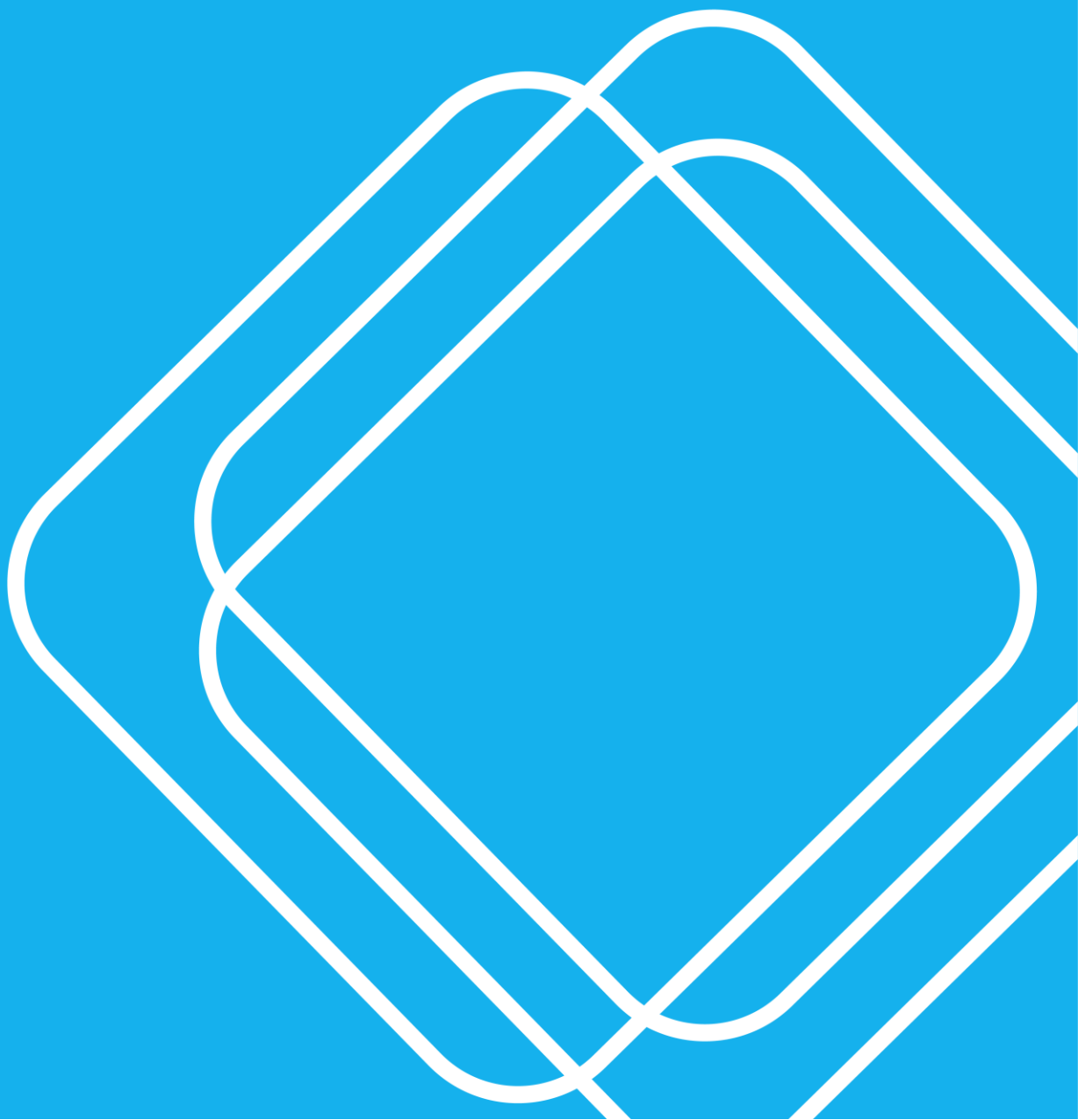
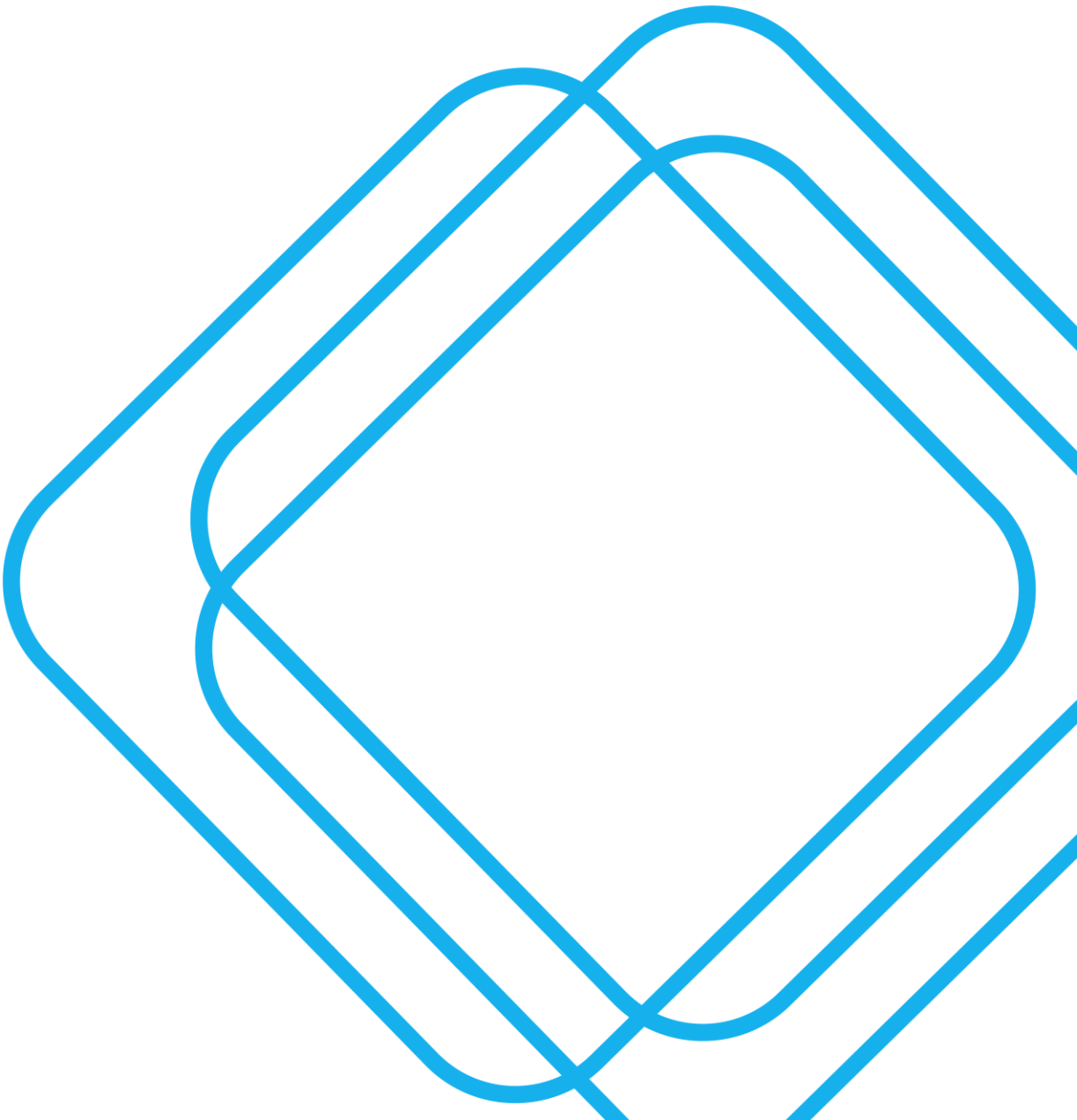
SCT Consulting

GOOGONG LOT 566

Traffic and Parking Impact Study

28 SEPTEMBER 2023





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Executive summary

SCT Consulting was engaged by Googong Projects Pty Ltd to undertake a Traffic and Parking Impact Study to support the Development Application (DA) of Lot 566 (the site) in Googong Neighbourhood 2 (NH2), located in Queanbeyan–Palerang Local Government Area (LGA).

The yield for Lot 566 in the proposal is 138 dwellings representing an increase of 72 dwellings from the assumed 66 dwellings in the previous structure plan subdivision application. This would consist of 22 four-bedroom, 26 three-bedroom, 47 two-bedroom and 43 one-bedroom dwellings. A total of 233 car parking spaces are required for residential parking and 28 spaces for visitors in accordance with the Googong Development Control Plan (DCP). The site layout will provide 261 onsite spaces, accounting for resident and guest parking onsite. This satisfies DCP requirements.

Wellsvale Drive to the west of the site would be a bus-capable route while Gorman Drive to the north of the site would be an NH1 extended bus-capable route. Based on the NH2 structure plan, bus stops would be proposed near the intersection of Wellsvale Drive and Glenrock Drive to the east of the site. This intersection has pedestrian/cycle crossings, which would facilitate safe and direct bus access.

The intersection analysis in Calibre's Traffic Report (2017) confirms that all five intersections around the site will perform at Level of Service C or better at the completion of NH2 with the intersection layouts proposed below for AM peak and PM peak hours:

– Old Cooma Road / Wellsvale Drive – Traffic signal

– Old Cooma Road / Googong Road – Traffic signal

– Googong Road / Courtney Street – Priority intersection

– Wellsvale Drive / Courtney Street – Traffic signal

– Wellsvale Drive / Gorman Drive – Priority intersection.

The proposed 138 dwellings would generate a total of 92 and 113 vehicle trips during the AM and PM peaks. This is a small increase of 48 and 59 vehicles given the net increase of 72 dwellings on Lot 566 (from 66 to 138 dwellings).

SIDRA traffic modelling has been undertaken to assess the intersection performance associated with the additional vehicle trips. It confirms that the level of service remains at the same level with negligible delay increase across all intersections by the completion of the proposal. All intersections have been constructed. There is no need for any changes to the approved road network in the structure plan associated with the development.

The Traffic and Parking Impact Study concluded that the development scale represents a small increase in traffic with the previously approved DA for Googong NH2 and the impacts of the proposed development are at a level able to be accommodated by the existing and planned infrastructure.

1.0 Introduction

1.1 Purpose of report

SCT Consulting was engaged by Googong Projects Pty Ltd to undertake a Traffic and Parking Impact Study to support the Development Application (DA) of Lot 566 (the site) in Googong Neighbourhood 2 (NH2), located in Queanbeyan–Palerang Local Government Area (LGA).

This document has considered the following scope of works:

– Key relevant planning documents, especially the Googong Development Control Plan (DCP) and the Queanbeyan–Palerang Regional Council (QPRC) DCP

– Historical traffic studies for Googong NH2

– Existing transport conditions, including road network conditions, public transport accessibility and connectivity to walking and cycling routes (based on publicly available data)

– The proposed development, parking provision and access arrangements and their consistency with the DCPs

– Traffic impact of the proposed development.

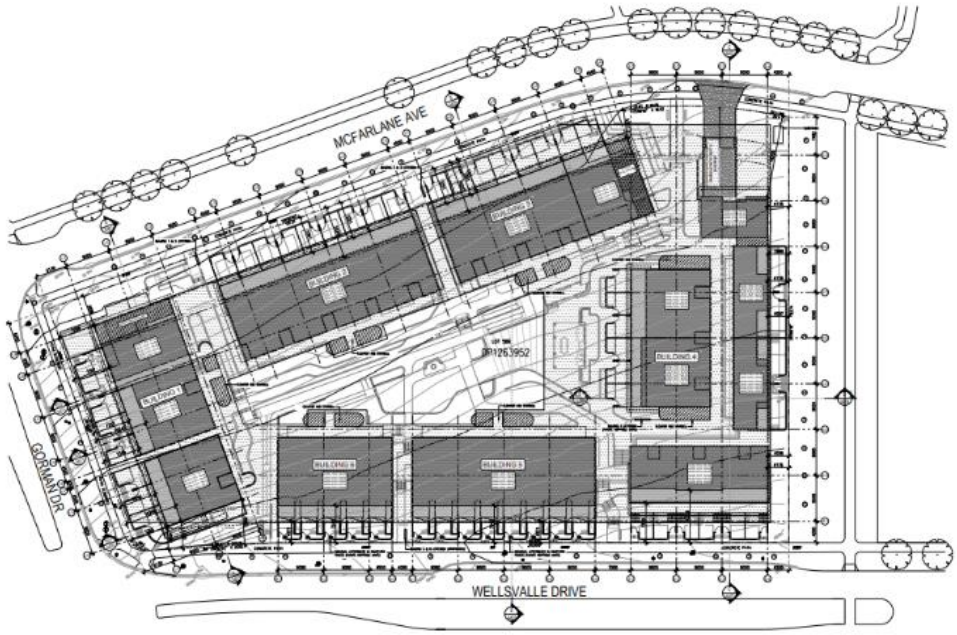
Intersection modelling was conducted to assess traffic impacts, building on the traffic study for the structure plan subdivision application[1]. The yield for Lot 566 in the proposal is expected to be 138 dwellings.

1.2 Development context

The Googong Township is located about 17 km to the south of Canberra and 8 km to the south of Queanbeyan town centre. The Googong township development is divided into five neighbourhoods while the subject site is situated within Googong NH2.

The site plan of the proposed development is shown in **Figure 1-1**, which seeks to provide 138 residential dwellings and 261 (233 residential and 28 visitor spaces) car parking spaces on-site, at Lot 566 in Googong NH2.

Figure 1-1 Proposed site plan



Source: DNA Architects, 2022

[1] Calibre (2017), Googong Neighbourhood 2 Traffic Report

1.3 Report structure

This report has been structured into the following sections:

– **Section 2.0** provides an overview of the historical traffic studies associated with the development.

– **Section 3.0** describes the existing transport conditions.

– **Section 4.0** provides an overview of the proposed development and its parking and access requirements.

– **Section 5.0** outlines the traffic appraisal which describes the likely trip generation and indicative impact as a result of the proposed development.

– **Section 6.0** summarises the study findings and presents the conclusions.

2.0 Previous studies

Several traffic studies have been carried out to understand the impact of Googong NH2 on the surrounding road network.

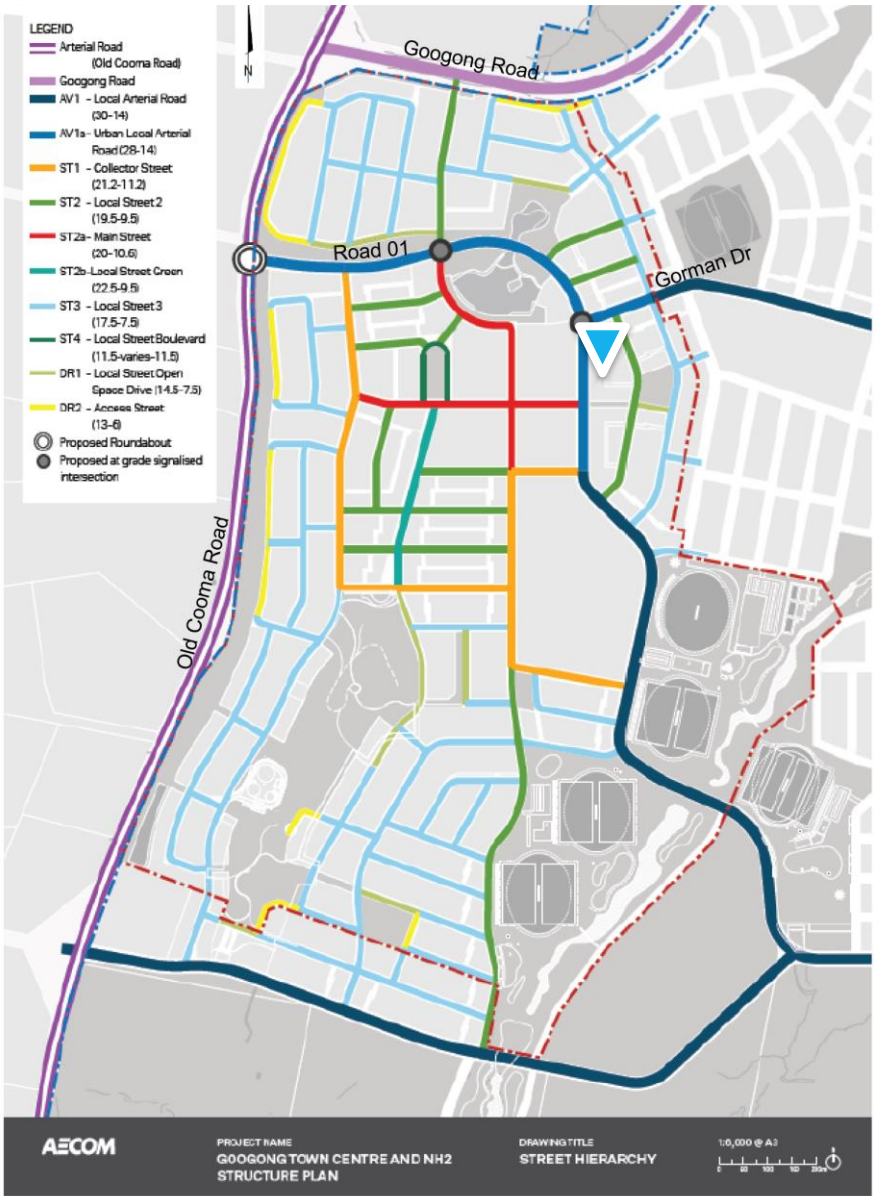
2.1 Googong Neighbourhood 2 Structure Plan, 2016

The structure plan for Googong NH2 prepared was approved by Council in 2016. It guides the street hierarchy and possible intersection layouts throughout the NH2 area. **Figure 2-1** shows the road hierarchy of the network surrounding the site (labelled ▼). The site is surrounded by:

– Local Street (McFarlane Avenue) to the east

– Urban Local Arterial Road (Wellsvale Drive and Gorman Drive) to the west and north.

Figure 2-1 Proposed road hierarchy in the structure plan



Source: AECOM (2016), Googong Neighbourhood 2 Structure Plan

2.2 Googong NH2 Structure Plan Network Assessment, 2016

TDG carried out a high-level road network assessment of the proposed Googong NH2 structure plan and the performance of the intersections. The traffic modelling was undertaken based on 6,690 households at a full delivery of Googong Neighbourhood in 2031.

The modelled intersections are shown in **Figure 2-2**, which include:

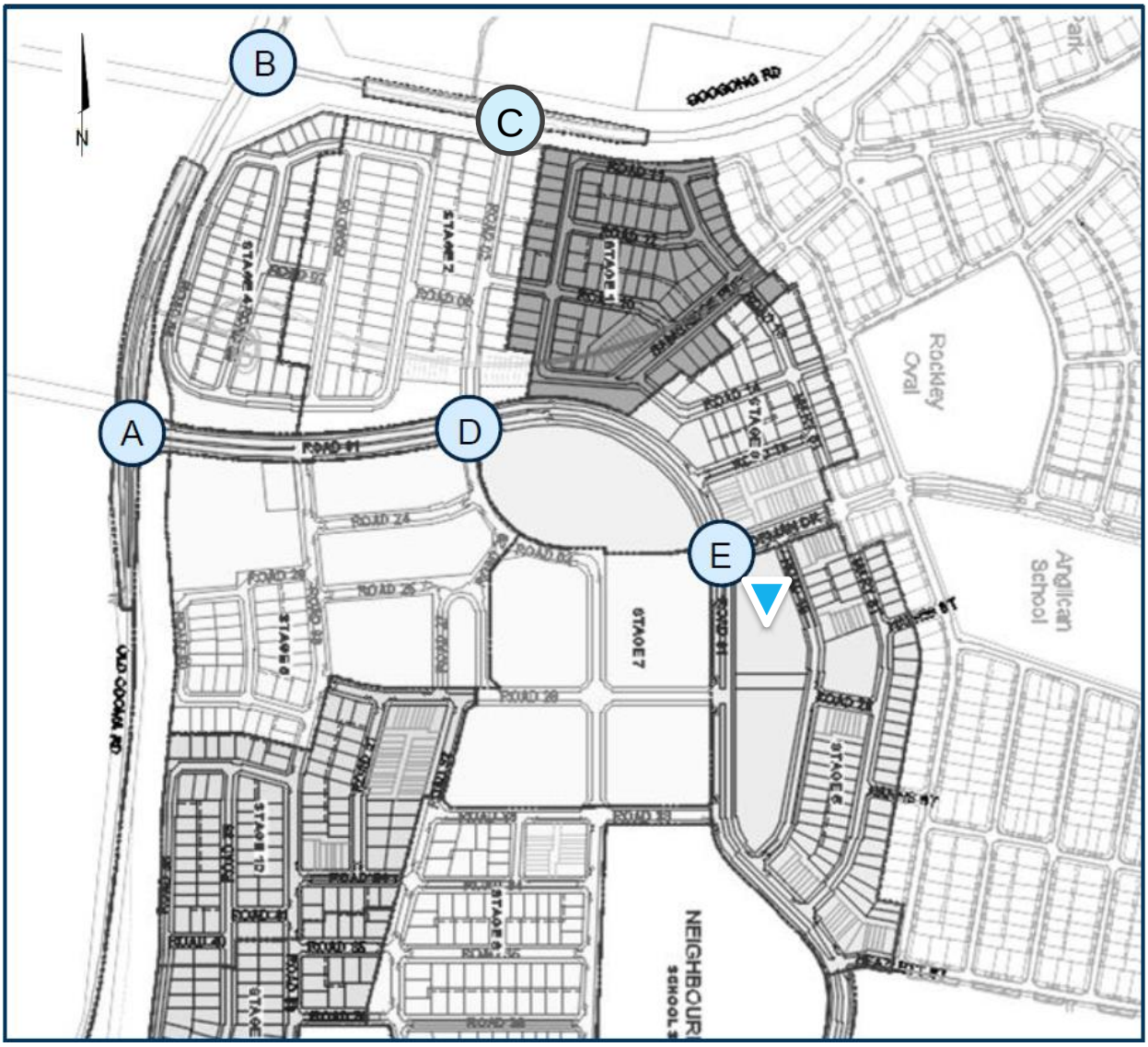
A. Old Cooma Road / Wellsvale Drive – 50m diameter dual circulation lane roundabout

B. Old Cooma Road / Googong Road – Traffic signals with northbound "seagull"

D. Wellsvale Drive / Courtney Street – Traffic signals

E. Wellsvale Drive / Gorman Drive –Traffic signals.

Figure 2-2 Intersections modelled based on AECOM Structure Plan layouts



Source: TDG (2016), Googong NH2 Structure Plan network assessment

The assessment provided AM and PM peak hour volumes for most approaches of the major intersections within Googong NH2 for 2031 and some guidance as to the expected level of service.

2.3 Googong Neighbourhood 2 Traffic Report, 2017

Calibre Consulting was engaged by Googong Township Proprietary Limited (GTPL) in 2017 to undertake the Development Application (DA) and detail design of Googong Township – Neighbourhood 2. The analysis for Calibre's traffic report was based on the traffic volumes provided by TDG's network assessment, which was accepted and approved by the Queanbeyan–Palerang Regional Council.

The DA for Googong NH2 proposed an overall residential yield of 1,737 dwellings in various housing types and a town centre with a Gross Floor Area (GFA) of 17,500 m^2.

It is determined that the below intersections will be signalised:

A. Old Cooma Road / Wellsvale Drive

B. Old Cooma Road / Googong Road

D. Wellsvale Drive / Courtney Street

The other two intersections will be priority intersections:

E. Wellsvale Drive / Gorman Drive

C. Googong Road / Courtney Street (newly analysed in the DA).

The timing for these upgrades and construction was identified. Based on the proposed intersection layout, all the intersections could perform satisfactorily during peak hours with the staging of the development of NH2.

This DA has been approved.

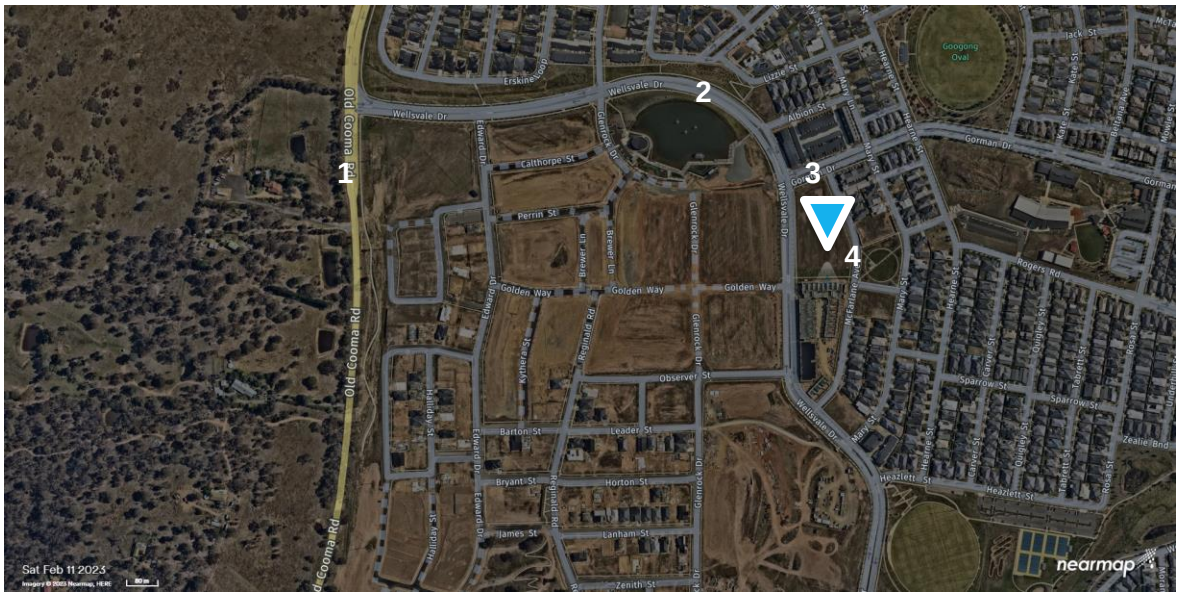
3.0 Existing conditions

The purpose of this chapter is to provide an understanding of the current traffic and transport conditions in the vicinity of the site, which is located in Googong NH2.

3.1 Road network

The site is connected to the Googong township road network through a driveway on McFarlane Avenue. The key road network around the site is shown in **Figure 3-1**.

Figure 3-1 Road network around the site



Source: Nearmap, 2022

The key feature of the roads around the site are:

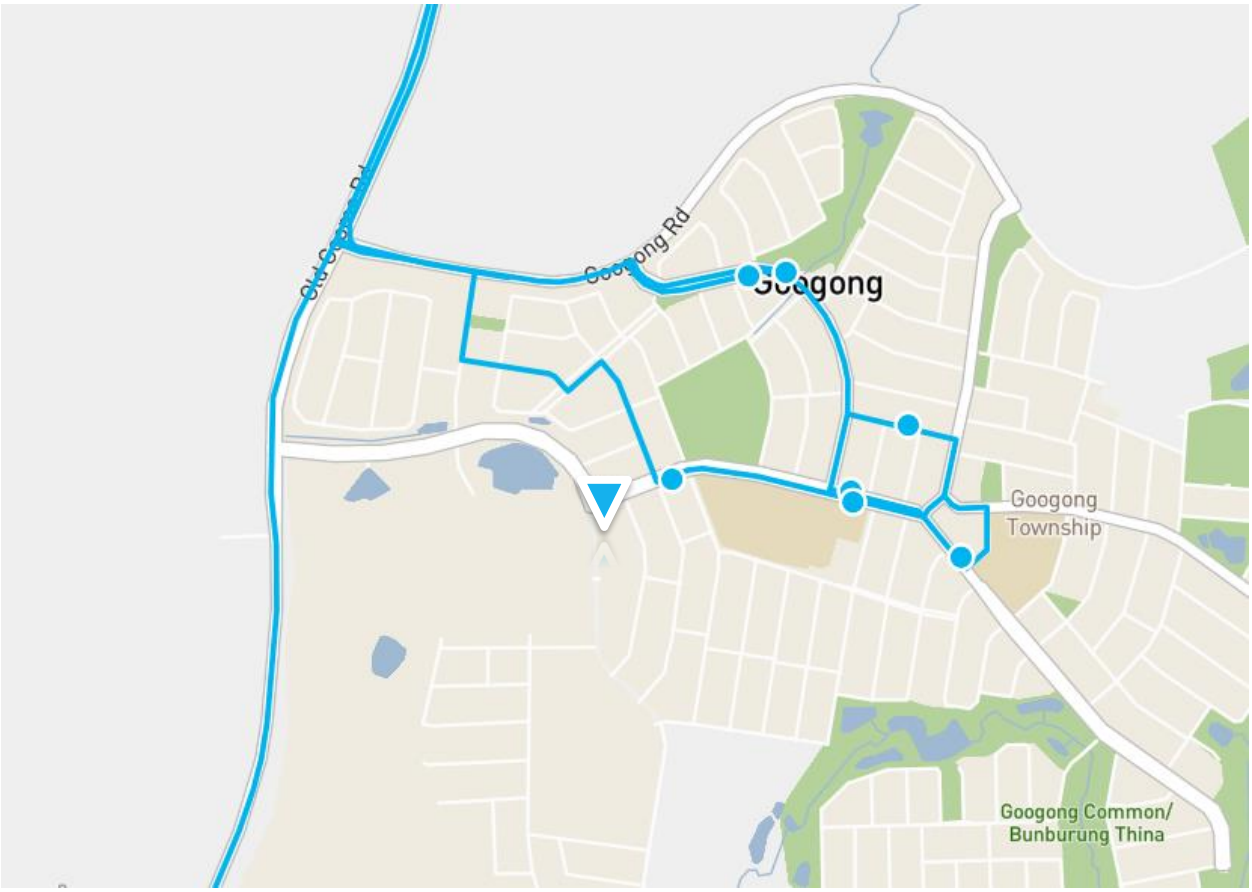
1. **Old Cooma Road** connects Edwin Land Parkway to the north and Monaro Highway to the south. It has a signposted speed limit of 80 km/h adjacent to the site. The duplication of this arterial road has been completed in 2020 between Edwin Land Parkway and Googong Road. It remains one lane in each direction to the south of Wellsvale Drive. A signalised T-intersection is provided at the Old Cooma Road / Wellsvale Drive with a pedestrian crossing on Wellsvale Drive. A footpath is provided on the east side of Old Cooma Road. On-road bicycle lanes are available in both directions to the north of Wellsvale Drive while parking is unrestricted on both sides of the road.
2. **Wellsvale Drive** is classified as a combination of Arterial Road (AV1b between Old Cooma Road and Courtney Street) and Local Arterial Road (AV1 between Courtney Street and Gorman Drive). It has a signposted speed limit of 50 km/h with a variation of one to two lanes in each direction. Footpaths and on-road bicycle lanes are provided on both sides of the road. The section of Wellsvale Drive, south of Gorman Drive has recently been constructed until just past Hegarty Street (southeast of the site).
3. **Gorman Drive** is an arterial road, which starts from Wellsvale Drive and extends to the Googong Neighbourhood 1 to the east. It has one lane in each direction with a signposted speed limit of 50 km/h. The school zone is in operation to the east of Hearne Street. There is on-street parking alongside the on-road bicycle lanes on both sides of the road. Two bus stops are located to the east and west of Hearne Street, respectively. Footpaths are available on both sides.
4. **McFarlane Avenue** is a local street that intersects with Gorman Drive adjacent to the site and extends south to Wellsvale Drive. It is a two-way road with one lane in each direction of travel. On street parking is present on both sides of the road. A footpath is also provided on both sides of the road. Vehicles exiting from the site travelling towards Gorman Drive can make a left turn only, due to the median strip on Gorman Drive. Vehicles travelling south towards Wellsvale Drive can make a left or right turn at the intersection.

3.2 Bus network

The public transport network in the vicinity of the site is shown in **Figure 3-2**. There is one bus stop about 170 m from the site on Gorman Drive. Bus routes 830 and 840X are available at the bus stop, which operates between Googong, Queanbeyan and Canberra.

There are five inbound bus services towards Queanbeyan and Canberra for a typical weekday peak hour between 7am and 8am.

Figure 3-2 Bus network around the site



Source: TfNSW, 2022

3.3 Active transport

There are extensive walking and cycling facilities in the existing Googong NH1 development. On-road bicycle lanes are available on Wellsvale Drive, Gorman Drive and Old Cooma Road. The grid-like footpath network enables pedestrians to have high-quality facilities for short-distance trips east towards Googong township and west towards Old Cooma Road.

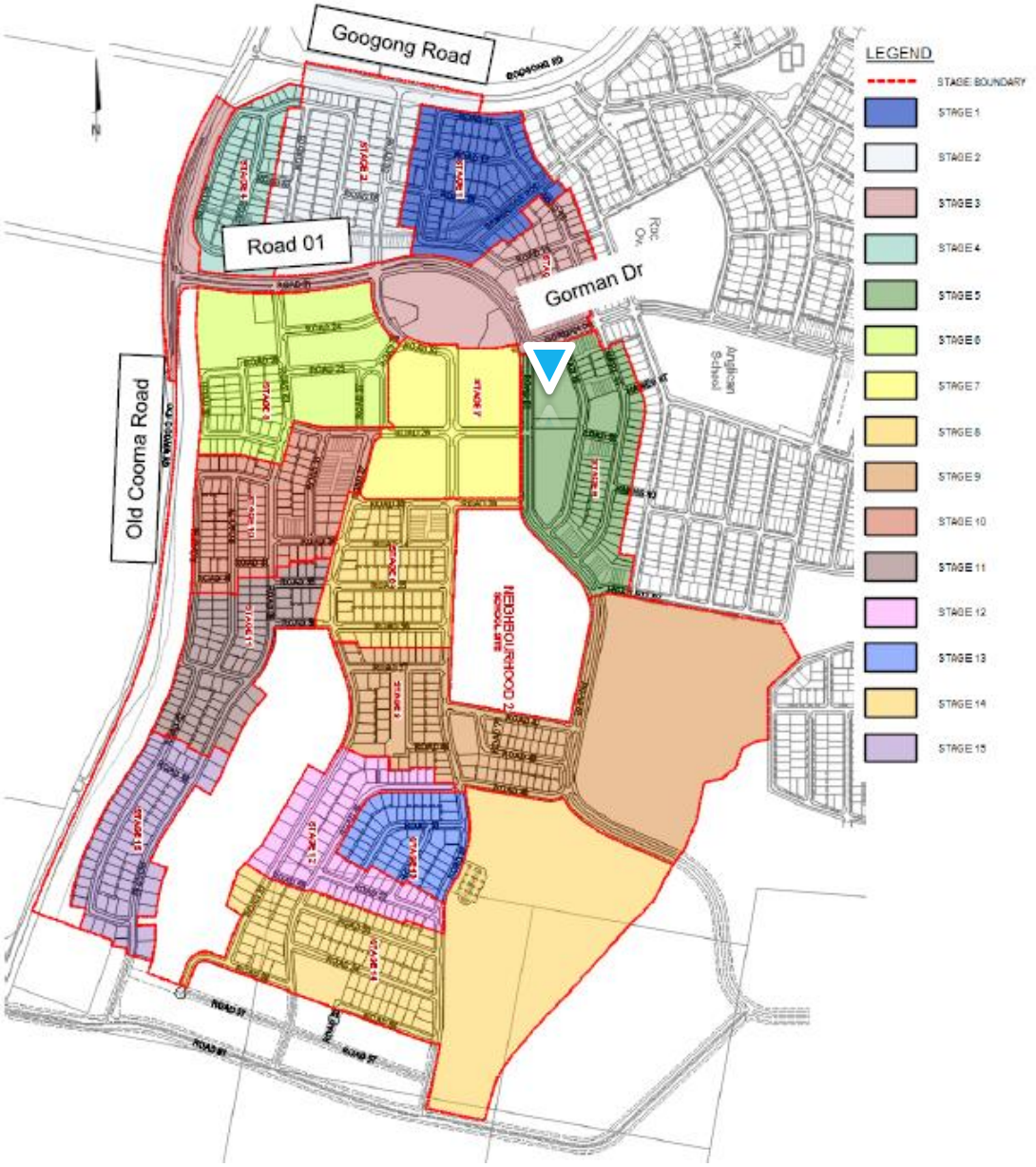
4.0 Proposed development

4.1 The development

4.1.1 Googong NH2

The development of Googong NH2 is anticipated to be constructed in 15 stages, which would accommodate 1,737 residential dwellings and a total GFA of 17,500 m^2 retail premises. The subject site is within NH2 and aims to deliver 138 dwellings in Lot 566 (**Figure 4-1**).

Figure 4-1 Proposed staging plan



Source: Googong Neighbourhood 2 Traffic Report, 2017

4.1.2 Development yield

The proposed development is bound by Wellsvale Drive to the west, McFarlane Avenue to the east and Gorman Drive to the north. The southern frontage would be a through site link between Wellsvale Drive and McFarlane Avenue. The development yield is summarised in **Table 4-1**. The proposed development at Lot 566 seeks to provide 138 residential dwellings and 261 (233 residential and 28 visitor spaces) car parking spaces on-site.

Table 4-1 Lot 566 development yield

Unit type	Number of units
1-bed	43
2-bed	47
3-bed	26
4-bed	22
Total	**138 units**

Source: Urbane, 2023

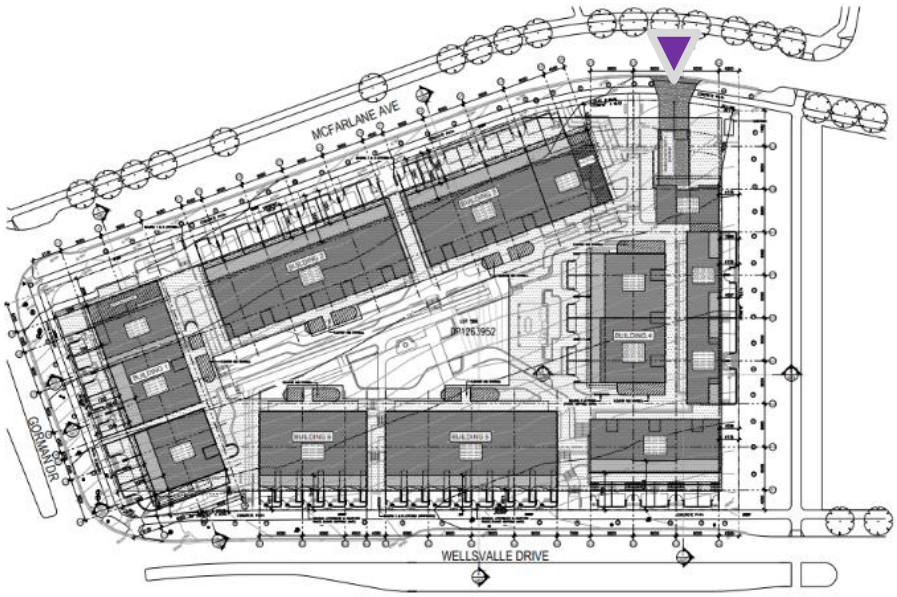
4.2 Proposed transport access

The transport access to the site needs to cater for the travel characteristics of the proposal as well as integrate appropriately with the surrounding road network.

4.2.1 Vehicular access

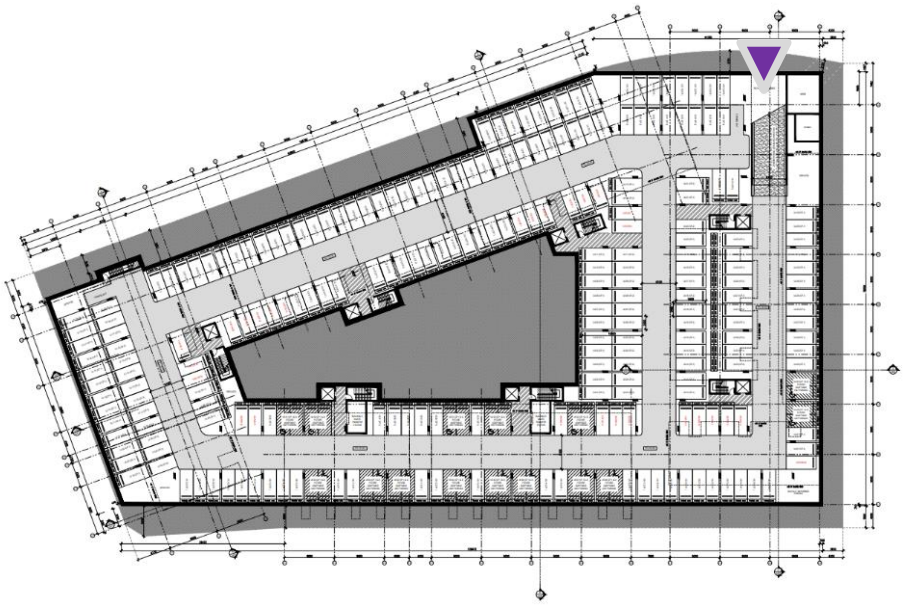
As shown in **Figure 4-2**, vehicular access to the site is provided through a driveway (labelled ▼) on McFarlane Avenue that connects to basement parking shown in **Figure 4-3**. Swept paths in **Appendix A** indicate that a B99 vehicle can enter the basement parking and manoeuvre within without conflicting with another vehicle.

Figure 4-2 Proposed staging plan for dwellings and parking



Source: DNA Architects, 2022

Figure 4-3 Proposed basement parking



Source: DNA Architects, 2022

4.2.2 Pedestrian access

Pedestrian access points are proposed around the site, including two located on Wellsvale Drive and two on McFarlane Avenue, to maximise site permeability. These access points link to the footpath network within the site, which provides access to different building blocks.

4.2.3 Emergency/service vehicles

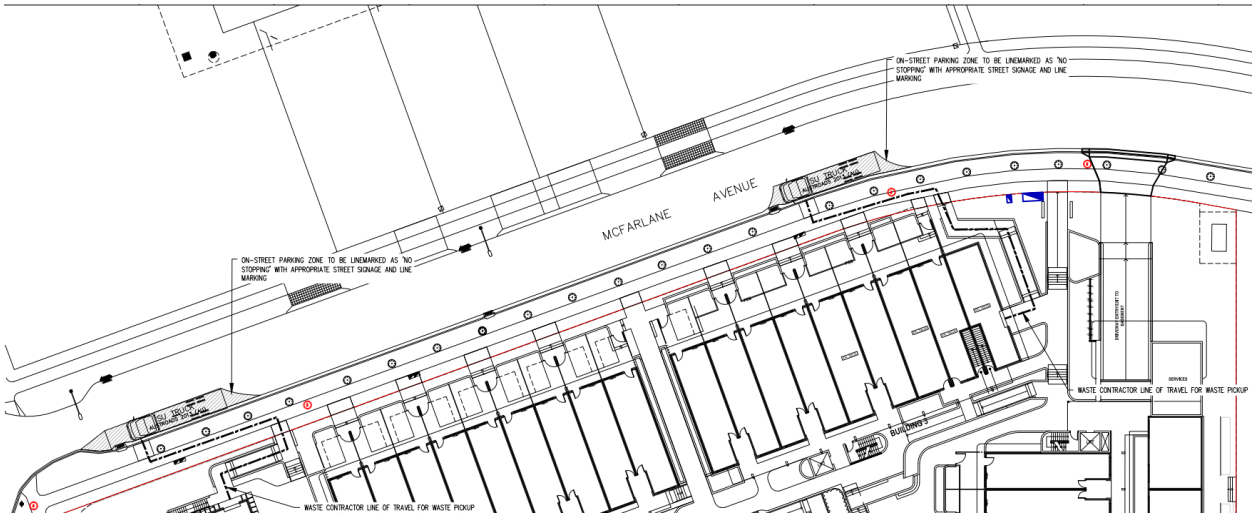
There is no specific requirement for on-site parking spaces for service vehicles in Googong DCP. The site plan proposes off-site servicing consistent with other higher density areas in Googong (e.g. on Annlouise and Lurline Lanes, where waste servicing occurs for townhouses). The operation of Medium Rigid Vehicle (MRV) is proposed to occur on-street only to minimise the impact of basement design.

4.2.4 Waste collection vehicles

Two on-street loading locations are proposed on McFarlane Avenue shown in **Figure 4-4**, at the closest locations to the waste collection points designed within the buildings. It is proposed that a Heavy Rigid Vehicle would act as the waste collection vehicle. The impacts created by these on-street movements are expected to be low given there will only be one to two waste collection vehicle movements per week and MacFarlane Avenue is carrying very low traffic volumes as a local street.

To avoid excessive on-street parking impacts, areas that are required for waste servicing would have a temporary 'No Stopping' signage and line marking, during waste collection time periods each week.

Figure 4-4 Proposed on-street waste collection loading locations



Source: ACT Consulting Engineers, 2022

4.3 Parking Provision

Table 4-2 illustrates the required parking spaces for the development according to DCP. The parking configuration for the proposal is shown in **Table 4-3**.

Table 4-2 Car parking requirement for residents

Unit type	No. of dwellings	No. of bedrooms	Parking rates	Required spaces
Townhouse/unit	43	1	1 space per dwelling	43 spaces
	47	2	2 spaces per dwelling	94 spaces
	26	3	2 spaces per dwelling	52 spaces
	22	4	2 spaces per dwelling	44 spaces
	Visitor Parking		1 space per 5 units	28 spaces
Total	**138**	**-**	**-**	**261 spaces**

Source: SCT Consulting based on DNA Architects, 2023

Table 4-3 Parking schedule for development

Parking Type	Quantity
Basement	179
Basement Tandem	41 (82)
Total	**261**

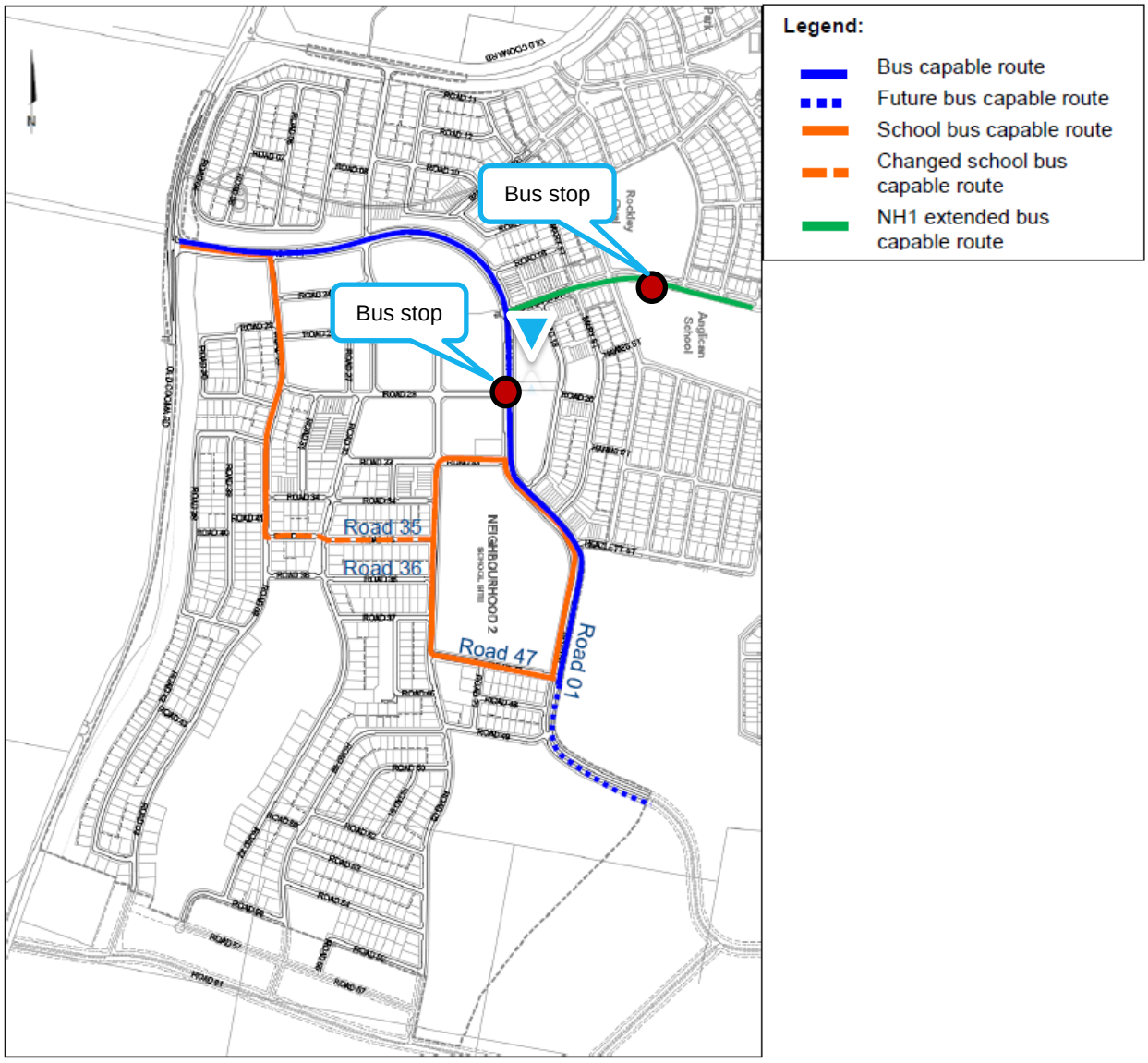
Source: DNA Architects, 2023

The current proposed plan provides a total of 261 on-site basement car spaces, inclusive of 28 visitor spaces. The plan is therefore compliant with DCP requirements for residential dwellings and visitor parking. Bicycle storage in the basement level is also provided as part of the current plan to facilitate active transport within Googong.

4.4 Public transport

As shown in **Figure 4-5**, Wellsvale Drive would be a bus-capable route while Gorman Drive to the north of the site would be an NH1 extended bus-capable route, with existing bus stops near the Googong Oval. Based on the NH2 structure plan[2], bus stops would be proposed near the intersection of Wellsvale Drive and Golden Way west of the site. These locations are accessible through constructed pedestrian paths which would facilitate bus access.

Figure 4-5 Proposed bus routes within NH2



Source: Calibre – Googong Neighbourhood 2 Traffic Report, 2017

[2] This is specified in the NH2 structure plan in Appendix 8 of Googong DCP 2010

5.0 Traffic impact assessment

5.1 Trip generation

Calibre's Googong Neighbourhood 2 Traffic Report (2017) undertook intersection analysis for the surrounding five intersections for 2031 (as discussed in **Section 2.3**), upon full completion and occupation of Googong. The trip rates considered in traffic modelling are summarised in **Table 5-1**.

Table 5-1 Trip generation rates

Stage		Discount factor	Trip rate (vehicle / hour / dwelling)	
			AM peak hour	PM peak hour
NH1		0%	0.67	0.82
NH2	**Stage 1-6**	**0%**	**0.67**	**0.82**
	Stage 7-15	10%	0.60	0.73
NH5		35%	0.43	0.53

Source: Calibre (2017), Googong Neighbourhood 2 Traffic Report

Using the proposed development yield and the trip generation rates shown in **Table 5-1**, the following inbound and outbound trips are generated from the proposed development:

Table 5-2 Inbound and outbound vehicle trip generation

Yield	Time	Trip rates	Directional split		Trips
138 dwellings	AM Peak	0.67 trips/dwelling	in	10%	9 veh/h
		0.67 trips/dwelling	out	90%	83 veh/h
	PM Peak	0.82 trips/dwelling	in	90%	102 veh/h
		0.82 trips/dwelling	out	10%	11 veh/h

Source: Calibre (2017), Googong Neighbourhood 2 Traffic Report and DNA architects (2022)

Based on the proposed 138 dwellings associated with the development proposal, the site would generate 92 and 113 vehicle trips during AM and PM peak hours, respectively. This corresponds to an increase of 48 and 59 vehicles respectively during these times, over the initially proposed 66 dwellings.

5.2 Road network impact

The intersection analysis in Calibre's Traffic Report (2017) confirms that all five intersections will perform at Level of Service C or better at the completion of NH2 with the intersection layouts proposed below for AM peak and PM peak hours:

– Old Cooma Road / Wellsvale Drive – Traffic signal

– Old Cooma Road / Googong Road – Traffic signal

– Googong Road / Courtney Street – Priority intersection

– Wellsvale Drive / Courtney Street – Traffic signal

– Wellsvale Drive / Gorman Drive – Priority intersection.

5.2.1 Traffic modelling assumptions

SIDRA 9 was used to test the operational performance of the five intersections tested as part of Calibre's Traffic Report (2017). It is the most recent version of the software at the time of writing. SIDRA models the delays to road users (cars, trucks, buses, pedestrians, cyclists) based on the demands and geometry of intersections. It is a typical software used for a development application of this scale.

Traffic volumes in 2031 (completion of NH2) were extracted from Calibre's Traffic Report. The future year base case comprised 138 dwellings assumed for Lot 566 as part of NH2 plus an additional 30 and 39 dwellings as part of a proposed expansion of nearby Lot 601 and Lot 667 respectively.

The additional traffic generation of 48 and 59 vehicles in the AM and PM peak per hour were added on the future year base case to assess the impact of an additional 72 dwellings as part of Lot 566.

80 per cent of trips were assumed to travel north via Old Cooma Road / Wellsvale Drive as this intersection is closest to Lot 566, whilst 20 per cent of trips were assumed to travel east towards Googong township using Mary and Hearne Street to access Gorman Drive .

5.2.2 Intersection performance

Intersection Level of Service (LOS) is a tool to measure the level of congestion at an intersection as well as to identify locations requiring further investigations. The LOS as defined in the Traffic Modelling Guidelines is summarised in **Table 5-3**.

Table 5-3 Level of Service definitions

Level of Service (LOS)	Average Delay per Vehicles (sec/h)	Performance explanation
A	Less than 14.5	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity
C	28.5 to 42.4	Satisfactory
D	42.5 to 56.4	Operating near capacity
E	56.5 to 70.4	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.
F	70.5 or greater	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.

Source: Roads and Maritime Services, 2002

Intersection Degree of Saturation (DOS) is another metric to measure the performance of isolated intersections and approaches. DOS is a ratio of traffic demand to capacity. For intersections controlled by traffic signals, both queue length and delays typically increase rapidly as DOS approaches 1.0. The Traffic Modelling Guidelines identified an upper limit of 0.9 for signalised intersections.

The modelling confirms that there is an insignificant difference between the two future year scenarios. The LOS remains the same for all intersections and the variation of delay is within one second. Results for the 2031 base case and 2031 with additional yield are compared in **Table 5-4**.

All intersections have been constructed. There is no need to propose any change to the approved road network in the structure plan associated with the development.

The detailed SIDRA results are shown in **Appendix B.**

Table 5-4 Comparison of intersection performance in 2031

Intersection	Weekday AM peak			Weekday PM peak		
	Delay	LoS	DoS	Delay	LoS	DoS
Future year base case*						
Old Cooma Road / Wellsvale Drive	25.5s	B	0.72	23.6s	B	0.78
Old Cooma Road / Googong Road	20.4s	B	0.80	13.1s	A	0.82
Googong Road / Courtney Street	13.6s	A	0.39	12.1s	A	0.34
Wellsvale Drive / Courtney Street	14.8s	B	0.34	14.4s	A	0.47
Wellsvale Drive / Gorman Drive	16.9s	B	0.45	21.7s	B	0.38
Future year with additional 39 dwellings at Lot 566 (the proposal)						
Old Cooma Road / Wellsvale Drive	25.7s	B	0.73	23.5s	B	0.78
Old Cooma Road / Googong Road	20.9s	B	0.81	14.0s	A	0.84
Googong Road / Courtney Street	13.6s	A	0.39	12.1s	A	0.34
Wellsvale Drive / Courtney Street	14.6s	B	0.35	14.4s	A	0.51
Wellsvale Drive / Gorman Drive	18.9s	B	0.52	23.7	B	0.40

* Future Base Year includes 66 dwellings for Lot 566 assumed as part of NH2, plus the additional 30 dwellings from Lot 601 and 39 dwellings from Lot 667

5.3 Bus impact

The proposed bus stop near the intersection of Wellsvale Drive / Golden Way in the vicinity of the site together with the pedestrian/cycle paths will facilitate public transport use by the site residents. Given the relatively low public transport trip generation of the site, there is no major capacity issue with the potential site in terms of public transport impacts. TfNSW regularly reviews bus services as part of managing the network. Additional frequency can be provided if required.

5.4 Walking and cycling impact

It is important to ensure a safe and well-connected, high-quality footpath and cycle path system around the site, to promote sustainable transport use, especially for short-distance trips. The site has appropriate pedestrian access points for pedestrians and cyclists, which facilitate travelling to the surrounding destinations such as the town centre and the school to the south, and open space to the east.

The number of person/bicycle trips generated by the development during the peak periods could be accommodated by the planned infrastructure.

5.5 Parking impact

The number of parking spaces provided on-site as part of the proposed development satisfies the residential parking requirement as specified by DCP.

6.0 Conclusion

The site is part of the Stage 6 development for Googong Neighbourhood 2, which would deliver 138 residential dwellings and 261 parking spaces. In summary:

– The Calibre Traffic Report (2017) confirms that all five intersections will perform satisfactorily for AM peak and PM peak hours by 2031 at the completion of NH2. All intersections have been completed as per the proposed layout. The Calibre Traffic Report was part of the approved Development Application of the NH2.

– The proposed development would generate 92 and 113 vehicle trips during AM and PM peak hours, respectively.

– The traffic modelling confirms that there is no material difference associated with additional 72 dwellings beyond the assumed development scale. The LOS remains the same for all intersections and the variation of delay is within two seconds. There is no need to propose any change to the infrastructure.

– Vehicular access is provided on McFarlane Avenue and lower ground garages and parking spaces.

– A total of 261 parking spaces are required for the development based on the Googong DCP including 233 spaces for the residents and 28 for visitors. A total of 261 parking spaces are provided in lower ground parking lots, accommodating both residents and visitors within the site.

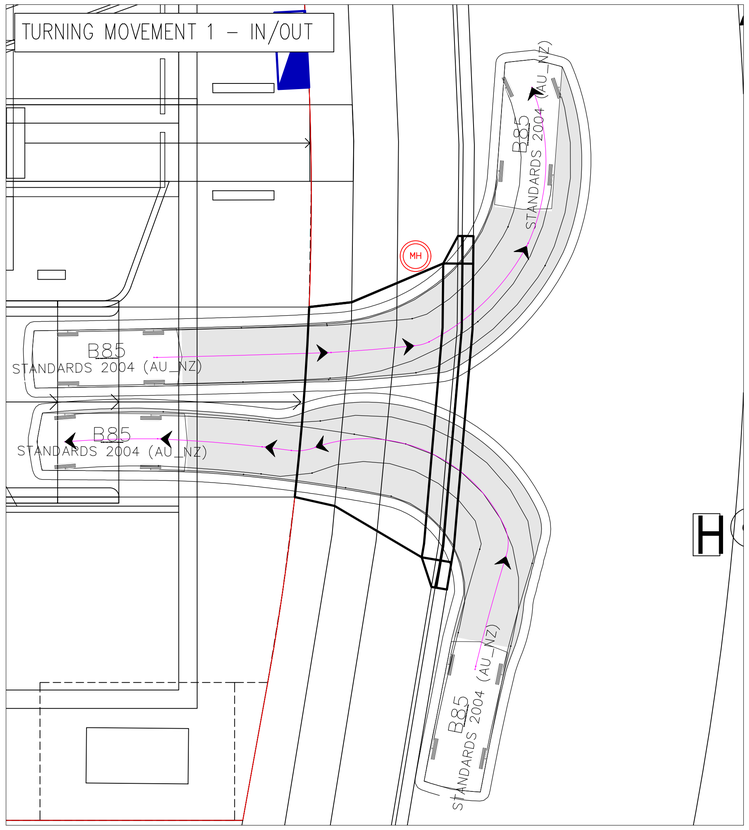
– There are pedestrian access points for pedestrians and cyclists along Wellsvale Drive and McFarlane Avenue, which facilitate travelling to the surrounding destinations. Given the relatively low mode share of active transport, the number of person/bicycle trips generated by the development during the peak periods could be accommodated by the planned infrastructure.

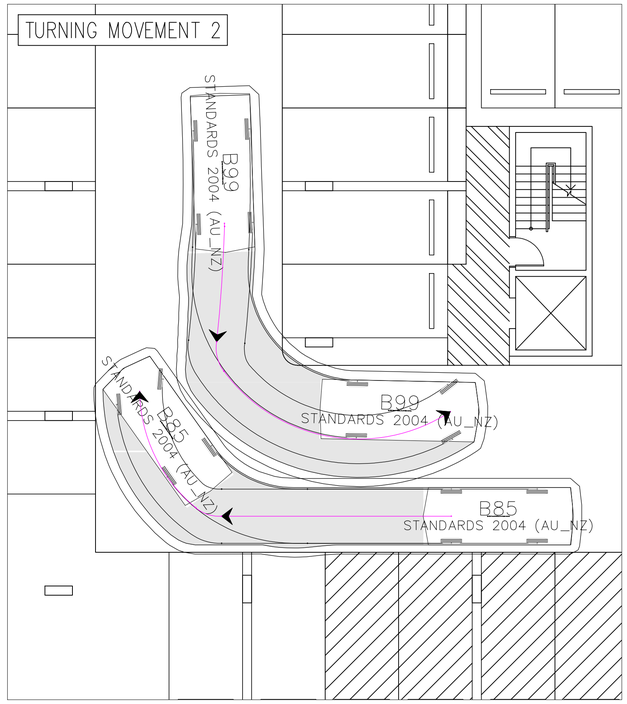
– The proposed bus stop near the intersection of Wellsvale Drive / Golden Way in the vicinity of the site together with the pedestrian/cycle paths will facilitate public transport use by the residents. Given the relatively low trip generation of the site, there is no major capacity issue with the potential site in terms of public transport impacts.

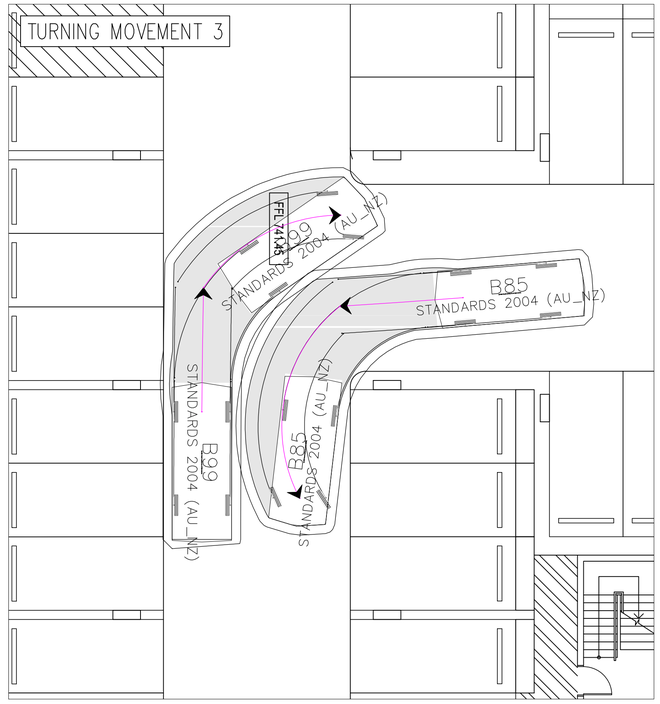
The Traffic and Parking Impact Study concluded that the development scale represents a minor increase in traffic with the previously approved DA for Googong NH2 and the impacts of the proposed development are at a level able to be accommodated by the existing and planned infrastructure.

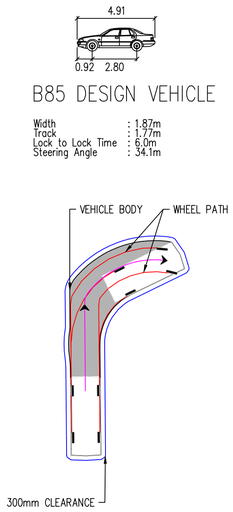
APPENDIX A

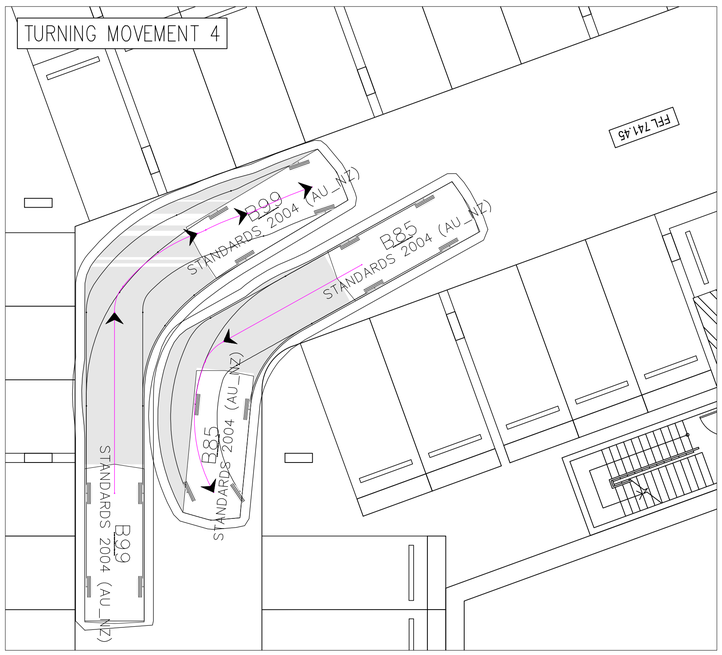
SWEPT PATHS

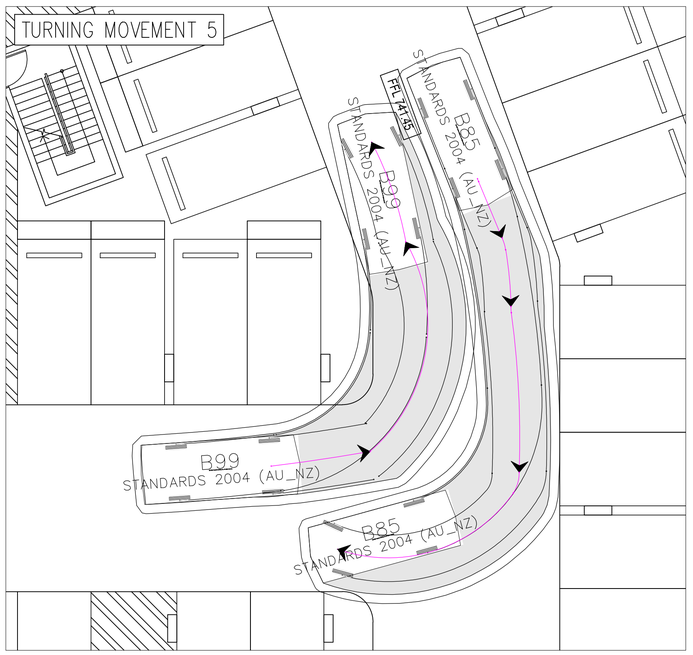


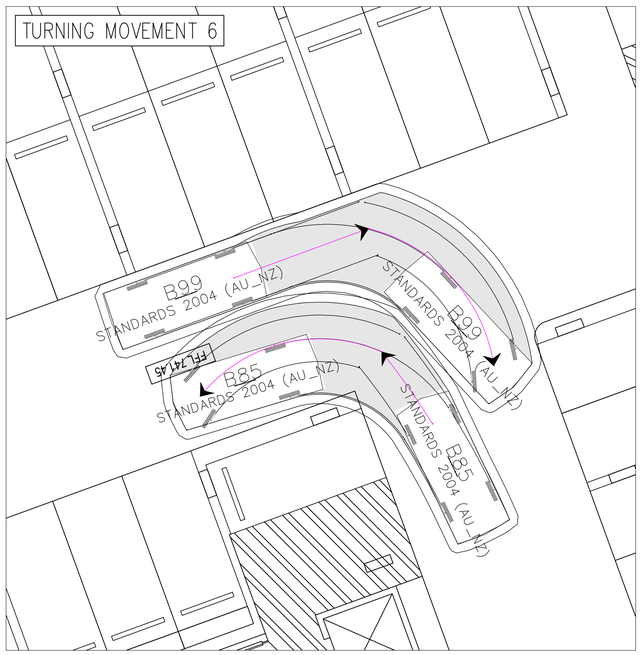












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ACT CONSULTING ENGINEERS
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WWW.ACTCE.COM.AU – OFFICE@ACTCE.COM.AU – (02) 6103 0671

Om 1 2 3 4 5
1:100 @A1 1:200 @A3

NORTH:

REV	REVISION	DATE	DESIGNED	DRAWN	APPROVED
A	FOR DEVELOPMENT APPLICATION	07.09.2022	L.K	L.K	L.K
B					
C					
D					
E					

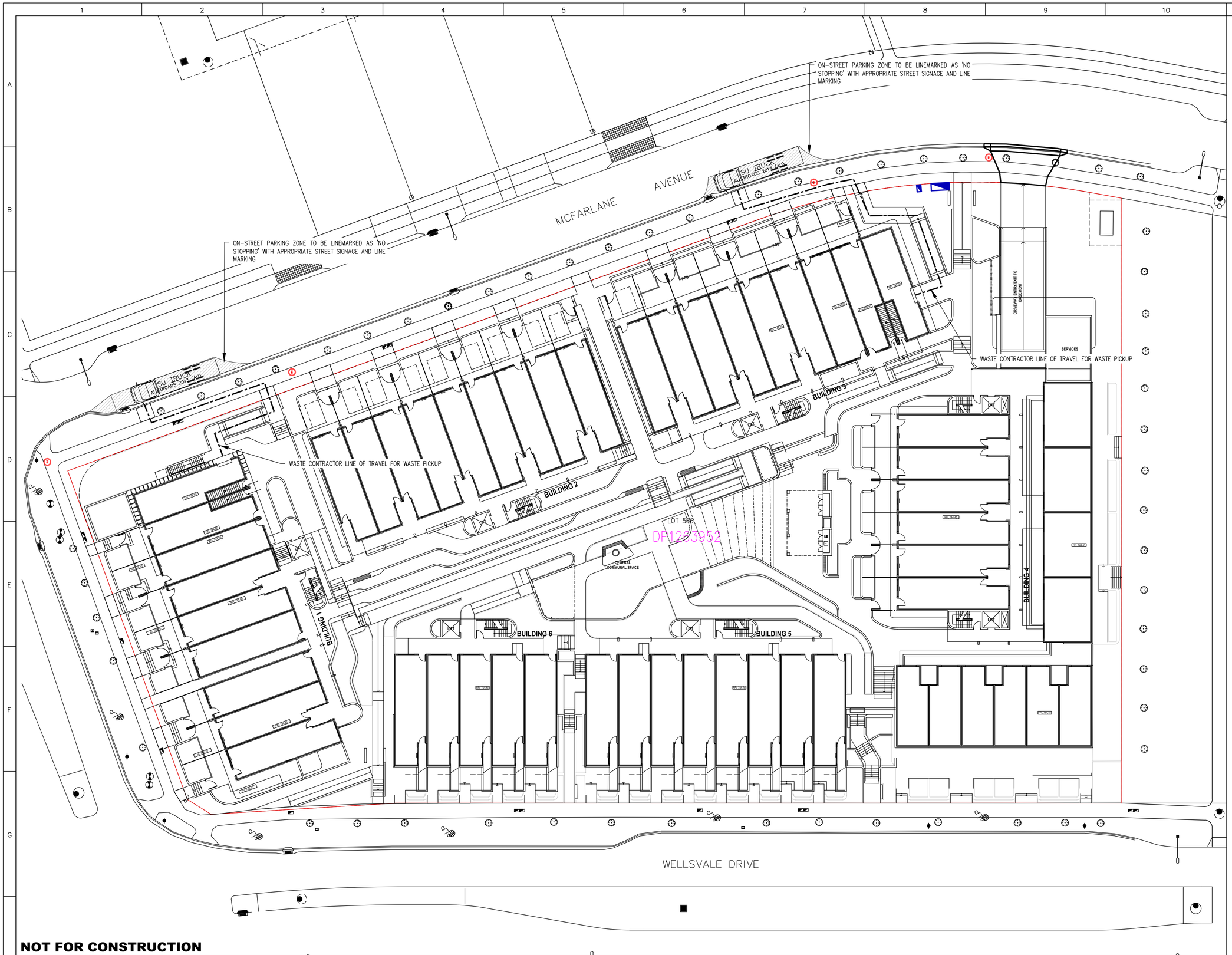
CLIENT: VOYAGER PROJECTS

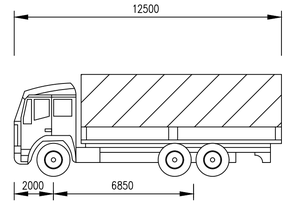
PROJECT: MULTI-UNIT DEVELOPMENT

SITE ADDRESS: LOT 566 DP 1263952 MACFARLANE AVENUE GOOGONG, NSW

SCALE: AS SHOWN
DATE: 07.09.2022
DWG No.: C09-01
PROJECT No.: 22-558
REVISION: A
DRAWING TITLE: VEHICLE TURNING PLAN

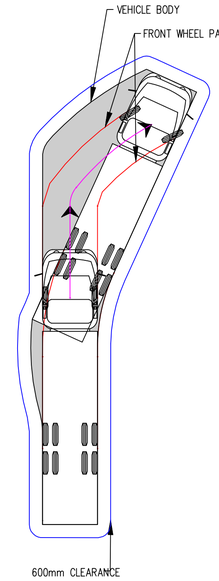
Date Plotted: 7/09/2022





WIDTH : 2500
TRACK : 2500
LOCK TO LOCK TIME : 6.0s
STEERING ANGLE : 36.6°

12.5m WASTE VEHICLE
N.T.S



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0m 2 4 6 8 10
1:200 @A1 1:400 @A3

NORTH:

REV	REVISION	DATE	DESIGNED	DRAWN	APPROVED
A	FOR DEVELOPMENT APPLICATION	30.08.2022	L.K	L.K	L.K
B					
C					
D					
E					

CLIENT: VOYAGER PROJECTS

PROJECT: MULTI-UNIT DEVELOPMENT

SITE ADDRESS: LOT 566 DP 1263952 MACFARLANE AVENUE GOOGONG, NSW

SCALE: AS SHOWN
DATE: 30.08.2022
DWG No.: C10
PROJECT No.: 22-558
REVISION: A
DRAWING TITLE.: WASTE COLLECTION PLAN

Date Plotted: 30/08/2022

APPENDIX B

SIDRA SUMMARY

MOVEMENT SUMMARY

Site: WEL_BAS_AM [OCR_WEL_31_AM_BASE (Site Folder: AM Base 566 (+20 Trips Lot 601, + 27 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

TCS 4931
Site Category: Future Conditions 1
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Old Cooma Road (s)															
2	T1	All MCs	623	3.0	623	3.0	0.706	22.4	LOS B	21.8	156.2	0.86	0.77	0.86	64.8
3	R2	All MCs	71	10.0	71	10.0	0.168	38.3	LOS C	2.5	18.9	0.82	0.75	0.82	51.1
Approach			694	3.7	694	3.7	0.706	24.0	LOS B	21.8	156.2	0.85	0.77	0.85	63.1
East: Wellsvale Drive															
4	L2	All MCs	48	10.0	48	10.0	* 0.719	10.9	LOS A	18.7	141.9	0.90	0.85	0.90	52.5
6	R2	All MCs	952	10.0	952	10.0	0.719	30.1	LOS C	18.7	142.2	0.90	0.85	0.91	35.4
Approach			1000	10.0	1000	10.0	0.719	29.2	LOS C	18.7	142.2	0.90	0.85	0.91	36.6
North: Old Cooma Road (n)															
7	L2	All MCs	176	7.0	176	7.0	0.099	7.7	LOS A	0.0	0.0	0.00	0.60	0.00	59.7
8	T1	All MCs	37	25.0	37	25.0	* 0.142	36.3	LOS C	1.4	12.3	0.90	0.67	0.90	56.6
Approach			213	10.1	213	10.1	0.142	12.7	LOS A	1.4	12.3	0.16	0.61	0.16	58.6
All Vehicles			1907	7.7	1907	7.7	0.719	25.5	LOS B	21.8	156.2	0.80	0.79	0.80	50.0

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Wellsvale Drive												
P2	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	193.1	200.0	1.04
All Pedestrians		0	53	39.3	LOS D	0.1	0.1	0.94	0.94	193.1	200.0	1.04

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: OCR_BAS_AM [OCR_GOO_31_AM_BASE (Site Folder: AM Base 566 (+20 Trips Lot 601, + 27 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

TCS 4947
Site Category: Future Conditions 1
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Old Cooma Road (s)															
2	T1	All MCs	1575	3.0	1575	3.0	* 0.801	18.0	LOS B	24.3	174.2	0.89	0.85	0.96	56.2
3	R2	All MCs	1	10.0	1	10.0	0.007	39.8	LOS C	0.0	0.2	0.93	0.59	0.93	32.5
Approach			1576	3.0	1576	3.0	0.801	18.1	LOS B	24.3	174.2	0.89	0.85	0.96	56.1
East: Googong Road															
4	L2	All MCs	1	10.0	1	10.0	0.776	22.0	LOS B	14.5	110.1	0.96	0.91	1.09	34.7
6	R2	All MCs	845	10.0	845	10.0	* 0.776	32.6	LOS C	14.5	110.3	0.96	0.91	1.09	36.3
Approach			846	10.0	846	10.0	0.776	32.6	LOS C	14.5	110.3	0.96	0.91	1.09	36.3
North: Old Cooma Road (n)															
7	L2	All MCs	503	7.0	503	7.0	0.373	8.2	LOS A	2.2	16.6	0.27	0.68	0.27	55.3
8	T1	All MCs	212	25.0	212	25.0	0.184	17.6	LOS B	2.6	21.9	0.74	0.59	0.74	56.6
Approach			715	12.3	715	12.3	0.373	11.0	LOS A	2.6	21.9	0.41	0.65	0.41	55.7
All Vehicles			3137	7.0	3137	7.0	0.801	20.4	LOS B	24.3	174.2	0.80	0.82	0.87	49.4

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Googong Road												
P2	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
All Pedestrians		0	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09

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: GOO_BAS_AM [GOO_COU_31_AM_BASE (Site Folder: AM Base 566 (+20 Trips Lot 601, + 27 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Courtney Street															
1	L2	All MCs	93	2.5	93	2.5	0.100	8.5	LOS A	0.4	2.9	0.60	0.79	0.60	46.0
3	R2	All MCs	1	2.5	1	2.5	0.100	13.6	LOS A	0.4	2.9	0.60	0.79	0.60	49.0
Approach			94	2.5	94	2.5	0.100	8.6	LOS A	0.4	2.9	0.60	0.79	0.60	46.0
East: Googong Road															
4	L2	All MCs	1	2.5	1	2.5	0.389	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.7
5	T1	All MCs	753	2.5	753	2.5	0.389	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			754	2.5	754	2.5	0.389	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.7
West: Googong Road															
11	T1	All MCs	249	2.5	249	2.5	0.128	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	254	2.5	254	2.5	0.242	8.8	LOS A	1.2	8.3	0.67	0.82	0.67	45.7
Approach			503	2.5	503	2.5	0.242	4.4	NA	1.2	8.3	0.34	0.41	0.34	52.6
All Vehicles			1351	2.5	1351	2.5	0.389	2.3	NA	1.2	8.3	0.17	0.21	0.17	56.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

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

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: COU_BAS_AM [WEL_COU_31_AM_BASE (Site Folder: AM Base 566 (+20 Trips Lot 601, + 27 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenrock Drive															
1	L2	All MCs	51	2.5	51	2.5	0.179	20.0	LOS B	2.2	15.7	0.73	0.73	0.73	39.1
2	T1	All MCs	1	2.5	1	2.5	0.179	13.0	LOS A	2.2	15.7	0.73	0.73	0.73	40.6
3	R2	All MCs	54	2.5	54	2.5	0.179	20.8	LOS B	2.2	15.7	0.73	0.73	0.73	39.3
Approach			106	2.5	106	2.5	0.179	20.4	LOS B	2.2	15.7	0.73	0.73	0.73	39.2
East: Wellsvale Dr															
4	L2	All MCs	44	2.5	44	2.5	0.338	19.8	LOS B	5.5	39.1	0.72	0.63	0.72	43.4
5	T1	All MCs	502	2.5	502	2.5	0.338	12.8	LOS A	5.6	39.7	0.72	0.62	0.72	45.8
6	R2	All MCs	2	2.5	2	2.5	* 0.338	20.8	LOS B	5.6	39.7	0.72	0.61	0.72	43.7
Approach			548	2.5	548	2.5	0.338	13.4	LOS A	5.6	39.7	0.72	0.62	0.72	45.5
North: Courtney St															
7	L2	All MCs	7	2.5	7	2.5	0.315	21.2	LOS B	4.6	32.6	0.74	0.67	0.74	41.5
8	T1	All MCs	137	2.5	137	2.5	* 0.315	13.9	LOS A	4.6	32.6	0.74	0.67	0.74	43.4
9	R2	All MCs	74	2.5	74	2.5	0.315	20.3	LOS B	4.6	32.6	0.74	0.67	0.74	41.5
Approach			218	2.5	218	2.5	0.315	16.3	LOS B	4.6	32.6	0.74	0.67	0.74	42.7
West: Wellsvale Dr															
10	L2	All MCs	2	2.5	2	2.5	0.055	18.1	LOS B	0.8	5.6	0.62	0.48	0.62	44.7
11	T1	All MCs	108	2.5	108	2.5	0.151	11.9	LOS A	1.7	12.4	0.66	0.55	0.66	45.7
12	R2	All MCs	24	2.5	24	2.5	0.151	21.6	LOS B	1.7	12.4	0.69	0.60	0.69	42.7
Approach			134	2.5	134	2.5	0.151	13.7	LOS A	1.7	12.4	0.67	0.56	0.67	45.1
All Vehicles			1006	2.5	1006	2.5	0.338	14.8	LOS B	5.6	39.7	0.72	0.64	0.72	44.1

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Glenrock Drive												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
East: Wellsvale Dr												

P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
North: Courtney St												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
West: Wellsvale Dr												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12

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: GOR_BAS_AM [WEL_GOR_31_AM_BASE (Site Folder: AM Base 566 (+20 Trips Lot 601, + 27 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wellsvale Drive															
1	L2	All MCs	117	2.5	117	2.5	0.284	5.6	LOS A	0.0	0.0	0.00	0.13	0.00	34.9
2	T1	All MCs	421	2.5	421	2.5	0.284	0.1	LOS A	0.0	0.0	0.00	0.13	0.00	58.5
3	R2	All MCs	58	2.5	58	2.5	0.026	5.7	LOS A	0.1	1.0	0.16	0.53	0.16	52.3
Approach			596	2.5	596	2.5	0.284	1.7	NA	0.1	1.0	0.02	0.17	0.02	52.8
East: Gorman Drive															
4	L2	All MCs	97	2.5	97	2.5	0.447	9.5	LOS A	3.3	23.6	0.53	0.81	0.65	47.5
5	T1	All MCs	104	2.5	104	2.5	0.447	16.9	LOS B	3.3	23.6	0.53	0.81	0.65	37.9
6	R2	All MCs	105	2.5	105	2.5	0.447	16.9	LOS B	3.3	23.6	0.53	0.81	0.65	45.9
Approach			306	2.5	306	2.5	0.447	14.6	LOS B	3.3	23.6	0.53	0.81	0.65	44.2
North: Wellsvale Drive															
7	L2	All MCs	11	2.5	11	2.5	0.109	5.6	LOS A	0.6	4.1	0.51	0.59	0.51	51.4
8	T1	All MCs	53	2.5	53	2.5	0.109	0.0	LOS A	0.6	4.1	0.51	0.59	0.51	53.9
9	R2	All MCs	105	2.5	105	2.5	0.109	8.3	LOS A	0.6	4.1	0.51	0.59	0.51	32.9
Approach			169	2.5	169	2.5	0.109	5.5	NA	0.6	4.1	0.51	0.59	0.51	41.7
West: Car Park															
10	L2	All MCs	1	2.5	1	2.5	0.005	8.7	LOS A	0.0	0.1	0.56	0.83	0.56	40.2
11	T1	All MCs	1	2.5	1	2.5	0.005	11.1	LOS A	0.0	0.1	0.56	0.83	0.56	43.7
12	R2	All MCs	1	2.5	1	2.5	0.005	14.8	LOS B	0.0	0.1	0.56	0.83	0.56	43.8
Approach			3	2.5	3	2.5	0.005	11.5	LOS A	0.0	0.1	0.56	0.83	0.56	42.7
All Vehicles			1074	2.5	1074	2.5	0.447	6.0	NA	3.3	23.6	0.24	0.42	0.28	48.4

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

MOVEMENT SUMMARY

Site: WEL_BAS_PM [OCR_WEL_31_PM_BASE (Site Folder: PM Base 566 (+25 Trips Lot 601, + 32 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

TCS 4931
Site Category: Future Conditions 1
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Old Cooma Road (s)															
2	T1	All MCs	261	20.0	261	20.0	0.256	11.0	LOS A	6.4	52.1	0.51	0.44	0.51	71.1
3	R2	All MCs	48	10.0	48	10.0	* 0.485	63.2	LOS E	2.6	19.6	1.00	0.75	1.00	42.5
Approach			309	18.4	309	18.4	0.485	19.1	LOS B	6.4	52.1	0.59	0.49	0.59	64.6
East: Wellsvale Drive															
4	L2	All MCs	91	10.0	91	10.0	0.764	33.8	LOS C	19.5	147.9	0.97	0.89	1.03	47.4
6	R2	All MCs	699	10.0	699	10.0	* 0.764	44.2	LOS D	19.5	147.9	0.97	0.89	1.03	30.2
Approach			790	10.0	790	10.0	0.764	43.0	LOS D	19.5	147.9	0.97	0.89	1.03	33.0
North: Old Cooma Road (n)															
7	L2	All MCs	972	10.0	972	10.0	0.561	7.8	LOS A	0.0	0.0	0.00	0.60	0.00	58.8
8	T1	All MCs	640	20.0	640	20.0	* 0.779	25.6	LOS B	27.8	228.1	0.90	0.82	0.92	61.9
Approach			1612	14.0	1612	14.0	0.779	14.9	LOS B	27.8	228.1	0.36	0.69	0.36	60.7
All Vehicles			2711	13.3	2711	13.3	0.779	23.6	LOS B	27.8	228.1	0.56	0.72	0.58	51.8

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Wellsvale Drive												
P2	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians		0	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

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: OCR_BAS_PM [OCR_GOO_31_PM_BASE (Site Folder: PM Base 566 (+25 Trips Lot 601, + 32 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

TCS 4947
Site Category: Future Conditions 1
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Old Cooma Road (s)															
2	T1	All MCs	958	20.0	958	20.0	0.374	3.4	LOS A	5.8	47.5	0.38	0.34	0.38	74.0
3	R2	All MCs	1	10.0	1	10.0	* 0.007	39.8	LOS C	0.0	0.2	0.93	0.59	0.93	32.5
Approach			959	20.0	959	20.0	0.374	3.5	LOS A	5.8	47.5	0.38	0.34	0.38	74.0
East: Googong Road															
4	L2	All MCs	1	10.0	1	10.0	0.739	31.6	LOS C	4.2	31.7	1.00	0.90	1.26	30.1
6	R2	All MCs	219	10.0	219	10.0	* 0.739	44.1	LOS D	4.2	31.7	1.00	0.89	1.26	31.7
Approach			220	10.0	220	10.0	0.739	44.1	LOS D	4.2	31.7	1.00	0.89	1.26	31.7
North: Old Cooma Road (n)															
7	L2	All MCs	1002	10.0	1002	10.0	0.712	8.9	LOS A	8.1	61.5	0.46	0.73	0.46	53.9
8	T1	All MCs	1612	20.0	1612	20.0	* 0.817	17.2	LOS B	25.1	205.8	0.87	0.85	0.96	56.9
Approach			2614	16.2	2614	16.2	0.817	14.0	LOS A	25.1	205.8	0.71	0.81	0.77	55.8
All Vehicles			3793	16.8	3793	16.8	0.817	13.1	LOS A	25.1	205.8	0.65	0.69	0.70	57.3

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Googong Road												
P2	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
All Pedestrians		0	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09

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: GOO_BAS_PM [GOO_COU_31_PM_BASE (Site Folder: PM Base 566 (+25 Trips Lot 601, + 32 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Courtney Street															
1	L2	All MCs	42	2.5	42	2.5	0.025	6.0	LOS A	0.1	0.8	0.28	0.54	0.28	47.8
3	R2	All MCs	1	2.5	1	2.5	0.025	12.1	LOS A	0.1	0.8	0.28	0.54	0.28	50.5
Approach			43	2.5	43	2.5	0.025	6.1	LOS A	0.1	0.8	0.28	0.54	0.28	47.9
East: Googong Road															
4	L2	All MCs	1	2.5	1	2.5	0.092	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.8
5	T1	All MCs	177	2.5	177	2.5	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			178	2.5	178	2.5	0.092	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Googong Road															
11	T1	All MCs	658	2.5	658	2.5	0.339	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
12	R2	All MCs	344	2.5	344	2.5	0.169	6.0	LOS A	1.0	7.1	0.32	0.57	0.32	47.7
Approach			1002	2.5	1002	2.5	0.339	2.1	NA	1.0	7.1	0.11	0.19	0.11	55.7
All Vehicles			1223	2.5	1223	2.5	0.339	1.9	NA	1.0	7.1	0.10	0.18	0.10	56.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

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

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: COU_BAS_PM [WEL_COU_31_PM_BASE (Site Folder: PM Base 566 (+25 Trips Lot 601, + 32 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenrock Drive															
1	L2	All MCs	196	2.5	196	2.5	0.436	28.3	LOS B	6.3	44.9	0.86	0.79	0.86	35.1
2	T1	All MCs	5	2.5	5	2.5	* 0.436	21.0	LOS B	6.3	44.9	0.86	0.79	0.86	36.2
3	R2	All MCs	19	2.5	19	2.5	0.436	26.6	LOS B	6.3	44.9	0.86	0.79	0.86	35.3
Approach			220	2.5	220	2.5	0.436	28.0	LOS B	6.3	44.9	0.86	0.79	0.86	35.1
East: Wellsvale Dr															
4	L2	All MCs	87	2.5	87	2.5	0.243	15.9	LOS B	4.5	32.1	0.57	0.58	0.57	45.1
5	T1	All MCs	397	2.5	397	2.5	0.243	9.4	LOS A	4.5	32.3	0.57	0.52	0.57	48.3
6	R2	All MCs	5	2.5	5	2.5	0.243	19.5	LOS B	4.5	32.3	0.57	0.49	0.57	46.4
Approach			489	2.5	489	2.5	0.243	10.6	LOS A	4.5	32.3	0.57	0.53	0.57	47.7
North: Courtney St															
7	L2	All MCs	11	2.5	11	2.5	0.036	26.2	LOS B	0.4	3.1	0.76	0.66	0.76	36.3
8	T1	All MCs	3	2.5	3	2.5	0.036	18.5	LOS B	0.4	3.1	0.76	0.66	0.76	37.8
9	R2	All MCs	3	2.5	3	2.5	0.036	28.9	LOS C	0.4	3.1	0.76	0.66	0.76	36.3
Approach			17	2.5	17	2.5	0.036	25.3	LOS B	0.4	3.1	0.76	0.66	0.76	36.6
West: Wellsvale Dr															
10	L2	All MCs	11	2.5	11	2.5	0.173	15.8	LOS B	3.2	22.6	0.55	0.47	0.55	46.4
11	T1	All MCs	468	2.5	468	2.5	0.473	10.7	LOS A	8.5	60.8	0.64	0.58	0.64	47.1
12	R2	All MCs	84	2.5	84	2.5	* 0.473	19.7	LOS B	8.5	60.8	0.69	0.64	0.69	43.9
Approach			563	2.5	563	2.5	0.473	12.1	LOS A	8.5	60.8	0.64	0.59	0.64	46.6
All Vehicles			1289	2.5	1289	2.5	0.473	14.4	LOS A	8.5	60.8	0.66	0.60	0.66	44.3

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Glenrock Drive												
P1	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
East: Wellsvale Dr												

P2	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
North: Courtney St												
P3	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
West: Wellsvale Dr												
P4	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
All Pedestrians		200	211	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09

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: GOR_BAS_PM [WEL_GOR_31_PM_BASE (Site Folder: PM Base 566 (+25 Trips Lot 601, + 32 Trips Lot 667))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wellsvale Drive															
1	L2	All MCs	53	2.5	53	2.5	0.146	5.6	LOS A	0.0	0.0	0.00	0.11	0.00	35.0
2	T1	All MCs	224	2.5	224	2.5	0.146	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	58.7
3	R2	All MCs	95	2.5	95	2.5	0.064	7.0	LOS A	0.3	2.2	0.51	0.64	0.51	51.2
Approach			372	2.5	372	2.5	0.146	2.6	NA	0.3	2.2	0.13	0.25	0.13	53.0
East: Gorman Drive															
4	L2	All MCs	8	2.5	8	2.5	0.220	10.5	LOS A	0.7	5.1	0.77	1.02	0.84	44.5
5	T1	All MCs	1	2.5	1	2.5	0.220	14.5	LOS B	0.7	5.1	0.77	1.02	0.84	34.8
6	R2	All MCs	55	2.5	55	2.5	0.220	21.7	LOS B	0.7	5.1	0.77	1.02	0.84	42.8
Approach			64	2.5	64	2.5	0.220	20.2	LOS B	0.7	5.1	0.77	1.02	0.84	42.9
North: Wellsvale Drive															
7	L2	All MCs	32	2.5	32	2.5	0.261	5.6	LOS A	0.1	0.6	0.02	0.06	0.02	56.4
8	T1	All MCs	457	2.5	457	2.5	0.261	0.0	LOS A	0.1	0.6	0.02	0.06	0.02	59.4
9	R2	All MCs	9	2.5	9	2.5	0.261	7.2	LOS A	0.1	0.6	0.02	0.06	0.02	37.0
Approach			498	2.5	498	2.5	0.261	0.5	NA	0.1	0.6	0.02	0.06	0.02	58.8
West: Car Park															
10	L2	All MCs	211	2.5	211	2.5	0.381	8.8	LOS A	2.3	16.1	0.57	0.88	0.68	40.5
11	T1	All MCs	105	2.5	105	2.5	0.381	15.5	LOS B	2.3	16.1	0.57	0.88	0.68	44.0
12	R2	All MCs	11	2.5	11	2.5	0.381	17.6	LOS B	2.3	16.1	0.57	0.88	0.68	44.1
Approach			327	2.5	327	2.5	0.381	11.2	LOS A	2.3	16.1	0.57	0.88	0.68	41.9
All Vehicles			1261	2.5	1261	2.5	0.381	4.9	NA	2.3	16.1	0.24	0.38	0.27	52.3

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

MOVEMENT SUMMARY

Site: WEL_DEV_AM [OCR_WEL_31_AM_DEV (Site Folder: AM DEV 556 (+48 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

TCS 4931
Site Category: Future Conditions 1
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Old Cooma Road (s)															
2	T1	All MCs	623	3.0	623	3.0	0.725	23.7	LOS B	22.2	159.7	0.87	0.78	0.87	64.3
3	R2	All MCs	71	10.0	71	10.0	0.176	39.6	LOS C	2.5	19.2	0.84	0.75	0.84	50.7
Approach			694	3.7	694	3.7	0.725	25.3	LOS B	22.2	159.7	0.87	0.78	0.87	62.6
East: Wellsvale Drive															
4	L2	All MCs	48	10.0	48	10.0	* 0.724	11.0	LOS A	19.2	146.3	0.89	0.85	0.90	52.7
6	R2	All MCs	987	10.0	987	10.0	0.724	29.5	LOS C	19.3	146.6	0.90	0.85	0.91	35.6
Approach			1035	10.0	1035	10.0	0.724	28.7	LOS C	19.3	146.6	0.90	0.85	0.91	36.8
North: Old Cooma Road (n)															
7	L2	All MCs	181	7.0	181	7.0	0.102	7.7	LOS A	0.0	0.0	0.00	0.60	0.00	59.7
8	T1	All MCs	37	25.0	37	25.0	* 0.142	36.3	LOS C	1.4	12.3	0.90	0.67	0.90	56.6
Approach			218	10.1	218	10.1	0.142	12.5	LOS A	1.4	12.3	0.15	0.61	0.15	58.7
All Vehicles			1947	7.8	1947	7.8	0.725	25.7	LOS B	22.2	159.7	0.80	0.80	0.81	49.8

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Wellsvale Drive												
P2	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	193.1	200.0	1.04
All Pedestrians		0	53	39.3	LOS D	0.1	0.1	0.94	0.94	193.1	200.0	1.04

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: OCR_DEV_AM [OCR_GOO_31_AM__DEV (Site Folder: AM DEV 556 (+48 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

TCS 4947
Site Category: Future Conditions 1
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Old Cooma Road (s)															
2	T1	All MCs	1610	3.0	1610	3.0	*0.796	17.1	LOS B	24.3	174.3	0.88	0.84	0.94	57.1
3	R2	All MCs	1	10.0	1	10.0	0.003	33.2	LOS C	0.0	0.2	0.84	0.60	0.84	35.4
Approach			1611	3.0	1611	3.0	0.796	17.1	LOS B	24.3	174.3	0.88	0.84	0.94	57.1
East: Googong Road															
4	L2	All MCs	1	10.0	1	10.0	0.813	20.4	LOS B	15.3	116.6	0.98	0.95	1.17	33.4
6	R2	All MCs	845	10.0	845	10.0	*0.813	35.4	LOS C	15.3	116.6	0.99	0.95	1.17	35.0
Approach			846	10.0	846	10.0	0.813	35.4	LOS C	15.3	116.6	0.99	0.95	1.17	35.0
North: Old Cooma Road (n)															
7	L2	All MCs	503	7.0	503	7.0	0.381	8.2	LOS A	2.2	16.6	0.27	0.68	0.27	55.3
8	T1	All MCs	217	25.0	217	25.0	0.238	21.9	LOS B	3.0	25.1	0.82	0.65	0.82	52.8
Approach			720	12.4	720	12.4	0.381	12.4	LOS A	3.0	25.1	0.43	0.67	0.43	54.4
All Vehicles			3177	7.0	3177	7.0	0.813	20.9	LOS B	24.3	174.3	0.81	0.83	0.89	49.1

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Googong Road												
P2	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
All Pedestrians		0	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09

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: GOO_DEV_AM [GOO_COU_31_AM_DEV (Site Folder: AM DEV 556 (+48 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Courtney Street															
1	L2	All MCs	93	2.5	93	2.5	0.100	8.5	LOS A	0.4	2.9	0.60	0.79	0.60	46.0
3	R2	All MCs	1	2.5	1	2.5	0.100	13.6	LOS A	0.4	2.9	0.60	0.79	0.60	49.0
Approach			94	2.5	94	2.5	0.100	8.6	LOS A	0.4	2.9	0.60	0.79	0.60	46.0
East: Googong Road															
4	L2	All MCs	1	2.5	1	2.5	0.389	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.7
5	T1	All MCs	753	2.5	753	2.5	0.389	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			754	2.5	754	2.5	0.389	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.7
West: Googong Road															
11	T1	All MCs	249	2.5	249	2.5	0.128	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	254	2.5	254	2.5	0.242	8.8	LOS A	1.2	8.3	0.67	0.82	0.67	45.7
Approach			503	2.5	503	2.5	0.242	4.4	NA	1.2	8.3	0.34	0.41	0.34	52.6
All Vehicles			1351	2.5	1351	2.5	0.389	2.3	NA	1.2	8.3	0.17	0.21	0.17	56.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

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

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: COU_DEV_AM [WEL_COU_31_AM_DEV (Site Folder: AM DEV 556 (+48 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenrock Drive															
1	L2	All MCs	51	2.5	51	2.5	0.188	20.8	LOS B	2.3	16.1	0.75	0.74	0.75	38.7
2	T1	All MCs	1	2.5	1	2.5	0.188	13.8	LOS A	2.3	16.1	0.75	0.74	0.75	40.0
3	R2	All MCs	54	2.5	54	2.5	0.188	21.6	LOS B	2.3	16.1	0.75	0.74	0.75	38.8
Approach			106	2.5	106	2.5	0.188	21.2	LOS B	2.3	16.1	0.75	0.74	0.75	38.8
East: Wellsvale Dr															
4	L2	All MCs	44	2.5	44	2.5	0.346	19.2	LOS B	5.7	40.8	0.71	0.63	0.71	43.8
5	T1	All MCs	537	2.5	537	2.5	0.346	12.2	LOS A	5.8	41.4	0.71	0.61	0.71	46.3
6	R2	All MCs	2	2.5	2	2.5	* 0.346	20.2	LOS B	5.8	41.4	0.71	0.60	0.71	44.2
Approach			583	2.5	583	2.5	0.346	12.8	LOS A	5.8	41.4	0.71	0.61	0.71	46.1
North: Courtney St															
7	L2	All MCs	7	2.5	7	2.5	0.329	22.1	LOS B	4.7	33.5	0.76	0.69	0.76	40.9
8	T1	All MCs	137	2.5	137	2.5	* 0.329	14.7	LOS B	4.7	33.5	0.76	0.69	0.76	42.8
9	R2	All MCs	74	2.5	74	2.5	0.329	21.1	LOS B	4.7	33.5	0.76	0.69	0.76	40.9
Approach			218	2.5	218	2.5	0.329	17.1	LOS B	4.7	33.5	0.76	0.69	0.76	42.1
West: Wellsvale Dr															
10	L2	All MCs	2	2.5	2	2.5	0.056	17.4	LOS B	0.8	5.7	0.61	0.47	0.61	45.3
11	T1	All MCs	113	2.5	113	2.5	0.152	11.3	LOS A	1.7	12.5	0.64	0.54	0.64	46.3
12	R2	All MCs	24	2.5	24	2.5	0.152	20.9	LOS B	1.7	12.5	0.67	0.59	0.67	43.2
Approach			139	2.5	139	2.5	0.152	13.0	LOS A	1.7	12.5	0.65	0.55	0.65	45.7
All Vehicles			1046	2.5	1046	2.5	0.346	14.6	LOS B	5.8	41.4	0.72	0.63	0.72	44.3

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Glenrock Drive												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
East: Wellsvale Dr												

P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
North: Courtney St												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
West: Wellsvale Dr												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12

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: GOR_DEV_AM [WEL_GOR_31_AM_DEV (Site Folder: AM DEV 556 (+48 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wellsvale Drive															
1	L2	All MCs	117	2.5	117	2.5	0.284	5.6	LOS A	0.0	0.0	0.00	0.13	0.00	34.9
2	T1	All MCs	421	2.5	421	2.5	0.284	0.1	LOS A	0.0	0.0	0.00	0.13	0.00	58.5
3	R2	All MCs	58	2.5	58	2.5	0.026	5.7	LOS A	0.1	1.0	0.17	0.53	0.17	52.3
Approach			596	2.5	596	2.5	0.284	1.7	NA	0.1	1.0	0.02	0.17	0.02	52.8
East: Gorman Drive															
4	L2	All MCs	97	2.5	97	2.5	0.518	10.8	LOS A	5.0	35.6	0.61	0.86	0.89	46.4
5	T1	All MCs	104	2.5	104	2.5	0.518	18.9	LOS B	5.0	35.6	0.61	0.86	0.89	36.7
6	R2	All MCs	140	2.5	140	2.5	0.518	18.9	LOS B	5.0	35.6	0.61	0.86	0.89	44.7
Approach			341	2.5	341	2.5	0.518	16.6	LOS B	5.0	35.6	0.61	0.86	0.89	43.2
North: Wellsvale Drive															
7	L2	All MCs	11	2.5	11	2.5	0.112	5.6	LOS A	0.6	4.2	0.51	0.59	0.51	51.5
8	T1	All MCs	58	2.5	58	2.5	0.112	0.0	LOS A	0.6	4.2	0.51	0.59	0.51	54.0
9	R2	All MCs	105	2.5	105	2.5	0.112	8.4	LOS A	0.6	4.2	0.51	0.59	0.51	33.0
Approach			174	2.5	174	2.5	0.112	5.4	NA	0.6	4.2	0.51	0.59	0.51	42.2
West: Car Park															
10	L2	All MCs	1	2.5	1	2.5	0.005	8.7	LOS A	0.0	0.1	0.56	0.83	0.56	40.1
11	T1	All MCs	1	2.5	1	2.5	0.005	11.1	LOS A	0.0	0.1	0.56	0.83	0.56	43.7
12	R2	All MCs	1	2.5	1	2.5	0.005	14.9	LOS B	0.0	0.1	0.56	0.83	0.56	43.8
Approach			3	2.5	3	2.5	0.005	11.6	LOS A	0.0	0.1	0.56	0.83	0.56	42.7
All Vehicles			1114	2.5	1114	2.5	0.518	6.9	NA	5.0	35.6	0.28	0.45	0.36	47.9

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

MOVEMENT SUMMARY

Site: WEL_DEV_PM [OCR_WEL_31_PM_DEV (Site Folder: PM DEV 556 (+59 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

TCS 4931
Site Category: Future Conditions 1
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Old Cooma Road (s)															
2	T1	All MCs	261	20.0	261	20.0	0.256	11.0	LOS A	6.4	52.1	0.51	0.44	0.51	71.1
3	R2	All MCs	48	10.0	48	10.0	* 0.485	63.2	LOS E	2.6	19.6	1.00	0.75	1.00	42.5
Approach			309	18.4	309	18.4	0.485	19.1	LOS B	6.4	52.1	0.59	0.49	0.59	64.6
East: Wellsvale Drive															
4	L2	All MCs	91	10.0	91	10.0	0.770	34.1	LOS C	19.7	149.9	0.97	0.89	1.03	47.3
6	R2	All MCs	705	10.0	705	10.0	* 0.770	44.5	LOS D	19.7	149.9	0.97	0.89	1.04	30.1
Approach			796	10.0	796	10.0	0.770	43.4	LOS D	19.7	149.9	0.97	0.89	1.04	32.9
North: Old Cooma Road (n)															
7	L2	All MCs	1015	10.0	1015	10.0	0.585	7.9	LOS A	0.0	0.0	0.00	0.60	0.00	58.8
8	T1	All MCs	640	20.0	640	20.0	* 0.779	25.6	LOS B	27.8	228.1	0.90	0.82	0.92	61.9
Approach			1655	13.9	1655	13.9	0.779	14.7	LOS B	27.8	228.1	0.35	0.68	0.35	60.6
All Vehicles			2760	13.3	2760	13.3	0.779	23.5	LOS B	27.8	228.1	0.55	0.72	0.58	51.8

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Wellsvale Drive												
P2	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians		0	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

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: OCR_DEV_PM [OCR_GOO_31_PM_DEV (Site Folder: PM DEV 556 (+59 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

TCS 4947
Site Category: Future Conditions 1
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Old Cooma Road (s)															
2	T1	All MCs	964	20.0	964	20.0	0.376	3.4	LOS A	5.8	47.9	0.38	0.34	0.38	74.0
3	R2	All MCs	1	10.0	1	10.0	* 0.007	39.8	LOS C	0.0	0.2	0.93	0.59	0.93	32.5
Approach			965	20.0	965	20.0	0.376	3.5	LOS A	5.8	47.9	0.38	0.34	0.38	73.9
East: Googong Road															
4	L2	All MCs	1	10.0	1	10.0	0.739	31.6	LOS C	4.2	31.7	1.00	0.90	1.26	30.1
6	R2	All MCs	219	10.0	219	10.0	* 0.739	44.1	LOS D	4.2	31.7	1.00	0.89	1.26	31.7
Approach			220	10.0	220	10.0	0.739	44.1	LOS D	4.2	31.7	1.00	0.89	1.26	31.7
North: Old Cooma Road (n)															
7	L2	All MCs	1002	10.0	1002	10.0	0.712	8.9	LOS A	8.1	61.5	0.46	0.73	0.46	53.9
8	T1	All MCs	1655	20.0	1655	20.0	* 0.839	19.2	LOS B	27.3	224.1	0.89	0.90	1.01	55.1
Approach			2657	16.2	2657	16.2	0.839	15.3	LOS B	27.3	224.1	0.73	0.83	0.81	54.7
All Vehicles			3842	16.8	3842	16.8	0.839	14.0	LOS A	27.3	224.1	0.66	0.71	0.73	56.4

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Googong Road												
P2	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
All Pedestrians		0	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09

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: GOO_DEV_PM [GOO_COU_31_PM_DEV (Site Folder: PM DEV 556 (+59 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Courtney Street															
1	L2	All MCs	42	2.5	42	2.5	0.025	6.0	LOS A	0.1	0.8	0.28	0.54	0.28	47.8
3	R2	All MCs	1	2.5	1	2.5	0.025	12.1	LOS A	0.1	0.8	0.28	0.54	0.28	50.5
Approach			43	2.5	43	2.5	0.025	6.1	LOS A	0.1	0.8	0.28	0.54	0.28	47.9
East: Googong Road															
4	L2	All MCs	1	2.5	1	2.5	0.092	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.8
5	T1	All MCs	177	2.5	177	2.5	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			178	2.5	178	2.5	0.092	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Googong Road															
11	T1	All MCs	658	2.5	658	2.5	0.339	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
12	R2	All MCs	344	2.5	344	2.5	0.169	6.0	LOS A	1.0	7.1	0.32	0.57	0.32	47.7
Approach			1002	2.5	1002	2.5	0.339	2.1	NA	1.0	7.1	0.11	0.19	0.11	55.7
All Vehicles			1223	2.5	1223	2.5	0.339	1.9	NA	1.0	7.1	0.10	0.18	0.10	56.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

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

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: COU_DEV_PM [WEL_COU_31_PM_DEV (Site Folder: PM DEV 556 (+59 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenrock Drive															
1	L2	All MCs	196	2.5	196	2.5	0.436	28.3	LOS B	6.3	44.9	0.86	0.79	0.86	35.1
2	T1	All MCs	5	2.5	5	2.5	*0.436	21.0	LOS B	6.3	44.9	0.86	0.79	0.86	36.2
3	R2	All MCs	19	2.5	19	2.5	0.436	26.6	LOS B	6.3	44.9	0.86	0.79	0.86	35.3
Approach			220	2.5	220	2.5	0.436	28.0	LOS B	6.3	44.9	0.86	0.79	0.86	35.1
East: Wellsvale Dr															
4	L2	All MCs	87	2.5	87	2.5	0.246	15.9	LOS B	4.6	32.6	0.58	0.58	0.58	45.1
5	T1	All MCs	403	2.5	403	2.5	0.246	9.4	LOS A	4.6	32.8	0.58	0.52	0.58	48.3
6	R2	All MCs	5	2.5	5	2.5	0.246	20.3	LOS B	4.6	32.8	0.58	0.49	0.58	46.4
Approach			495	2.5	495	2.5	0.246	10.6	LOS A	4.6	32.8	0.58	0.53	0.58	47.7
North: Courtney St															
7	L2	All MCs	11	2.5	11	2.5	0.036	26.3	LOS B	0.4	3.1	0.76	0.66	0.76	36.3
8	T1	All MCs	3	2.5	3	2.5	0.036	18.5	LOS B	0.4	3.1	0.76	0.66	0.76	37.8
9	R2	All MCs	3	2.5	3	2.5	0.036	28.9	LOS C	0.4	3.1	0.76	0.66	0.76	36.3
Approach			17	2.5	17	2.5	0.036	25.4	LOS B	0.4	3.1	0.76	0.66	0.76	36.6
West: Wellsvale Dr															
10	L2	All MCs	11	2.5	11	2.5	0.185	15.9	LOS B	3.4	24.3	0.55	0.48	0.55	46.3
11	T1	All MCs	511	2.5	511	2.5	0.505	11.0	LOS A	9.4	67.1	0.65	0.59	0.65	47.0
12	R2	All MCs	84	2.5	84	2.5	*0.505	20.1	LOS B	9.4	67.1	0.70	0.65	0.70	43.8
Approach			606	2.5	606	2.5	0.505	12.3	LOS A	9.4	67.1	0.66	0.60	0.66	46.5
All Vehicles			1338	2.5	1338	2.5	0.505	14.4	LOS A	9.4	67.1	0.66	0.61	0.66	44.4

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Glenrock Drive												
P1	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
East: Wellsvale Dr												

P2	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
North: Courtney St												
P3	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
West: Wellsvale Dr												
P4	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09
All Pedestrians		200	211	29.3	LOS C	0.1	0.1	0.92	0.92	183.2	200.0	1.09

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: GOR_DEV_PM [WEL_GOR_31_PM_DEV (Site Folder: PM DEV 556 (+59 additional trips))]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wellsvale Drive															
1	L2	All MCs	53	2.5	53	2.5	0.146	5.6	LOS A	0.0	0.0	0.00	0.11	0.00	35.0
2	T1	All MCs	224	2.5	224	2.5	0.146	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	58.7
3	R2	All MCs	95	2.5	95	2.5	0.067	7.2	LOS A	0.3	2.3	0.54	0.66	0.54	51.2
Approach			372	2.5	372	2.5	0.146	2.7	NA	0.3	2.3	0.14	0.25	0.14	52.9
East: Gorman Drive															
4	L2	All MCs	8	2.5	8	2.5	0.265	11.3	LOS A	0.9	6.3	0.80	1.03	0.92	43.5
5	T1	All MCs	1	2.5	1	2.5	0.265	15.7	LOS B	0.9	6.3	0.80	1.03	0.92	33.7
6	R2	All MCs	61	2.5	61	2.5	0.265	23.7	LOS B	0.9	6.3	0.80	1.03	0.92	41.7
Approach			70	2.5	70	2.5	0.265	22.1	LOS B	0.9	6.3	0.80	1.03	0.92	41.9
North: Wellsvale Drive															
7	L2	All MCs	32	2.5	32	2.5	0.283	5.6	LOS A	0.1	0.7	0.02	0.05	0.02	56.4
8	T1	All MCs	500	2.5	500	2.5	0.283	0.0	LOS A	0.1	0.7	0.02	0.05	0.02	59.4
9	R2	All MCs	9	2.5	9	2.5	0.283	7.1	LOS A	0.1	0.7	0.02	0.05	0.02	37.1
Approach			541	2.5	541	2.5	0.283	0.4	NA	0.1	0.7	0.02	0.05	0.02	58.9
West: Car Park															
10	L2	All MCs	211	2.5	211	2.5	0.398	8.9	LOS A	2.5	17.6	0.59	0.89	0.73	40.0
11	T1	All MCs	105	2.5	105	2.5	0.398	16.6	LOS B	2.5	17.6	0.59	0.89	0.73	43.6
12	R2	All MCs	11	2.5	11	2.5	0.398	18.9	LOS B	2.5	17.6	0.59	0.89	0.73	43.7
Approach			327	2.5	327	2.5	0.398	11.7	LOS A	2.5	17.6	0.59	0.89	0.73	41.4
All Vehicles			1310	2.5	1310	2.5	0.398	5.1	NA	2.5	17.6	0.24	0.37	0.28	52.2

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


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