and parking impact assessment report relates to a planning proposal at 679-685 Old Northern Road, Dural. The planning proposal is seeking to introduce a site specific 'Additional Permitted Use' in the RU2 Rural Landscape zone under Schedule 1 of the Hornsby Local Environment Plan 2013 to permit development for the purpose of a 'health services facility' and increase the height control from 10.5m to 14.0m.

The planning proposal is to be lodged with Hornsby Shire Council (Council). The Transport Planning Partnership (TTPP) has prepared this report on behalf of Healing ONR to accompany the planning proposal and assess the traffic and parking implications of the proposed development.

The remainder of the report is set out as follows:

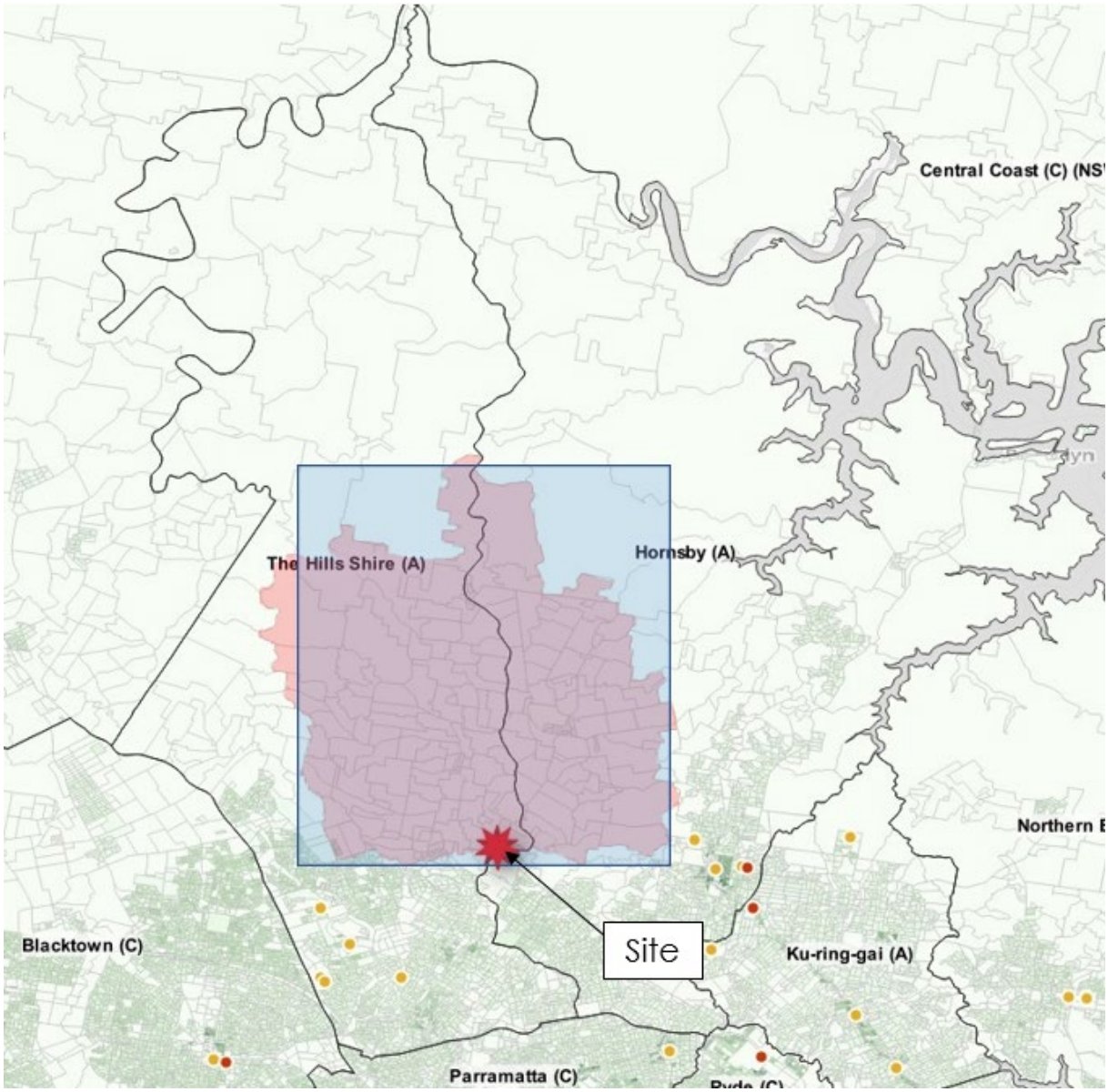
- Chapter 2 discusses the existing conditions including a description of the site
- Chapter 3 provides a brief description of the proposed development
- Chapter 4 assesses the parking requirements
- Chapter 5 examines the traffic generation and its impact,
- Chapter 6 presents the conclusions of the assessment.

1.2 Strategic Context

Based on the 'Dural Health Hub Market Assessment' (HPI, 2022), there are no hospitals and only a few independently run medical centres or sole practitioners to the north of the proposed site. The catchment to the north of Dural is poorly serviced for inpatient beds, as well as same day and outpatient services. The proposed health services facility has the potential to provide health care closer to home for residents in the north.

The location of the site within the outlined catchment area is shown in Figure 1.1.

Figure 1.1: Catchment Area



Source: Dural Health Hub Market Assessment (HPI, 2022)

The Hornsby Local Strategic Planning Statement (LSPS) sets out a 20-year vision for land use; the special character and values that are to be preserved; shared community values; and how Hornsby Shire Council will manage growth and change.

An aim of the Hornsby LSPS is to ensure that health services continue to adequately serve the community into the future, and is a catalyst for local employment growth, which is to be supported by close partnerships with NSW Health and local private health services. The LSPS further states that '*Council will investigate options to enhance the provision of the local health and education services and ensure that any new health and education facilities and services are delivered alongside any expected growth*'.

The Hornsby LSPS identifies a Productive Priority relevant to the proposal, which is '*Prioritising local employment opportunities, and improvements to services, amenities, and infrastructure to support the future population*'.

The proposal will provide local employment opportunities during construction and operation, resulting in new and improved health services and health infrastructure to support the current and future population.

Old Northern Road is proposed to have future upgrades undertaken by TfNSW. However, the extent and timing of these works are unknown at the time of writing this report. There is also anecdotal evidence of a Galston to Dural Bypass. These improvements will support long-term accessibility for the proposal and future growth within the Dural area and surrounds.

2 Existing Conditions Assessment

2.1 Site Description

The site is located at 679-685 Old Northern Road, Dural (shown in Figure 2.1) which is situated within the local government area of Hornsby Shire Council (Council). The Site is currently zoned as RU2 Rural Landscape and SP2 Infrastructure under the Hornsby Local Environment Plan 2013 (HLEP2013).

It is bound by a veterinary clinic to the north, residential dwellings to the south, seniors living development to the east and Old Northern Road to the west.

There are currently two residential dwellings on site, accessed via two separate vehicle driveways on Old Northern Road.

Figure 2.1: Site Locality

Map Source: Nearmap

2.2 Surrounding Road Network

Old Northern Road is a state arterial road providing a north-south link to the wider regions of Sydney's north. In the immediate vicinity of the site, the road is configured as a two-way road with two traffic lanes provided in each direction. The posted speed limit on Old Northern Road is 60km/h.

Franlee Road is a local no through road primarily catering to residents and the current childcare centre (has a recent DA approval for a public worship and community facility). Franlee Road is an undivided two-way road with a sealed pavement width of approximately 5.7m. There are no parking restrictions along both side of the road and vehicles occasionally park on the unsealed shoulder. The default speed limit on Franlee Road is 50km/h.

Stonelea Court is a local road that provides access to a retirement village (Mountainview Retreat Retirement Village), a residential aged care facility (Bupa Aged Care Dural) and Round Corner Town Centre retail precinct. It is a two-way road with one lane in either direction. Kerbside parking is only permitted for residents and visitors of the Mountainview Retreat Retirement Village. There is a sign posted speed limit of 25km/h.

2.3 Existing Traffic Volumes

TTPP commissioned intersection counts on Thursday, 29th October 2020 and Saturday 31st October 2020 at the following intersections:

- Old Northern Road – New Line Road
- Old Northern Road – Glenhaven Road.

The intersection peak periods were identified as shown in Table 2.1.

Table 2.1: Intersection peak periods

Intersection	AM Peak	PM Peak	Saturday Peak
Old Northern Road – New Line Road	8:00am – 9:00am	4:00pm – 5:00pm	11:30am – 12:30pm
Old Northern Road – Glenhaven Road	7:45am – 8:45am	4:00pm – 5:00pm	12:00pm – 1:00pm

As part of the Round Corner Town Centre Expansion Site at 488-494 Old Northern Road, Dural, TTPP also commissioned traffic surveys on Thursday, 21st November 2019 during the AM peak and PM peak and Saturday, 23rd November 2019 at the following intersections:

- Old Northern Road – Kenthurst Road
- Old Northern Road – Stonelea Court
- Old Northern Road – Franlee Road

The peak periods for the road network consisting of the aforementioned three intersections were identified as follows:

- AM Peak: 8:00am – 9:00am
- PM Peak: 3:15pm – 4:15pm
- Saturday Peak: 12:00pm – 1:00pm

The existing traffic movement volumes at the abovementioned intersections during the peak periods are shown in Appendix A.

2.4 Public Transport Facilities

The bus route services along Old Northern Road provide public transport to neighbouring suburbs such as Castle Hill, Cherrybrook, Pennant Hills, Galston, Arcadia and Berowra Waters as well as Parramatta and the Sydney CBD. The nearest bus stops on Old Northern Road are within 40-70m walking distance of the site at the following locations:

- Northbound bus stop: 70m north of the site
- Southbound bus stop: 40m south of the site

A summary of the public transport services available near the site and the typical service frequencies is presented in Table 2.2.

Table 2.2: Public Transport Services

Bus Service No.	Route Description	Frequency	
		Peak	Off-Peak
604	Dural to Parramatta via Castle Hill	Every 30 mins	Every 30-60 mins
637	Glenorie to Castle Hill via Galston & Round Corner	Every 30 mins	Every 60 mins
638	Berowra Waters to Pennant Hills or Castle Hill	Every 30-60 minutes	3 services
639	Maraylya to Dural and Castle Hill	AM Peak: 1 service	2 services
641	Dural to Rouse Hill	AM Peak: 1 service PM Peak: 3 services	2 services
642X	Dural to City Wynyard via Land Cove Tunnel (Express Service)	AM Peak: Every 7-20 mins PM Peak: Every 30 mins	Every 10-30 mins

Source: Transport for NSW, last accessed 17/11/2021

There are limited public transport facilities to Hornsby including Hornsby Ku-ring-ai Hospital. Similarly, the proposed Rouse Hill Hospital which will be situated in the corner of Commercial Road and Windsor Road will not be easily accessible by public transport for residents in the north. The aging population are less likely able to drive so it is vital that good public transport facilities are available. The proposed health services facility has the potential to provide health care closer to home for residents in the north.

2.5 Pedestrian and Cycling Facilities

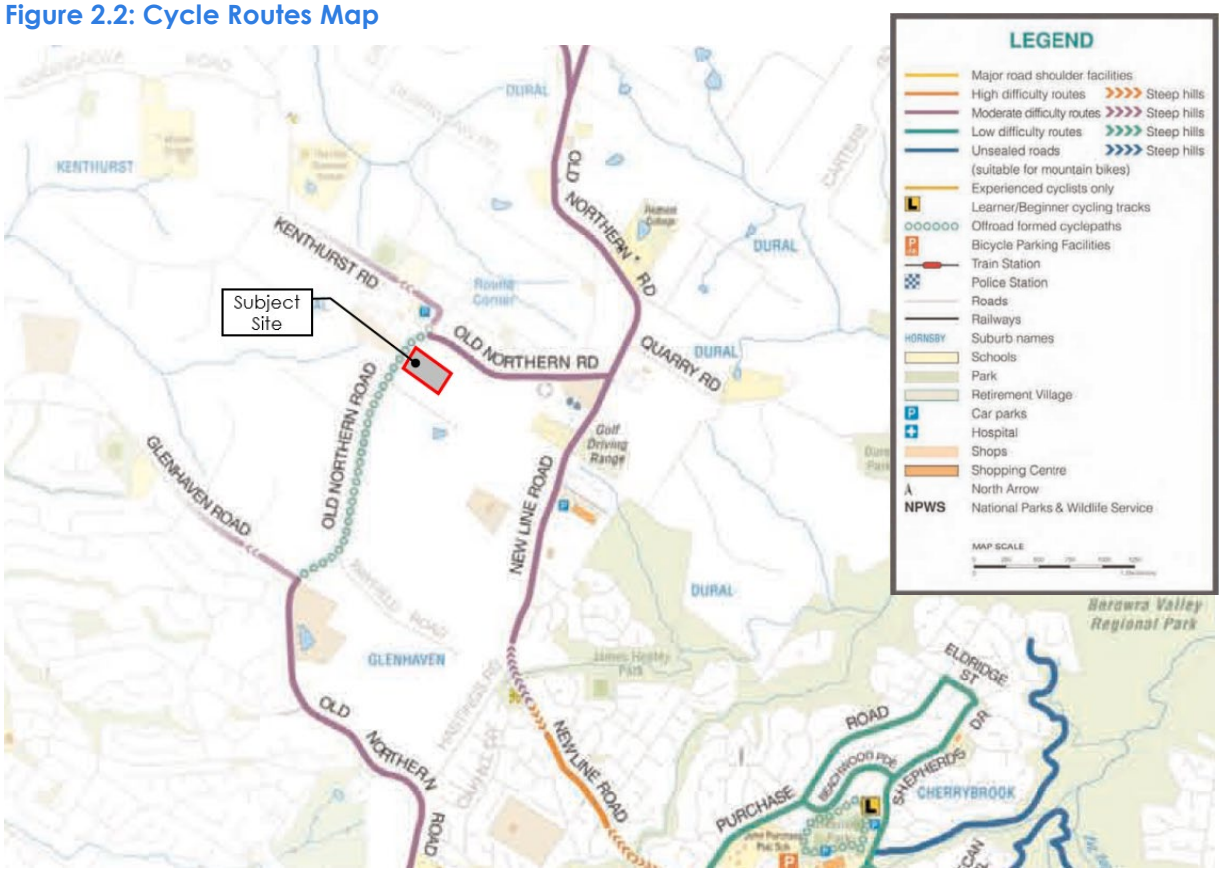
A sealed pedestrian footpath is provided along the west side of Old Northern Road.

A pedestrian refuge island on Old Northern Road south of Stonelea Court and a signalised pedestrian crossing at the Old Northern Road and Kenthurst Road intersection are available to provide safe crossing opportunities across Old Northern Road.

The Hornsby Shire Cycling Map 2008 identifies that there are low to moderate difficulty cycling routes with off-road formed cycle paths along the western side of Old Northern Road in the near vicinity of the site.

The existing cycle network surrounding the site is shown in Figure 2.2.

Figure 2.2: Cycle Routes Map



Source: Hornsby Shire Cycling Map 2008

3 Proposed Development

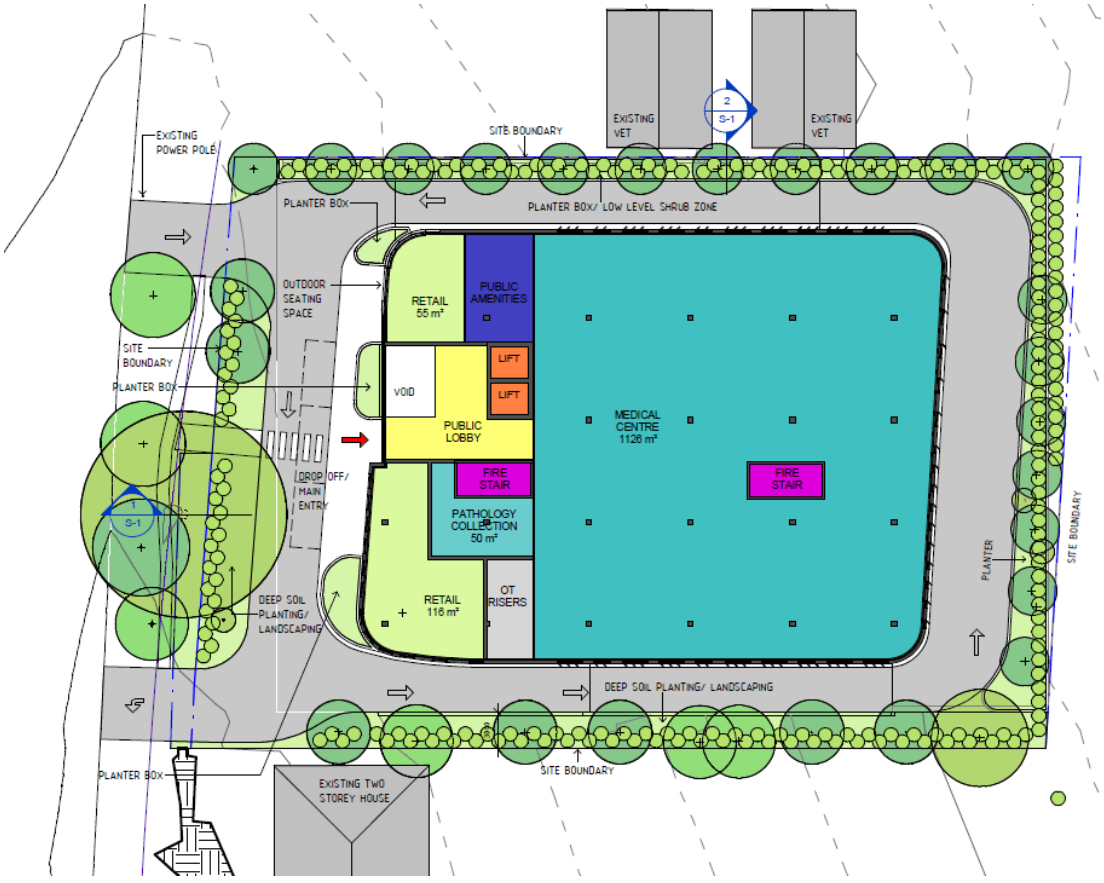
3.1 Overview of the Indicative Concept Plan

An indicative concept plan has been prepared to support the Planning Proposal. The indicative concept plan for the three-storey health services facility seeks to facilitate the following:

- Medical centre, pathology collection area, medical imaging centre with 16 rooms
- Specialist consulting space with 19 rooms
- Retail space with 172m^2 GFA
- Laboratories and a day surgery with 4 operating rooms, 20 recovery bays and 15 short stay beds + 45 staff (assumed)
- Two basement car parking levels accommodating 164 spaces

The proposed ground floor layout is presented in Figure 3.1.

Figure 3.1: Indicative Ground Floor Concept Layout



Source: Health Projects International

3.2 Proposed Vehicle Access Arrangements

The proposal provides two driveways on Old Northern Road as part of the proposed health services facility. The northern driveway is for left turn entry only while the southern driveway is for left turn exit via Old Northern Road.

In addition, there are internal roads with widths ranging between 3.5m and 6.5m providing one-way traffic circulation in an anti-clockwise direction around the building envelope. Drop off activities would be undertaken at the western frontage of the building and access to the basement car park and loading dock will be at the eastern frontage of the building.

Whilst it is anticipated that a 6.4m Small Rigid Vehicle (SRV) would access the loading dock, the internal roads will be designed to accommodate up to an 8.8m Medium Rigid Vehicle (MRV) to enter and exit the site in a forward direction, suitable for health-related service vehicles.

Figure 3.1 shows the proposed site access arrangement.

The indicative concept plan includes basement parking accommodating approximately 164 spaces which would be designed as User Class 3 (2.6m wide x 5.4m long and 5.8m wide aisle) in accordance with *AS2890.1*.

A Class 3 parking facility with access off an arterial road (i.e., Old Northern Road) would need to be designed as a Category 4 Access as shown in Figure 3.2.

Figure 3.2: Selection of Access Facility Category

TABLE 3.1

SELECTION OF ACCESS FACILITY CATEGORY

Class of parking facility (see Table 1.1)	Frontage road type	Access facility category				
		Number of parking spaces (Note 1)				
		<25	25 to 100	101 to 300	301 to 600	>600
1,1A	Arterial	1	2	3	4	5
	Local	1	1	2	3	4
2	Arterial	2	2	3	4	5
	Local	1	2	3	4	4
3,3A	Arterial	2	3	4	4	5
	Local	1	2	3	4	4

NOTES:

1 When a car park has multiple access points, each access should be designed for the number of parking spaces effectively served by that access.

2 This Table does not imply that certain types of development are necessarily suitable for location on any particular frontage road type. In particular, access to arterial roads should be limited as far as practicable, and in some circumstances it may be preferable to allow left-turn-only movements into and out of the access driveway.

Source: AS2890.1:2004 Parking Facilities Part 1: Off-street Car Parking

As shown in Figure 3.3, AS2890.1 indicates that a Category 4 Access will require separate 6m to 8m wide entry and exit driveways with 1m to 3m separation between entry and exit driveways.

Figure 3.3: Access Driveway Widths

TABLE 3.2

ACCESS DRIVEWAY WIDTHS

metres

Category	Entry width	Exit width	Separation of driveways
1	3.0 to 5.5	(Combined) (see Note)	N/A
2	6.0 to 9.0	(Combined) (see Note)	N/A
3	6.0	4.0 to 6.0	1 to 3
4	6.0 to 8.0	6.0 to 8.0	1 to 3
5	To be provided as an intersection, not an access driveway, see Clause 3.1.1.		

NOTE: Driveways are normally combined, but if separate, both entry and exit widths should be 3.0 m min.

Source: AS2890.1:2004 Parking Facilities Part 1: Off-street Car Parking

The proposed driveways have been designed to comply with AS2890.1 requirements with 6m wide entry driveway and 6m wide exit driveway, demonstrating the site can cater for a health services facility.

Swept paths of the proposed access and circulation arrangements are provided in Appendix B.

4 Parking Assessment

4.1 Car Parking Requirements

The car parking requirements for the indicative concept design has been assessed against the following parking rates:

- Hornsby Development Control Plan (DCP) 2013
- RMS Guide to Traffic Generating Developments, 2002
- The Hills Development Control Plan (DCP) 2012.

4.1.1 Hornsby DCP 2013 Car Parking Rates

Hornsby Shire Council's DCP provides the following car parking rates for the relevant land uses:

- Health consulting rooms: 3 per surgery
- Medical centres: 4 per surgery
- Shops: 1 per 20m^2 GLFA

However, Hornsby Shire Council's DCP does not provide car parking rates for day surgeries/private hospitals. Consequently, we have made reference to The Hills Shire Council being the adjoining local government area (LGA).

4.1.2 RMS Guide to Traffic Generating Developments 2002 Car Parking Rates

The TfNSW Guide to Traffic Generating Developments 2002 car parking rates for private hospitals are shown in Figure 4.1

Figure 4.1: TfNSW Car Parking Rates for Private Hospitals

The peak parking accumulation (PPA) at a private hospital may be estimated by

- PPA = -19.56 + 0.85 B + 0.27 ASDS (R^2 = 0.74)

When the average number of staff per weekday day shift (ASDS) is unknown, the peak parking accumulation (PPA) may be estimated by

- PPA = -26.52 + 1.18 B R^2 = (0.63)

Source: TfNSW Guide to Traffic Generating Developments 2002

Based on the negative coefficients and as the proposed number of beds (B) would be much smaller than the hospitals that were surveyed (i.e., between 30 and 99 beds), it is not appropriate to apply the above parking formulae to the site.

4.1.3 The Hills DCP 2012 Car Parking Rates

Although the site is not situated within The Hills Shire LGA, The Hills DCP provides car parking rates for hospitals, as shown in Figure 4.2.

Figure 4.2: The Hills DCP 2012 Car Parking Rates

Health	Hospital Nursing and Convalescent Homes	1 space per 2 beds for visitors plus 1 space per 1.5 employees plus 1 space per 2.5 visiting medical officers Unless otherwise specified by Seniors Living SEPP.
	Medical Centres, Health consulting rooms	3 spaces per consulting room plus 1 space per support employee

Source: The Hills Shire DCP 2012

These car parking rates are more suitable to assess the car parking requirements of day surgery and day bed units. At this stage, the exact number of doctors and support staff for the indicative concept plan is unknown. Based on the Economic Impact Assessment Report (Atlas, 2022), it is estimated that there will be 136 FTE staff. Of the total staff, it is assumed that 45 staff will be working in day surgery/ day units and the remainder 91 staff will be working in the medical centre, health consulting and retail.

Hence for simplicity, the following car parking rates would be reasonable to adopt for the hospital component (i.e., day surgery and bed units) of the indicative concept plan:

- 1 space per 2 beds (including theatres) for patients/visitors plus
- 1 space per 2 staff (including doctors and support staff).

4.1.4 Car Parking Assessment Summary

Based on the above car parking rates, a summary of the car parking assessment is presented in Table 4.1.

Table 4.1: Car Parking Assessment

Proposed Uses	Design Yields	Car Parking Rates	DCP Car Parking Requirement	Proposed Car Parking Spaces
Medical Centre[1]	16 rooms	4 spaces per surgery	64 spaces	64 spaces
Health Consulting[1]	19 rooms	3 spaces per surgery	57 spaces	57 spaces
Retail[1]	172m²	1 space per 20m²	8.6 spaces	3 spaces
Day Surgery and Day Units[2]	35 beds/theatres (incl. overnight beds and short stay beds) + 45 staff (assumed)	1 space per 2 beds/theatres + 1 space per 2 staff	40 spaces	40 spaces
Total			**170 spaces**	**164 spaces**

[1] *Rates sourced from Hornsby DCP 2013*
[2] *Rates sourced from The Hills DCP 2012*

Table 4.1 indicates that the proposed development would require total car parking of 170 spaces. The proposed car parking provision within the two basement levels would accommodate 164 spaces, having a shortfall of 6 retail spaces. The retail parking provision of three spaces is to accommodate retail staff only. It is anticipated that the retail uses would primarily be utilised by patients, visitors and staff of the proposed health services facility and is unlikely to attract other retailers or consumers. As such, the proposed car parking requirement for retail is considered excessive and the proposed provision is considered acceptable.

4.2 Accessible Parking Requirements

The Hornsby DCP stipulates the number of minimum accessible car parking spaces required to be provided as shown in Table 4.2.

Table 4.2: Accessible Parking Requirements

Land Use	Yield	Car Parking Rates	DCP Car Parking Requirement
Health Services Facilities	161 spaces	3-4%	5-7 spaces
Retail	3 spaces	1-2%	1 space

Source: Hornsby DCP 2013

Table 4.2 shows that the Hornsby DCP requires five to seven accessible car spaces for the health and services facility and one space for the retail component of the site.

The development will comply with this requirement.

4.3 Bicycle Parking Requirements

The Hornsby DCP does not specify bicycle requirements for health care facilities.

However, consideration to the provision of bicycle parking and end-of-trip facilities should be included as part of the proposal to encourage more sustainable modes of travel to the site.

On this basis, reference to the NSW Planning Guidelines for Walking and Cycling suggests that bicycle parking should be provided at 5-10% of staff for long term staff parking and 5-10% of staff for short-term visitor parking for health services facilities.

Therefore, for the proposed 136 staff, 7-14 bicycle spaces are required for long-term staff parking and 7-14 bicycle spaces are required for short-term visitor parking.

Additionally, the Hornsby DCP specifies a requirement of 1 space per 600m^2 (GFA) for staff. Therefore, for the proposed retail area of 172m^2, one retail staff bicycle space is required.

The total bicycle parking requirement is 8-15 staff bicycle spaces and 7-14 visitor bicycle spaces.

Bicycle parking spaces provided within the proposed development would be designed in accordance with AS2890.3: Bicycle Parking Facilities.

4.4 Motorcycle Parking Requirements

Motorcycle parking must be provided at a rate of one space per 50 car parking spaces. Therefore, for a provision of 164 car spaces, four motorcycle spaces are required. It is proposed to comply with this requirement.

All motorcycle parking spaces provided would be designed in accordance with AS2890.1:2004.

4.5 Loading Bay Requirements

The Hornsby DCP states that on site loading and unloading areas for non-residential developments should be provided in accordance with Table 5.1 in the RTA Guide to Traffic Generating Development (2002) guidelines.

According to these guidelines, loading areas for retail is to be provided at the rate of 1 space per 400m^2 GFA. Adopting this rate, one loading bay is required to be provided for retail.

The guidelines do not mention a specific requirement for loading areas related to a health services facility.

Further, the Hornsby DCP states that on-site loading and unloading area in a non-residential development should incorporate provision for 1 car space and 1 motorcycle space for use by couriers, sited in a convenient location.

It is of note that motorcycle and car/van couriers will generally not park in a loading dock but bearing in mind the short stay of a courier they would generally park in a vacant visitor parking space. No specific provision has therefore been made for couriers.

5 Traffic Assessment

5.1 Traffic Generation

The traffic generation of the development has been determined based on the proposed indicative concept plan.

The traffic generation of the indicative concept plan has been assessed based on the RMS traffic study of medical centres undertaken by TEF Consulting. The following traffic rates have been applied for the medical centre and medical consulting components of the indicative concept plan:

- 2.1 vehicles per room in the weekday AM peak hour
- 2.4 vehicles per room in the weekday PM peak hour
- 2.6 vehicles per room in the Saturday midday peak hour.

The two retail tenancies have been assessed on a first principles approach which is based on the number of car parking spaces provided. A total of three car parking spaces would be provided for retail staff and hence it is assumed that three vehicles would enter in the weekday AM peak and three vehicles exit in the weekday PM peak. It is assumed that the retail staff would arrive to the site in the morning on Saturday and hence no additional vehicles would be generated in the Saturday midday peak. Visitors of the retail tenancies would primarily be the patients/visitors/staff of the health services facility and as such, vehicles generated by the patients/visitors/staff of the health services facility would account for the visitors of the retail spaces.

Similarly, the day surgery and day units have also been assessed on a first principles approach. A total of 40 car parking spaces would be provided for this component and hence it is assumed that 40 vehicles would be generated in the weekday AM and PM peaks and Saturday midday peak.

The traffic generation of the indicative concept plan has been summarised in Table 5.1.

Table 5.1: Traffic Generation

Uses	Yield	Traffic Rates based on RMS Study for Medical Centres			Traffic Generation (vph)		
		AM Peak	PM Peak	SAT Peak	AM Peak	PM Peak	SAT Peak
Medical Centre and Medical Consulting[1]	33 rooms	2.1 per room	2.4 per room	2.6 per room	74	84	91
Retail	2 spaces	Based on no. of car parking spaces provided			3	3	0
Day Surgery and Day Units	37 spaces	Based on no. of car parking spaces provided			40	40	40
Total					**117**	**127**	**131**

TfNSW Trip Generation Surveys - Medical Centres Analysis Report (TEF, 2015)

Based on Table 5.1, it is estimated that the indicative concept plan would generate approximately 117 to 131 vehicles per hour during the peak periods which equates to one to two vehicles per minute.

5.2 Traffic Modelling

5.2.1 Level of Service Criteria

TfNSW uses level of service as a performance measure to indicate the operating efficiency of a given intersection. The level of service ranges from A to F. Levels of service between A and D indicate the intersection is operating within capacity, with LoS A providing exceptionally good performance to LoS D indicating satisfactory performance. LoS E and F indicate the intersection is operating at or near capacity and generally would require intersection improvement works to maintain reasonable performance.

The level of service is directly related to the average delay experienced by vehicles travelling through the intersection. At signalised intersections, the average delay is the volume weighted average delay over all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the movement with the highest average delay per vehicle.

Table 5.2 shows the criteria that TfNSW adopts in assessing the level of service at intersections.

Table 5.2: Intersection Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity; at signals incidents would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

TfNSW Guide to Traffic Generating Developments 2002

5.2.2 Background Traffic Growth

Future traffic growth has been estimated based on the Sydney's Strategic Travel Forecast Model (STFM) provided by TfNSW. The STFM is a strategic transport planning model that considers population and employment growth and is used for high level assessment of major infrastructure proposals, transport strategies and policy decision making.

The STFM provides future year traffic volumes to determine the relative traffic growth between years for application to the baseline traffic to provide estimations for future year traffic conditions.

STFM growth rates from 2018-2026 and 2019-2036 have been applied to the relevant intersections in the local road network to determine 2026 and 2036 future base volumes respectively. The STFM growth rates for the modelled intersections are shown in Appendix C.

5.2.3 Cumulative Traffic Generation

A cumulative traffic impact analysis of the proposed development and nearby approved developments has been undertaken. The vehicle trips to be generated from the approved Round Corner Town Centre Expansion Site (488-494 Old Northern Road, Dural) and approved Maronite church development (669 Old Northern Road, Dural) have been considered in the future base cases while undertaking a cumulative traffic assessment. The traffic impact assessments for both the aforementioned approved developments were undertaken by TTPP.

The peak hourly trip generation associated with each of these developments has been summarised in Table 5.3.

Table 5.3: Cumulative Trip Generation

Development	AM Peak Trip Generation	PM Peak Trip Generation	Saturday Peak Trip Generation
Subject Site	117 trips	127 trips	131 trips
Round Corner Town Centre Expansion Site (488-494 Old Northern Road, Dural)	137 trips	327 trips	348 trips
Maronite Church Development (669 Old Northern Road, Dural)[2]	50 trips	69 trips	236 trips

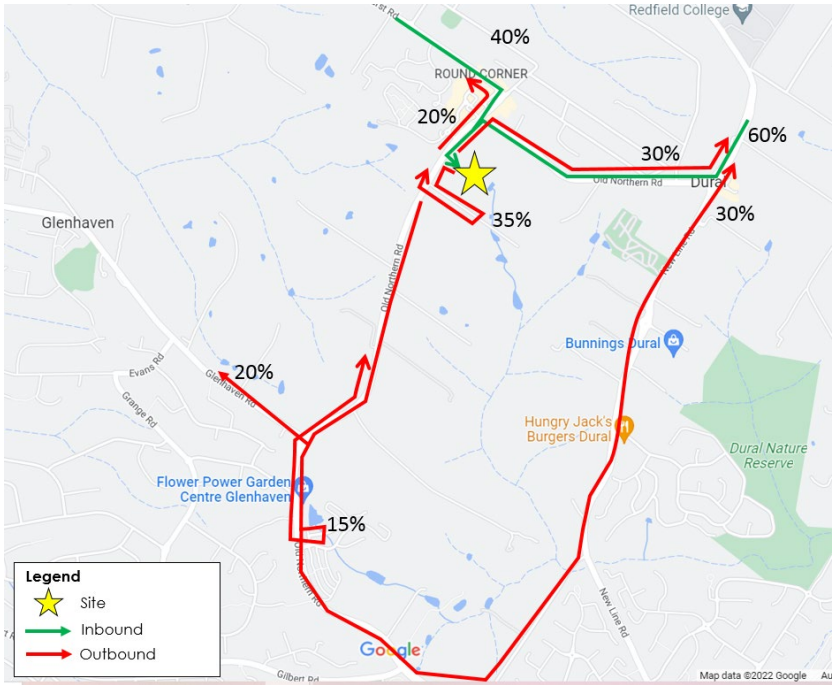
Ref - 488-494 Old Northern Road, Dural – Response to TfNSW Comments (TTPP, 2020)

5.2.4 Development Traffic Distribution

The development traffic has been distributed to the surrounding network, based on the anticipated catchment area of the proposed health services facility. The catchment area encompasses the suburbs north of the site as described in Figure 1.1.

Based on the catchment area, visitors to the site are generally expected to arrive from the north, via Kenthurst Road and Old Northern Road. On exit, all visitors would turn left out of the site and travel in the southbound direction along Old Northern Road, before utilising various routes to travel to the north. It is expected that some visitors may arrive from the south but to be conservative all traffic has been distributed to and from the north. The adopted routes for development traffic are shown in Figure 5.1.

Figure 5.1: Development Traffic Distribution



5.2.5 Scenarios

The following scenarios have been modelled using SIDRA Intersection, an industry-standard software package that analyses the operating characteristics of intersections:

- Scenario 0 – Surveyed Conditions (Year 2019)
- Scenario 1 – Year 2026 Future Base Case (includes background traffic and cumulative traffic from approved developments)
- Scenario 2 – Year 2026 plus Development Traffic
- Scenario 3 – Year 2036 Future Base Case (includes background traffic and cumulative traffic from approved developments)
- Scenario 4 – Year 2036 plus Development Traffic.

The forecast turning movement volumes for each scenario are presented in Appendix A.

5.2.6 Modelling Results

The modelling results for the surveyed conditions, year 2026 and year 2036 are shown in Table 5.4 for the AM peak hour, in Table 5.5 for the PM peak hour and in Table 5.6 for the Saturday peak hour.

It is noted that the intersection of Franlee Road and Old Northern Road is to be upgraded to a signalised intersection as part of the Round Corner Town Centre Expansion Site. This has been taken into account for the future year scenarios.

The movement summaries of the SIDRA results are provided in Appendix D.

Table 5.4: SIDRA Modelling Results AM Peak Hour

Intersection	Scenario 0 (Surveyed Conditions)		Scenario 1 (Year 2026 Base)		Scenario 2 (2026 + Development)		Scenario 3 (Year 2036 Base)		Scenario 4 (2036 + Development)	
	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS
Old Northern Road/ Kenthurst Road	34	C	29	C	34	C	91	F	100	F
Old Northern Road/ Stonelea Court	89	F	96	F	146	F	107	F	323	F
Old Northern/ Franlee Road	45	D	19	B	21	B	21	B	22	B
Old Northern Road/ New Line Road	20	B	20	B	20	B	21	B	22	B
Old Northern Road/ Glenhaven Road	18	B	19	B	19	B	21	B	21	B

Table 5.5: SIDRA Modelling Results PM Peak Hour

Intersection	Scenario 0 (Surveyed Conditions)		Scenario 1 (Year 2026 Base)		Scenario 2 (2026 + Development)		Scenario 3 (Year 2036 Base)		Scenario 4 (2036 + Development)	
	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS
Old Northern Road/ Kenthurst Road	34	C	42	C	48	D	65	E	70	E
Old Northern Road/ Stonelea Court	158	F	117	F	560	F	400	F	1524	F
Old Northern/ Franlee Road	44	D	28	B	30	C	28	B	27	B
Old Northern Road/ New Line Road	22	B	23	B	24	B	24	B	25	B
Old Northern Road/ Glenhaven Road	17	B	18	B	18	B	24	B	25	B

Table 5.6: SIDRA Modelling results Saturday

Intersection	Scenario 0 (Surveyed Conditions)		Scenario 1 (Year 2026 Base)		Scenario 2 (2026 + Development)		Scenario 3 (Year 2036 Base)		Scenario 4 (2036 + Development)	
	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS	Ave Delay	LoS
Old Northern Road/ Kenthurst Road	31	C	56	D	58	E	76	F	83	F
Old Northern Road/ Stonelea Court	90	F	214	F	1007	F	707	F	1872	F
Old Northern/ Franlee Road	36	C	32	C	38	C	39	C	56	D
Old Northern Road/ New Line Road	22	B	23	B	24	B	25	B	26	B
Old Northern Road/ Glenhaven Road	16	B	17	B	17	B	18	B	19	B

Table 5.4-Table 5.6 shows that the study intersections currently operate at a LoS B-D, except for Old Northern Road – Stonelea Court, which is operating at a LoS F. The Old Northern Road – Stonelea Court intersection is at capacity due to the right turn movements in to and out of Stonelea Court. This delay relates to the right turn movements, where vehicles are required to give way to through traffic along Old Northern Road.

The addition of development traffic (i.e., Scenario 2) indicates that the development has a minor impact on the study intersections with delays increasing by a few seconds. The exception is the Old Northern Road – Stonelea Court intersection, with delays to the right turn movements expected to increase with an associated increase in through traffic along Old Northern Road. However, the right turn movements will be at capacity by 2026 due to general traffic growth (e.g., due to population growth) and from nearby approved developments such as the Round Corner Town Centre Expansion Site and the Maronite Church, with or without the proposed health services facility. Realistically, drivers would already be rerouting to other movements rather than experience the delays associated with turning right, following any growth in background traffic, regardless of whether the proposed development proceeds or not.

The identification of traffic capacity issues at the Stonelea Court intersection was also evident in TTPP's letter response to TfNSW comments (2020) for the Round Corner Town Centre Expansion Site.

In the 2036 scenarios, Old Northern Road-Kenthurst Road is at capacity due to background traffic growth, with a LoS E-F. The addition of traffic from the proposed development would result in increased delays by five to 10 seconds at Old Northern Road-Kenthurst Road, which is considered an acceptable difference in delay.

The impact to delays at the remaining intersections as a result of the development is modelled to be nominal.

Overall, the analysis indicates that the unrelated background growth in traffic would result in the road network nearing capacity in the future. Comparatively, the additional development-generated traffic is expected to have a minor impact on the road network.

Notwithstanding this, background traffic growth is experienced throughout Sydney due to general population growth and increased approved developments. However, with the increasing aging population, it is important that health service facilities such as the proposed development are provided in town centres that are accessible by public transport, and vehicles via the main arterial road.

6 Conclusion

This study details our assessment of the traffic and transport implications associated with the proposed health services facility located at 679-685 Old Northern Road, Dural. The key findings of this report are presented below.

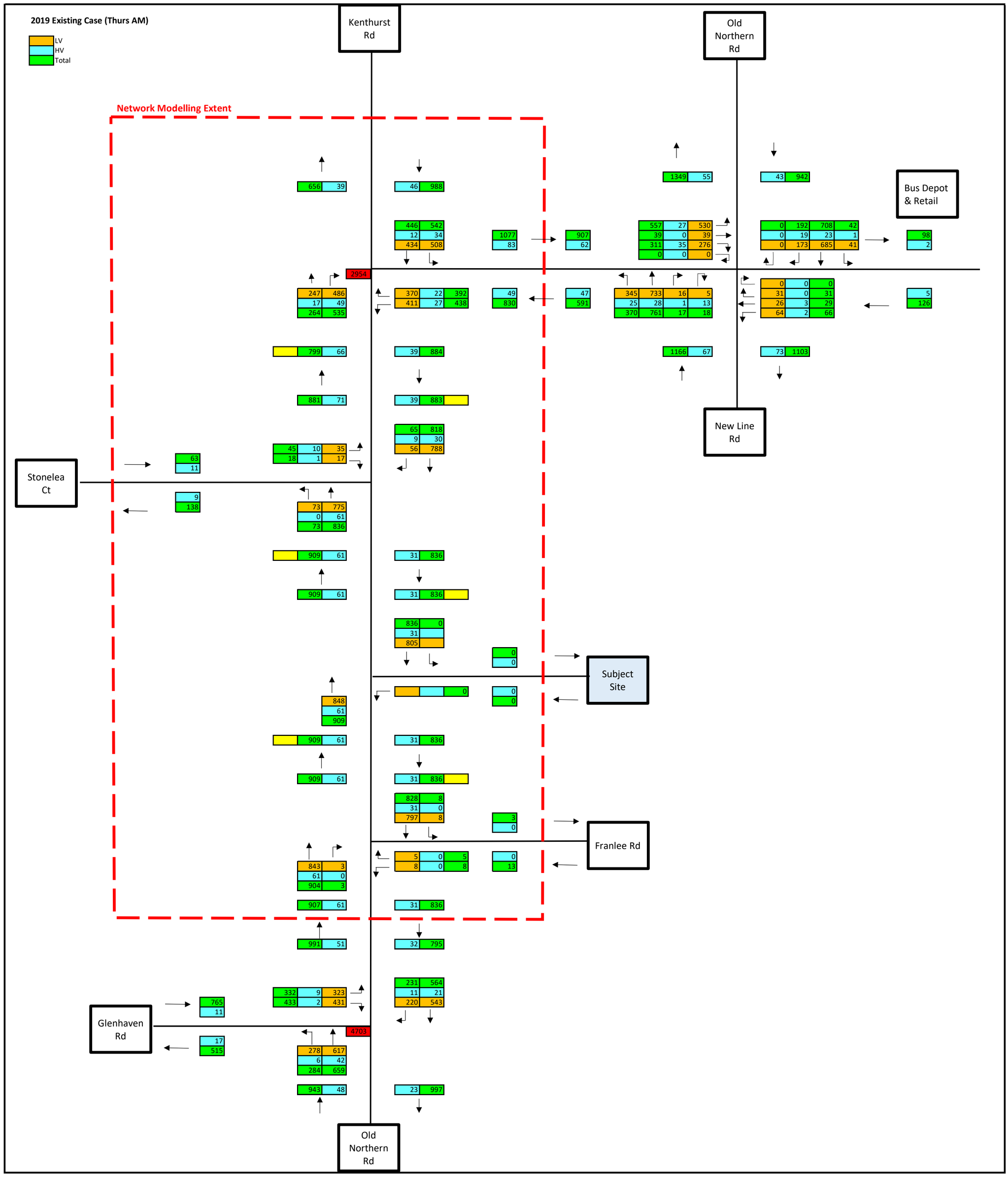
- The planning proposal is seeking to introduce a site-specific 'Additional Permitted Use' in the RU2 Rural Landscape zone under Schedule 1 of the Hornsby Local Environmental Plan 2013 to permit development for the purpose of a 'health services facility' and to increase the height control from 10.5m to 14m.
- Access to the site will be provided via two driveways on Old Northern Road as part of the proposed health services facility. The northern driveway is for left turn entry only while the southern driveway is for left turn exit via Old Northern Road.
- The proposal is estimated to generate 117 vehicle movements per hour in the morning peak, 127 vehicle movements per hour in the afternoon peak and 131 vehicle movements during the Saturday peak.
- SIDRA network modelling has been undertaken on Old Northern Road, to assess the impact of the additional traffic on the road network, for the years 2026 and 2036.
- The traffic generated by the proposed development would have a minor impact to the surrounding road network, relative to the surrounding approved developments and growth expected in the area and noting the existing poor performance of the Old Northern Road-Stonelea Court intersection. The level of service at all intersections would generally not worsen as a result of the proposed health services facility and will continue to operate at these levels regardless of whether the proposed development proceeds or not.

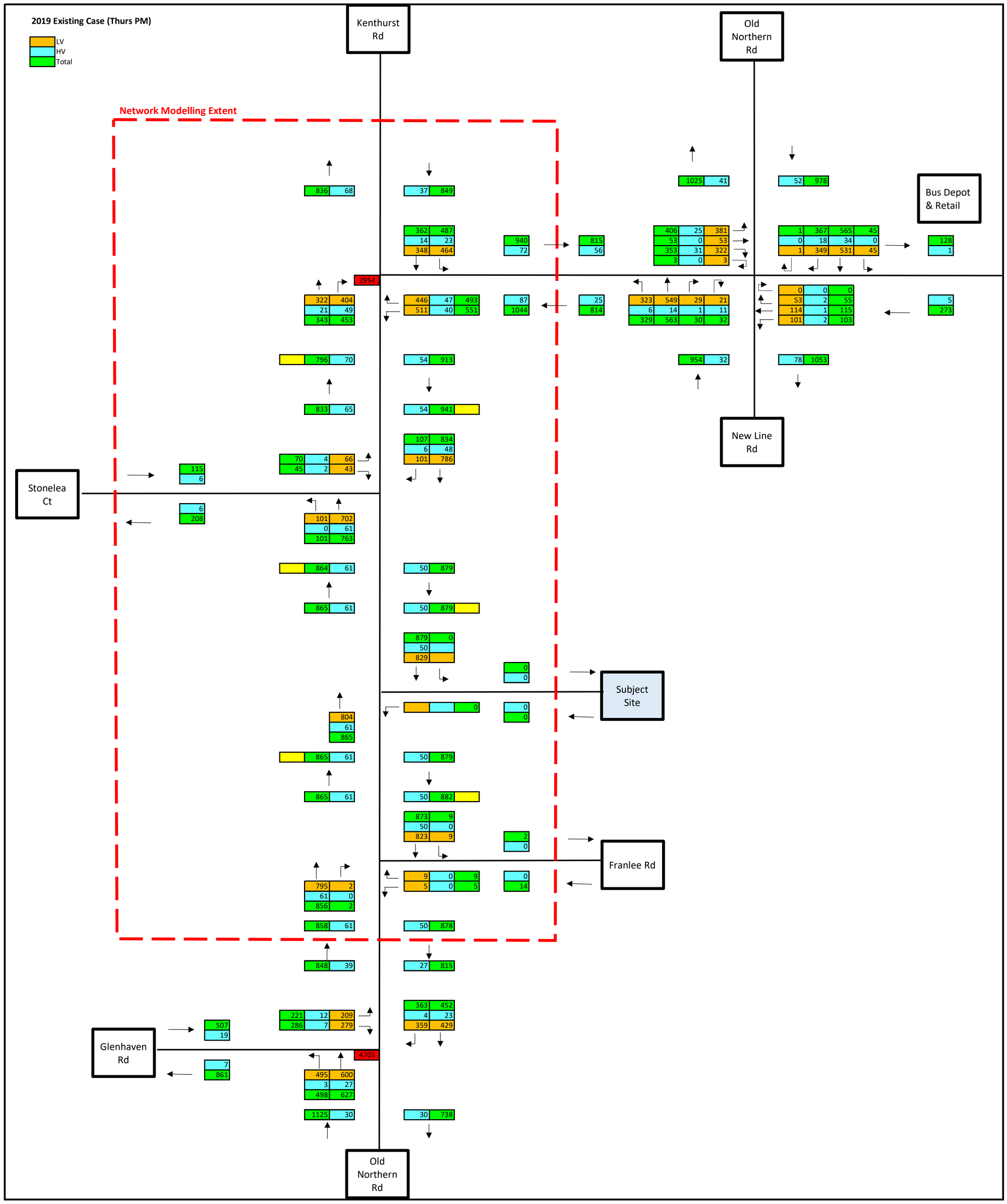
In summary by 2036, as a result of background traffic growth and approved developments, the LoS of some intersections will be working at close to or operating above capacity. This is an issue being faced across Sydney. Whether the proposed development proceeds or not, the LoS will continue to operate at a near or over capacity. The proposed development will not worsen the 2036 intersection performance to any great extent.

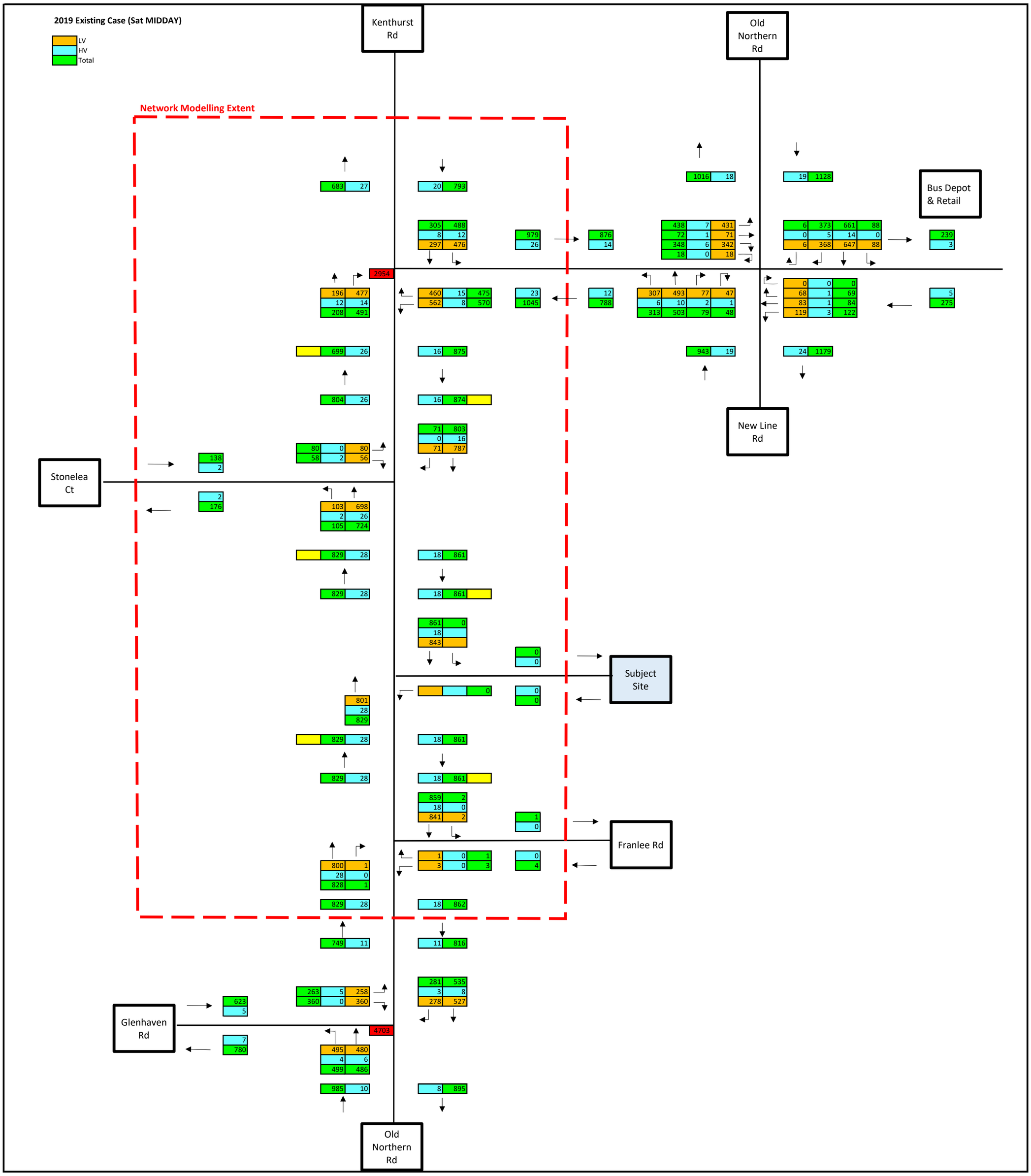
The planned future upgrades on Old Northern Road undertaken by TfNSW should help with improving the capacity of these intersections.

Appendix A

Traffic Turning Movement Diagrams


2019 Existing Case (Thurs AM)
LV
HV
Total
Network Modelling Extent
Kenthurst Rd
Old Northern Rd
Bus Depot & Retail
New Line Rd
Stonelea Ct
Subject Site
Franlee Rd
Glenhaven Rd
Old Northern Rd
2954
4703
656 39
46 988
1349 55
43 942
446 542
12 34
434 508
1077
83
907
62
557 27 530
39 0 39
311 35 276
0 0 0
0 192 708 42
0 19 23 1
0 173 685 41
98
2
247 486
17 49
264 535
370 22 392
411 27 438
49
830
47
591
345 733 16 5
25 28 1 13
370 761 17 18
0 0 0
31 0 31
26 3 29
64 2 66
5
126
799 66
39 884
1166 67
73 1103
881 71
39 883
65 818
9 30
56 788
45 10 35
18 1 17
63
11
9
138
73 775
0 61
73 836
909 61
31 836
909 61
31 836
836 0
31
805
0
0
0
0
848
61
909
909 61
31 836
909 61
31 836
828 8
31 0
797 8
3
0
843 3
61 0
904 3
5 0 5
8 0 8
0
13
907 61
31 836
991 51
32 795
231 564
11 21
220 543
332 9 323
433 2 431
765
11
17
515
278 617
6 42
284 659
943 48
23 997


2019 Existing Case (Thurs PM)
LV
HV
Total
Network Modelling Extent
Kenthurst Rd
Old Northern Rd
Bus Depot & Retail
New Line Rd
Stonelea Ct
Subject Site
Franlee Rd
Glenhaven Rd
Old Northern Rd
2954
4703
836 68
37 849
1025 41
52 978
362 487
14 23
348 464
940
72
815
56
406 25 381
53 0 53
353 31 322
3 0 3
1 367 565 45
0 18 34 0
1 349 531 45
128
1
322 404
21 49
343 453
446 47 493
511 40 551
87
1044
25
814
323 549 29 21
6 14 1 11
329 563 30 32
0 0 0
53 2 55
114 1 115
101 2 103
5
273
796 70
833 65
54 913
54 941
954 32
78 1053
107 834
6 48
101 786
70 4 66
45 2 43
115
6
6
208
101 702
0 61
101 763
864 61
865 61
50 879
50 879
879 0
50
829
0
0
0
0
804
61
865
865 61
865 61
50 879
50 882
873 9
50 0
823 9
2
0
795 2
61 0
856 2
858 61
848 39
9 0 9
5 0 5
0
14
50 878
27 815
363 452
4 23
359 429
221 12 209
286 7 279
507
19
7
861
495 600
3 27
498 627
1125 30
30 738


2019 Existing Case (Sat MIDDAY)
LV
HV
Total
Network Modelling Extent
Kenthurst Rd
Old Northern Rd
Bus Depot & Retail
New Line Rd
Stonelea Ct
Subject Site
Franlee Rd
Glenhaven Rd
Old Northern Rd
2954
4703

2026 Future Base (Thurs AM)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

705	39	
46	921	
1430	55	
43	1013	
379	542	
12	34	
367	508	
1133		
83		
979		
62		
601	27	574
42	0	42
336	35	301
0	0	0
0	211	758	45
0	19	23	1
0	192	735	44
105			
2			
2954			
266	542		
17	49		
283	591		
400	22	422	
479	27	506	
49			
928			
47			
634			
369	770	17	6
25	28	1	13
394	798	18	19
0	0	0	
31	0	31	
26	3	29	
64	2	66	
5			
126			
874	66		
960	71		
39	885		
39	996		
1229	67		
73	1178		
70	926		
9	30		
61	896		
48	10	38	
19	1	18	
67			
11			
9			
148			
78	851		
0	61		
78	912		
990	61		
935	61		
31	945		
31	945		
945	0		
31	0		
914	0		
0			
0			
0	0	0	
0			
0			
874			
61			
935			
935	61		
935	61		
31	945		
34	915		
35	880	29	
3	31	0	
32	849	29	
73			
5			
50	3	47	
0	0	0	
23	2	21	
54			
0			
5			
64			
27	866	25	
2	61	0	
29	927	25	
8	0	8	
0	0	0	
12	0	12	
0			
20			
952	61		
3	35		
1043	51		
32	844		
373	9	364	
472	2	470	
246	598		
11	21		
235	577		
846			
11			
4703			
17			
530			
278	628		
6	42		
284	670		
954	48		
23	1070		

2026 Future + Development (Thurs AM)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

716	39	
46	943	
1462	55	
43	1045	
401	542	
12	34	
389	508	
1149	83	
995	62	
617	27	590
42	0	42
336	35	301
0	0	0
0	243	758	45
0	19	23	1
0	224	735	44
105		
2		
2954		
277	558	
17	49	
294	607	
400	22	422
511	27	538
49	960	
47	666	
369	786	17	6
25	28	1	13
394	814	18	19
0	0	0
31	0	31
26	3	29
64	2	66
5		
126		
901	66	
987	71	
1245	67	
73	1178	
39	939	
39	1050	
70	980	
9	30	
61	950	
48	10	38
19	1	18
67		
11		
9		
148		
78	878	
0	61	
78	939	
1017	61	
962	61	
31	999	
31	999	
945	54	
31	0	
914	54	
54		
0		
54	0	54
0		
54		
901		
61		
962		
962	61	
962	61	
31	999	
34	950	
35	915	48
3	31	0
32	884	48
73		
5		
73		
0		
50	3	47
0	0	0
23	2	21
5		
64		
27	874	25
2	61	0
29	935	25
27	0	27
0	0	0
12	0	12
0		
39		
960	61	
3	35	
1051	51	
32	878.5	
373	9	364
472	2	470
257	622	
11	21	
246	601	
845.6		
11		
4703		
17		
541		
278	636	
6	42	
284	678	
962	48	
23	1094	

2026 Future Base (Thurs PM)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

940	68	
37	958	
1099	41	
52	1014	
434	524	
14	23	
420	501	
1059		
72		
867.6		
56		
432	25	407
56	0	56
376	31	345
3	0	3
1	386	581	46
0	18	34	0
1	368	547	46
134.7			
1			
2954			
381	486		
21	49		
402	535		
491	47	538	
646	40	686	
87			
1224			
25			
869.1			
359	596	32	24
6	14	1	11
365	610	33	35
0	0	0	
53	2	55	
114	1	115	
101	2	103	
5			
273			
937	70		
54	1120		
1043	32		
78	1095		
942	65		
54	1110		
115	995		
6	48		
109	947		
75	4	71	
48	2	46	
123			
6			
6			
226			
111	806		
0	61		
111	867		
978	61		
50	1043		
915	61		
50	1043		
1043	0		
50	0		
993	0		
0			
0			
0	0	0	
0			
0			
854			
61			
915			
915	61		
50	1043		
915	61		
53	1007		
93	3	90	
0	0	0	
62	2	60	
86	921	37	
3	50	0	
83	871	37	
155			
5			
60			
0			
5			
172			
84	833	23	
2	61	0	
86	894	23	
21	0	21	
0	0	0	
13	0	13	
0			
34			
917	61		
3	86		
926	39		
27	846		
518			
19			
232	12	220	
286	7	279	
377	469		
4	23		
373	446		
4703			
7			
920.5			
540	668		
3	27		
543	695		
1238	30		
30	755		

2026 Future + Development (Thurs PM)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

952	68	
37	982	
1134	41	
52	1049	
458	524	
14	23	
444	501	
1077	72	
886	56	
450	25	425
56	0	56
376	31	345
3	0	3
1	421	581	46
0	18	34	0
1	403	547	46
134.7			
1			
2954			
393	504	
21	49	
414	553	
491	47	538
681	40	721
87		
1259		
25		
904		
359	613	32	24
6	14	1	11
365	627	33	35
0	0	0
53	2	55
114	1	115
101	2	103
5		
273		
967	70	
54	1179	
1060	32	
78	1095	
972	65	
54	1169	
115	1054	
6	48	
109	1006	
75	4	71
48	2	46
123		
6		
6		
226		
111	836	
0	61	
111	897	
1008	61	
945	61	
50	1102	
50	1102	
1043	59	
50	0	
993	59	
59		
0		
884		
61		
945		
59	0	59
0		
59		
945	61	
50	1102	
945	61	
53	1045	
93	3	90
0	0	0
62	2	60
86	959	58
3	50	0
83	909	58
155		
5		
81		
0		
5		
170		
84	842	23
2	61	0
84	903	23
42	0	42
0	0	0
13	0	13
0		
55		
926	61	
3	86	
935	39	
27	884	
232	12	220
286	7	279
389	495
4	23
385	472
518	
19	
4703	
7	
932	
540	677
3	27
543	704
1247	30
30	781

2026 Future Base (Sat MIDDAY)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

790	27	
20	919	
1125	18	
19	1214	
377	542	
8	12	
369	530	
1194		
26		
1009		
14		
505	7	498
78	1	77
408	6	402
19	0	19
6	406	707	94
0	5	14	0
6	401	693	94
257		
3		
2954		
259	638	
12	14	
271	652	
504	15	519
701	8	709
23		
1228		
12		
856		
340	535	84	51
6	10	2	1
346	545	86	52
0	0	0
68	1	69
83	1	84
119	3	122
5		
275		
923	26	
16	1086	
1029	19	
24	1289	
1035	26	
16	1057	
76	981	
0	16	
76	965	
148		
2		
86	0	86
62	2	60
2		
188		
110	923	
2	26	
112	949	
1061	28	
971	28	
18	1043	
18	1043	
1043	0	
18	0	
1025	0	
0		
0		
943		
28		
971		
0	0	0
0		
0		
971	28	
18	1043	
971	28	
21	1018	
174		
5		
87	3	84
0	0	0
87	2	85
87	931	24
3	18	0
84	913	24
45		
0		
5		
174		
85	848	21
2	28	0
87	876	21
95	0	95
0	0	0
103	0	103
0		
198		
897	28	
3	87	
837	11	
11	962	
690		
5		
297	5	292
393	0	393
347	615	
3	8	
344	607	
4703		
7		
891		
540	534	
4	6	
544	540	
1085	10	
8	1008	

2026 Future + Development (Sat MIDDAY)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

	802	27
	20	944
	1161	18
	19	1251
402	542	
8	12	
394	530	
1212		
26		
1027		
14		
523	7	516
78	1	77
408	6	402
19	0	19
6	443	707	94
0	5	14	0
6	438	693	94
257.3			
3			
2954			
271	656		
12	14		
283	670		
504	15	519	
738	8	746	
23			
1265			
12			
893			
340	553	84	51
6	10	2	1
346	563	86	52
0	0	0	
68	1	69	
83	1	84	
119	3	122	
5			
275			
	953	26	
16	1148		
1047	19		
24	1289		
1065	26		
16	1119		
76	1043		
0	16		
76	1027		
86	0	86	
62	2	60	
148			
2			
2			
188			
110	953		
2	26		
112	979		
	1091	28	
1001	28		
18	1105		
18	1105		
1043	62		
18	0		
1025	62		
62			
0			
61	0	61	
0			
61			
973			
28			
1001			
	1001	28	
18	1104		
1001	28		
21	1058		
87	971	45	
3	18	0	
84	953	45	
66			
0			
87	3	84	
0	0	0	
87	2	85	
174			
5			
116	0	116	
0	0	0	
103	0	103	
0			
219			
5			
174			
85	857	21	
2	28	0	
87	885	21	
906	28		
3	87		
846	11		
11	1002		
297	5	292	
393	0	393	
360	642		
3	8		
357	634		
690			
5			
4703			
7			
904			
540.4	543		
4	6		
544	549		
1094	10		
8	1035		

2036 Future Base (Thurs AM)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

796	39	
46	1250	
1651	55	
43	1076	
579	671	
12	34	
567	637	
1331	83	
1125	62	
691	27	664
48	0	48
386	35	351
0	0	0
0	224	804	48
0	19	23	1
0	205	781	47
117		
2		
2954		
300	611	
17	49	
317	660	
457	22	479
542	27	569
49		
1048		
47		
710		
432	901	20	9
25	28	1	13
457	929	21	22
0	0	0
31	0	31
26	3	29
64	2	66
5		
126		
	977	66
1074	71	
39	1148	
39	1054	
1429	67	
73	1278	
77	977	
9	30	
68	947	
54	10	44
21	1	20
75		
11		
9		
164		
87	959	
0	61	
87	1020	
	1107	61
1052	61	
31	998	
31	998	
998	0	
31	0	
967	0	
0		
0		
0	0	0
0		
0		
991		
61		
1052		
	1052	61
1052	61	
31	998	
34	968	
35	933	29
3	31	0
32	902	29
54		
0		
73		
5		
50	3	47
0	0	0
23	2	21
5		
64		
27	983	25
2	61	0
29	1044	25
8	0	8
0	0	0
12	0	12
0		
20		
1069	61	
3	35	
1193	51	
32	894	
411	9	402
521	2	519
260	633	
11	21	
249	612	
932		
11		
4703		
17		
593		
326	740	
6	42	
332	782	
1114	48	
23	1154	

2036 Future + Development (Thurs AM)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

807	39	
46	1272	
1683	55	
43	1108	
601	671	
12	34	
589	637	
1347	83	1141 62
707	27	680
48	0	48
386	35	351
0	0	0
0	256	804 48
0	19	23 1
0	237	781 47
117		
2		
2954		
311	627	
17	49	
328	676	
457	22	479
574	27	601
49	47	
1080	742	
432	917	20 9
25	28	1 13
457	945	21 22
0	0	0
31	0	31
26	3	29
64	2	66
5		
126		
	1004	66
1101	71	
39	1202	
39	1108	
1445	67	
73	1278	
77	1031	
9	30	
68	1001	
54	10	44
21	1	20
75		
11		
9		
164		
87	986	
0	61	
87	1047	
	1134	61
1079	61	
31	1052	
31	1052	
998	54	
31	0	
967	54	
54		
0		
1018		
61		
1079		
54	0	54
0		
54		
	1079	61
1079	61	
31	1052	
34	1003	
35	968	48
3	31	0
32	937	48
73		
5		
50	3	47
0	0	0
23	2	21
73		
0		
5		
64		
27	991	25
2	61	0
29	1052	25
27	0	27
0	0	0
12	0	12
0		
39		
1077	61	
3	35	
1201	51	
32	928.6	
271	657	
11	21	
260	636	
411	9	402
521	2	519
932.1		
11		
4703		
17		
604		
326.3	748	
6	42	
332	790	
1122	48	
23	1178	

2036 Future Base (Thurs PM)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

1043	68	
37	1049	
1222	41	
52	1070	
473	576	
14	23	
459	553	
1157		
72		
961		
56		
479	25	454
62	0	62
417	31	386
4	0	4
1	407	613	49
0	18	34	0
1	389	579	49
147.5			
1			
2954			
416	532		
21	49		
437	581		
559	47	606	
722	40	762	
87			
1368			
25			
935			
404	673	36	28
6	14	1	11
410	687	37	39
0	0	0	
53	2	55	
114	1	115	
101	2	103	
5			
273			
1018	70		
1063	65		
54	1235		
54	1228		
1173	32		
78	1172		
128	1100		
6	48		
122	1052		
83	4	79	
54	2	52	
137			
6			
6			
251			
123	919		
0	61		
123	980		
1103	61		
1001	61		
50	1154		
50	1154		
1154	0		
50	0		
1104	0		
0			
0			
0	0	0	
0			
0			
940			
61			
1001			
1001	61		
50	1154		
1001	61		
53	1117		
93	3	90	
0	0	0	
62	2	60	
86	1031	37	
3	50	0	
83	981	37	
60			
0			
155			
5			
5			
172			
84	919	23	
2	61	0	
86	980	23	
21	0	21	
0	0	0	
13	0	13	
0			
34			
1003	61		
3	86		
1026	39		
27	948		
250	12	238	
310	7	303	
423	525		
4	23		
419	502		
561			
19			
4703			
7			
1031			
605	749		
3	27		
608	776		
1384	30		
30	835		

2036 Future + Development (Thurs PM)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

1055 68
37 1073
1257 41
52 1105
497 576 / 14 23 / 483 553
1175 / 72
979 / 56
497 25 472 / 62 0 62 / 417 31 386 / 4 0 4
1 442 613 49 / 0 18 34 0 / 1 424 579 49
147.5 / 1
2954
428 550 / 21 49 / 449 599
559 47 606 / 757 40 797
87 / 1403
25 / 970
404 690 36 28 / 6 14 1 11 / 410 704 37 39
0 0 0 / 53 2 55 / 114 1 115 / 101 2 103
5 / 273
1048 70
54 1294
1190 32
78 1172
1093 65
54 1287
128 1159 / 6 48 / 122 1111
83 4 79 / 54 2 52
137 / 6
6 / 251
123 949 / 0 61 / 123 1010
1133 61
1031 61
50 1213
1154 59 / 50 0 / 1104 59
59 / 0
59 0 59
0 / 59
970 / 61 / 1031
1031 61
1031 61
50 1213
53 1155
93 3 90 / 0 0 0 / 62 2 60
155 / 5
5 / 172
86 1069 58 / 3 50 0 / 83 1019 58
81 / 0
84 928 23 / 2 61 0 / 86 989 23
42 0 42 / 0 0 0 / 13 0 13
0 / 55
1012 61
3 86
1035 39
27 986
250 12 238 / 310 7 303.3
435 551 / 4 23 / 431 528
561 / 19
4703
7 / 1043
605 758 / 3 27 / 608 785
1393 30
30 861

2036 Future Base (Sat MIDDAY)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

Old Northern Rd

876	27	
20	1030	
1265	18	
19	1288	
420	610	
8	12	
412	598	
1312	1150	
26	14	
575	7	568
89	1	88
464	6	458
22	0	22
7	431	751	100
0	5	14	0
7	426	737	100
286	
3	
2954	
280	688
12	14
292	702
569	15	584
779	8	787
23	12
1371	926
383	604	94	58
6	10	2	1
389	614	96	59
0	0	0
68	1	69
83	1	84
119	3	122
5	
275	
994	26	
16	1207	
1158	19	
24	1395	
1117	26	
16	1144	
85	1059
0	16
85	1043
95	0	95
69	2	67
164	
2	
2	
210	
123	996
2	26
125	1022
1147	28
18	1128
1055	28
18	1128
1128	0
18	0
1110	0
0	
0	
0	0	0
0	
0	
1027	
28	
1055	
1055	28
18	1128
1055	28
21	1101
87	3	84
0	0	0
87	2	85
87	1014	24
3	18	0
84	996	24
45	
0	
174	
5	
5	
174	
85	932	21
2	28	0
87	960	21
95	0	95
0	0	0
103	0	103
0	
198	
981	28	
3	87	
930	11	
11	1041	
327	5	322
433	0	433
374	667
3	8
371	659
760	
5	
7	
983	
4703	
605	597
4	6
609	603
1213	10	
8	1100	

2036 Future + Development (Sat MIDDAY)

LV
HV
Total

Network Modelling Extent

Kenthurst Rd

Old Northern Rd

Bus Depot & Retail

New Line Rd

Stonelea Ct

Subject Site

Road 2

Franlee Rd

Glenhaven Rd

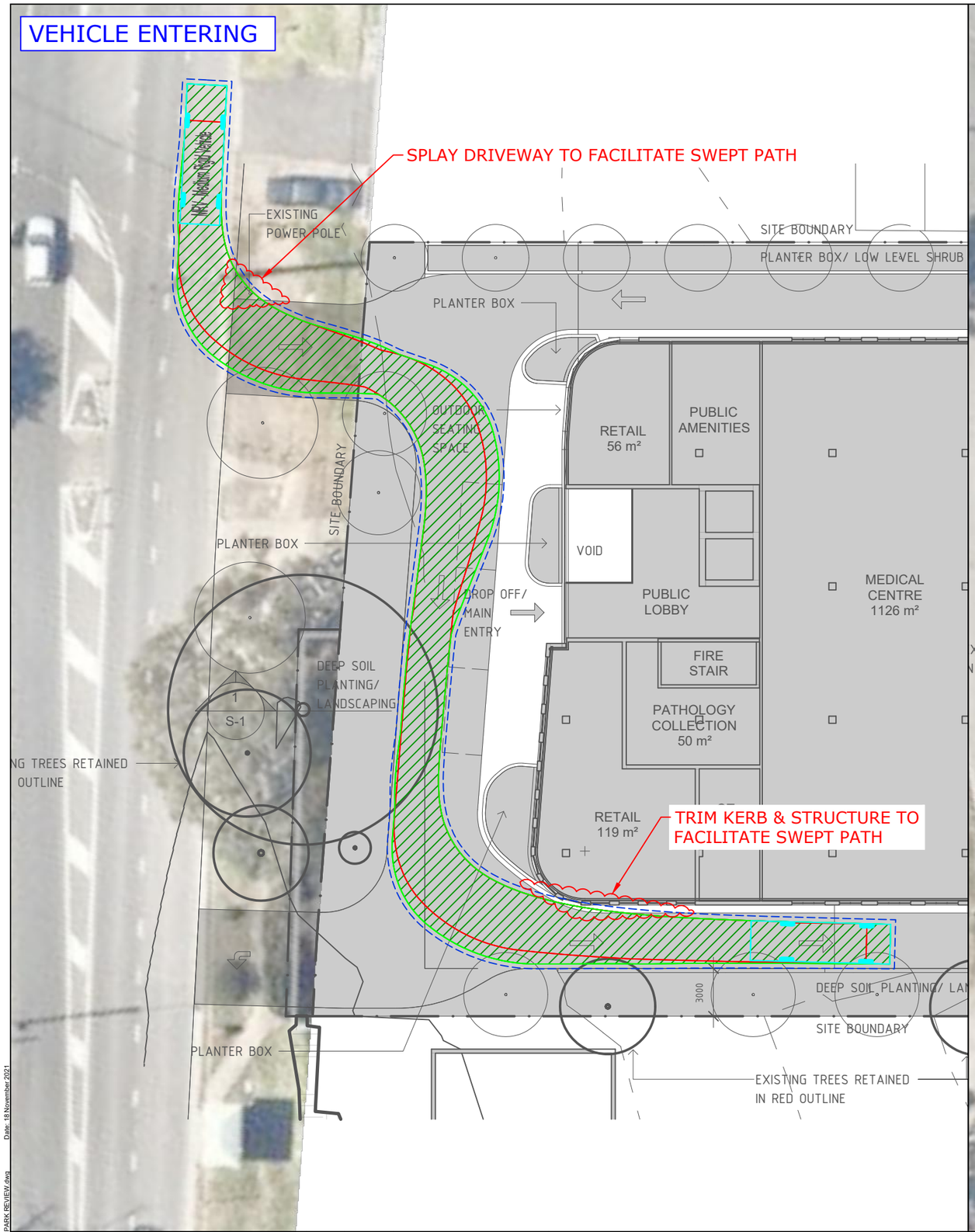
Old Northern Rd

888	27	
20	1055	
1301	18	
19	1325	
445	610	
8	12	
437	598	
1330		
26		
1168		
14		
593	7	586
89	1	88
464	6	458
22	0	22
7	468	751	100
0	5	14	0
7	463	737	100
285.6			
3			
2954			
292	706		
12	14		
304	720		
569	15	584	
816	8	824	
23			
1408			
12			
963			
383	622	94	58
6	10	2	1
389	632	96	59
0	0	0	
68	1	69	
83	1	84	
119	3	122	
5			
275			
1024	26		
16	1269		
1176	19		
24	1395		
1147	26		
16	1206		
85	1121		
0	16		
85	1105		
95	0	95	
69	2	67	
164			
2			
2			
210			
123	1026		
2	26		
125	1052		
1177	28		
1085	28		
18	1190		
18	1190		
1128	62		
18	0		
1110	62		
62			
0			
61	0	61	
0			
61			
1057			
28			
1085			
1085	28		
18	1189		
1085	28		
21	1141		
87	1054	45	
3	18	0	
84	1036	45	
87	3	84	
0	0	0	
87	2	85	
174			
5			
66			
0			
5			
174			
85	941	21	
2	28	0	
87	969	21	
116	0	116	
0	0	0	
103	0	103	
0			
219			
990	28		
3	87		
939	11		
11	1081		
327	5	322	
433	0	433	
387	694		
3	8		
384	686		
760			
5			
4703			
7			
996			
605.3	606		
4	6		
609	612		
1222	10		
8	1127		

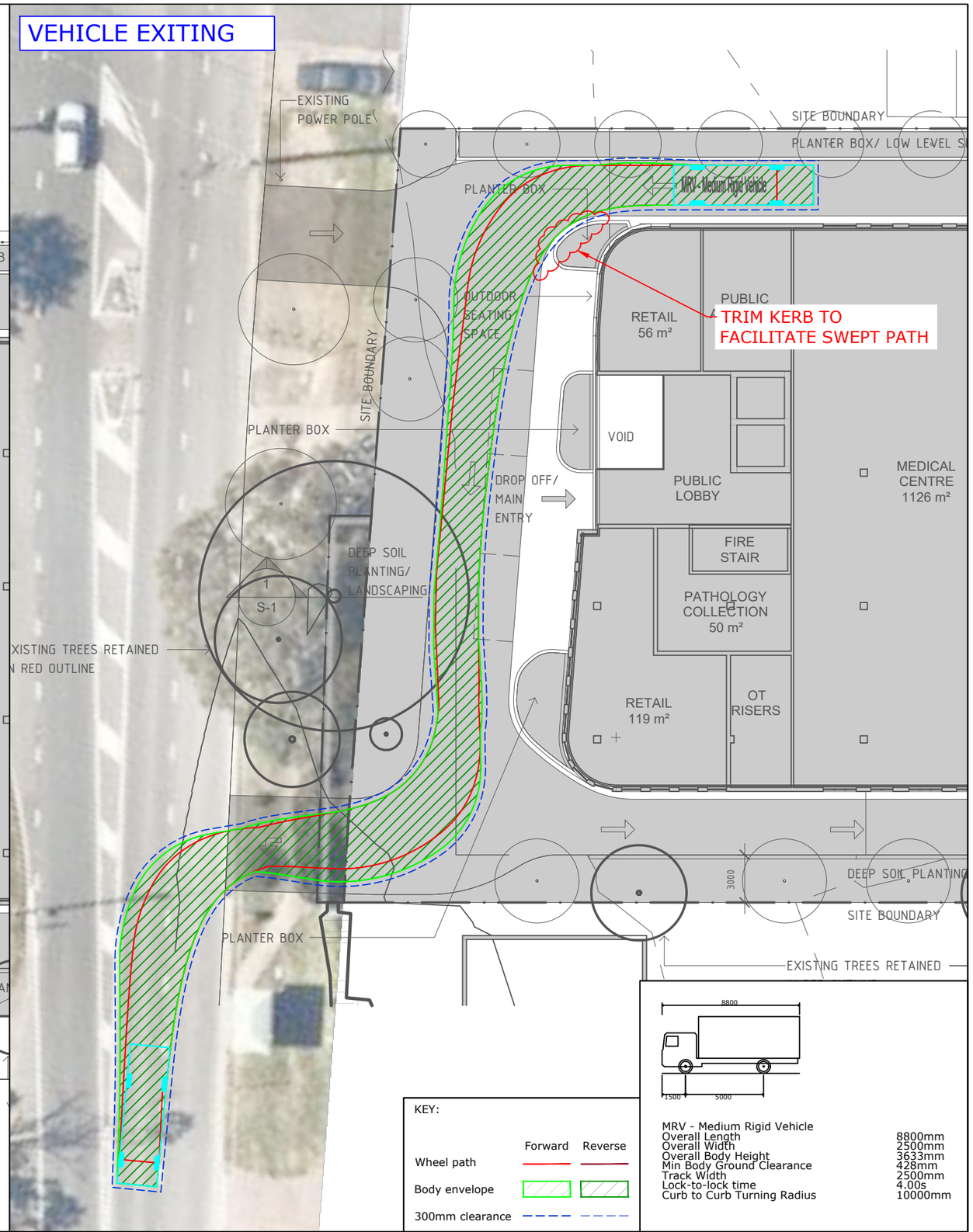
Appendix B

Swept Paths

VEHICLE ENTERING



VEHICLE EXITING



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

MRV - Medium Rigid Vehicle

Overall Length	8800mm
Overall Width	2500mm
Overall Body Height	3633mm
Min Body Ground Clearance	428mm
Track Width	2500mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10000mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT: 679-685 OLD NORTHERN ROAD, DURAL

TITLE: AS2890.2 8.8m MEDIUM RIGID VEHICLE SWEPT PATH
GROUND FLOOR

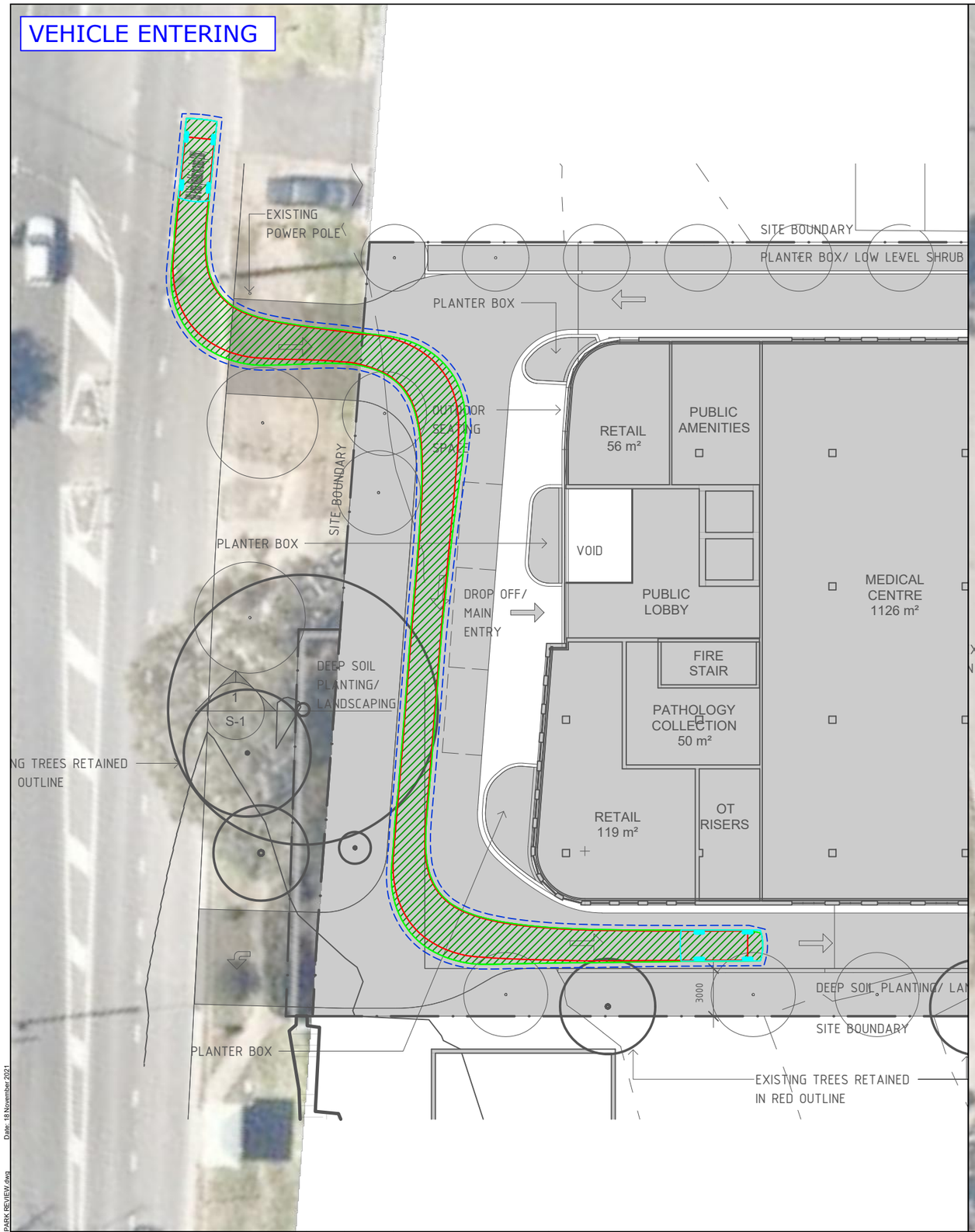
DWG No. 20318CAD004
FIGURE 1

DATE STAMP 18 NOVEMBER 2021

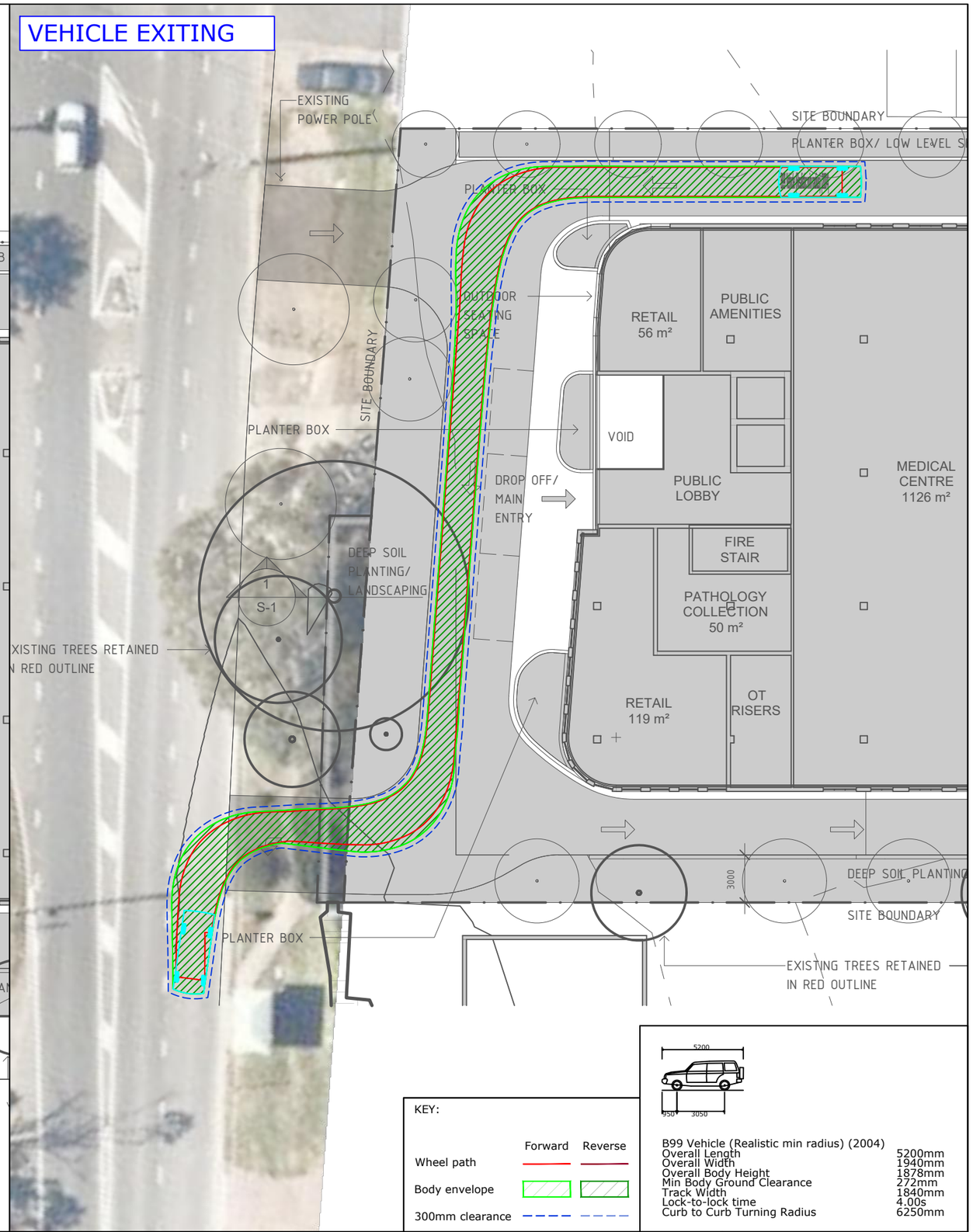
PROJECT No.	SCALE	REV.
20318	1:300 @A3	A

Filename: 20318CAD004-201118-CAR PARK REVIEW.dwg Date: 18 November 2021

VEHICLE ENTERING



VEHICLE EXITING



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

B99 Vehicle (Realistic min radius) (2004)

Overall Length	5200mm
Overall Width	1940mm
Overall Body Height	1878mm
Min Body Ground Clearance	272mm
Track Width	1840mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6250mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT

679-685 OLD NORTHERN ROAD, DURAL

TITLE

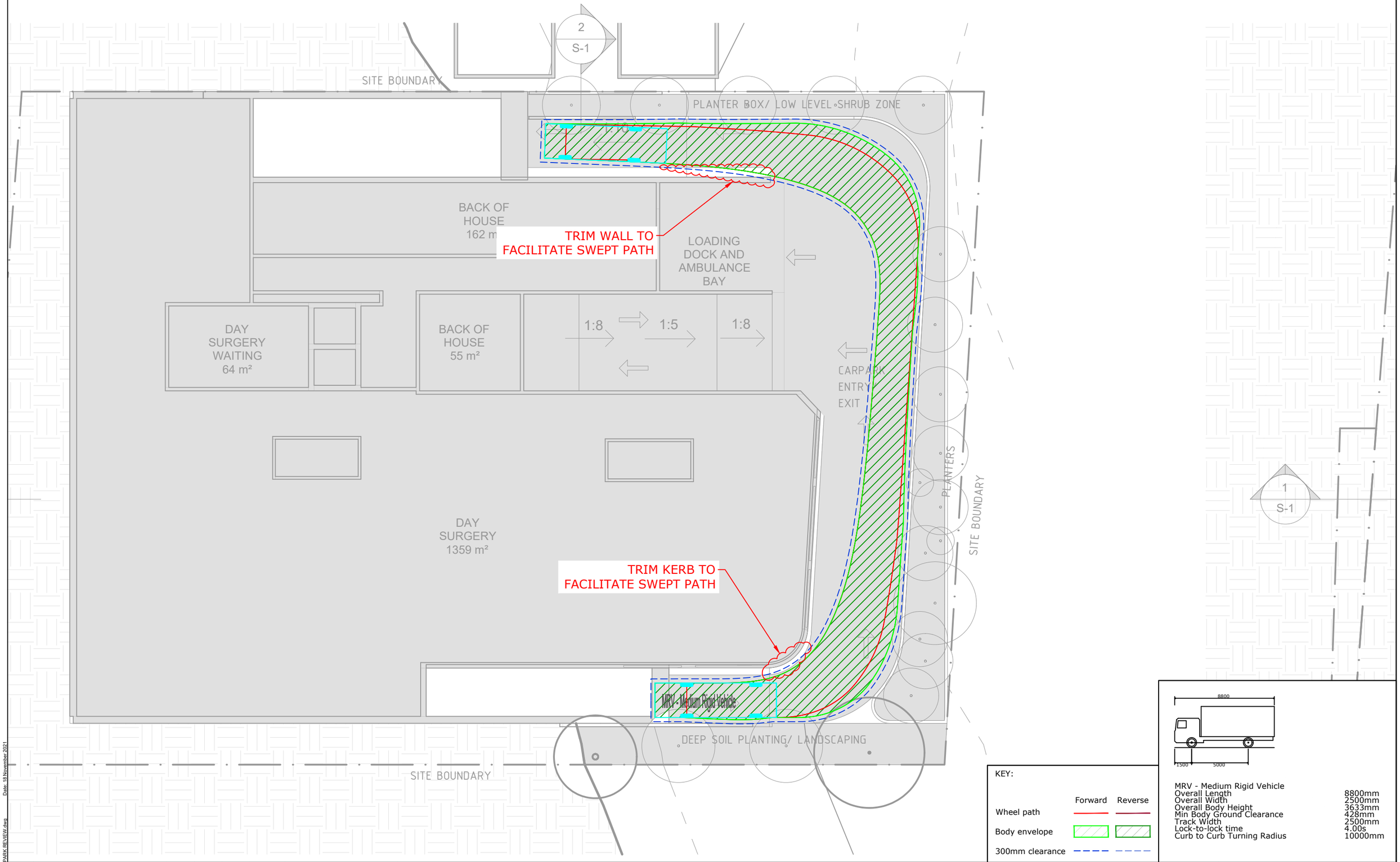
AS2890.1 B99 VEHICLE SWEPT PATH
GROUND FLOOR

DWG No. 20318CAD004
FIGURE 2

DATE STAMP 18 NOVEMBER 2021

PROJECT No.	SCALE	REV.
20318	1:300 @A3	A

Filename: 20318CAD004-201118-CAR PARK REVIEW.dwg Date: 18 November 2021



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

MRV - Medium Rigid Vehicle

Overall Length	8800mm
Overall Width	2500mm
Overall Body Height	3633mm
Min Body Ground Clearance	428mm
Track Width	2500mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10000mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT

679-685 OLD NORTHERN ROAD, DURAL

TITLE

AS2890.2 8.8m MEDIUM RIGID VEHICLE SWEPT PATH
LOWER GROUND 1

DWG No. 20318CAD004
FIGURE 3

DATE STAMP 18 NOVEMBER 2021

PROJECT No. 20318 | SCALE 1:250 @A3 | REV. A

Filename: 20318CAD004-201118-CAR PARK REVIEW.dwg Date: 18 November 2021

SITE BOUNDARY

2
S-1

PLANTER BOX/ LOW LEVEL SHRUB ZONE

BACK OF HOUSE 162 m²

LOADING DOCK AND AMBULANCE BAY

DAY SURGERY WAITING 64 m²

BACK OF HOUSE 55 m²

1:8

1:5

1:8

CAR PARK ENTRY / EXIT

DAY SURGERY 1359 m²

PLANTERS

SITE BOUNDARY

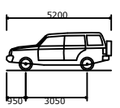
DEEP SOIL PLANTING/ LANDSCAPING

SITE BOUNDARY

1
S-1

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5200mm
Overall Width	1940mm
Overall Body Height	1878mm
Min Body Ground Clearance	272mm
Track Width	1840mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6250mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT

679-685 OLD NORTHERN ROAD, DURAL

TITLE

AS2890.1 B99 VEHICLE SWEPT PATH
LOWER GROUND 1

DWG No. 20318CAD004
FIGURE 4

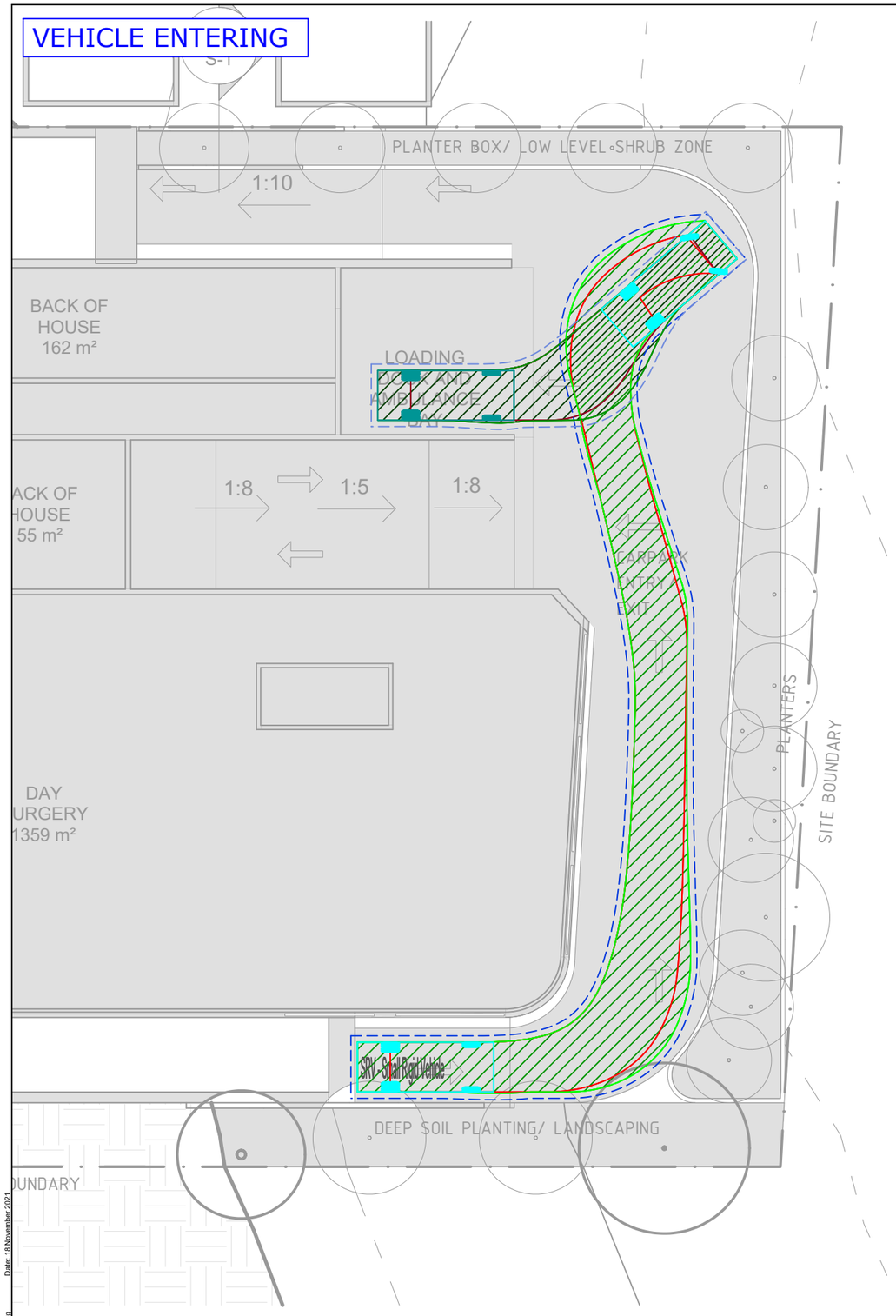
DATE STAMP 18 NOVEMBER 2021

PROJECT No.	SCALE	REV.
20318	1:250 @A3	A

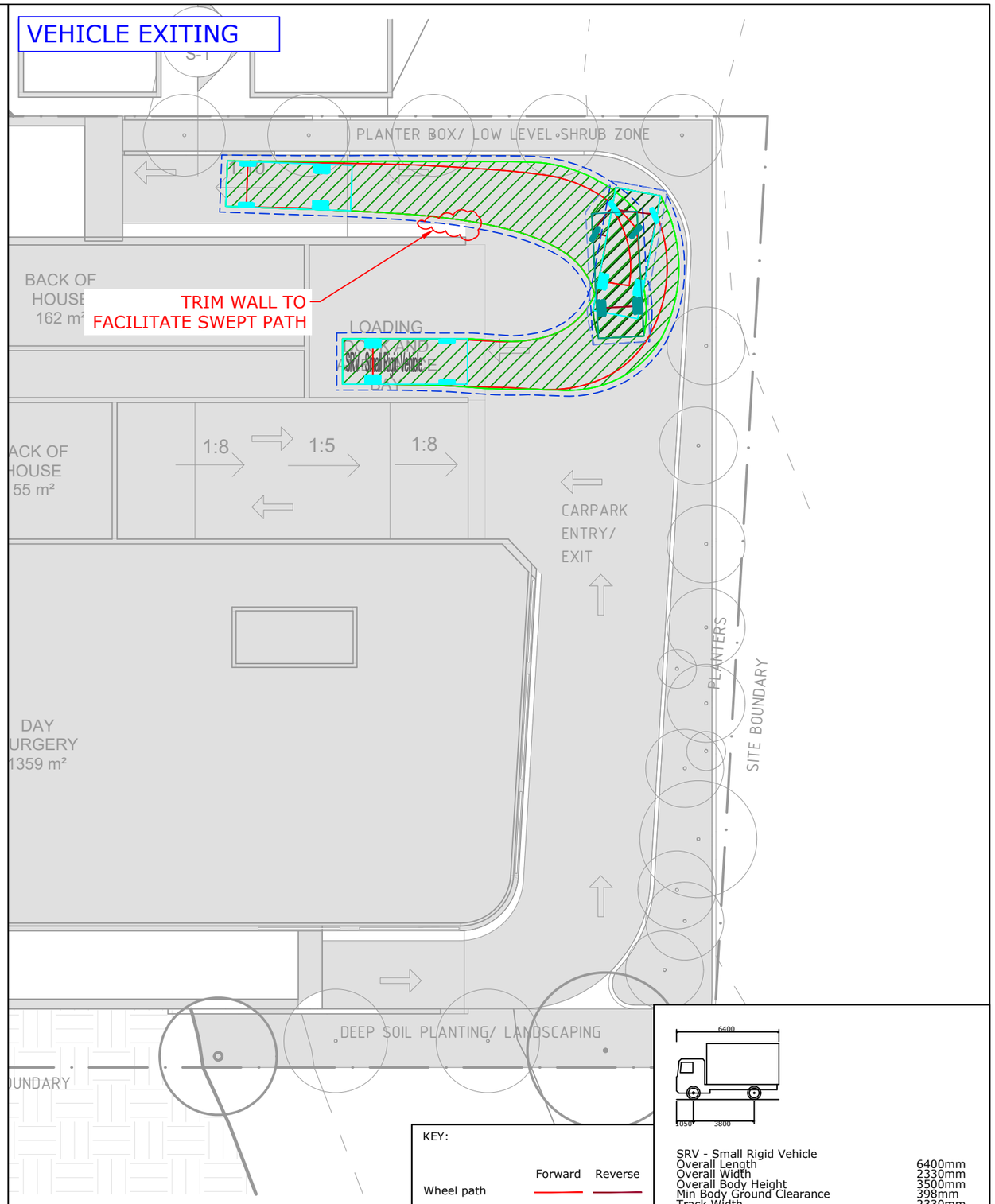
Date: 18 November 2021

Filename: 20318CAD004-201118-CAR PARK REVIEW.dwg

VEHICLE ENTERING



VEHICLE EXITING



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

SRV - Small Rigid Vehicle

Overall Length	6400mm
Overall Width	2330mm
Overall Body Height	3500mm
Min Body Ground Clearance	398mm
Track Width	2330mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7100mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT: 679-685 OLD NORTHERN ROAD, DURAL

TITLE: AS2890.2 6.4m SMALL RIGID VEHICLE SWEPT PATH
LOWER GROUND 1

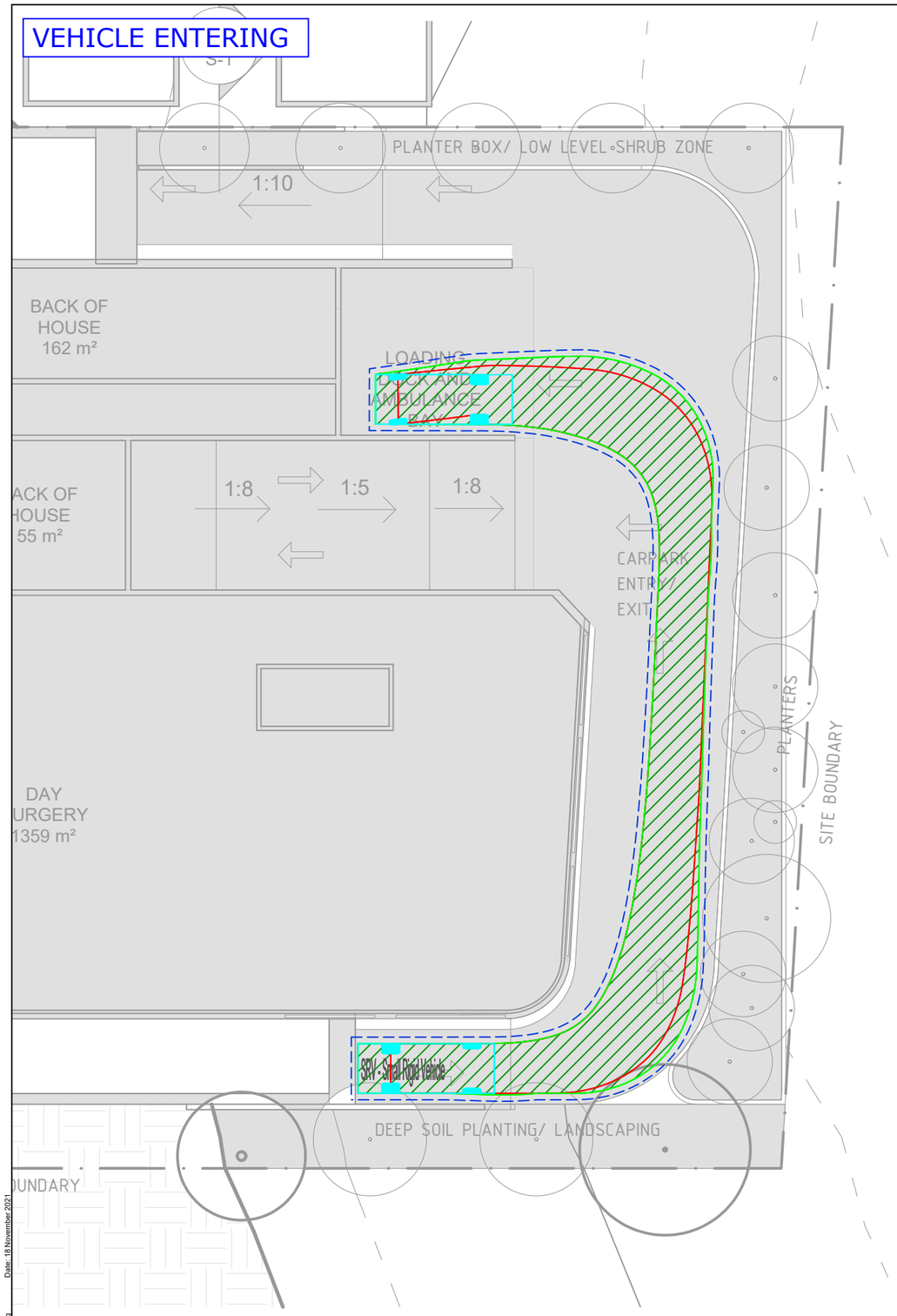
DWG No. 20318CAD004
FIGURE 5

DATE STAMP: 18 NOVEMBER 2021

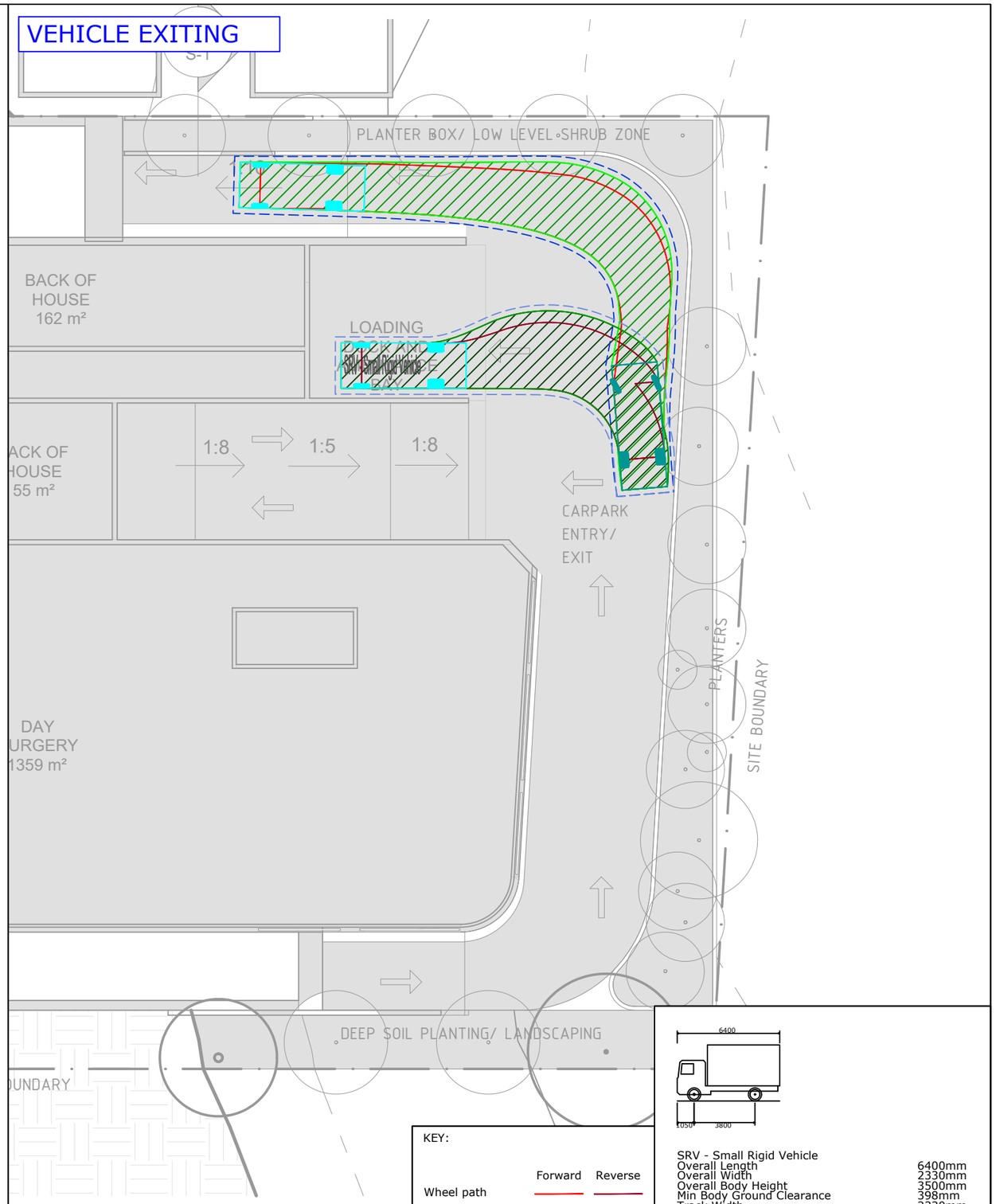
PROJECT No.	SCALE	REV.
20318	##### @A3	A

Filename: 20318CAD004-20118-CAR PARK REVIEW.dwg
Date: 18 November 2021

VEHICLE ENTERING



VEHICLE EXITING



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

SRV - Small Rigid Vehicle

Overall Length	6400mm
Overall Width	2330mm
Overall Body Height	3500mm
Min Body Ground Clearance	398mm
Track Width	2330mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7100mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT

679-685 OLD NORTHERN ROAD, DURAL

TITLE

AS2890.2 6.4m SMALL RIGID VEHICLE SWEPT PATH
LOWER GROUND 1

DWG No. 20318CAD004
FIGURE 6

DATE STAMP 18 NOVEMBER 2021

PROJECT No.	SCALE	REV.
20318	##### @A3	A

Date: 18 November 2021

Filename: 20318CAD004-201118-CAR PARK REVIEW.dwg

SITE BOUNDARY

2
S-1

PLANTER BOX/ LOW LEVEL SHRUB ZONE

1:10

BACK OF HOUSE 162 m²

LOADING DOCK AND AMBULANCE BAY

DAY SURGERY WAITING 64 m²

BACK OF HOUSE 55 m²

1:8

1:

CARPARK ENTRY

DAY SURGERY 1359 m²

PLANTERS

SITE BOUNDARY

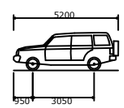
DEEP SOIL PLANTING/ LANDSCAPING

SITE BOUNDARY

1
S-1

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5200mm
Overall Width	1940mm
Overall Body Height	1878mm
Min Body Ground Clearance	272mm
Track Width	1840mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6250mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT

679-685 OLD NORTHERN ROAD, DURAL

TITLE

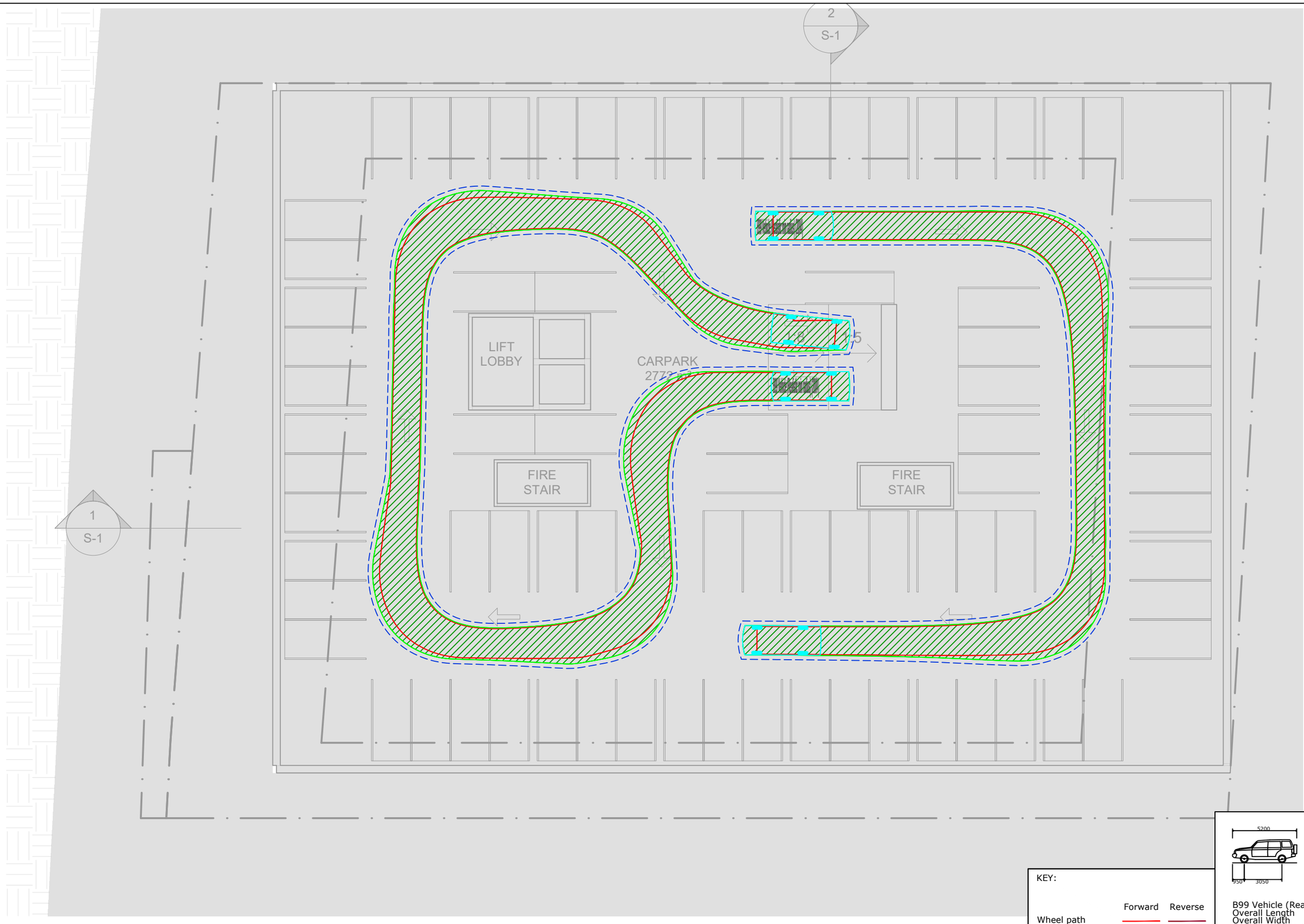
AS2890.1 B99 VEHICLE SWEPT PATH
LOWER GROUND 1

DWG No. 20318CAD004
FIGURE 7

DATE STAMP 18 NOVEMBER 2021

PROJECT No. 20318 | SCALE ##### @A3 | REV. A

Filename: 20318CAD004-201118-CAR PARK REVIEW.dwg
Date: 18 November 2021



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

B99 Vehicle (Realistic min radius) (2004)

Overall Length	5200mm
Overall Width	1940mm
Overall Body Height	1878mm
Min Body Ground Clearance	272mm
Track Width	1840mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6250mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT: 679-685 OLD NORTHERN ROAD, DURAL

TITLE: AS2890.1 B99 VEHICLE SWEPT PATH
BASEMENT 1

DWG No. 20318CAD004
FIGURE 8

DATE STAMP: 18 NOVEMBER 2021

PROJECT No.	SCALE	REV.
20318	1:250 @A3	A

Filename: 20318CAD004-201118-CAR PARK REVIEW.dwg
Date: 18 November 2021

2
S-1

1
S-1

LANDSCAPING
96 m²

POTENTIAL PEDESTRIAN CONNECTION TO ADJOINING AGED CARE FACILITY

LIFT LOBBY

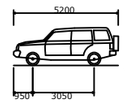
CARPARK
2672 m²

FIRE STAIR

FIRE STAIR

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5200mm
Overall Width	1940mm
Overall Body Height	1878mm
Min Body Ground Clearance	272mm
Track Width	1840mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6250mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KY	KH	18/11/21

ttpp transport planning

PROJECT
679-685 OLD NORTHERN ROAD, DURAL

TITLE
AS2890.1 B99 VEHICLE SWEPT PATH
LOWER GROUND 2

DWG No. 20318CAD004
FIGURE 9

DATE STAMP
18 NOVEMBER 2021

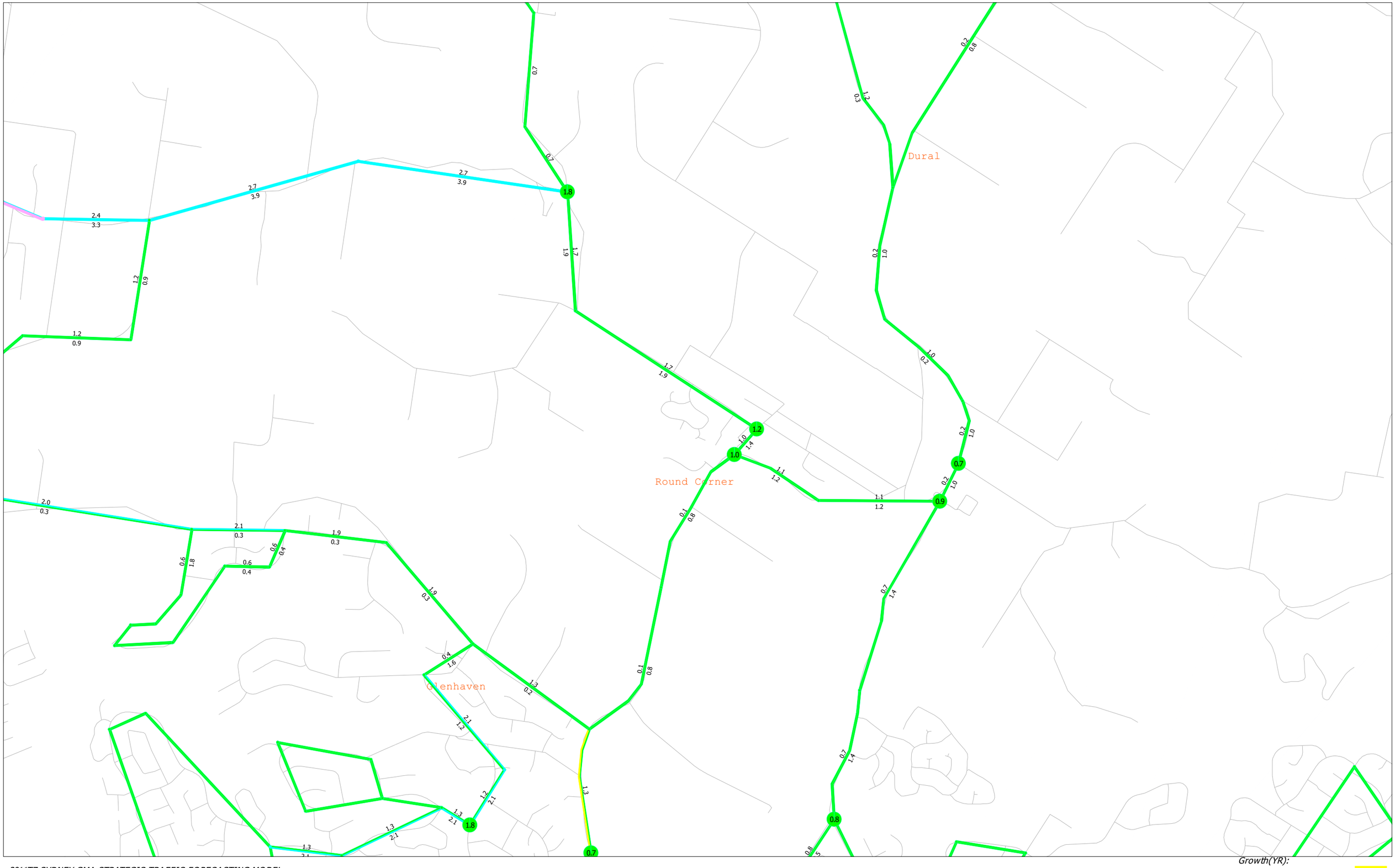
PROJECT No.	SCALE	REV.
20318	1:250 @A3	A

Filename: 20318CAD004-20118-CAR PARK REVIEW.dwg Date: 18 November 2021

Appendix C

STFM Data

ROAD TRAFFIC GROWTH (%YR, 2HRSPK) LINKS & INTERSECTIONS

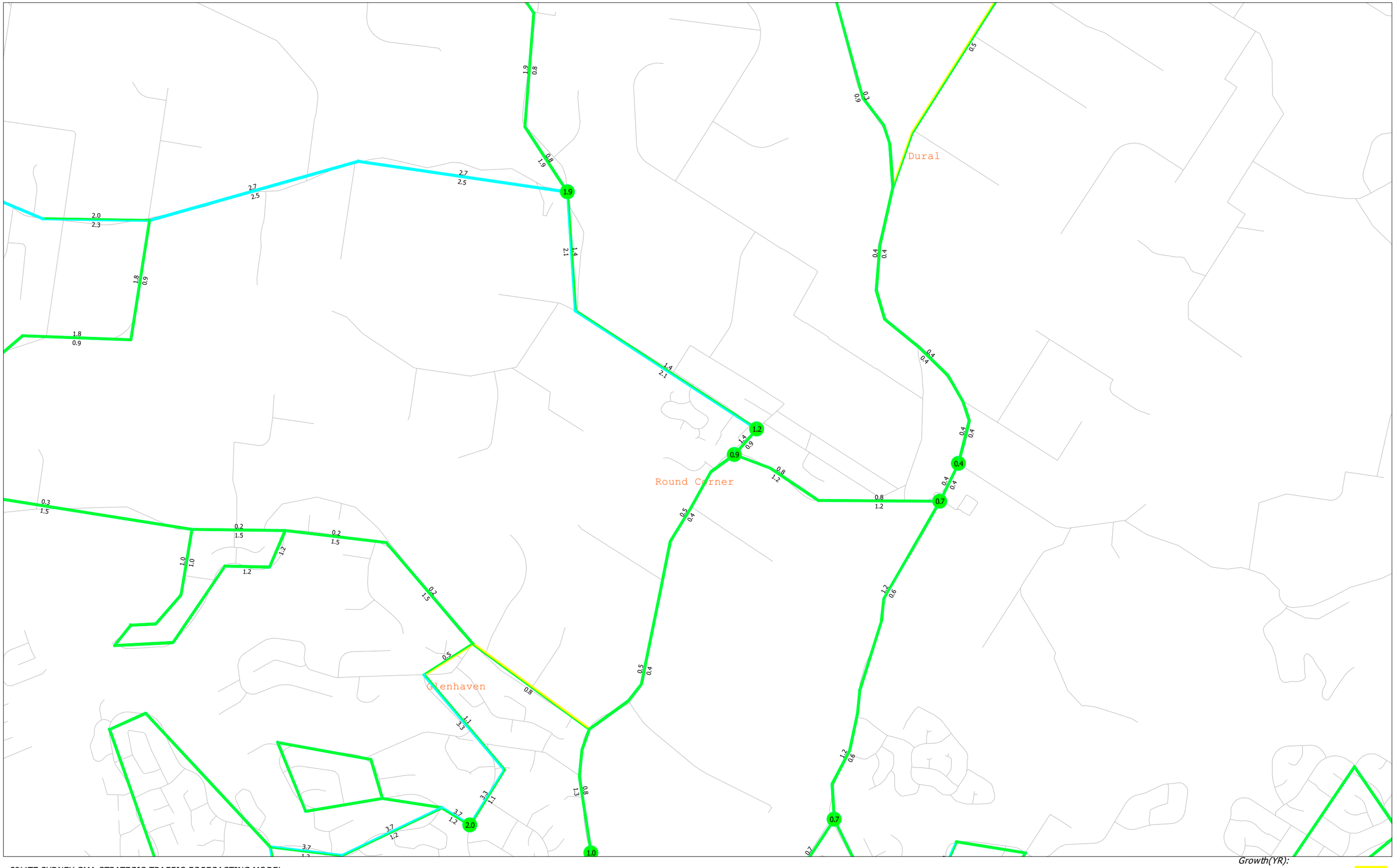


2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 2026: 2026 SYDTRAFFICFORECASTMODELTZ11LU16V151STMV362-7-9AM(mf34)
2019-12-12 13:45

Growth(YR):

<0
<2.00
2.01-4.00
4.01-6.00
>6.00
New Links=999

ROAD TRAFFIC GROWTH (%YR, 2HRSPK) LINKS & INTERSECTIONS

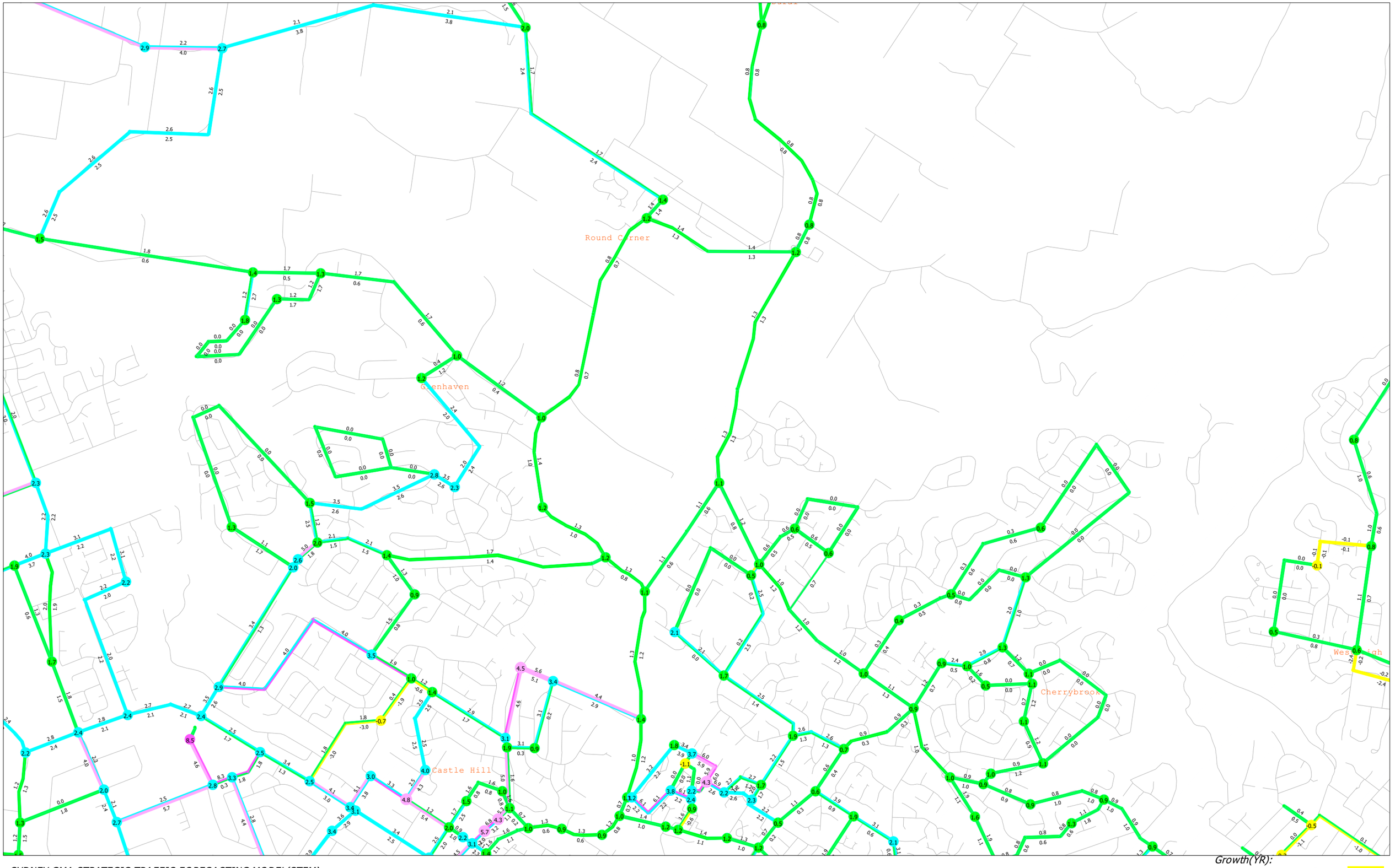


2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 20260: 2026 SYDTRAFFICFORECASTMODELTZ11LU16V151STMV362-4-6PM(mf54)
2019-12-12 13:46

Growth(YR):

<0
<2.00
2.01-4.00
4.01-6.00
>6.00
New Links=999

ROAD TRAFFIC GROWTH (%YR, 2HRSPK) LINKS & INTERSECTIONS

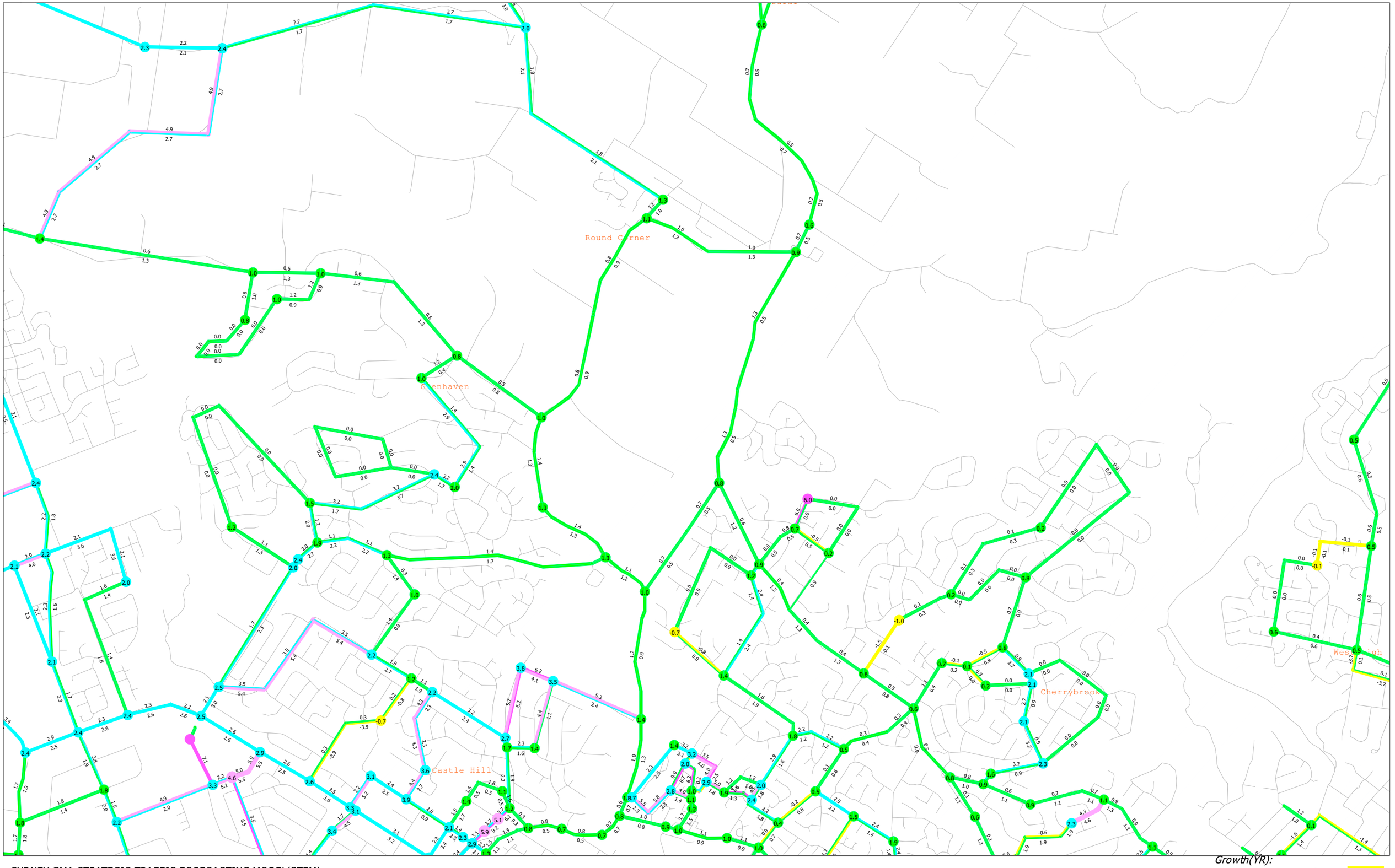


SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 2036: 2036 ROAD NETWORK MODEL(TZP19STMV3.8FMMV7.1)-7-9AM(mf36)
2021-03-09 09:41

Growth(YR):

- <0
- <2.00
- 2.01-4.00
- 4.01-6.00
- >6.00
- New Links=999

ROAD TRAFFIC GROWTH (%YR, 2HRSPK) LINKS & INTERSECTIONS



SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 20360: 2036 ROAD NETWORK MODEL(TZP19STMV3.8FMMV7.1)-4-6PM(mf56)
2021-03-09 09:42

Growth(YR):

<0
<2.00
2.01-4.00
4.01-6.00
>6.00
New Links=999

Appendix D

SIDRA Outputs

MOVEMENT SUMMARY

Site: 2954 [1 Old Northern Rd-Kenthurst Rd-Ex AM (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	461	6.2	461	6.2	0.379	11.2	LOS A	12.8	94.0	0.52	0.46	0.52	44.0
6	R2	413	5.6	413	5.6	* 0.712	49.4	LOS D	19.4	142.1	0.96	1.04	0.96	31.3
Approach		874	5.9	874	5.9	0.712	29.2	LOS C	19.4	142.1	0.73	0.73	0.73	34.9
North: Kenthurst Road														
7	L2	571	6.3	571	6.3	0.593	19.2	LOS B	18.8	138.8	0.68	0.76	0.68	42.9
9	R2	469	2.7	469	2.7	* 0.897	61.3	LOS E	30.0	214.8	1.00	0.97	1.23	18.8
Approach		1040	4.7	1040	4.7	0.897	38.2	LOS C	30.0	214.8	0.82	0.86	0.93	31.2
West: Old Northern Road W														
10	L2	278	6.4	278	6.4	0.308	15.6	LOS B	6.7	49.2	0.60	0.73	0.60	37.6
11	T1	563	9.2	563	9.2	* 0.854	44.7	LOS D	22.7	171.4	0.99	0.97	1.10	27.2
Approach		841	8.3	841	8.3	0.854	35.1	LOS C	22.7	171.4	0.86	0.90	0.94	29.9
All Vehicles		2755	6.2	2755	6.2	0.897	34.4	LOS C	30.0	214.8	0.80	0.83	0.87	32.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [2 Old Northern Rd-Stonelea Ct-Ex AM (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

Peak Hour: 8am-9am
Site Category: AM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	77	0.0	77	0.0	0.187	5.6	LOS A	0.0	0.0	0.00	0.13	0.00	56.1
2	T1	880	7.3	880	7.3	0.323	0.0	LOS A	10.4	77.5	0.00	0.04	0.00	58.1
Approach		957	6.7	957	6.7	0.323	0.5	NA	10.4	77.5	0.00	0.05	0.00	57.7
North: Old Northern Road N														
8	T1	861	3.7	861	3.7	0.420	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
9	R2	68	13.8	68	13.8	0.187	15.1	LOS B	0.6	4.3	0.77	0.90	0.78	41.1
Approach		929	4.4	929	4.4	0.420	1.3	NA	0.6	4.3	0.06	0.07	0.06	52.6
West: Stonelea Court														
10	L2	47	22.2	47	22.2	0.423	17.2	LOS B	1.6	13.0	0.73	0.91	1.02	27.1
12	R2	19	5.6	19	5.6	0.423	89.3	LOS F	1.6	13.0	0.73	0.91	1.02	27.1
Approach		66	17.5	66	17.5	0.423	37.8	LOS C	1.6	13.0	0.73	0.91	1.02	27.1
All Vehicles		1953	6.0	1953	6.0	0.423	2.1	NA	10.4	77.5	0.05	0.09	0.06	51.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 102 [3 Old Northern Rd-Franlee Rd-Ex AM (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

Peak Hour: 8am-9am
Site Category: AM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
2	T1	952	6.7	952	6.7	0.497	0.1	LOS A	0.1	1.1	0.02	0.00	0.02	59.7
3	R2	3	0.0	3	0.0	0.497	17.0	LOS B	0.1	1.1	0.02	0.00	0.02	57.6
Approach		955	6.7	955	6.7	0.497	0.2	NA	0.1	1.1	0.02	0.00	0.02	59.7
East: Franlee Road														
4	L2	8	0.0	8	0.0	0.080	10.7	LOS A	0.2	1.5	0.86	0.94	0.86	42.2
6	R2	5	0.0	5	0.0	0.080	45.4	LOS D	0.2	1.5	0.86	0.94	0.86	33.7
Approach		14	0.0	14	0.0	0.080	24.0	LOS B	0.2	1.5	0.86	0.94	0.86	39.8
North: Old Northern Road North														
7	L2	8	0.0	8	0.0	0.458	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.4
8	T1	872	3.7	872	3.7	0.458	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach		880	3.7	880	3.7	0.458	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.6
All Vehicles		1848	5.2	1848	5.2	0.497	0.3	NA	0.2	1.5	0.01	0.01	0.02	59.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 2954 [1 Old Northern Rd-Kenthurst Rd-Ex PM (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	580	7.3	580	7.3	0.474	11.7	LOS A	17.1	127.5	0.56	0.50	0.56	43.5
6	R2	519	9.5	519	9.5	* 0.733	45.2	LOS D	22.2	168.2	0.94	1.03	0.94	32.4
Approach		1099	8.3	1099	8.3	0.733	27.5	LOS B	22.2	168.2	0.74	0.75	0.74	35.7
North: Kenthurst Road														
7	L2	513	4.7	513	4.7	0.495	15.7	LOS B	14.0	102.1	0.58	0.72	0.58	44.4
9	R2	381	3.9	381	3.9	* 0.680	47.8	LOS D	20.1	145.4	0.96	0.85	0.96	21.9
Approach		894	4.4	894	4.4	0.680	29.4	LOS C	20.1	145.4	0.74	0.77	0.74	34.7
West: Old Northern Road W														
10	L2	361	6.1	361	6.1	0.410	20.0	LOS B	10.9	80.4	0.68	0.77	0.68	34.9
11	T1	477	10.8	477	10.8	* 0.941	69.8	LOS E	22.4	171.4	1.00	1.16	1.36	20.9
Approach		838	8.8	838	8.8	0.941	48.3	LOS D	22.4	171.4	0.86	0.99	1.07	25.2
All Vehicles		2831	7.2	2831	7.2	0.941	34.3	LOS C	22.4	171.4	0.77	0.83	0.84	32.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [2 Old Northern Rd-Stonelea Ct-Ex PM (Site Folder: General)] Network: N101 [PM (Network Folder: General)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	106	0.0	106	0.0	0.224	5.6	LOS A	0.0	0.0	0.00	0.15	0.00	55.8
2	T1	803	8.0	803	8.0	0.264	0.0	LOS A	12.7	95.0	0.00	0.06	0.00	57.4
Approach		909	7.1	909	7.1	0.264	0.7	NA	12.7	95.0	0.00	0.07	0.00	56.9
North: Old Northern Road N														
8	T1	878	5.8	878	5.8	0.435	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
9	R2	113	5.6	113	5.6	0.463	23.1	LOS B	1.5	11.3	0.85	1.00	1.11	36.1
Approach		991	5.7	991	5.7	0.463	2.9	NA	1.5	11.3	0.10	0.11	0.13	47.2
West: Stonelea Court														
10	L2	74	5.7	74	5.7	0.866	78.5	LOS F	7.3	53.0	0.86	1.49	2.62	13.2
12	R2	47	4.4	47	4.4	0.866	157.8	LOS F	7.3	53.0	0.86	1.49	2.62	13.2
Approach		121	5.2	121	5.2	0.866	109.5	LOS F	7.3	53.0	0.86	1.49	2.62	13.2
All Vehicles		2021	6.3	2021	6.3	0.866	8.3	NA	12.7	95.0	0.10	0.18	0.22	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 102 [3 Old Northern Rd-Franlee Rd-Ex PM (Site Folder: General)] Network: N101 [PM (Network Folder: General)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
2	T1	901	7.1	901	7.1	0.471	0.1	LOS A	0.1	0.8	0.01	0.00	0.02	59.7
3	R2	2	0.0	2	0.0	0.471	18.2	LOS B	0.1	0.8	0.01	0.00	0.02	57.7
Approach		903	7.1	903	7.1	0.471	0.1	NA	0.1	0.8	0.01	0.00	0.02	59.7
East: Franlee Road														
4	L2	5	0.0	5	0.0	0.123	11.5	LOS A	0.3	2.3	0.91	0.96	0.91	38.4
6	R2	9	0.0	9	0.0	0.123	44.2	LOS D	0.3	2.3	0.91	0.96	0.91	29.2
Approach		15	0.0	15	0.0	0.123	32.5	LOS C	0.3	2.3	0.91	0.96	0.91	33.4
North: Old Northern Road North														
7	L2	9	0.0	9	0.0	0.489	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.4
8	T1	919	5.7	919	5.7	0.489	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach		928	5.7	928	5.7	0.489	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		1846	6.3	1846	6.3	0.489	0.4	NA	0.3	2.3	0.01	0.01	0.02	59.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 2954 [1 Old Northern Rd-Kenthurst Rd-Ex Sat (Site Folder: General)]

Network: N101 [Sat (Network Folder: General)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	600	1.4	600	1.4	0.438	8.6	LOS A	15.2	107.6	0.48	0.43	0.48	46.9
6	R2	500	3.2	500	3.2	* 0.747	42.7	LOS D	20.7	148.6	0.93	1.03	0.93	33.2
Approach		1100	2.2	1100	2.2	0.747	24.1	LOS B	20.7	148.6	0.68	0.70	0.69	37.3
North: Kenthurst Road														
7	L2	514	2.5	514	2.5	0.502	15.4	LOS B	13.9	99.0	0.57	0.72	0.57	44.7
9	R2	321	2.6	321	2.6	* 0.845	61.4	LOS E	20.1	143.6	1.00	0.94	1.19	18.8
Approach		835	2.5	835	2.5	0.845	33.1	LOS C	20.1	143.6	0.74	0.80	0.81	33.6
West: Old Northern Road W														
10	L2	219	5.8	219	5.8	0.305	21.1	LOS B	6.8	50.2	0.70	0.75	0.70	34.5
11	T1	517	2.9	517	2.9	* 0.847	46.8	LOS D	23.9	171.4	0.99	0.97	1.11	26.5
Approach		736	3.7	736	3.7	0.847	39.2	LOS C	23.9	171.4	0.91	0.91	0.99	28.5
All Vehicles		2671	2.7	2671	2.7	0.847	31.1	LOS C	23.9	171.4	0.76	0.79	0.81	33.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [2 Old Northern Rd-Stonelea Ct-Ex Sat (Site Folder: General)]

Network: N101 [Sat (Network Folder: General)]

Peak Hour: 12pm-1pm
Site Category: Sat
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	111	1.9	111	1.9	0.131	5.6	LOS A	0.0	0.0	0.00	0.27	0.00	54.5
2	T1	762	3.6	762	3.6	0.326	0.0	LOS A	6.3	45.5	0.00	0.05	0.00	57.9
Approach		873	3.4	873	3.4	0.326	0.7	NA	6.3	45.5	0.00	0.07	0.00	56.8
North: Old Northern Road N														
8	T1	845	2.0	845	2.0	0.408	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
9	R2	75	0.0	75	0.0	0.202	14.5	LOS A	0.6	4.1	0.74	0.89	0.76	42.1
Approach		920	1.8	920	1.8	0.408	1.4	NA	0.6	4.1	0.06	0.07	0.06	52.7
West: Stonelea Court														
10	L2	84	0.0	84	0.0	0.778	42.8	LOS D	5.5	39.0	0.60	1.05	1.64	19.8
12	R2	61	3.4	61	3.4	0.778	90.2	LOS F	5.5	39.0	0.60	1.05	1.64	19.8
Approach		145	1.4	145	1.4	0.778	62.7	LOS E	5.5	39.0	0.60	1.05	1.64	19.8
All Vehicles		1938	2.5	1938	2.5	0.778	5.7	NA	6.3	45.5	0.07	0.15	0.15	43.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 102 [3 Old Northern Rd-Franlee Rd-Ex Sat (Site Folder: General)]

Network: N101 [Sat (Network Folder: General)]

Peak Hour: 12pm-1pm
Site Category: Sat
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
2	T1	872	3.4	872	3.4	0.443	0.0	LOS A	0.0	0.3	0.01	0.00	0.01	59.9
3	R2	1	0.0	1	0.0	0.443	16.4	LOS B	0.0	0.3	0.01	0.00	0.01	57.7
Approach		873	3.4	873	3.4	0.443	0.1	NA	0.0	0.3	0.01	0.00	0.01	59.9
East: Franlee Road														
4	L2	3	0.0	3	0.0	0.016	10.8	LOS A	0.0	0.3	0.80	0.86	0.80	45.8
6	R2	1	0.0	1	0.0	0.016	36.4	LOS C	0.0	0.3	0.80	0.86	0.80	38.5
Approach		4	0.0	4	0.0	0.016	17.2	LOS B	0.0	0.3	0.80	0.86	0.80	44.5
North: Old Northern Road North														
7	L2	2	0.0	2	0.0	0.466	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
8	T1	904	2.1	904	2.1	0.466	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
Approach		906	2.1	906	2.1	0.466	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.6
All Vehicles		1783	2.7	1783	2.7	0.466	0.1	NA	0.0	0.3	0.00	0.00	0.01	59.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 101 [S0-AM Old Northern Road - New Line Road (Site Folder: S0 - 2020 Existing Case)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	370	25	389	6.8	0.508	5.0	LOS A	3.9	28.3	0.56	0.54	0.56	54.0
2	T1	761	28	801	3.7	0.508	5.1	LOS A	3.9	28.3	0.57	0.54	0.57	53.2
3	R2	17	1	18	5.9	0.508	19.7	LOS B	3.7	27.5	0.58	0.54	0.58	23.5
3u	U	18	13	19	72.2	0.508	15.2	LOS B	3.7	27.5	0.58	0.54	0.58	54.3
Approach		1166	67	1227	5.7	0.508	5.5	LOS A	3.9	28.3	0.57	0.54	0.57	52.3
East: Shops Access														
4	L2	66	2	69	3.0	0.107	4.6	LOS A	0.6	4.6	0.79	0.69	0.79	22.7
5	T1	29	3	31	10.3	0.107	6.0	LOS A	0.6	4.6	0.78	0.72	0.78	22.3
6	R2	31	0	33	0.0	0.107	5.8	LOS A	0.6	4.2	0.78	0.73	0.78	17.9
Approach		126	5	133	4.0	0.107	5.2	LOS A	0.6	4.6	0.78	0.71	0.78	21.5
North: Old Northern Road														
7	L2	42	1	44	2.4	0.477	9.8	LOS A	3.1	22.0	0.53	0.58	0.53	18.7
8	T1	708	23	745	3.2	0.477	5.8	LOS A	3.1	22.0	0.54	0.61	0.54	53.0
9	R2	192	19	202	9.9	0.477	12.0	LOS A	2.9	21.4	0.54	0.69	0.55	52.0
Approach		942	43	992	4.6	0.477	7.2	LOS A	3.1	22.0	0.54	0.63	0.54	48.8
West: Old Northern Road														
10	L2	557	27	586	4.8	0.558	7.4	LOS A	4.2	30.8	0.78	0.92	0.93	50.6
11	T1	39	0	41	0.0	0.487	17.1	LOS B	3.0	23.0	0.76	0.97	0.89	22.9
12	R2	311	35	327	11.3	0.487	14.0	LOS A	3.0	23.0	0.76	0.97	0.89	50.4
Approach		907	62	955	6.8	0.558	10.1	LOS A	4.2	30.8	0.78	0.94	0.91	47.4
All Vehicles		3141	177	3306	5.6	0.558	7.3	LOS A	4.2	30.8	0.63	0.69	0.67	46.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S0-PM Old Northern Road - New Line Road (Site Folder: S0 - 2020 Existing Case)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	329	6	346	1.8	0.518	6.8	LOS A	4.0	28.3	0.73	0.74	0.78	53.4
2	T1	563	14	593	2.5	0.518	7.2	LOS A	4.0	28.3	0.73	0.79	0.80	51.7
3	R2	30	1	32	3.3	0.518	21.9	LOS B	3.9	28.1	0.74	0.81	0.82	23.3
3u	U	32	11	34	34.4	0.518	16.8	LOS B	3.9	28.1	0.74	0.81	0.82	54.2
Approach		954	32	1004	3.4	0.518	7.9	LOS A	4.0	28.3	0.73	0.77	0.80	50.1
East: Shops Access														
4	L2	103	2	108	1.9	0.251	5.9	LOS A	1.6	11.4	0.85	0.82	0.85	22.4
5	T1	115	1	121	0.9	0.251	6.7	LOS A	1.6	11.4	0.85	0.83	0.85	22.4
6	R2	55	2	58	3.6	0.251	7.5	LOS A	1.4	10.3	0.84	0.84	0.84	17.7
Approach		273	5	287	1.8	0.251	6.5	LOS A	1.6	11.4	0.85	0.83	0.85	21.5
North: Old Northern Road														
7	L2	45	0	47	0.0	0.542	10.5	LOS A	3.5	25.5	0.56	0.68	0.61	18.7
8	T1	565	34	595	6.0	0.542	6.6	LOS A	3.5	25.5	0.56	0.71	0.62	52.6
9	R2	367	18	386	4.9	0.542	12.7	LOS A	3.4	24.7	0.56	0.82	0.63	50.0
Approach		977	52	1028	5.3	0.542	9.1	LOS A	3.5	25.5	0.56	0.75	0.62	47.7
West: Old Northern Road														
10	L2	406	25	427	6.2	0.475	6.5	LOS A	3.1	23.0	0.73	0.82	0.79	49.8
11	T1	53	0	56	0.0	0.475	15.6	LOS B	3.1	23.0	0.73	0.83	0.79	23.1
12	R2	353	31	372	8.8	0.475	13.1	LOS A	3.0	22.3	0.74	0.94	0.83	51.3
Approach		812	56	855	6.9	0.475	10.0	LOS A	3.1	23.0	0.73	0.87	0.80	46.5
All Vehicles		3016	145	3175	4.8	0.542	8.7	LOS A	4.0	28.3	0.69	0.80	0.75	42.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S0-SAT Old Northern Road - New Line Road (Site Folder: S0 - 2020 Existing Case)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	313	6	329	1.9	0.509	6.7	LOS A	3.9	27.7	0.73	0.73	0.77	53.4
2	T1	503	10	529	2.0	0.509	7.0	LOS A	3.9	27.7	0.73	0.79	0.79	50.8
3	R2	79	2	83	2.5	0.509	21.7	LOS B	3.8	27.1	0.74	0.82	0.80	23.1
3u	U	48	1	51	2.1	0.509	15.4	LOS B	3.8	27.1	0.74	0.82	0.80	53.9
Approach		943	19	993	2.0	0.509	8.5	LOS A	3.9	27.7	0.73	0.77	0.79	46.2
East: Shops Access														
4	L2	122	3	128	2.5	0.277	6.5	LOS A	1.8	12.9	0.89	0.87	0.89	22.4
5	T1	84	1	88	1.2	0.277	7.4	LOS A	1.8	12.9	0.87	0.87	0.87	22.3
6	R2	69	1	73	1.4	0.277	8.2	LOS A	1.6	11.4	0.87	0.87	0.87	17.6
Approach		275	5	289	1.8	0.277	7.2	LOS A	1.8	12.9	0.88	0.87	0.88	21.2
North: Old Northern Road														
7	L2	88	0	93	0.0	0.635	11.9	LOS A	4.9	35.0	0.63	0.80	0.76	18.6
8	T1	661	14	696	2.1	0.635	7.9	LOS A	4.9	35.0	0.63	0.82	0.77	51.6
9	R2	373	5	393	1.3	0.635	14.1	LOS A	4.7	33.5	0.65	0.89	0.80	49.3
Approach		1122	19	1181	1.7	0.635	10.3	LOS A	4.9	35.0	0.64	0.84	0.78	44.7
West: Old Northern Road														
10	L2	438	7	461	1.6	0.487	6.5	LOS A	3.3	23.4	0.73	0.82	0.80	50.5
11	T1	72	1	76	1.4	0.487	16.1	LOS B	3.3	23.4	0.74	0.88	0.82	23.1
12	R2	348	6	366	1.7	0.487	13.0	LOS A	3.1	22.2	0.74	0.94	0.84	51.3
Approach		858	14	903	1.6	0.487	9.9	LOS A	3.3	23.4	0.74	0.88	0.82	45.5
All Vehicles		3198	57	3366	1.8	0.635	9.4	LOS A	4.9	35.0	0.71	0.83	0.80	40.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S0-AM Old Northern Road - Glenhaven Road (Site Folder: S0 - 2020 Existing Case)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	284	6	299	2.1	0.267	8.0	LOS A	2.3	16.4	0.42	0.67	0.42	51.8
2	T1	659	42	694	6.4	* 0.647	21.3	LOS B	9.3	68.7	0.93	0.80	0.95	43.7
Approach		943	48	993	5.1	0.647	17.3	LOS B	9.3	68.7	0.78	0.76	0.79	45.9
North: Old Northern Road														
8	T1	564	21	594	3.7	0.286	8.3	LOS A	4.8	35.0	0.59	0.50	0.59	52.4
9	R2	231	11	243	4.8	* 0.548	22.9	LOS B	5.9	43.2	0.92	0.82	0.92	42.7
Approach		795	32	837	4.0	0.548	12.6	LOS A	5.9	43.2	0.68	0.59	0.68	49.0
West: Glenhaven Road														
10	L2	332	9	349	2.7	0.658	22.5	LOS B	11.3	80.7	0.88	0.84	0.88	42.9
12	R2	433	2	456	0.5	* 0.658	26.0	LOS B	11.3	80.7	0.92	0.84	0.95	40.7
Approach		765	11	805	1.4	0.658	24.5	LOS B	11.3	80.7	0.90	0.84	0.92	41.6
All Vehicles		2503	91	2635	3.6	0.658	18.0	LOS B	11.3	80.7	0.79	0.73	0.80	45.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	3	3	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		6	6	24.3	LOS C	0.0	0.0	0.90	0.90	192.1	218.2	1.14

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

MOVEMENT SUMMARY

Site: 101 [S0-PM Old Northern Road - Glenhaven Road (Site Folder: S0 - 2020 Existing Case)]

S0 - 2020 Existing Case Weekday PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 59 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	498	3	524	0.6	0.532	10.0	LOS A	5.6	39.5	0.62	0.74	0.62	50.5
2	T1	627	27	660	4.3	* 0.508	17.2	LOS B	7.8	56.4	0.85	0.72	0.85	46.1
Approach		1125	30	1184	2.7	0.532	14.0	LOS A	7.8	56.4	0.75	0.73	0.75	48.0
North: Old Northern Road														
8	T1	452	23	476	5.1	0.214	6.5	LOS A	3.3	24.4	0.51	0.43	0.51	53.9
9	R2	363	4	382	1.1	* 0.783	27.2	LOS B	10.4	73.6	0.98	0.99	1.18	40.7
Approach		815	27	858	3.3	0.783	15.7	LOS B	10.4	73.6	0.72	0.68	0.81	46.9
West: Glenhaven Road														
10	L2	221	12	233	5.4	0.487	22.0	LOS B	7.0	51.2	0.83	0.80	0.83	43.1
12	R2	286	7	301	2.4	* 0.487	25.4	LOS B	7.0	51.2	0.88	0.80	0.88	40.9
Approach		507	19	534	3.7	0.487	23.9	LOS B	7.0	51.2	0.86	0.80	0.86	41.9
All Vehicles		2447	76	2576	3.1	0.783	16.6	LOS B	10.4	73.6	0.76	0.73	0.79	46.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	5	5	23.8	LOS C	0.0	0.0	0.90	0.90	191.9	218.5	1.14
North: Old Northern Road												
P3	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	193.9	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	188.1	213.6	1.14
All Pedestrians		7	7	23.8	LOS C	0.0	0.0	0.90	0.90	191.6	218.2	1.14

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

MOVEMENT SUMMARY

Site: 101 [S0-SAT Old Northern Road - Glenhaven Road (Site Folder: S0 - 2020 Existing Case)]

S0 - 2020 Existing Case Weekday SAT Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	499	4	525	0.8	0.505	9.2	LOS A	5.5	38.8	0.55	0.72	0.55	51.0
2	T1	486	6	512	1.2	* 0.413	17.8	LOS B	6.0	42.6	0.83	0.69	0.83	45.8
Approach		985	10	1037	1.0	0.505	13.4	LOS A	6.0	42.6	0.69	0.71	0.69	48.3
North: Old Northern Road														
8	T1	535	8	563	1.5	0.260	7.6	LOS A	4.4	31.0	0.56	0.47	0.56	52.9
9	R2	281	3	296	1.1	* 0.576	19.8	LOS B	6.7	47.6	0.89	0.82	0.89	44.3
Approach		816	11	859	1.3	0.576	11.8	LOS A	6.7	47.6	0.67	0.59	0.67	49.5
West: Glenhaven Road														
10	L2	263	5	277	1.9	0.570	22.4	LOS B	8.9	63.1	0.85	0.82	0.85	43.0
12	R2	360	0	379	0.0	* 0.570	25.7	LOS B	8.9	63.1	0.90	0.82	0.90	40.8
Approach		623	5	656	0.8	0.570	24.3	LOS B	8.9	63.1	0.88	0.82	0.88	41.7
All Vehicles		2424	26	2552	1.1	0.576	15.7	LOS B	8.9	63.1	0.73	0.70	0.73	46.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	9	9	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		12	13	24.3	LOS C	0.0	0.0	0.90	0.90	193.6	220.0	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S1-AM Old Northern Rd-Kenthurst Rd-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB AM (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	533	5.3	533	5.3	0.399	8.3	LOS A	8.0	58.2	0.46	0.41	0.46	47.3
6	R2	444	5.2	444	5.2	* 0.698	45.4	LOS D	12.4	90.5	0.94	1.03	0.94	32.4
Approach		977	5.3	977	5.3	0.698	25.2	LOS B	12.4	90.5	0.68	0.69	0.68	36.8
North: Kenthurst Road														
7	L2	571	6.3	571	6.3	0.622	19.5	LOS B	11.7	86.4	0.69	0.77	0.69	43.0
9	R2	399	3.2	399	3.2	* 0.879	63.5	LOS E	15.6	112.4	1.00	0.96	1.21	18.4
Approach		969	5.0	969	5.0	0.879	37.6	LOS C	15.6	112.4	0.82	0.85	0.91	31.9
West: Old Northern Road W														
10	L2	298	6.0	298	6.0	0.307	15.7	LOS B	4.3	31.4	0.53	0.72	0.53	37.4
11	T1	622	8.3	622	8.3	* 0.850	25.9	LOS B	14.0	105.0	0.87	0.82	0.92	35.3
Approach		920	7.6	920	7.6	0.850	22.6	LOS B	14.0	105.0	0.76	0.79	0.79	36.0
All Vehicles		2866	5.9	2866	5.9	0.879	28.6	LOS C	15.6	112.4	0.75	0.78	0.79	34.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S1-AM Old Northern Rd-Stonelea Ct-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB AM (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 8am-9am
Site Category: AM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	82	0.0	82	0.0	0.203	5.6	LOS A	0.0	0.0	0.00	0.13	0.00	56.1
2	T1	960	6.7	960	6.7	0.351	0.0	LOS A	4.9	36.2	0.00	0.04	0.00	58.1
Approach		1042	6.2	1042	6.2	0.351	0.5	NA	4.9	36.2	0.00	0.05	0.00	57.7
North: Old Northern Road N														
8	T1	975	3.2	975	3.2	0.261	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	74	12.9	74	12.9	0.188	14.6	LOS B	0.2	1.8	0.75	0.89	0.76	41.5
Approach		1048	3.9	1048	3.9	0.261	1.0	NA	0.2	1.8	0.05	0.06	0.05	53.1
West: Stonelea Court														
10	L2	51	20.8	51	20.8	0.464	20.5	LOS B	0.8	6.1	0.73	0.92	1.08	25.5
12	R2	20	5.3	20	5.3	0.464	96.1	LOS F	0.8	6.1	0.73	0.92	1.08	25.5
Approach		71	16.4	71	16.4	0.464	42.0	LOS C	0.8	6.1	0.73	0.92	1.08	25.5
All Vehicles		2161	5.4	2161	5.4	0.464	2.1	NA	4.9	36.2	0.05	0.08	0.06	51.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 102 [S1-AM Old Northern Rd-Franlee Rd-Site Access-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB AM (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	31	6.9	31	6.9	0.481	21.0	LOS B	10.3	76.2	0.62	0.57	0.62	46.5
2	T1	976	6.6	976	6.6	0.481	15.5	LOS B	10.3	76.2	0.62	0.56	0.62	39.9
3	R2	26	0.0	26	0.0	0.288	68.7	LOS E	1.0	6.8	1.00	0.71	1.00	27.8
Approach		1033	6.4	1033	6.4	0.481	17.0	LOS B	10.3	76.2	0.63	0.57	0.63	39.4
East: Franlee Road														
4	L2	13	0.0	13	0.0	0.049	53.1	LOS D	0.4	2.9	0.87	0.68	0.87	32.3
5	T1	1	0.0	1	0.0	0.049	45.4	LOS D	0.4	2.9	0.87	0.68	0.87	32.8
6	R2	8	0.0	8	0.0	0.092	67.2	LOS E	0.3	2.1	0.98	0.66	0.98	18.9
Approach		22	0.0	22	0.0	0.092	58.1	LOS E	0.4	2.9	0.91	0.68	0.91	27.7
North: Old Northern Road North														
7	L2	31	0.0	31	0.0	0.218	17.6	LOS B	3.3	23.7	0.42	0.41	0.42	45.1
8	T1	926	3.5	926	3.5	* 0.670	16.0	LOS B	14.9	107.7	0.59	0.54	0.59	44.2
9	R2	37	8.6	37	8.6	* 0.428	69.9	LOS E	1.4	10.5	1.00	0.73	1.00	22.8
Approach		994	3.6	994	3.6	0.670	18.0	LOS B	14.9	107.7	0.60	0.54	0.60	42.8
West: Site Access														
10	L2	53	6.0	53	6.0	0.177	50.7	LOS D	1.6	12.1	0.88	0.74	0.88	22.8
11	T1	1	0.0	1	0.0	* 0.177	45.0	LOS D	1.6	12.1	0.88	0.74	0.88	32.8
12	R2	24	8.7	24	8.7	* 0.267	68.8	LOS E	0.9	6.7	0.99	0.71	0.99	27.9
Approach		78	6.8	78	6.8	0.267	56.2	LOS D	1.6	12.1	0.92	0.73	0.92	25.1
All Vehicles		2126	5.0	2126	5.0	0.670	19.3	LOS B	14.9	107.7	0.63	0.56	0.63	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46

West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S1-AM Old Northern Road - New Line Road-2026 FB (Site Folder: S1 - 2026 Future Base)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	394	25	415	6.3	0.545	5.2	LOS A	4.3	31.5	0.60	0.56	0.60	53.8
2	T1	798	28	840	3.5	0.545	5.3	LOS A	4.3	31.5	0.62	0.56	0.62	52.9
3	R2	18	1	19	5.6	0.545	19.9	LOS B	4.2	30.5	0.62	0.56	0.62	23.5
3u	U	19	13	20	68.4	0.545	15.4	LOS B	4.2	30.5	0.62	0.56	0.62	54.2
Approach		1229	67	1294	5.5	0.545	5.6	LOS A	4.3	31.5	0.61	0.56	0.61	52.1
East: Shops Access														
4	L2	66	2	69	3.0	0.115	5.2	LOS A	0.7	5.1	0.82	0.73	0.82	22.6
5	T1	29	3	31	10.3	0.115	6.7	LOS A	0.7	5.1	0.81	0.76	0.81	22.3
6	R2	31	0	33	0.0	0.115	6.5	LOS A	0.6	4.6	0.81	0.77	0.81	17.8
Approach		126	5	133	4.0	0.115	5.8	LOS A	0.7	5.1	0.81	0.74	0.81	21.4
North: Old Northern Road														
7	L2	45	1	47	2.2	0.530	10.3	LOS A	3.8	27.2	0.58	0.64	0.60	18.7
8	T1	758	23	798	3.0	0.530	6.4	LOS A	3.8	27.2	0.58	0.67	0.61	52.6
9	R2	211	19	222	9.0	0.530	12.7	LOS A	3.6	26.6	0.59	0.75	0.63	51.5
Approach		1014	43	1067	4.2	0.530	7.9	LOS A	3.8	27.2	0.58	0.69	0.62	48.5
West: Old Northern Road														
10	L2	601	27	633	4.5	0.622	8.2	LOS A	5.2	37.9	0.83	0.99	1.05	49.8
11	T1	42	0	44	0.0	0.545	17.9	LOS B	3.7	27.7	0.80	1.00	0.98	22.8
12	R2	336	35	354	10.4	0.545	14.8	LOS B	3.7	27.7	0.80	1.00	0.98	50.0
Approach		979	62	1031	6.3	0.622	10.9	LOS A	5.2	37.9	0.82	0.99	1.02	46.9
All Vehicles		3348	177	3524	5.3	0.622	7.8	LOS A	5.2	37.9	0.67	0.73	0.74	46.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S1-AM Old Northern Road - Glenhaven Road-2026 FB (Site Folder: S1 - 2026 Future Base)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	284	6	299	2.1	0.271	8.0	LOS A	2.3	16.4	0.42	0.67	0.42	51.8
2	T1	670	42	705	6.3	* 0.657	21.5	LOS B	9.5	70.3	0.94	0.81	0.97	43.6
Approach		954	48	1004	5.0	0.657	17.5	LOS B	9.5	70.3	0.78	0.77	0.80	45.8
North: Old Northern Road														
8	T1	598	21	629	3.5	0.303	8.4	LOS A	5.2	37.5	0.59	0.51	0.59	52.3
9	R2	246	11	259	4.5	* 0.586	23.6	LOS B	6.3	46.0	0.93	0.84	0.93	42.3
Approach		844	32	888	3.8	0.586	12.9	LOS A	6.3	46.0	0.69	0.60	0.69	48.8
West: Glenhaven Road														
10	L2	373	9	393	2.4	0.722	24.2	LOS B	13.5	96.2	0.91	0.87	0.97	42.1
12	R2	472	2	497	0.4	* 0.722	27.6	LOS B	13.5	96.2	0.95	0.88	1.03	39.9
Approach		845	11	889	1.3	0.722	26.1	LOS B	13.5	96.2	0.93	0.88	1.00	40.9
All Vehicles		2643	91	2782	3.4	0.722	18.8	LOS B	13.5	96.2	0.80	0.75	0.83	44.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	3	3	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		6	6	24.3	LOS C	0.0	0.0	0.90	0.90	192.1	218.2	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S1-PM Old Northern Rd-Kenthurst Rd-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB PM (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	722	6.3	722	6.3	0.571	11.9	LOS A	13.9	102.6	0.59	0.54	0.59	43.4
6	R2	566	8.7	566	8.7	* 0.859	56.1	LOS D	18.2	137.1	1.00	1.11	1.12	29.6
Approach		1288	7.4	1288	7.4	0.859	31.3	LOS C	18.2	137.1	0.77	0.79	0.82	33.8
North: Kenthurst Road														
7	L2	552	4.4	552	4.4	0.570	19.6	LOS B	11.0	79.7	0.67	0.76	0.67	42.8
9	R2	457	3.2	457	3.2	* 0.969	84.1	LOS F	21.3	153.2	1.00	1.08	1.47	15.3
Approach		1008	3.9	1008	3.9	0.969	48.8	LOS D	21.3	153.2	0.82	0.90	1.03	28.0
West: Old Northern Road W														
10	L2	423	5.2	423	5.2	0.454	19.0	LOS B	7.7	56.4	0.67	0.77	0.67	35.4
11	T1	563	9.7	563	9.7	* 0.963	68.4	LOS E	13.8	105.0	1.00	1.16	1.34	21.1
Approach		986	7.8	986	7.8	0.963	47.2	LOS D	13.8	105.0	0.86	0.99	1.05	25.6
All Vehicles		3283	6.4	3283	6.4	0.969	41.5	LOS C	21.3	153.2	0.81	0.89	0.96	29.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S1-PM Old Northern Rd-Stonelea Ct-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB PM (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	117	0.0	117	0.0	0.252	5.6	LOS A	0.0	0.0	0.00	0.15	0.00	55.9
2	T1	913	7.0	913	7.0	0.297	0.0	LOS A	11.7	86.8	0.00	0.06	0.00	57.5
Approach		1029	6.2	1029	6.2	0.297	0.7	NA	11.7	86.8	0.00	0.07	0.00	57.0
North: Old Northern Road N														
8	T1	1047	4.8	1047	4.8	0.283	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	121	5.2	121	5.2	0.429	20.5	LOS B	0.6	4.5	0.81	0.98	1.04	37.7
Approach		1168	4.9	1168	4.9	0.429	2.1	NA	0.6	4.5	0.08	0.10	0.11	48.9
West: Stonelea Court														
10	L2	79	5.3	79	5.3	0.775	50.5	LOS D	2.4	17.2	0.81	1.27	2.07	17.3
12	R2	51	4.2	51	4.2	0.775	116.6	LOS F	2.4	17.2	0.81	1.27	2.07	17.3
Approach		129	4.9	129	4.9	0.775	76.3	LOS F	2.4	17.2	0.81	1.27	2.07	17.3
All Vehicles		2327	5.5	2327	5.5	0.775	5.6	NA	11.7	86.8	0.09	0.15	0.17	42.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 102 [S1-PM Old Northern Rd-Franlee Rd-Site Access-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB PM (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	91	2.3	91	2.3	0.715	38.0	LOS C	15.2	112.2	0.90	0.81	0.90	38.0
2	T1	941	6.8	941	6.8	* 0.715	32.2	LOS C	15.5	115.1	0.90	0.80	0.90	29.2
3	R2	24	0.0	24	0.0	* 0.265	68.6	LOS E	0.9	6.2	0.99	0.71	0.99	27.9
Approach		1056	6.3	1056	6.3	0.715	33.5	LOS C	15.5	115.1	0.90	0.80	0.90	30.2
East: Franlee Road														
4	L2	14	0.0	14	0.0	0.052	53.7	LOS D	0.4	3.1	0.87	0.69	0.87	32.3
5	T1	1	0.0	1	0.0	0.052	45.4	LOS D	0.4	3.1	0.87	0.69	0.87	32.8
6	R2	22	0.0	22	0.0	0.242	68.4	LOS E	0.8	5.7	0.99	0.71	0.99	18.7
Approach		37	0.0	37	0.0	0.242	62.3	LOS E	0.8	5.7	0.94	0.70	0.94	24.6
North: Old Northern Road North														
7	L2	39	0.0	39	0.0	* 0.243	16.6	LOS B	3.2	23.6	0.39	0.37	0.39	45.7
8	T1	969	5.4	969	5.4	0.747	14.8	LOS B	15.4	112.7	0.57	0.53	0.57	45.2
9	R2	91	3.5	91	3.5	0.226	46.9	LOS D	2.8	20.5	0.91	0.77	0.91	28.5
Approach		1099	5.1	1099	5.1	0.747	17.5	LOS B	15.4	112.7	0.59	0.54	0.59	43.1
West: Site Access														
10	L2	98	3.2	98	3.2	0.166	35.0	LOS C	2.5	17.7	0.73	0.74	0.73	28.2
11	T1	1	0.0	1	0.0	* 0.166	29.4	LOS C	2.5	17.7	0.73	0.74	0.73	38.2
12	R2	65	3.2	65	3.2	* 0.694	71.8	LOS F	2.5	18.1	1.00	0.82	1.17	27.3
Approach		164	3.2	164	3.2	0.694	49.6	LOS D	2.5	18.1	0.84	0.77	0.91	27.7
All Vehicles		2356	5.4	2356	5.4	0.747	27.6	LOS B	15.5	115.1	0.75	0.68	0.76	35.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46

West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S1-PM Old Northern Road - New Line Road-2026 FB (Site Folder: S1 - 2026 Future Base)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	365	6	384	1.6	0.574	7.5	LOS A	5.0	35.3	0.77	0.81	0.88	53.1
2	T1	610	14	642	2.3	0.574	8.1	LOS A	5.0	35.3	0.78	0.86	0.90	51.3
3	R2	33	1	35	3.0	0.574	22.7	LOS B	4.8	34.8	0.78	0.88	0.92	23.2
3u	U	35	11	37	31.4	0.574	17.6	LOS B	4.8	34.8	0.78	0.88	0.92	54.0
Approach		1043	32	1098	3.1	0.574	8.7	LOS A	5.0	35.3	0.78	0.85	0.90	49.8
East: Shops Access														
4	L2	103	2	108	1.9	0.262	6.4	LOS A	1.7	12.1	0.87	0.85	0.87	22.4
5	T1	115	1	121	0.9	0.262	7.2	LOS A	1.7	12.1	0.86	0.85	0.86	22.3
6	R2	55	2	58	3.6	0.262	8.2	LOS A	1.5	10.9	0.86	0.86	0.86	17.6
Approach		273	5	287	1.8	0.262	7.1	LOS A	1.7	12.1	0.87	0.85	0.87	21.5
North: Old Northern Road														
7	L2	46	0	48	0.0	0.573	11.0	LOS A	3.9	28.9	0.58	0.73	0.67	18.7
8	T1	581	34	612	5.9	0.573	7.1	LOS A	3.9	28.9	0.59	0.75	0.67	52.4
9	R2	386	18	406	4.7	0.573	13.2	LOS A	3.8	27.8	0.60	0.86	0.70	49.5
Approach		1013	52	1066	5.1	0.573	9.6	LOS A	3.9	28.9	0.59	0.79	0.68	47.5
West: Old Northern Road														
10	L2	432	25	455	5.8	0.525	7.1	LOS A	3.8	27.9	0.78	0.91	0.88	49.6
11	T1	56	0	59	0.0	0.525	16.2	LOS B	3.8	27.9	0.78	0.91	0.89	23.1
12	R2	376	31	396	8.2	0.525	13.9	LOS A	3.6	26.6	0.78	0.98	0.92	50.8
Approach		864	56	909	6.5	0.525	10.7	LOS A	3.8	27.9	0.78	0.94	0.90	46.2
All Vehicles		3193	145	3361	4.5	0.574	9.4	LOS A	5.0	35.3	0.73	0.85	0.83	42.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S1-PM Old Northern Road - Glenhaven Road-2026 FB (Site Folder: S1 - 2026 Future Base)]

S0 - 2020 Existing Case Weekday PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 59 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	543	3	572	0.6	0.575	10.3	LOS A	5.9	41.5	0.67	0.77	0.67	50.3
2	T1	695	27	732	3.9	* 0.562	17.6	LOS B	8.8	63.8	0.87	0.74	0.87	45.9
Approach		1238	30	1303	2.4	0.575	14.4	LOS A	8.8	63.8	0.78	0.75	0.78	47.7
North: Old Northern Road														
8	T1	469	23	494	4.9	0.222	6.5	LOS A	3.5	25.4	0.52	0.44	0.52	53.8
9	R2	377	4	397	1.1	* 0.848	33.2	LOS C	11.9	84.3	1.00	1.08	1.35	38.2
Approach		846	27	891	3.2	0.848	18.4	LOS B	11.9	84.3	0.73	0.72	0.89	45.3
West: Glenhaven Road														
10	L2	232	12	244	5.2	0.492	22.0	LOS B	7.2	52.7	0.83	0.80	0.83	43.1
12	R2	286	7	301	2.4	* 0.492	25.5	LOS B	7.2	52.7	0.88	0.80	0.88	40.9
Approach		518	19	545	3.7	0.492	23.9	LOS B	7.2	52.7	0.86	0.80	0.86	41.9
All Vehicles		2602	76	2739	2.9	0.848	17.6	LOS B	11.9	84.3	0.78	0.75	0.83	45.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	5	5	23.8	LOS C	0.0	0.0	0.90	0.90	191.9	218.5	1.14
North: Old Northern Road												
P3	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	193.9	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	188.1	213.6	1.14
All Pedestrians		7	7	23.8	LOS C	0.0	0.0	0.90	0.90	191.6	218.2	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S1-SAT Old Northern Rd-Kenthurst Rd-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB SAT (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	746	1.1	746	1.1	0.544	9.6	LOS A	13.0	91.6	0.54	0.49	0.54	45.7
6	R2	546	2.9	546	2.9	* 0.930	71.5	LOS F	21.5	154.1	1.00	1.17	1.30	26.3
Approach		1293	1.9	1293	1.9	0.930	35.8	LOS C	21.5	154.1	0.73	0.78	0.86	31.8
North: Kenthurst Road														
7	L2	571	2.2	571	2.2	0.623	24.0	LOS B	12.9	91.7	0.75	0.79	0.75	41.1
9	R2	397	2.1	397	2.1	* 1.041	127.1	LOS F	23.2	165.6	1.00	1.24	1.81	11.1
Approach		967	2.2	967	2.2	1.041	66.3	LOS E	23.2	165.6	0.85	0.97	1.18	24.2
West: Old Northern Road W														
10	L2	285	4.4	285	4.4	0.367	19.4	LOS B	4.9	35.2	0.63	0.74	0.63	35.4
11	T1	686	2.1	686	2.1	* 1.017	92.7	LOS F	14.7	105.0	0.99	1.31	1.51	17.1
Approach		972	2.8	971 N1	2.8	1.017	71.2	LOS F	14.7	105.0	0.89	1.14	1.25	20.1
All Vehicles		3232	2.2	3231 N1	2.2	1.041	55.5	LOS D	23.2	165.6	0.81	0.95	1.07	25.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S1-SAT Old Northern Rd-Stonelea Ct-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB SAT (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 12pm-1pm
Site Category: Sat
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	118	1.8	118	1.8	0.166	5.6	LOS A	0.0	0.0	0.00	0.22	0.00	55.0
2	T1	999	2.7	999	2.7	0.415	0.1	LOS A	21.2	152.2	0.00	0.04	0.00	58.0
Approach		1117	2.6	1117	2.6	0.415	0.6	NA	21.2	152.2	0.00	0.06	0.00	57.2
North: Old Northern Road N														
8	T1	1033	1.6	1018	1.6	0.270	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	80	0.0	79	0.0	0.236	16.6	LOS B	0.3	2.1	0.77	0.92	0.83	40.5
Approach		1113	1.5	1097 N1	1.5	0.270	1.2	NA	0.3	2.1	0.06	0.07	0.06	52.5
West: Stonelea Court														
10	L2	91	0.0	91	0.0	1.003	126.8	LOS F	6.1	43.1	1.00	1.75	3.83	9.5
12	R2	65	3.2	65	3.2	1.003	214.2	LOS F	6.1	43.1	1.00	1.75	3.83	9.5
Approach		156	1.4	156	1.4	1.003	163.4	LOS F	6.1	43.1	1.00	1.75	3.83	9.5
All Vehicles		2385	2.0	2370 N1	2.0	1.003	11.6	NA	21.2	152.2	0.09	0.18	0.28	32.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 102 [S1-SAT Old Northern Rd-Franlee Rd-Site Access-2026 FB (Site Folder: S1 - 2026 Future Base)]

Network: N101 [2026 FB SAT (Network Folder: S1 - 2026 Future Base)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	92	2.3	92	2.3	0.754	38.7	LOS C	16.8	120.4	0.92	0.83	0.92	37.8
2	T1	922	3.2	922	3.2	* 0.754	33.5	LOS C	16.8	120.4	0.92	0.83	0.93	28.6
3	R2	22	0.0	22	0.0	* 0.242	68.4	LOS E	0.8	5.7	0.99	0.71	0.99	27.9
Approach		1036	3.0	1036	3.0	0.754	34.7	LOS C	16.8	120.4	0.92	0.83	0.93	29.7
East: Franlee Road														
4	L2	108	0.0	108	0.0	0.396	55.4	LOS D	3.5	24.3	0.92	0.78	0.92	31.8
5	T1	1	0.0	1	0.0	* 0.396	46.7	LOS D	3.5	24.3	0.92	0.78	0.92	32.3
6	R2	100	0.0	100	0.0	* 0.761	67.9	LOS E	3.8	26.6	1.00	0.88	1.22	18.8
Approach		209	0.0	209	0.0	0.761	61.3	LOS E	3.8	26.6	0.96	0.83	1.06	26.1
North: Old Northern Road North														
7	L2	25	0.0	25	0.0	* 0.255	19.6	LOS B	3.7	26.1	0.43	0.39	0.43	43.7
8	T1	980	1.9	967	1.9	0.785	18.5	LOS B	17.2	122.5	0.64	0.58	0.64	42.6
9	R2	92	3.4	90	3.4	0.289	52.9	LOS D	3.0	21.8	0.97	0.78	0.97	26.8
Approach		1097	2.0	1082 N1	2.0	0.785	21.4	LOS B	17.2	122.5	0.67	0.60	0.67	40.6
West: Site Access														
10	L2	92	3.4	92	3.4	0.179	39.6	LOS C	2.5	17.8	0.79	0.75	0.79	26.3
11	T1	1	0.0	1	0.0	0.179	34.0	LOS C	2.5	17.8	0.79	0.75	0.79	36.4
12	R2	92	2.3	92	2.3	0.484	62.7	LOS E	3.2	23.0	0.99	0.78	0.99	29.3
Approach		184	2.9	184	2.9	0.484	51.1	LOS D	3.2	23.0	0.89	0.76	0.89	28.3
All Vehicles		2526	2.3	2512 N1	2.3	0.785	32.4	LOS C	17.2	122.5	0.81	0.72	0.82	33.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S1-SAT Old Northern Road - New Line Road-2026 FB (Site Folder: S1 - 2026 Future Base)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	346	6	364	1.7	0.580	7.6	LOS A	5.1	36.3	0.79	0.83	0.91	53.0
2	T1	545	10	574	1.8	0.580	8.1	LOS A	5.1	36.3	0.80	0.89	0.93	50.2
3	R2	86	2	91	2.3	0.580	22.8	LOS B	4.9	35.0	0.80	0.93	0.94	23.0
3u	U	52	1	55	1.9	0.580	16.5	LOS B	4.9	35.0	0.80	0.93	0.94	53.4
Approach		1029	19	1083	1.8	0.580	9.6	LOS A	5.1	36.3	0.80	0.87	0.93	45.9
East: Shops Access														
4	L2	122	3	128	2.5	0.323	7.7	LOS A	2.1	15.3	0.93	0.93	0.93	22.2
5	T1	84	1	88	1.2	0.323	9.1	LOS A	2.1	15.3	0.91	0.93	0.93	22.0
6	R2	69	1	73	1.4	0.323	10.3	LOS A	1.9	13.6	0.90	0.94	0.94	17.4
Approach		275	5	289	1.8	0.323	8.8	LOS A	2.1	15.3	0.92	0.93	0.93	21.0
North: Old Northern Road														
7	L2	94	0	99	0.0	0.728	13.7	LOS A	6.8	48.0	0.73	0.93	0.98	18.3
8	T1	707	8	744	1.1	0.728	9.8	LOS A	6.8	48.0	0.74	0.95	0.99	49.8
9	R2	406	5	427	1.2	0.728	16.2	LOS B	6.4	45.4	0.75	1.01	1.02	47.5
Approach		1207	13	1271	1.1	0.728	12.3	LOS A	6.8	48.0	0.74	0.97	1.00	43.4
West: Old Northern Road														
10	L2	505	7	532	1.4	0.590	7.6	LOS A	4.7	33.5	0.81	0.95	0.97	49.9
11	T1	78	1	82	1.3	0.590	17.2	LOS B	4.7	33.5	0.81	0.97	0.98	23.0
12	R2	408	6	429	1.5	0.590	14.3	LOS A	4.4	31.1	0.81	1.01	1.00	50.5
Approach		991	14	1043	1.4	0.590	11.1	LOS A	4.7	33.5	0.81	0.98	0.98	45.3
All Vehicles		3502	51	3686	1.5	0.728	10.9	LOS A	6.8	48.0	0.79	0.94	0.97	40.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S1-SAT Old Northern Road - Glenhaven Road-2026 FB (Site Folder: S1 - 2026 Future Base)]

S0 - 2020 Existing Case Weekday SAT Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	544	4	573	0.7	0.607	10.7	LOS A	7.1	50.0	0.65	0.75	0.65	49.9
2	T1	540	6	568	1.1	* 0.459	18.1	LOS B	6.8	48.2	0.85	0.71	0.85	45.6
Approach		1084	10	1141	0.9	0.607	14.4	LOS A	7.1	50.0	0.75	0.73	0.75	47.7
North: Old Northern Road														
8	T1	615	8	647	1.3	0.298	7.8	LOS A	5.2	36.5	0.57	0.49	0.57	52.8
9	R2	347	3	365	0.9	* 0.737	24.6	LOS B	9.7	68.3	0.97	0.93	1.09	42.0
Approach		962	11	1013	1.1	0.737	13.9	LOS A	9.7	68.3	0.72	0.65	0.76	48.1
West: Glenhaven Road														
10	L2	297	5	313	1.7	0.627	22.8	LOS B	10.2	72.1	0.88	0.83	0.88	42.8
12	R2	393	0	414	0.0	* 0.627	26.2	LOS B	10.2	72.1	0.92	0.83	0.93	40.6
Approach		690	5	726	0.7	0.627	24.8	LOS B	10.2	72.1	0.90	0.83	0.91	41.5
All Vehicles		2736	26	2880	1.0	0.737	16.8	LOS B	10.2	72.1	0.77	0.73	0.79	46.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	9	9	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		12	13	24.3	LOS C	0.0	0.0	0.90	0.90	193.6	220.0	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S2-AM Old Northern Rd-Kenthurst Rd-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev AM (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	566	5.0	566	5.0	0.428	9.0	LOS A	8.9	65.0	0.48	0.44	0.48	46.5
6	R2	444	5.2	444	5.2	* 0.746	49.9	LOS D	12.8	93.8	0.97	1.06	0.98	31.1
Approach		1011	5.1	1011	5.1	0.746	27.0	LOS B	12.8	93.8	0.70	0.71	0.70	35.8
North: Kenthurst Road														
7	L2	571	6.3	571	6.3	0.645	22.6	LOS B	12.9	95.2	0.75	0.80	0.75	41.6
9	R2	422	3.0	422	3.0	* 0.893	64.8	LOS E	16.9	121.1	1.00	0.97	1.24	18.2
Approach		993	4.9	993	4.9	0.893	40.5	LOS C	16.9	121.1	0.86	0.87	0.96	30.8
West: Old Northern Road W														
10	L2	309	5.8	309	5.8	0.314	15.4	LOS B	4.7	34.2	0.57	0.73	0.57	37.7
11	T1	639	8.1	639	8.1	* 0.871	43.8	LOS D	14.0	105.0	0.99	0.99	1.11	27.5
Approach		948	7.3	948	7.3	0.871	34.6	LOS C	14.0	105.0	0.85	0.91	0.94	30.2
All Vehicles		2952	5.7	2952	5.7	0.893	34.0	LOS C	16.9	121.1	0.80	0.83	0.86	32.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S2-AM Old Northern Rd-Stonelea Ct-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev AM (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 8am-9am
Site Category: AM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	82	0.0	82	0.0	0.197	2.1	LOS A	0.0	0.0	0.00	0.12	0.00	56.0
2	T1	924	6.9	924	6.9	0.339	0.0	LOS A	0.7	5.0	0.00	0.04	0.00	52.1
Approach		1006	6.4	1006	6.4	0.339	0.2	NA	0.7	5.0	0.00	0.04	0.00	54.9
North: Old Northern Road N														
8	T1	1032	3.1	1032	3.1	0.276	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	74	12.9	74	12.9	0.218	16.4	LOS B	0.3	2.1	0.79	0.92	0.84	40.2
Approach		1105	3.7	1105	3.7	0.276	1.1	NA	0.3	2.1	0.05	0.06	0.06	52.7
West: Stonelea Court														
10	L2	51	20.8	51	20.8	0.625	42.8	LOS D	1.1	9.0	0.79	1.08	1.45	18.0
12	R2	20	5.3	20	5.3	0.625	146.4	LOS F	1.1	9.0	0.79	1.08	1.45	18.0
Approach		71	16.4	71	16.4	0.625	72.2	LOS F	1.1	9.0	0.79	1.08	1.45	18.0
All Vehicles		2182	5.4	2182	5.4	0.625	3.0	NA	1.1	9.0	0.05	0.09	0.08	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 102 [S2-AM Old Northern Rd-Franlee Rd-Site Access-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev AM (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	31	6.9	31	6.9	0.485	21.0	LOS B	10.4	77.0	0.63	0.57	0.63	46.4
2	T1	984	6.5	984	6.5	0.485	15.5	LOS B	10.4	77.0	0.63	0.57	0.63	39.8
3	R2	26	0.0	26	0.0	0.288	68.7	LOS E	1.0	6.8	1.00	0.71	1.00	27.8
Approach		1041	6.4	1041	6.4	0.485	17.0	LOS B	10.4	77.0	0.64	0.57	0.64	39.3
East: Franlee Road														
4	L2	13	0.0	13	0.0	0.049	53.3	LOS D	0.4	2.9	0.87	0.68	0.87	32.3
5	T1	1	0.0	1	0.0	0.049	45.4	LOS D	0.4	2.9	0.87	0.68	0.87	32.8
6	R2	28	0.0	28	0.0	* 0.311	68.9	LOS E	1.1	7.4	1.00	0.72	1.00	18.6
Approach		42	0.0	42	0.0	0.311	63.6	LOS E	1.1	7.4	0.96	0.71	0.96	23.5
North: Old Northern Road North														
7	L2	51	0.0	51	0.0	0.232	19.2	LOS B	4.4	31.3	0.53	0.51	0.53	42.6
8	T1	963	3.4	963	3.4	* 0.712	18.4	LOS B	19.0	137.0	0.72	0.66	0.72	41.4
9	R2	37	8.6	37	8.6	* 0.428	69.9	LOS E	1.4	10.4	1.00	0.73	1.00	21.7
Approach		1051	3.4	1051	3.4	0.712	20.3	LOS B	19.0	137.0	0.72	0.65	0.72	40.2
West: Site Access														
10	L2	53	6.0	53	6.0	0.177	50.7	LOS D	1.6	12.1	0.88	0.74	0.88	22.8
11	T1	1	0.0	1	0.0	* 0.177	45.0	LOS D	1.6	12.1	0.88	0.74	0.88	32.8
12	R2	24	8.7	24	8.7	0.267	68.8	LOS E	0.9	6.7	0.99	0.71	0.99	27.9
Approach		78	6.8	78	6.8	0.267	56.2	LOS D	1.6	12.1	0.92	0.73	0.92	25.1
All Vehicles		2212	4.9	2212	4.9	0.712	20.8	LOS B	19.0	137.0	0.69	0.62	0.69	38.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46

West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S2-AM Old Northern Road - New Line Road-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	394	25	415	6.3	0.567	5.4	LOS A	4.6	33.7	0.65	0.59	0.65	53.6
2	T1	814	28	857	3.4	0.567	5.7	LOS A	4.6	33.7	0.66	0.60	0.67	52.7
3	R2	18	1	19	5.6	0.567	20.3	LOS B	4.6	33.5	0.67	0.61	0.68	23.4
3u	U	19	13	20	68.4	0.567	16.0	LOS B	4.6	33.5	0.67	0.61	0.68	54.0
Approach		1245	67	1311	5.4	0.567	6.0	LOS A	4.6	33.7	0.66	0.60	0.66	51.9
East: Shops Access														
4	L2	66	2	69	3.0	0.117	5.3	LOS A	0.7	5.2	0.83	0.74	0.83	22.6
5	T1	29	3	31	10.3	0.117	6.9	LOS A	0.7	5.2	0.82	0.77	0.82	22.2
6	R2	31	0	33	0.0	0.117	6.7	LOS A	0.6	4.7	0.81	0.78	0.81	17.8
Approach		126	5	133	4.0	0.117	6.0	LOS A	0.7	5.2	0.82	0.76	0.82	21.4
North: Old Northern Road														
7	L2	45	1	47	2.2	0.547	10.4	LOS A	4.1	29.1	0.58	0.65	0.62	18.7
8	T1	758	23	798	3.0	0.547	6.5	LOS A	4.1	29.1	0.59	0.69	0.63	52.5
9	R2	243	19	256	7.8	0.547	12.8	LOS A	3.9	28.3	0.59	0.77	0.65	51.2
Approach		1046	43	1101	4.1	0.547	8.1	LOS A	4.1	29.1	0.59	0.70	0.63	48.5
West: Old Northern Road														
10	L2	617	27	649	4.4	0.650	8.6	LOS A	5.7	41.5	0.86	1.01	1.10	49.4
11	T1	42	0	44	0.0	0.558	18.1	LOS B	3.8	28.8	0.81	1.01	1.01	22.8
12	R2	336	35	354	10.4	0.558	15.0	LOS B	3.8	28.8	0.81	1.01	1.01	49.8
Approach		995	62	1047	6.2	0.650	11.1	LOS A	5.7	41.5	0.84	1.01	1.07	46.7
All Vehicles		3412	177	3592	5.2	0.650	8.1	LOS A	5.7	41.5	0.70	0.76	0.78	46.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S2-AM Old Northern Road - Glenhaven Road-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	284	6	299	2.1	0.273	8.2	LOS A	2.3	16.4	0.44	0.68	0.44	51.8
2	T1	678	42	714	6.2	* 0.665	21.6	LOS B	9.7	71.5	0.94	0.82	0.97	43.5
Approach		962	48	1013	5.0	0.665	17.7	LOS B	9.7	71.5	0.79	0.78	0.82	45.7
North: Old Northern Road														
8	T1	622	21	655	3.4	0.315	8.5	LOS A	5.4	39.2	0.60	0.51	0.60	52.3
9	R2	257	11	271	4.3	* 0.614	24.3	LOS B	6.7	48.4	0.94	0.86	0.95	42.0
Approach		879	32	925	3.6	0.614	13.1	LOS A	6.7	48.4	0.70	0.61	0.70	48.6
West: Glenhaven Road														
10	L2	373	9	393	2.4	0.722	24.2	LOS B	13.5	96.2	0.91	0.87	0.97	42.1
12	R2	472	2	497	0.4	* 0.722	27.6	LOS B	13.5	96.2	0.95	0.88	1.03	39.9
Approach		845	11	889	1.3	0.722	26.1	LOS B	13.5	96.2	0.93	0.88	1.00	40.9
All Vehicles		2686	91	2827	3.4	0.722	18.8	LOS B	13.5	96.2	0.80	0.76	0.84	44.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	3	3	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		6	6	24.3	LOS C	0.0	0.0	0.90	0.90	192.1	218.2	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S2-PM Old Northern Rd-Kenthurst Rd-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev PM (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	759	5.5	759	5.5	0.621	14.1	LOS A	16.2	118.5	0.66	0.60	0.66	41.2
6	R2	566	8.7	566	8.7	* 0.903	64.2	LOS E	20.0	150.7	1.00	1.15	1.21	27.8
Approach		1325	6.9	1325	6.9	0.903	35.5	LOS C	20.0	150.7	0.80	0.84	0.89	32.0
North: Kenthurst Road														
7	L2	552	4.4	552	4.4	0.567	20.1	LOS B	11.1	80.8	0.68	0.76	0.68	42.5
9	R2	482	3.1	482	3.1	* 0.978	86.9	LOS F	22.9	164.6	1.00	1.10	1.49	15.0
Approach		1034	3.8	1034	3.8	0.978	51.2	LOS D	22.9	164.6	0.83	0.92	1.06	27.2
West: Old Northern Road W														
10	L2	436	5.1	426	5.1	0.442	17.9	LOS B	7.4	54.1	0.65	0.77	0.65	36.1
11	T1	582	8.9	569	8.9	* 0.993	90.7	LOS F	13.9	105.0	1.00	1.31	1.53	17.4
Approach		1018	7.2	995 N1	7.3	0.993	59.5	LOS E	13.9	105.0	0.85	1.08	1.15	22.4
All Vehicles		3377	6.0	3354 N1	6.1	0.993	47.5	LOS D	22.9	164.6	0.82	0.93	1.02	27.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S2-PM Old Northern Rd-Stonelea Ct-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev PM (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	117	0.0	117	0.0	0.260	2.1	LOS A	0.0	0.0	0.00	0.13	0.00	55.9
2	T1	944	6.8	944	6.8	0.306	0.0	LOS A	0.7	5.0	0.00	0.05	0.00	49.9
Approach		1061	6.1	1061	6.1	0.306	0.2	NA	0.7	5.0	0.00	0.06	0.00	54.5
North: Old Northern Road N														
8	T1	1109	4.6	1109	4.6	0.299	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	121	5.2	121	5.2	0.675	35.7	LOS C	1.0	7.1	0.93	1.10	1.45	30.0
Approach		1231	4.6	1231	4.6	0.675	3.5	NA	1.0	7.1	0.09	0.11	0.14	43.8
West: Stonelea Court														
10	L2	79	5.3	79	5.3	1.435	470.8	LOS F	12.9	94.0	1.00	3.11	7.48	3.4
12	R2	51	4.2	51	4.2	1.435	560.1	LOS F	12.9	94.0	1.00	3.11	7.48	3.4
Approach		129	4.9	129	4.9	1.435	505.6	LOS F	12.9	94.0	1.00	3.11	7.48	3.4
All Vehicles		2421	5.3	2421	5.3	1.435	28.9	NA	12.9	94.0	0.10	0.25	0.47	13.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

MOVEMENT SUMMARY

Site: 102 [S2-PM Old Northern Rd-Franlee Rd-Site Access-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev PM (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	88	2.4	88	2.4	0.761	37.6	LOS C	17.3	127.1	0.92	0.83	0.92	38.2
2	T1	951	6.8	951	6.8	* 0.761	32.5	LOS C	17.3	127.1	0.91	0.83	0.92	29.1
3	R2	24	0.0	24	0.0	* 0.265	68.6	LOS E	0.9	6.2	0.99	0.71	0.99	27.9
Approach		1063	6.2	1063	6.2	0.761	33.8	LOS C	17.3	127.1	0.92	0.83	0.93	30.1
East: Franlee Road														
4	L2	14	0.0	14	0.0	0.052	53.9	LOS D	0.4	3.1	0.87	0.69	0.87	32.3
5	T1	1	0.0	1	0.0	0.052	45.4	LOS D	0.4	3.1	0.87	0.69	0.87	32.8
6	R2	44	0.0	44	0.0	0.597	71.8	LOS F	1.7	12.0	1.00	0.78	1.10	18.1
Approach		59	0.0	59	0.0	0.597	67.2	LOS E	1.7	12.0	0.97	0.75	1.04	21.9
North: Old Northern Road North														
7	L2	61	0.0	60	0.0	* 0.255	20.4	LOS B	4.9	35.3	0.57	0.52	0.57	41.6
8	T1	1009	5.2	997	5.2	0.783	19.4	LOS B	20.7	151.7	0.75	0.69	0.75	40.8
9	R2	91	3.5	89	3.5	0.241	48.5	LOS D	2.7	19.4	0.87	0.76	0.87	26.9
Approach		1161	4.8	1147 N1	4.8	0.783	21.7	LOS B	20.7	151.7	0.75	0.68	0.75	39.2
West: Site Access														
10	L2	98	3.2	98	3.2	0.173	36.5	LOS C	2.5	18.1	0.75	0.75	0.75	27.6
11	T1	1	0.0	1	0.0	* 0.173	31.0	LOS C	2.5	18.1	0.75	0.75	0.75	37.5
12	R2	65	3.2	65	3.2	* 0.694	71.8	LOS F	2.5	18.1	1.00	0.82	1.17	27.3
Approach		164	3.2	164	3.2	0.694	50.5	LOS D	2.5	18.1	0.85	0.77	0.92	27.5
All Vehicles		2447	5.2	2433 N1	5.2	0.783	30.0	LOS C	20.7	151.7	0.83	0.75	0.85	33.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S2-PM Old Northern Road - New Line Road-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	365	6	384	1.6	0.603	8.2	LOS A	5.6	39.8	0.81	0.87	0.96	52.7
2	T1	627	14	660	2.2	0.603	8.8	LOS A	5.6	39.8	0.81	0.91	0.98	50.9
3	R2	33	1	35	3.0	0.603	23.5	LOS B	5.3	38.7	0.82	0.93	1.00	23.2
3u	U	35	11	37	31.4	0.603	18.5	LOS B	5.3	38.7	0.82	0.93	1.00	53.6
Approach		1060	32	1116	3.0	0.603	9.4	LOS A	5.6	39.8	0.81	0.90	0.98	49.4
East: Shops Access														
4	L2	103	2	108	1.9	0.271	6.6	LOS A	1.8	12.6	0.88	0.87	0.88	22.3
5	T1	115	1	121	0.9	0.271	7.5	LOS A	1.8	12.6	0.87	0.87	0.87	22.3
6	R2	55	2	58	3.6	0.271	8.4	LOS A	1.6	11.3	0.86	0.86	0.86	17.6
Approach		273	5	287	1.8	0.271	7.3	LOS A	1.8	12.6	0.88	0.87	0.88	21.4
North: Old Northern Road														
7	L2	46	0	48	0.0	0.597	11.2	LOS A	4.3	31.5	0.60	0.75	0.70	18.7
8	T1	581	34	612	5.9	0.597	7.3	LOS A	4.3	31.5	0.60	0.77	0.70	52.4
9	R2	421	18	443	4.3	0.597	13.4	LOS A	4.2	30.2	0.62	0.87	0.73	49.1
Approach		1048	52	1103	5.0	0.597	9.9	LOS A	4.3	31.5	0.61	0.81	0.71	47.4
West: Old Northern Road														
10	L2	450	25	474	5.6	0.548	7.3	LOS A	4.1	30.0	0.80	0.93	0.92	49.6
11	T1	56	0	59	0.0	0.548	16.6	LOS B	4.1	30.0	0.80	0.94	0.93	23.0
12	R2	376	31	396	8.2	0.548	14.2	LOS A	3.8	28.4	0.80	0.99	0.96	50.6
Approach		882	56	928	6.3	0.548	10.8	LOS A	4.1	30.0	0.80	0.96	0.94	46.1
All Vehicles		3263	145	3435	4.4	0.603	9.8	LOS A	5.6	39.8	0.75	0.88	0.87	42.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S2-PM Old Northern Road - Glenhaven Road-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

S0 - 2020 Existing Case Weekday PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 59 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	543	3	572	0.6	0.581	10.3	LOS A	5.9	41.5	0.68	0.77	0.68	50.3
2	T1	704	27	741	3.8	* 0.569	17.6	LOS B	9.0	64.8	0.87	0.74	0.87	45.9
Approach		1247	30	1313	2.4	0.581	14.5	LOS A	9.0	64.8	0.79	0.75	0.79	47.7
North: Old Northern Road														
8	T1	495	23	521	4.6	0.234	6.6	LOS A	3.7	27.0	0.52	0.44	0.52	53.8
9	R2	389	4	409	1.0	* 0.880	37.2	LOS C	13.2	93.0	1.00	1.13	1.45	36.6
Approach		884	27	931	3.1	0.880	20.1	LOS B	13.2	93.0	0.73	0.74	0.93	44.3
West: Glenhaven Road														
10	L2	232	12	244	5.2	0.492	22.0	LOS B	7.2	52.7	0.83	0.80	0.83	43.1
12	R2	286	7	301	2.4	* 0.492	25.5	LOS B	7.2	52.7	0.88	0.80	0.88	40.9
Approach		518	19	545	3.7	0.492	23.9	LOS B	7.2	52.7	0.86	0.80	0.86	41.9
All Vehicles		2649	76	2788	2.9	0.880	18.2	LOS B	13.2	93.0	0.78	0.76	0.85	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	5	5	23.8	LOS C	0.0	0.0	0.90	0.90	191.9	218.5	1.14
North: Old Northern Road												
P3	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	193.9	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	188.1	213.6	1.14
All Pedestrians		7	7	23.8	LOS C	0.0	0.0	0.90	0.90	191.6	218.2	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S2-SAT Old Northern Rd-Kenthurst Rd-2026 FB +Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev SAT (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	785	1.1	785	1.1	0.586	11.1	LOS A	14.8	104.9	0.58	0.54	0.58	44.2
6	R2	546	2.9	546	2.9	* 0.955	80.4	LOS F	23.1	165.7	1.00	1.21	1.38	24.7
Approach		1332	1.8	1332	1.8	0.955	39.5	LOS C	23.1	165.7	0.75	0.81	0.91	30.4
North: Kenthurst Road														
7	L2	571	2.2	571	2.2	0.612	23.2	LOS B	12.6	89.8	0.73	0.78	0.73	41.4
9	R2	423	2.0	423	2.0	* 1.027	117.8	LOS F	23.9	170.3	1.00	1.21	1.73	11.9
Approach		994	2.1	994	2.1	1.027	63.5	LOS E	23.9	170.3	0.85	0.96	1.16	24.7
West: Old Northern Road W														
10	L2	298	4.2	286	4.4	0.369	19.4	LOS B	5.2	37.9	0.70	0.76	0.70	35.4
11	T1	705	2.1	677	2.2	* 1.024	103.6	LOS F	14.7	105.0	0.99	1.39	1.61	15.7
Approach		1003	2.7	963 N1	2.8	1.024	78.6	LOS F	14.7	105.0	0.90	1.20	1.34	18.8
All Vehicles		3328	2.2	3289 N1	2.2	1.027	58.2	LOS E	23.9	170.3	0.83	0.97	1.11	24.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S2-SAT Old Northern Rd-Stonelea Ct-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev SAT (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 12pm-1pm
Site Category: Sat
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	118	1.8	118	1.8	0.171	2.1	LOS A	0.0	0.0	0.00	0.19	0.00	55.4
2	T1	1031	2.7	1031	2.7	0.427	0.0	LOS A	0.7	5.0	0.00	0.04	0.00	52.0
Approach		1148	2.6	1148	2.6	0.427	0.2	NA	0.7	5.0	0.00	0.05	0.00	54.6
North: Old Northern Road N														
8	T1	1098	1.5	1088	1.5	0.288	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	80	0.0	79	0.0	0.372	24.9	LOS B	0.4	3.1	0.88	0.99	1.04	35.2
Approach		1178	1.4	1167 N1	1.4	0.372	1.7	NA	0.4	3.1	0.06	0.07	0.07	50.0
West: Stonelea Court														
10	L2	91	0.0	91	0.0	1.980	942.1	LOS F	22.6	160.3	1.00	3.91	10.16	1.8
12	R2	65	3.2	65	3.2	1.980	1007.1	LOS F	22.6	160.3	1.00	3.91	10.16	1.8
Approach		156	1.4	156	1.4	1.980	969.3	LOS F	22.6	160.3	1.00	3.91	10.16	1.8
All Vehicles		2482	2.0	2471 N1	2.0	1.980	62.0	NA	22.6	160.3	0.09	0.30	0.67	6.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 102 [S2-SAT Old Northern Rd-Franlee Rd-Site Access-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

Network: N101 [2026 FB +Dev SAT (Network Folder: S2 - 2026 Future Base + Dev)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	92	2.3	92	2.3	0.712	32.2	LOS C	17.4	125.2	0.86	0.78	0.86	40.5
2	T1	932	3.2	932	3.2	0.712	26.7	LOS B	17.4	125.2	0.85	0.77	0.85	32.0
3	R2	22	0.0	22	0.0	0.207	66.7	LOS E	0.8	5.6	0.98	0.71	0.98	28.3
Approach		1045	3.0	1045	3.0	0.712	28.0	LOS B	17.4	125.2	0.85	0.77	0.85	32.9
East: Franlee Road														
4	L2	108	0.0	108	0.0	0.394	54.6	LOS D	3.4	24.1	0.91	0.78	0.91	32.1
5	T1	1	0.0	1	0.0	* 0.394	45.7	LOS D	3.4	24.1	0.91	0.78	0.91	32.6
6	R2	122	0.0	122	0.0	* 0.879	75.6	LOS F	5.1	35.7	1.00	1.00	1.47	17.4
Approach		232	0.0	232	0.0	0.879	65.6	LOS E	5.1	35.7	0.96	0.90	1.20	24.6
North: Old Northern Road North														
7	L2	47	0.0	46	0.0	0.290	25.9	LOS B	5.6	39.5	0.65	0.59	0.65	38.3
8	T1	1022	1.9	987	1.8	* 0.890	36.3	LOS C	22.5	160.0	0.88	0.88	0.98	31.9
9	R2	92	3.4	88	3.4	* 0.849	75.6	LOS F	3.6	25.6	1.00	0.93	1.40	20.7
Approach		1161	1.9	1121 N1	1.9	0.890	38.9	LOS C	22.5	160.0	0.88	0.87	1.00	30.8
West: Site Access														
10	L2	92	3.4	92	3.4	0.283	50.8	LOS D	2.9	20.7	0.90	0.77	0.90	22.7
11	T1	1	0.0	1	0.0	0.283	45.2	LOS D	2.9	20.7	0.90	0.77	0.90	32.8
12	R2	92	2.3	92	2.3	0.341	56.6	LOS E	3.0	21.6	0.94	0.77	0.94	30.8
Approach		184	2.9	184	2.9	0.341	53.7	LOS D	3.0	21.6	0.92	0.77	0.92	27.5
All Vehicles		2622	2.2	2582 N1	2.3	0.890	38.0	LOS C	22.5	160.0	0.88	0.83	0.95	30.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S2-SAT Old Northern Road - New Line Road-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	346	6	364	1.7	0.612	8.4	LOS A	5.8	41.2	0.84	0.90	1.00	52.6
2	T1	563	10	593	1.8	0.612	8.9	LOS A	5.8	41.2	0.84	0.95	1.02	49.8
3	R2	86	2	91	2.3	0.612	23.7	LOS B	5.5	39.3	0.84	0.97	1.03	23.0
3u	U	52	1	55	1.9	0.612	17.4	LOS B	5.5	39.3	0.84	0.97	1.03	53.1
Approach		1047	19	1102	1.8	0.612	10.4	LOS A	5.8	41.2	0.84	0.93	1.01	45.6
East: Shops Access														
4	L2	122	3	128	2.5	0.337	8.1	LOS A	2.3	16.0	0.94	0.95	0.95	22.2
5	T1	84	1	88	1.2	0.337	9.7	LOS A	2.3	16.0	0.92	0.96	0.96	22.0
6	R2	69	1	73	1.4	0.337	11.0	LOS A	2.0	14.3	0.91	0.97	0.97	17.3
Approach		275	5	289	1.8	0.337	9.3	LOS A	2.3	16.0	0.93	0.96	0.96	21.0
North: Old Northern Road														
7	L2	94	0	99	0.0	0.756	14.4	LOS A	7.6	53.8	0.76	0.96	1.05	18.2
8	T1	707	14	744	2.0	0.756	10.5	LOS A	7.6	53.8	0.76	0.98	1.06	49.2
9	R2	443	5	466	1.1	0.756	16.9	LOS B	7.2	50.6	0.77	1.04	1.09	46.7
Approach		1244	19	1309	1.5	0.756	13.1	LOS A	7.6	53.8	0.76	1.00	1.07	43.0
West: Old Northern Road														
10	L2	523	7	551	1.3	0.613	7.8	LOS A	5.1	36.0	0.83	0.98	1.01	49.8
11	T1	78	1	82	1.3	0.613	17.7	LOS B	5.1	36.0	0.83	1.00	1.03	22.9
12	R2	408	6	429	1.5	0.613	14.7	LOS B	4.7	33.3	0.83	1.03	1.05	50.3
Approach		1009	14	1062	1.4	0.613	11.4	LOS A	5.1	36.0	0.83	1.00	1.03	45.2
All Vehicles		3575	57	3763	1.6	0.756	11.5	LOS A	7.6	53.8	0.82	0.98	1.03	40.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S2-SAT Old Northern Road - Glenhaven Road-2026 FB+Dev (Site Folder: S2 - 2026 Future Base + Dev)]

S0 - 2020 Existing Case Weekday SAT Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	544	4	573	0.7	0.593	10.5	LOS A	6.7	47.3	0.65	0.76	0.65	50.2
2	T1	549	6	578	1.1	* 0.466	18.1	LOS B	6.9	49.1	0.85	0.71	0.85	45.6
Approach		1093	10	1151	0.9	0.593	14.3	LOS A	6.9	49.1	0.75	0.74	0.75	47.8
North: Old Northern Road														
8	T1	642	8	676	1.2	0.311	7.9	LOS A	5.4	38.5	0.58	0.50	0.58	52.7
9	R2	360	3	379	0.8	* 0.769	26.6	LOS B	10.3	72.8	0.98	0.97	1.15	41.0
Approach		1002	11	1055	1.1	0.769	14.6	LOS B	10.3	72.8	0.72	0.67	0.78	47.6
West: Glenhaven Road														
10	L2	297	5	313	1.7	0.627	22.8	LOS B	10.2	72.1	0.88	0.83	0.88	42.8
12	R2	393	0	414	0.0	* 0.627	26.2	LOS B	10.2	72.1	0.92	0.83	0.93	40.6
Approach		690	5	726	0.7	0.627	24.8	LOS B	10.2	72.1	0.90	0.83	0.91	41.5
All Vehicles		2785	26	2932	0.9	0.769	17.0	LOS B	10.3	72.8	0.78	0.73	0.80	46.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	9	9	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		12	13	24.3	LOS C	0.0	0.0	0.90	0.90	193.6	220.0	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S3-AM Old Northern Rd-Kenthurst Rd-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB AM (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	599	4.7	599	4.7	0.537	16.6	LOS B	13.0	94.7	0.66	0.60	0.66	39.0
6	R2	504	4.6	504	4.6	* 1.004	62.6	LOS E	22.7	165.2	1.00	1.05	1.58	21.1
Approach		1103	4.7	1103	4.7	1.004	37.6	LOS C	22.7	165.2	0.82	0.80	1.08	25.5
North: Kenthurst Road														
7	L2	706	5.1	706	5.1	0.728	25.2	LOS B	16.2	118.3	0.80	0.85	0.80	40.6
9	R2	609	2.1	609	2.1	* 1.128	188.6	LOS F	45.5	324.1	1.00	1.42	2.17	8.0
Approach		1316	3.7	1316	3.7	1.128	100.9	LOS F	45.5	324.1	0.89	1.12	1.44	18.2
West: Old Northern Road W														
10	L2	334	5.4	334	5.4	0.413	16.2	LOS B	5.0	36.7	0.70	0.77	0.70	37.2
11	T1	695	7.4	695	7.4	* 1.145	192.2	LOS F	14.1	105.0	0.99	1.86	2.21	9.5
Approach		1028	6.8	1028	6.8	1.145	135.1	LOS F	14.1	105.0	0.90	1.51	1.72	12.5
All Vehicles		3447	4.9	3447	4.9	1.145	90.8	LOS F	45.5	324.1	0.87	1.13	1.41	17.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S3-AM Old Northern Rd-Stonelea Ct-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB AM (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 8am-9am
Site Category: AM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	92	0.0	92	0.0	0.227	5.6	LOS A	0.0	0.0	0.00	0.13	0.00	56.1
2	T1	1074	6.0	1074	6.0	0.391	0.1	LOS A	29.2	215.0	0.00	0.04	0.00	58.1
Approach		1165	5.5	1165	5.5	0.391	0.5	NA	29.2	215.0	0.00	0.05	0.00	57.7
North: Old Northern Road N														
8	T1	1028	3.1	969	3.1	0.260	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	81	11.7	77	11.9	0.224	16.8	LOS B	0.3	2.2	0.79	0.92	0.84	40.0
Approach		1109	3.7	1046[N1]	3.8	0.260	1.2	NA	0.3	2.2	0.06	0.07	0.06	52.2
West: Stonelea Court														
10	L2	57	18.5	57	18.5	0.535	26.5	LOS B	1.0	7.6	0.75	0.99	1.24	23.3
12	R2	22	4.8	22	4.8	0.535	106.6	LOS F	1.0	7.6	0.75	0.99	1.24	23.3
Approach		79	14.7	79	14.7	0.535	49.0	LOS D	1.0	7.6	0.75	0.99	1.24	23.3
All Vehicles		2354	5.0	2290[N1]	5.1	0.535	2.5	NA	29.2	215.0	0.05	0.09	0.07	50.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Licence: NETWORK / 1PC | Processed: Thursday, 10 February 2022 12:24:01 PM
Project: C:\Users\61425\Documents\20318\latest\220209 SIDRA -using ex cycle times.sip9

MOVEMENT SUMMARY

Site: 102 [S3-AM Old Northern Rd-Franlee Rd-Site Access-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB AM (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	31	6.9	31	6.9	0.706	24.4	LOS B	18.7	137.2	0.77	0.71	0.77	44.6
2	T1	1099	5.8	1099	5.8	* 0.706	19.2	LOS B	18.7	137.2	0.77	0.70	0.77	37.0
3	R2	26	0.0	26	0.0	0.288	68.7	LOS E	1.0	6.8	1.00	0.71	1.00	27.8
Approach		1156	5.7	1156	5.7	0.706	20.4	LOS B	18.7	137.2	0.77	0.70	0.77	36.8
East: Franlee Road														
4	L2	13	0.0	13	0.0	0.049	53.1	LOS D	0.4	2.9	0.87	0.68	0.87	32.3
5	T1	1	0.0	1	0.0	0.049	45.4	LOS D	0.4	2.9	0.87	0.68	0.87	32.8
6	R2	8	0.0	8	0.0	0.184	71.3	LOS F	0.3	2.3	0.99	0.68	0.99	18.2
Approach		22	0.0	22	0.0	0.184	59.6	LOS E	0.4	2.9	0.91	0.68	0.91	27.3
North: Old Northern Road North														
7	L2	31	0.0	29	0.0	0.218	18.1	LOS B	3.4	24.7	0.44	0.42	0.44	44.8
8	T1	982	3.3	927	3.4	0.670	16.8	LOS B	15.4	110.8	0.61	0.56	0.61	43.6
9	R2	37	8.6	35	8.8	* 0.405	69.8	LOS E	1.3	9.7	0.99	0.73	0.99	22.8
Approach		1049	3.4	991 N1	3.5	0.670	18.7	LOS B	15.4	110.8	0.62	0.56	0.62	42.3
West: Site Access														
10	L2	53	6.0	53	6.0	0.177	50.7	LOS D	1.6	12.1	0.88	0.74	0.88	22.8
11	T1	1	0.0	1	0.0	* 0.177	45.0	LOS D	1.6	12.1	0.88	0.74	0.88	32.8
12	R2	24	8.7	24	8.7	* 0.267	68.8	LOS E	0.9	6.7	0.99	0.71	0.99	27.9
Approach		78	6.8	78	6.8	0.267	56.2	LOS D	1.6	12.1	0.92	0.73	0.92	25.1
All Vehicles		2305	4.7	2246 N1	4.8	0.706	21.3	LOS B	18.7	137.2	0.71	0.64	0.71	38.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S3-AM Old Northern Road - New Line Road-2036 FB (Site Folder: S3 - 2036 Future Base)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	457	25	481	5.5	0.639	5.8	LOS A	6.0	43.9	0.69	0.63	0.71	53.5
2	T1	929	28	978	3.0	0.639	6.1	LOS A	6.1	44.2	0.70	0.66	0.74	52.4
3	R2	21	1	22	4.8	0.639	20.8	LOS B	6.1	44.2	0.71	0.67	0.76	23.4
3u	U	22	13	23	59.1	0.639	16.2	LOS B	6.1	44.2	0.71	0.67	0.76	54.1
Approach		1429	67	1504	4.7	0.639	6.4	LOS A	6.1	44.2	0.70	0.65	0.74	51.7
East: Shops Access														
4	L2	66	2	69	3.0	0.128	5.9	LOS A	0.8	5.8	0.85	0.78	0.85	22.5
5	T1	29	3	31	10.3	0.128	7.7	LOS A	0.8	5.8	0.84	0.81	0.84	22.1
6	R2	31	0	33	0.0	0.128	7.6	LOS A	0.7	5.1	0.84	0.82	0.84	17.7
Approach		126	5	133	4.0	0.128	6.7	LOS A	0.8	5.8	0.85	0.80	0.85	21.3
North: Old Northern Road														
7	L2	48	1	51	2.1	0.606	11.5	LOS A	5.2	37.1	0.65	0.75	0.75	18.6
8	T1	804	23	846	2.9	0.606	7.7	LOS A	5.2	37.1	0.66	0.78	0.76	51.9
9	R2	224	19	236	8.5	0.606	14.1	LOS A	4.8	35.4	0.66	0.83	0.78	50.5
Approach		1076	43	1133	4.0	0.606	9.2	LOS A	5.2	37.1	0.66	0.79	0.76	47.8
West: Old Northern Road														
10	L2	691	27	727	3.9	0.791	12.3	LOS A	9.1	65.7	0.96	1.18	1.50	46.1
11	T1	48	0	51	0.0	0.704	21.4	LOS B	5.9	43.9	0.90	1.11	1.31	22.3
12	R2	386	35	406	9.1	0.704	18.3	LOS B	5.9	43.9	0.90	1.11	1.31	47.8
Approach		1125	62	1184	5.5	0.791	14.8	LOS B	9.1	65.7	0.94	1.16	1.42	44.3
All Vehicles		3756	177	3954	4.7	0.791	9.7	LOS A	9.1	65.7	0.76	0.84	0.95	45.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S3-AM Old Northern Road - Glenhaven Road-2036 FB (Site Folder: S3 - 2036 Future Base)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	332	6	349	1.8	0.306	7.9	LOS A	2.3	16.5	0.44	0.68	0.44	52.0
2	T1	782	42	823	5.4	* 0.763	24.4	LOS B	12.2	89.6	0.97	0.92	1.11	42.1
Approach		1114	48	1173	4.3	0.763	19.5	LOS B	12.2	89.6	0.81	0.85	0.91	44.6
North: Old Northern Road														
8	T1	633	21	666	3.3	0.321	8.5	LOS A	5.6	40.1	0.60	0.51	0.60	52.2
9	R2	260	11	274	4.2	* 0.655	27.0	LOS B	6.9	50.3	0.95	0.91	1.01	40.7
Approach		893	32	940	3.6	0.655	13.9	LOS A	6.9	50.3	0.70	0.63	0.72	48.1
West: Glenhaven Road														
10	L2	411	9	433	2.2	0.796	27.4	LOS B	16.6	117.9	0.95	0.93	1.10	40.6
12	R2	521	2	548	0.4	* 0.796	30.5	LOS C	16.6	117.9	0.98	0.94	1.16	38.6
Approach		932	11	981	1.2	0.796	29.2	LOS C	16.6	117.9	0.97	0.93	1.13	39.5
All Vehicles		2939	91	3094	3.1	0.796	20.9	LOS B	16.6	117.9	0.83	0.81	0.92	43.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	3	3	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		6	6	24.3	LOS C	0.0	0.0	0.90	0.90	192.1	218.2	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S3-PM Old Northern Rd-Kenthurst Rd-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB PM (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	802	5.2	802	5.2	0.647	13.9	LOS A	17.3	126.6	0.66	0.61	0.66	41.4
6	R2	638	7.8	638	7.8	* 0.958	78.7	LOS F	26.6	198.7	1.00	1.22	1.35	25.0
Approach		1440	6.4	1440	6.4	0.958	42.6	LOS D	26.6	198.7	0.81	0.88	0.97	29.6
North: Kenthurst Road														
7	L2	606	4.0	606	4.0	0.617	20.8	LOS B	12.8	92.4	0.71	0.78	0.71	42.3
9	R2	498	3.0	498	3.0	* 1.046	128.1	LOS F	29.7	213.1	1.00	1.24	1.79	11.1
Approach		1104	3.5	1104	3.5	1.046	69.2	LOS E	29.7	213.1	0.84	0.98	1.20	23.2
West: Old Northern Road W														
10	L2	460	4.8	453	4.8	0.485	21.1	LOS B	9.6	69.9	0.79	0.81	0.79	34.3
11	T1	612	8.4	602	8.5	* 1.077	144.4	LOS F	14.0	105.0	1.00	1.62	1.92	12.1
Approach		1072	6.9	1055 N1	6.9	1.077	91.4	LOS F	14.0	105.0	0.91	1.27	1.43	16.7
All Vehicles		3616	5.6	3599 N1	5.7	1.077	65.1	LOS E	29.7	213.1	0.85	1.03	1.17	23.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S3-PM Old Northern Rd-Stonelea Ct-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB PM (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	129	0.0	129	0.0	0.296	5.6	LOS A	0.0	0.0	0.00	0.15	0.00	55.8
2	T1	1032	6.2	1032	6.2	0.349	0.0	LOS A	25.7	189.2	0.00	0.06	0.00	57.5
Approach		1161	5.5	1161	5.5	0.349	0.7	NA	25.7	189.2	0.00	0.07	0.00	57.0
North: Old Northern Road N														
8	T1	1158	4.4	1138	4.4	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	135	4.7	132	4.7	0.582	27.7	LOS B	0.9	6.4	0.89	1.06	1.29	33.7
Approach		1293	4.4	1271 N1	4.4	0.582	2.9	NA	0.9	6.4	0.09	0.11	0.13	46.1
West: Stonelea Court														
10	L2	87	4.8	87	4.8	1.249	312.8	LOS F	10.9	79.3	1.00	2.78	6.48	4.8
12	R2	57	3.7	57	3.7	1.249	400.0	LOS F	10.9	79.3	1.00	2.78	6.48	4.8
Approach		144	4.4	144	4.4	1.249	347.2	LOS F	10.9	79.3	1.00	2.78	6.48	4.8
All Vehicles		2598	4.9	2576 N1	4.9	1.249	21.2	NA	25.7	189.2	0.10	0.24	0.43	23.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 102 [S3-PM Old Northern Rd-Franlee Rd-Site Access-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB PM (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	91	2.3	91	2.3	0.824	36.8	LOS C	21.1	154.6	0.90	0.86	0.95	38.6
2	T1	1032	6.2	1032	6.2	* 0.824	33.5	LOS C	21.1	154.6	0.91	0.88	0.98	28.6
3	R2	24	0.0	24	0.0	* 0.265	68.6	LOS E	0.9	6.2	0.99	0.71	0.99	27.9
Approach		1146	5.8	1146	5.8	0.824	34.5	LOS C	21.1	154.6	0.91	0.88	0.98	29.7
East: Franlee Road														
4	L2	14	0.0	14	0.0	0.052	54.2	LOS D	0.4	3.1	0.87	0.69	0.87	32.3
5	T1	1	0.0	1	0.0	0.052	45.4	LOS D	0.4	3.1	0.87	0.69	0.87	32.8
6	R2	22	0.0	22	0.0	0.389	71.6	LOS F	0.9	6.0	1.00	0.72	1.00	18.1
Approach		37	0.0	37	0.0	0.389	64.4	LOS E	0.9	6.0	0.95	0.71	0.95	24.1
North: Old Northern Road North														
7	L2	39	0.0	38	0.0	* 0.261	16.0	LOS B	3.4	24.9	0.36	0.35	0.36	46.3
8	T1	1085	4.8	1058	4.9	0.802	14.2	LOS A	17.1	124.5	0.57	0.53	0.57	45.8
9	R2	91	3.5	88	3.5	0.330	55.7	LOS D	3.0	21.4	0.96	0.78	0.96	26.0
Approach		1215	4.6	1184 N1	4.6	0.802	17.3	LOS B	17.1	124.5	0.60	0.54	0.60	43.3
West: Site Access														
10	L2	98	3.2	98	3.2	0.206	41.5	LOS C	2.7	19.6	0.81	0.76	0.81	25.7
11	T1	1	0.0	1	0.0	* 0.206	35.9	LOS C	2.7	19.6	0.81	0.76	0.81	35.7
12	R2	65	3.2	65	3.2	* 0.694	71.8	LOS F	2.5	18.1	1.00	0.82	1.17	27.3
Approach		164	3.2	164	3.2	0.694	53.5	LOS D	2.7	19.6	0.88	0.78	0.95	26.6
All Vehicles		2562	5.0	2532 N1	5.0	0.824	28.1	LOS B	21.1	154.6	0.76	0.71	0.80	35.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S3-PM Old Northern Road - New Line Road-2036 FB (Site Folder: S3 - 2036 Future Base)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	410	6	432	1.5	0.665	8.9	LOS A	6.9	48.8	0.85	0.92	1.06	52.3
2	T1	687	14	723	2.0	0.665	9.6	LOS A	6.9	48.8	0.85	0.96	1.08	50.2
3	R2	37	1	39	2.7	0.665	24.3	LOS B	6.5	47.3	0.85	0.98	1.10	23.0
3u	U	39	11	41	28.2	0.665	19.2	LOS B	6.5	47.3	0.85	0.98	1.10	53.1
Approach		1173	32	1235	2.7	0.665	10.1	LOS A	6.9	48.8	0.85	0.95	1.07	48.9
East: Shops Access														
4	L2	103	2	108	1.9	0.293	7.2	LOS A	1.9	13.7	0.91	0.90	0.91	22.3
5	T1	115	1	121	0.9	0.293	8.2	LOS A	1.9	13.7	0.89	0.89	0.89	22.2
6	R2	55	2	58	3.6	0.293	9.3	LOS A	1.7	12.2	0.88	0.88	0.88	17.5
Approach		273	5	287	1.8	0.293	8.0	LOS A	1.9	13.7	0.90	0.89	0.90	21.3
North: Old Northern Road														
7	L2	49	0	52	0.0	0.639	11.9	LOS A	4.9	36.0	0.66	0.82	0.80	18.6
8	T1	613	34	645	5.5	0.639	8.0	LOS A	4.9	36.0	0.66	0.84	0.80	51.8
9	R2	407	18	428	4.4	0.639	14.3	LOS A	4.7	34.3	0.67	0.93	0.83	48.6
Approach		1069	52	1125	4.9	0.639	10.6	LOS A	4.9	36.0	0.66	0.87	0.81	46.8
West: Old Northern Road														
10	L2	479	25	504	5.2	0.630	8.5	LOS A	5.3	38.9	0.86	1.02	1.07	48.4
11	T1	62	0	65	0.0	0.630	17.6	LOS B	5.3	38.9	0.86	1.02	1.07	22.9
12	R2	417	31	439	7.4	0.631	15.7	LOS B	4.9	36.3	0.86	1.04	1.11	49.7
Approach		958	56	1008	5.8	0.631	12.2	LOS A	5.3	38.9	0.86	1.03	1.09	45.3
All Vehicles		3473	145	3656	4.2	0.665	10.7	LOS A	6.9	48.8	0.80	0.94	0.98	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S3-PM Old Northern Road - Glenhaven Road-2036 FB (Site Folder: S3 - 2036 Future Base)]

S0 - 2020 Existing Case Weekday PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 59 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	608	3	640	0.5	0.654	11.0	LOS A	7.1	49.7	0.75	0.80	0.75	49.8
2	T1	776	27	817	3.5	* 0.625	18.1	LOS B	10.1	73.0	0.89	0.77	0.89	45.6
Approach		1384	30	1457	2.2	0.654	14.9	LOS B	10.1	73.0	0.83	0.78	0.83	47.4
North: Old Northern Road														
8	T1	525	23	553	4.4	0.248	6.7	LOS A	4.0	28.9	0.53	0.45	0.53	53.7
9	R2	423	4	445	0.9	* 0.998	73.6	LOS F	21.6	152.8	1.00	1.43	2.13	26.9
Approach		948	27	998	2.8	0.998	36.5	LOS C	21.6	152.8	0.74	0.88	1.24	36.7
West: Glenhaven Road														
10	L2	250	12	263	4.8	0.532	22.3	LOS B	8.0	57.8	0.84	0.81	0.84	43.0
12	R2	310	7	326	2.3	* 0.532	25.8	LOS B	8.0	57.8	0.90	0.81	0.90	40.8
Approach		560	19	589	3.4	0.532	24.2	LOS B	8.0	57.8	0.87	0.81	0.87	41.7
All Vehicles		2892	76	3044	2.6	0.998	23.8	LOS B	21.6	152.8	0.81	0.82	0.97	42.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	5	5	23.8	LOS C	0.0	0.0	0.90	0.90	191.9	218.5	1.14
North: Old Northern Road												
P3	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	193.9	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	188.1	213.6	1.14
All Pedestrians		7	7	23.8	LOS C	0.0	0.0	0.90	0.90	191.6	218.2	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S3-SAT Old Northern Rd-Kenthurst Rd-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB SAT (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	828	1.0	828	1.0	0.611	10.9	LOS A	15.8	111.7	0.59	0.54	0.59	44.4
6	R2	615	2.6	615	2.6	* 1.019	74.1	LOS F	28.2	201.8	1.00	1.08	1.62	20.1
Approach		1443	1.7	1443	1.7	1.019	37.8	LOS C	28.2	201.8	0.76	0.77	1.03	25.8
North: Kenthurst Road														
7	L2	642	2.0	642	2.0	0.680	23.9	LOS B	14.9	106.2	0.78	0.81	0.78	41.1
9	R2	442	1.9	442	1.9	* 1.114	179.0	LOS F	31.3	222.9	1.00	1.40	2.14	8.4
Approach		1084	1.9	1084	1.9	1.114	87.2	LOS F	31.3	222.9	0.87	1.05	1.33	20.5
West: Old Northern Road W														
10	L2	307	4.1	298	4.2	0.398	21.4	LOS B	6.3	45.3	0.79	0.79	0.79	34.3
11	T1	739	2.0	716	2.1	* 1.104	159.1	LOS F	14.7	105.0	0.99	1.69	1.99	11.1
Approach		1046	2.6	1015 N1	2.7	1.104	118.6	LOS F	14.7	105.0	0.93	1.43	1.64	13.9
All Vehicles		3574	2.0	3542 N1	2.1	1.114	76.1	LOS F	31.3	222.9	0.85	1.04	1.30	19.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S3-SAT Old Northern Rd-Stonelea Ct-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB SAT (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 12pm-1pm
Site Category: Sat
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	132	1.6	132	1.6	0.179	5.6	LOS A	0.0	0.0	0.00	0.23	0.00	55.0
2	T1	1076	2.5	1076	2.5	0.448	0.1	LOS A	30.1	215.0	0.00	0.04	0.00	58.0
Approach		1207	2.4	1207	2.4	0.448	0.7	NA	30.1	215.0	0.00	0.06	0.00	57.1
North: Old Northern Road N														
8	T1	1115	1.5	1075	1.5	0.318	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	89	0.0	86	0.0	0.307	19.9	LOS B	0.4	2.8	0.82	0.96	0.95	38.2
Approach		1204	1.4	1161 N1	1.4	0.318	1.5	NA	0.4	2.8	0.06	0.07	0.07	51.1
West: Stonelea Court														
10	L2	100	0.0	100	0.0	1.655	644.2	LOS F	20.5	145.1	1.00	3.76	9.81	2.6
12	R2	73	2.9	73	2.9	1.655	706.7	LOS F	20.5	145.1	1.00	3.76	9.81	2.6
Approach		173	1.2	173	1.2	1.655	670.5	LOS F	20.5	145.1	1.00	3.76	9.81	2.6
All Vehicles		2584	1.9	2541 N1	1.9	1.655	46.5	NA	30.1	215.0	0.10	0.32	0.70	13.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 102 [S3-SAT Old Northern Rd-Franlee Rd-Site Access-2036 FB (Site Folder: S3 - 2036 Future Base)]

Network: N101 [2036 FB SAT (Network Folder: S3 - 2036 Future Base)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	92	2.3	92	2.3	0.867	41.2	LOS C	23.7	169.9	0.90	0.90	1.00	36.9
2	T1	1011	2.9	1011	2.9	0.867	39.8	LOS C	23.7	169.9	0.92	0.95	1.07	26.1
3	R2	22	0.0	22	0.0	0.207	66.7	LOS E	0.8	5.6	0.98	0.71	0.98	28.3
Approach		1124	2.8	1124	2.8	0.867	40.4	LOS C	23.7	169.9	0.92	0.94	1.06	27.3
East: Franlee Road														
4	L2	108	0.0	108	0.0	0.399	54.7	LOS D	3.4	24.1	0.91	0.78	0.91	32.1
5	T1	1	0.0	1	0.0	* 0.399	45.7	LOS D	3.4	24.1	0.91	0.78	0.91	32.6
6	R2	100	0.0	100	0.0	* 0.894	81.2	LOS F	4.4	30.7	1.00	1.03	1.56	16.6
Approach		209	0.0	209	0.0	0.894	67.3	LOS E	4.4	30.7	0.95	0.90	1.22	24.8
North: Old Northern Road North														
7	L2	25	0.0	24	0.0	0.283	22.0	LOS B	4.2	30.0	0.49	0.45	0.49	42.1
8	T1	1067	1.8	1009	1.7	* 0.871	27.1	LOS B	23.3	165.4	0.75	0.73	0.80	37.4
9	R2	92	3.4	87	3.4	* 0.831	73.6	LOS F	3.4	24.7	1.00	0.88	1.28	22.1
Approach		1184	1.9	1119 N1	1.8	0.871	30.6	LOS C	23.3	165.4	0.77	0.73	0.84	35.6
West: Site Access														
10	L2	92	3.4	92	3.4	0.283	50.8	LOS D	2.9	20.7	0.90	0.77	0.90	22.7
11	T1	1	0.0	1	0.0	0.283	45.2	LOS D	2.9	20.7	0.90	0.77	0.90	32.8
12	R2	92	2.3	92	2.3	0.363	57.8	LOS E	3.1	21.9	0.95	0.77	0.95	30.5
Approach		184	2.9	184	2.9	0.363	54.2	LOS D	3.1	21.9	0.93	0.77	0.93	27.4
All Vehicles		2702	2.2	2637 N1	2.2	0.894	39.4	LOS C	23.7	169.9	0.86	0.84	0.97	30.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S3-SAT Old Northern Road - New Line Road-2036 FB (Site Folder: S3 - 2036 Future Base)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	389	6	409	1.5	0.680	9.2	LOS A	7.2	50.8	0.88	0.96	1.11	52.1
2	T1	614	10	646	1.6	0.680	9.8	LOS A	7.2	50.8	0.88	1.00	1.13	49.0
3	R2	96	2	101	2.1	0.680	24.6	LOS B	6.8	48.4	0.88	1.03	1.14	22.8
3u	U	59	1	62	1.7	0.680	18.3	LOS B	6.8	48.4	0.88	1.03	1.14	52.4
Approach		1158	19	1219	1.6	0.680	11.2	LOS A	7.2	50.8	0.88	0.99	1.12	45.1
East: Shops Access														
4	L2	122	3	128	2.5	0.386	10.5	LOS A	2.7	19.1	0.96	1.07	1.07	21.9
5	T1	84	1	88	1.2	0.386	12.4	LOS A	2.7	19.1	0.94	1.07	1.07	21.6
6	R2	69	1	73	1.4	0.386	14.1	LOS A	2.4	16.7	0.93	1.07	1.07	17.0
Approach		275	5	289	1.8	0.386	12.0	LOS A	2.7	19.1	0.95	1.07	1.07	20.6
North: Old Northern Road														
7	L2	100	0	105	0.0	0.842	17.9	LOS B	10.4	73.7	0.86	1.13	1.39	17.8
8	T1	751	14	791	1.9	0.842	14.1	LOS A	10.4	73.7	0.86	1.14	1.40	46.1
9	R2	431	5	454	1.2	0.842	20.9	LOS B	9.7	68.3	0.87	1.16	1.44	43.9
Approach		1282	19	1349	1.5	0.842	16.7	LOS B	10.4	73.7	0.86	1.14	1.41	40.5
West: Old Northern Road														
10	L2	575	7	605	1.2	0.728	9.9	LOS A	7.3	51.6	0.92	1.09	1.25	47.7
11	T1	89	1	94	1.1	0.728	19.7	LOS B	7.3	51.6	0.91	1.10	1.27	22.6
12	R2	464	6	488	1.3	0.728	17.2	LOS B	6.6	46.9	0.91	1.11	1.29	48.7
Approach		1128	14	1187	1.2	0.728	13.7	LOS A	7.3	51.6	0.91	1.10	1.27	43.7
All Vehicles		3843	57	4045	1.5	0.842	13.8	LOS A	10.4	73.7	0.89	1.08	1.26	39.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S3-SAT Old Northern Road - Glenhaven Road-2036 FB (Site Folder: S3 - 2036 Future Base)]

S0 - 2020 Existing Case Weekday SAT Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	609	4	641	0.7	0.680	11.0	LOS A	7.8	55.0	0.72	0.78	0.72	49.8
2	T1	603	6	635	1.0	* 0.512	18.5	LOS B	7.8	54.9	0.87	0.73	0.87	45.4
Approach		1212	10	1276	0.8	0.680	14.7	LOS B	7.8	55.0	0.79	0.76	0.79	47.5
North: Old Northern Road														
8	T1	667	8	702	1.2	0.323	8.0	LOS A	5.7	40.3	0.58	0.50	0.58	52.7
9	R2	374	3	394	0.8	* 0.829	31.4	LOS C	11.7	82.3	1.00	1.05	1.29	38.9
Approach		1041	11	1096	1.1	0.829	16.4	LOS B	11.7	82.3	0.73	0.70	0.84	46.5
West: Glenhaven Road														
10	L2	327	5	344	1.5	0.690	24.0	LOS B	11.9	83.9	0.91	0.86	0.94	42.2
12	R2	433	0	456	0.0	* 0.690	27.5	LOS B	11.9	83.9	0.94	0.86	1.00	40.0
Approach		760	5	800	0.7	0.690	26.0	LOS B	11.9	83.9	0.93	0.86	0.98	40.9
All Vehicles		3013	26	3172	0.9	0.829	18.1	LOS B	11.9	83.9	0.81	0.76	0.85	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	9	9	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		12	13	24.3	LOS C	0.0	0.0	0.90	0.90	193.6	220.0	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S4-AM Old Northern Rd-Kenthurst Rd-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev AM (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	633	4.5	633	4.5	0.575	17.7	LOS B	14.4	104.3	0.69	0.63	0.69	38.1
6	R2	504	4.6	504	4.6	* 1.040	85.5	LOS F	25.7	186.8	1.00	1.11	1.75	18.6
Approach		1137	4.5	1137	4.5	1.040	47.8	LOS D	25.7	186.8	0.83	0.84	1.16	23.2
North: Kenthurst Road														
7	L2	706	5.1	706	5.1	0.726	25.3	LOS B	16.0	116.9	0.80	0.85	0.80	40.6
9	R2	633	2.0	633	2.0	* 1.149	204.8	LOS F	49.4	352.1	1.00	1.47	2.27	7.5
Approach		1339	3.6	1339	3.6	1.149	110.1	LOS F	49.4	352.1	0.90	1.15	1.50	17.1
West: Old Northern Road W														
10	L2	345	5.2	345	5.2	0.419	17.1	LOS B	4.9	36.2	0.71	0.77	0.71	36.7
11	T1	712	7.2	712	7.2	* 1.162	204.0	LOS F	14.1	105.0	0.99	1.91	2.27	9.0
Approach		1057	6.6	1057	6.6	1.162	143.0	LOS F	14.1	105.0	0.90	1.54	1.76	12.0
All Vehicles		3533	4.8	3533	4.8	1.162	99.9	LOS F	49.4	352.1	0.87	1.17	1.47	16.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S4-AM Old Northern Rd-Stonelea Ct-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev AM (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 8am-9am
Site Category: AM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	92	0.0	92	0.0	0.232	2.1	LOS A	0.0	0.0	0.00	0.11	0.00	56.0
2	T1	1102	5.8	1102	5.8	0.400	0.0	LOS A	0.7	5.0	0.00	0.03	0.00	52.4
Approach		1194	5.4	1194	5.4	0.400	0.2	NA	0.7	5.0	0.00	0.04	0.00	55.0
North: Old Northern Road N														
8	T1	1085	2.9	1015	3.0	0.271	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	81	11.7	76	12.0	0.320	23.0	LOS B	0.4	3.0	0.87	0.98	0.99	36.0
Approach		1166	3.5	1091 N1	3.6	0.320	1.6	NA	0.4	3.0	0.06	0.07	0.07	50.3
West: Stonelea Court														
10	L2	57	18.5	57	18.5	0.981	172.2	LOS F	3.3	25.7	0.88	1.79	3.29	7.6
12	R2	22	4.8	22	4.8	0.981	322.5	LOS F	3.3	25.7	0.88	1.79	3.29	7.6
Approach		79	14.7	79	14.7	0.981	214.3	LOS F	3.3	25.7	0.88	1.79	3.29	7.6
All Vehicles		2439	4.8	2364 N1	4.9	0.981	8.0	NA	3.3	25.7	0.06	0.11	0.14	27.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 102 [S4-AM Old Northern Rd-Franlee Rd-Site Access-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev AM (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 8am-9am
Site Category: AM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	31	6.9	31	6.9	0.711	24.5	LOS B	18.9	138.9	0.77	0.71	0.77	44.5
2	T1	1107	5.8	1107	5.8	* 0.711	19.2	LOS B	18.9	138.9	0.77	0.71	0.77	36.9
3	R2	26	0.0	26	0.0	0.288	68.7	LOS E	1.0	6.8	1.00	0.71	1.00	27.8
Approach		1164	5.7	1164	5.7	0.711	20.5	LOS B	18.9	138.9	0.78	0.71	0.78	36.7
East: Franlee Road														
4	L2	13	0.0	13	0.0	0.049	53.3	LOS D	0.4	2.9	0.87	0.68	0.87	32.3
5	T1	1	0.0	1	0.0	0.049	45.4	LOS D	0.4	2.9	0.87	0.68	0.87	32.8
6	R2	28	0.0	28	0.0	* 0.622	75.1	LOS F	1.2	8.1	1.00	0.79	1.19	17.5
Approach		42	0.0	42	0.0	0.622	67.8	LOS E	1.2	8.1	0.96	0.75	1.09	22.5
North: Old Northern Road North														
7	L2	51	0.0	47	0.0	0.229	19.2	LOS B	4.3	31.0	0.53	0.51	0.53	42.7
8	T1	1019	3.2	958	3.3	0.705	18.3	LOS B	18.8	135.0	0.71	0.65	0.71	41.5
9	R2	37	8.6	35	8.8	* 0.403	69.8	LOS E	1.3	9.8	1.00	0.73	1.00	21.7
Approach		1106	3.2	1040 N1	3.3	0.705	20.1	LOS B	18.8	135.0	0.71	0.65	0.71	40.3
West: Site Access														
10	L2	53	6.0	53	6.0	0.177	50.7	LOS D	1.6	12.1	0.88	0.74	0.88	22.8
11	T1	1	0.0	1	0.0	* 0.177	45.0	LOS D	1.6	12.1	0.88	0.74	0.88	32.8
12	R2	24	8.7	24	8.7	0.267	68.8	LOS E	0.9	6.7	0.99	0.71	0.99	27.9
Approach		78	6.8	78	6.8	0.267	56.2	LOS D	1.6	12.1	0.92	0.73	0.92	25.1
All Vehicles		2391	4.5	2324 N1	4.6	0.711	22.4	LOS B	18.9	138.9	0.76	0.68	0.76	37.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S4-AM Old Northern Road - New Line Road-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	457	25	481	5.5	0.665	6.5	LOS A	6.9	49.9	0.74	0.69	0.80	53.2
2	T1	945	28	995	3.0	0.665	6.8	LOS A	6.9	49.9	0.75	0.73	0.83	52.1
3	R2	21	1	22	4.8	0.665	21.5	LOS B	6.8	49.7	0.76	0.75	0.85	23.3
3u	U	22	13	23	59.1	0.665	17.1	LOS B	6.8	49.7	0.76	0.75	0.85	53.8
Approach		1445	67	1521	4.6	0.665	7.1	LOS A	6.9	49.9	0.75	0.72	0.82	51.4
East: Shops Access														
4	L2	66	2	69	3.0	0.131	6.1	LOS A	0.8	6.0	0.86	0.79	0.86	22.5
5	T1	29	3	31	10.3	0.131	7.9	LOS A	0.8	6.0	0.85	0.82	0.85	22.1
6	R2	31	0	33	0.0	0.131	7.8	LOS A	0.7	5.3	0.84	0.83	0.84	17.7
Approach		126	5	133	4.0	0.131	6.9	LOS A	0.8	6.0	0.85	0.81	0.85	21.3
North: Old Northern Road														
7	L2	48	1	51	2.1	0.625	11.7	LOS A	5.5	39.7	0.66	0.76	0.77	18.6
8	T1	804	23	846	2.9	0.625	7.8	LOS A	5.5	39.7	0.67	0.79	0.78	51.7
9	R2	256	19	269	7.4	0.625	14.3	LOS A	5.2	37.7	0.67	0.85	0.80	50.1
Approach		1108	43	1166	3.9	0.625	9.5	LOS A	5.5	39.7	0.67	0.80	0.78	47.7
West: Old Northern Road														
10	L2	707	27	744	3.8	0.830	14.0	LOS A	10.5	75.6	0.98	1.25	1.65	44.8
11	T1	48	0	51	0.0	0.724	22.0	LOS B	6.2	46.4	0.92	1.13	1.35	22.3
12	R2	386	35	406	9.1	0.724	18.9	LOS B	6.2	46.4	0.92	1.13	1.35	47.5
Approach		1141	62	1201	5.4	0.830	16.0	LOS B	10.5	75.6	0.96	1.20	1.54	43.5
All Vehicles		3820	177	4021	4.6	0.830	10.4	LOS A	10.5	75.6	0.79	0.89	1.03	45.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S4-AM Old Northern Road - Glenhaven Road-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	332	6	349	1.8	0.300	7.7	LOS A	2.1	15.0	0.42	0.68	0.42	52.2
2	T1	790	42	832	5.3	* 0.771	24.7	LOS B	12.5	91.2	0.98	0.93	1.13	41.9
Approach		1122	48	1181	4.3	0.771	19.6	LOS B	12.5	91.2	0.81	0.85	0.92	44.5
North: Old Northern Road														
8	T1	657	21	692	3.2	0.332	8.6	LOS A	5.8	41.9	0.60	0.52	0.60	52.2
9	R2	271	11	285	4.1	* 0.685	28.1	LOS B	7.3	52.9	0.96	0.93	1.05	40.3
Approach		928	32	977	3.4	0.685	14.3	LOS A	7.3	52.9	0.71	0.64	0.73	47.8
West: Glenhaven Road														
10	L2	411	9	433	2.2	0.796	27.4	LOS B	16.6	117.9	0.95	0.93	1.10	40.6
12	R2	521	2	548	0.4	* 0.796	30.5	LOS C	16.6	117.9	0.98	0.94	1.16	38.6
Approach		932	11	981	1.2	0.796	29.2	LOS C	16.6	117.9	0.97	0.93	1.13	39.5
All Vehicles		2982	91	3139	3.1	0.796	20.9	LOS B	16.6	117.9	0.83	0.81	0.93	43.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	3	3	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		6	6	24.3	LOS C	0.0	0.0	0.90	0.90	192.1	218.2	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S4-PM Old Northern Rd-Kenthurst Rd-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev PM (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	839	5.0	839	5.0	0.820	15.9	LOS B	19.5	142.5	0.70	0.65	0.71	39.6
6	R2	638	7.8	638	7.8	* 0.984	90.8	LOS F	28.9	216.1	1.00	1.26	1.45	23.1
Approach		1477	6.2	1477	6.2	0.984	48.2	LOS D	28.9	216.1	0.83	0.92	1.03	27.7
North: Kenthurst Road														
7	L2	606	4.0	606	4.0	0.616	20.8	LOS B	12.8	92.4	0.71	0.77	0.71	42.3
9	R2	523	2.8	523	2.8	* 1.077	149.7	LOS F	34.0	243.8	1.00	1.31	1.94	9.7
Approach		1129	3.4	1129	3.4	1.077	80.5	LOS F	34.0	243.8	0.84	1.02	1.28	21.0
West: Old Northern Road W														
10	L2	473	4.7	451	4.7	0.475	18.6	LOS B	8.2	59.4	0.68	0.78	0.68	35.6
11	T1	631	8.2	602	8.3	* 1.075	142.8	LOS F	14.0	105.0	1.00	1.61	1.91	12.2
Approach		1103	6.7	1053 N1	6.8	1.075	89.6	LOS F	14.0	105.0	0.86	1.25	1.38	17.0
All Vehicles		3709	5.5	3659 N1	5.6	1.077	70.1	LOS E	34.0	243.8	0.84	1.05	1.21	21.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S4-PM Old Northern Rd-Stonelea Ct-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev PM (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	129	0.0	129	0.0	0.291	2.1	LOS A	0.0	0.0	0.00	0.12	0.00	55.9
2	T1	1063	6.0	1063	6.0	0.342	0.0	LOS A	0.7	5.0	0.00	0.05	0.00	50.0
Approach		1193	5.4	1193	5.4	0.342	0.2	NA	0.7	5.0	0.00	0.06	0.00	54.5
North: Old Northern Road N														
8	T1	1220	4.1	1187	4.2	0.318	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	135	4.7	131	4.7	0.973	93.9	LOS F	2.6	18.8	1.00	1.51	3.11	16.9
Approach		1355	4.2	1318[N1]	4.2	0.973	9.4	NA	2.6	18.8	0.10	0.15	0.31	30.8
West: Stonelea Court														
10	L2	87	4.8	87	4.8	2.538	1450.4	LOS F	25.7	186.6	1.00	3.55	9.17	1.2
12	R2	57	3.7	57	3.7	2.538	1524.1	LOS F	25.7	186.6	1.00	3.55	9.17	1.2
Approach		144	4.4	144	4.4	2.538	1479.5	LOS F	25.7	186.6	1.00	3.55	9.17	1.2
All Vehicles		2692	4.7	2654[N1]	4.8	2.538	85.1	NA	25.7	186.6	0.10	0.29	0.65	5.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 102 [S4-PM Old Northern Rd-Franlee Rd-Site Access-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev PM (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 3:15pm-4:15pm
Site Category: PM
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	91	2.3	91	2.3	0.702	25.4	LOS B	18.3	134.5	0.78	0.73	0.78	43.9
2	T1	1041	6.2	1041	6.2	0.702	19.9	LOS B	18.3	134.5	0.77	0.71	0.77	36.2
3	R2	24	0.0	24	0.0	0.227	66.9	LOS E	0.9	6.1	0.99	0.71	0.99	28.2
Approach		1156	5.7	1156	5.7	0.702	21.3	LOS B	18.3	134.5	0.78	0.72	0.78	36.7
East: Franlee Road														
4	L2	14	0.0	14	0.0	0.050	54.3	LOS D	0.4	3.1	0.87	0.68	0.87	32.3
5	T1	1	0.0	1	0.0	0.050	45.3	LOS D	0.4	3.1	0.87	0.68	0.87	32.8
6	R2	44	0.0	44	0.0	* 0.868	82.5	LOS F	1.9	13.4	1.00	0.93	1.62	16.4
Approach		59	0.0	59	0.0	0.868	75.2	LOS F	1.9	13.4	0.97	0.87	1.43	20.4
North: Old Northern Road North														
7	L2	61	0.0	58	0.0	0.270	20.1	LOS B	5.2	37.5	0.56	0.53	0.56	42.0
8	T1	1125	4.7	1069	4.7	* 0.829	21.8	LOS B	22.0	160.0	0.78	0.73	0.79	39.3
9	R2	91	3.5	86	3.5	* 0.826	74.5	LOS F	3.4	24.7	1.00	0.91	1.35	20.9
Approach		1277	4.4	1213 N1	4.4	0.829	25.5	LOS B	22.0	160.0	0.79	0.74	0.82	37.1
West: Site Access														
10	L2	98	3.2	98	3.2	0.301	51.0	LOS D	3.1	22.2	0.90	0.77	0.90	22.7
11	T1	1	0.0	1	0.0	* 0.301	45.4	LOS D	3.1	22.2	0.90	0.77	0.90	32.7
12	R2	65	3.2	65	3.2	0.694	71.8	LOS F	2.5	18.1	1.00	0.82	1.17	27.3
Approach		164	3.2	164	3.2	0.694	59.2	LOS E	3.1	22.2	0.94	0.79	1.01	25.1
All Vehicles		2656	4.8	2592 N1	4.9	0.868	26.9	LOS B	22.0	160.0	0.80	0.73	0.83	35.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S4-PM Old Northern Road - New Line Road-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	410	6	432	1.5	0.697	9.9	LOS A	7.8	55.1	0.89	0.98	1.16	51.7
2	T1	704	14	741	2.0	0.697	10.6	LOS A	7.8	55.1	0.89	1.02	1.18	49.2
3	R2	37	1	39	2.7	0.697	25.4	LOS B	7.3	52.9	0.89	1.04	1.20	22.9
3u	U	39	11	41	28.2	0.697	20.4	LOS B	7.3	52.9	0.89	1.04	1.20	52.3
Approach		1190	32	1253	2.7	0.697	11.2	LOS A	7.8	55.1	0.89	1.01	1.17	48.2
East: Shops Access														
4	L2	103	2	108	1.9	0.302	7.4	LOS A	2.0	14.2	0.92	0.92	0.92	22.2
5	T1	115	1	121	0.9	0.302	8.5	LOS A	2.0	14.2	0.90	0.90	0.90	22.1
6	R2	55	2	58	3.6	0.302	9.6	LOS A	1.8	12.6	0.89	0.89	0.89	17.5
Approach		273	5	287	1.8	0.302	8.3	LOS A	2.0	14.2	0.90	0.90	0.90	21.3
North: Old Northern Road														
7	L2	49	0	52	0.0	0.662	12.2	LOS A	5.4	39.2	0.67	0.84	0.83	18.6
8	T1	613	34	645	5.5	0.662	8.3	LOS A	5.4	39.2	0.68	0.85	0.84	51.6
9	R2	442	18	465	4.1	0.662	14.6	LOS B	5.1	37.1	0.69	0.95	0.87	48.1
Approach		1104	52	1162	4.7	0.662	11.0	LOS A	5.4	39.2	0.68	0.89	0.85	46.6
West: Old Northern Road														
10	L2	497	25	523	5.0	0.656	8.9	LOS A	5.8	42.0	0.88	1.04	1.12	48.2
11	T1	62	0	65	0.0	0.656	18.1	LOS B	5.8	42.0	0.88	1.04	1.13	22.8
12	R2	417	31	439	7.4	0.656	16.2	LOS B	5.2	38.8	0.88	1.06	1.16	49.4
Approach		976	56	1027	5.7	0.656	12.6	LOS A	5.8	42.0	0.88	1.05	1.14	45.1
All Vehicles		3543	145	3729	4.1	0.697	11.3	LOS A	7.8	55.1	0.82	0.97	1.04	42.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S4-PM Old Northern Road - Glenhaven Road-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

S0 - 2020 Existing Case Weekday PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 59 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	608	3	640	0.5	0.654	11.3	LOS A	7.4	51.9	0.77	0.80	0.77	49.6
2	T1	785	27	826	3.4	* 0.632	18.1	LOS B	10.3	74.0	0.90	0.77	0.90	45.6
Approach		1393	30	1466	2.2	0.654	15.1	LOS B	10.3	74.0	0.84	0.78	0.84	47.3
North: Old Northern Road														
8	T1	551	23	580	4.2	0.260	6.7	LOS A	4.2	30.5	0.53	0.45	0.53	53.7
9	R2	435	4	458	0.9	* 1.031	81.6	LOS F	25.8	181.8	1.00	1.41	2.41	23.2
Approach		986	27	1038	2.7	1.031	39.8	LOS C	25.8	181.8	0.74	0.88	1.36	33.5
West: Glenhaven Road														
10	L2	250	12	263	4.8	0.532	22.3	LOS B	8.0	57.8	0.84	0.81	0.84	43.0
12	R2	310	7	326	2.3	* 0.532	25.8	LOS B	8.0	57.8	0.90	0.81	0.90	40.8
Approach		560	19	589	3.4	0.532	24.2	LOS B	8.0	57.8	0.87	0.81	0.87	41.7
All Vehicles		2939	76	3094	2.6	1.031	25.1	LOS B	25.8	181.8	0.81	0.82	1.02	40.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	5	5	23.8	LOS C	0.0	0.0	0.90	0.90	191.9	218.5	1.14
North: Old Northern Road												
P3	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	193.9	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	23.8	LOS C	0.0	0.0	0.90	0.90	188.1	213.6	1.14
All Pedestrians		7	7	23.8	LOS C	0.0	0.0	0.90	0.90	191.6	218.2	1.14

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

MOVEMENT SUMMARY

Site: 2954 [S4-SAT Old Northern Rd-Kenthurst Rd-2036 FB +Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev SAT (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Old Northern Road E														
5	T1	867	1.0	867	1.0	0.647	11.9	LOS A	17.6	124.2	0.63	0.58	0.63	43.3
6	R2	615	2.6	615	2.6	* 1.045	91.4	LOS F	30.9	221.2	1.00	1.12	1.75	18.3
Approach		1482	1.6	1482	1.6	1.045	44.8	LOS D	30.9	221.2	0.78	0.81	1.09	24.1
North: Kenthurst Road														
7	L2	642	2.0	642	2.0	0.678	23.9	LOS B	14.9	106.2	0.78	0.81	0.78	41.2
9	R2	468	1.8	468	1.8	* 1.135	195.9	LOS F	35.0	248.5	1.00	1.45	2.24	7.8
Approach		1111	1.9	1111	1.9	1.135	96.5	LOS F	35.0	248.5	0.87	1.08	1.39	19.1
West: Old Northern Road W														
10	L2	320	3.9	302	4.2	0.401	19.8	LOS B	5.6	40.8	0.70	0.76	0.70	35.2
11	T1	758	1.9	716	2.1	* 1.111	165.1	LOS F	14.7	105.0	0.99	1.72	2.03	10.8
Approach		1078	2.5	1018 N1	2.7	1.111	122.0	LOS F	14.7	105.0	0.91	1.44	1.64	13.6
All Vehicles		3671	2.0	3611 N1	2.0	1.135	82.5	LOS F	35.0	248.5	0.84	1.07	1.34	18.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Old Northern Road E											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.9	35.9	0.44
North: Kenthurst Road											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.0	30.9	0.40
All Pedestrians		105	54.3	LOS E	0.2	0.2	0.95	0.95	80.0	33.4	0.42

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

MOVEMENT SUMMARY

Site: 101 [S4-SAT Old Northern Rd-Stonelea Ct-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev SAT (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 12pm-1pm
Site Category: Sat
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road S														
1	L2	132	1.6	132	1.6	0.184	2.1	LOS A	0.0	0.0	0.00	0.20	0.00	55.3
2	T1	1107	2.5	1107	2.5	0.460	0.0	LOS A	0.7	5.0	0.00	0.04	0.00	51.9
Approach		1239	2.4	1239	2.4	0.460	0.2	NA	0.7	5.0	0.00	0.06	0.00	54.6
North: Old Northern Road N														
8	T1	1180	1.4	1131	1.4	0.299	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	89	0.0	86	0.0	0.496	32.2	LOS C	0.6	4.2	0.92	1.03	1.17	31.6
Approach		1269	1.3	1217[N1]	1.3	0.496	2.3	NA	0.6	4.2	0.06	0.07	0.08	47.6
West: Stonelea Court														
10	L2	100	0.0	100	0.0	2.955	1817.7	LOS F	32.7	231.2	1.00	4.11	10.75	1.0
12	R2	73	2.9	73	2.9	2.955	1871.8	LOS F	32.7	231.2	1.00	4.11	10.75	1.0
Approach		173	1.2	173	1.2	2.955	1840.4	LOS F	32.7	231.2	1.00	4.11	10.75	1.0
All Vehicles		2681	1.8	2628[N1]	1.8	2.955	122.0	NA	32.7	231.2	0.10	0.33	0.74	3.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: 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 movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 102 [S4-SAT Old Northern Rd-Franlee Rd-Site Access-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

Network: N101 [2036 FB +Dev SAT (Network Folder: S4 - 2036 Future Base + Dev)]

Peak Hour: 12pm-1pm
Site Category: Sat
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road South														
1	L2	92	0.0	92	0.0	0.936	59.6	LOS E	28.5	203.5	0.93	1.05	1.20	31.1
2	T1	1020	2.9	1020	2.9	* 0.936	59.9	LOS E	28.5	203.5	0.96	1.11	1.28	20.4
3	R2	22	0.0	22	0.0	0.242	68.4	LOS E	0.8	5.7	0.99	0.71	0.99	27.9
Approach		1134	2.6	1134	2.6	0.936	60.0	LOS E	28.5	203.5	0.95	1.09	1.27	21.6
East: Franlee Road														
4	L2	108	0.0	108	0.0	0.434	55.9	LOS D	3.5	24.3	0.92	0.78	0.92	31.8
5	T1	1	0.0	1	0.0	* 0.434	46.7	LOS D	3.5	24.3	0.92	0.78	0.92	32.3
6	R2	122	0.0	122	0.0	* 0.964	100.3	LOS F	6.1	42.7	1.00	1.14	1.77	14.2
Approach		232	0.0	232	0.0	0.964	79.3	LOS F	6.1	42.7	0.96	0.97	1.37	21.9
North: Old Northern Road North														
7	L2	47	0.0	44	0.0	0.304	26.6	LOS B	5.9	41.7	0.66	0.60	0.66	37.9
8	T1	1109	1.7	1027	1.6	0.935	46.3	LOS D	22.5	160.0	0.91	0.97	1.09	28.2
9	R2	92	3.4	85	3.3	* 0.949	87.9	LOS F	3.7	26.9	1.00	1.03	1.71	18.7
Approach		1248	1.8	1156 N1	1.7	0.949	48.6	LOS D	22.5	160.0	0.91	0.96	1.12	27.5
West: Site Access														
10	L2	92	3.4	92	3.4	0.295	51.8	LOS D	2.9	21.0	0.91	0.77	0.91	22.5
11	T1	1	0.0	1	0.0	0.295	46.2	LOS D	2.9	21.0	0.91	0.77	0.91	32.5
12	R2	92	2.3	92	2.3	0.305	54.4	LOS D	3.0	21.1	0.93	0.77	0.93	31.3
Approach		184	2.9	184	2.9	0.305	53.1	LOS D	3.0	21.1	0.92	0.77	0.92	27.7
All Vehicles		2798	2.0	2705 N1	2.1	0.964	56.3	LOS D	28.5	203.5	0.93	1.01	1.19	24.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road South											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
East: Franlee Road											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	78.4	31.4	0.40
North: Old Northern Road North											

P3 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	83.9	38.5	0.46
West: Site Access										
P4 Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	81.2	35.0	0.43
All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	81.8	35.9	0.44

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

MOVEMENT SUMMARY

Site: 101 [S4-SAT Old Northern Road - New Line Road-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

S0 - 2020 Existing Case Weekday AM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: New Line Road														
1	L2	389	6	409	1.5	0.720	10.4	LOS A	8.2	58.4	0.92	1.03	1.23	51.3
2	T1	632	10	665	1.6	0.720	11.1	LOS A	8.2	58.4	0.92	1.07	1.25	47.9
3	R2	96	2	101	2.1	0.720	26.0	LOS B	7.8	55.1	0.92	1.10	1.26	22.6
3u	U	59	1	62	1.7	0.720	19.7	LOS B	7.8	55.1	0.92	1.10	1.26	51.4
Approach		1176	19	1238	1.6	0.720	12.5	LOS A	8.2	58.4	0.92	1.06	1.24	44.4
East: Shops Access														
4	L2	122	3	128	2.5	0.406	11.4	LOS A	2.8	20.2	0.97	1.11	1.11	21.7
5	T1	84	1	88	1.2	0.406	13.4	LOS A	2.8	20.2	0.95	1.10	1.10	21.5
6	R2	69	1	73	1.4	0.406	15.3	LOS B	2.5	17.5	0.93	1.10	1.10	16.9
Approach		275	5	289	1.8	0.406	13.0	LOS A	2.8	20.2	0.95	1.11	1.11	20.5
North: Old Northern Road														
7	L2	100	0	105	0.0	0.874	19.8	LOS B	12.1	85.9	0.88	1.20	1.55	17.6
8	T1	751	14	791	1.9	0.874	16.1	LOS B	12.1	85.9	0.88	1.20	1.56	44.6
9	R2	468	5	493	1.1	0.874	23.0	LOS B	11.2	79.4	0.89	1.23	1.60	42.3
Approach		1319	19	1388	1.4	0.874	18.8	LOS B	12.1	85.9	0.89	1.21	1.57	39.3
West: Old Northern Road														
10	L2	593	7	624	1.2	0.759	10.7	LOS A	8.0	56.6	0.94	1.12	1.33	47.2
11	T1	89	1	94	1.1	0.759	20.7	LOS B	8.0	56.6	0.94	1.13	1.35	22.5
12	R2	464	6	488	1.3	0.759	18.1	LOS B	7.2	51.2	0.93	1.14	1.37	48.1
Approach		1146	14	1206	1.2	0.759	14.5	LOS A	8.0	56.6	0.94	1.13	1.35	43.3
All Vehicles		3916	57	4122	1.5	0.874	15.2	LOS B	12.1	85.9	0.92	1.13	1.38	38.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [S4-SAT Old Northern Road - Glenhaven Road-2036 FB+Dev (Site Folder: S4 - 2036 Future Base + Dev)]

S0 - 2020 Existing Case Weekday SAT Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Old Northern Road														
1	L2	609	4	641	0.7	0.665	10.9	LOS A	7.4	51.8	0.72	0.79	0.72	49.9
2	T1	612	6	644	1.0	* 0.520	18.5	LOS B	7.9	55.8	0.87	0.73	0.87	45.3
Approach		1221	10	1285	0.8	0.665	14.7	LOS B	7.9	55.8	0.80	0.76	0.80	47.5
North: Old Northern Road														
8	T1	694	8	731	1.2	0.336	8.0	LOS A	6.0	42.3	0.59	0.51	0.59	52.6
9	R2	387	3	407	0.8	* 0.862	34.9	LOS C	12.7	89.7	1.00	1.10	1.38	37.5
Approach		1081	11	1138	1.0	0.862	17.6	LOS B	12.7	89.7	0.74	0.72	0.87	45.7
West: Glenhaven Road														
10	L2	327	5	344	1.5	0.690	24.0	LOS B	11.9	83.9	0.91	0.86	0.94	42.2
12	R2	433	0	456	0.0	* 0.690	27.5	LOS B	11.9	83.9	0.94	0.86	1.00	40.0
Approach		760	5	800	0.7	0.690	26.0	LOS B	11.9	83.9	0.93	0.86	0.98	40.9
All Vehicles		3062	26	3223	0.8	0.862	18.6	LOS B	12.7	89.7	0.81	0.77	0.87	45.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Old Northern Road												
P1	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	192.4	218.5	1.14
North: Old Northern Road												
P3	Full	9	9	24.3	LOS C	0.0	0.0	0.90	0.90	194.4	221.1	1.14
West: Glenhaven Road												
P4	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	188.6	213.6	1.13
All Pedestrians		12	13	24.3	LOS C	0.0	0.0	0.90	0.90	193.6	220.0	1.14

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

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