



Tamworth Traffic Study Tamworth Strategic Transport Model Modelling Report

Client // Tamworth Regional Council and Roads and Maritime Services
Office // VIC
Reference // 16S12550000
Date // 15/09/2016

EXTRACT:

Glen Artney East Expansion - Tamworth Enterprise Area

Tamworth Traffic Study

Tamworth Strategic Transport Model

Modelling Report

Issue: B 15/09/2016

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GTA Consultants Office: VIC

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A-Dr	18/05/2016	Draft	Darren Bayfield	Reece Humphreys	Reece Humphreys	
A-Dr2	26/05/2016	Draft 2	Mark Stephens	Reece Humphreys	Reece Humphreys	
A-Dr3	01/06/2016	Draft 3	Mark Stephens	Reece Humphreys	Reece Humphreys	
A	06/09/2016	Final	Mark Stephens	Reece Humphreys	Reece Humphreys	
B	15/09/2016	Final	Mark Stephens	Reece Humphreys	Reece Humphreys	

8. Stage 5 - Glen Artney, Tamworth Business Park and Tamworth Regional Airport

8.1 Background

The Tamworth Business Park Master plan identifies approximately 135 lots with sizes ranging from 600m² to 2.5ha. The Tamworth Regional Airport has approximately 60 hectares of land that has been identified for potential airport related development.

Current farming land to the north of the Country Road/HW11 intersection is identified as R5 - Large Lot Residential development with a lot size of 2 ha. The area of the land is approximately 134 ha and is forecast to be modelled as B7 - Business Park development with lots ranging from 600m² to 2.5 ha. It has been identified that a business use for this land is more appropriate than a residential land use due to its proximity to the Tamworth Regional Airport.

There is also a portion of land facing Marathon Street that is currently zoned R1 - Residential with an area of approximately 5 ha that will generate 700m² lots.

The purpose of the analysis is to:

- Determine the appropriate layout for a reconfigured Oxley Highway / Country Road / New Winton Road for the forecast demand
- Determine the most appropriate intersection treatments at Goddard Lane/HW11 and Wallamore Road/Goddard Lane

The key intersections that have been assessed as part of stage 5 are illustrated in Figure 8.1.

Figure 8.1: Location of Key Intersections



8.2 Intersection Assessment

8.2.1 Methodology

Turn volumes have been extracted from the TSTM 2016 for the intersection of Manilla Road / Browns Lane for the 2020, 2030 and 2040 future year scenarios. These turn volumes have been used to undertake SIDRA analyses of the Oxley Highway / Country Road / New Winton Road, the Goddard Lane/HW11 intersection and the Wallamore Road/Goddard Lane intersection.

8.2.2 Assumptions

In undertaking the SIDRA assessment of the three relevant intersections, a number of assumptions have been included as follows:

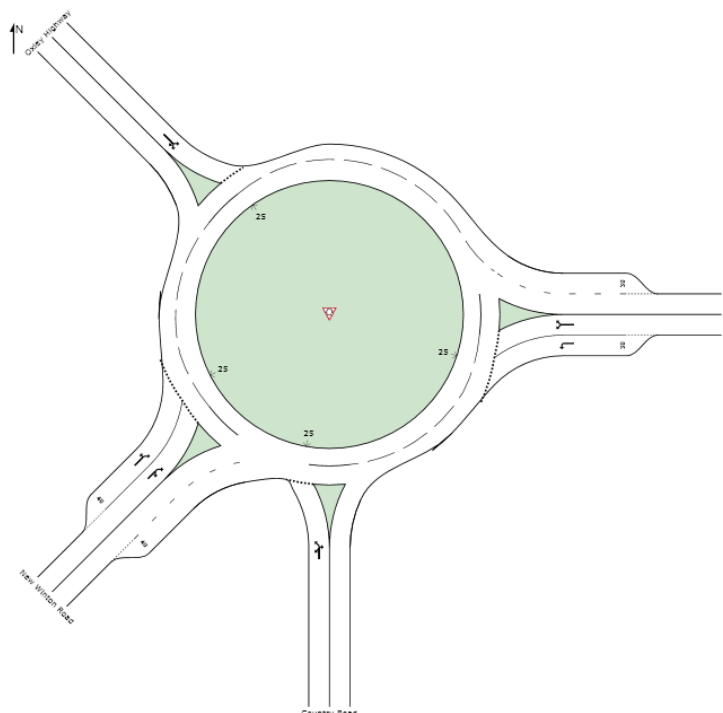
- Future year (2020, 2030 and 2040) reference case scenarios modelled with the new Callala connection road in place (Stage 1 Option 3)
- Proposed Taminda Bypass is not included in the future year reference case scenarios
- Posted speed limits for Future Years assumed to be as per existing
- For giveaway priority controlled intersections worst LOS for any movement is reported, as SIDRA does not give an intersection LOS for two-way sign control intersections
- Turn volumes taken directly from future year Strategic model outputs

8.3 Intersection Analyses Results

8.3.1 Country Road / Oxley Highway / New Winton Road

The Country Road / Oxley Highway / New Winton Road intersection has been modelled as a two-lane roundabout controlled intersection, as shown in Figure 8.2.

Figure 8.2: Country Road / Oxley Highway / New Winton Road Recommended Intersection Layout



The results of the SIDRA modelling for the Country Road / Oxley Highway / New Winton Road intersection are summarised in Table 8.1.

Table 8.1: Country Road / Oxley Highway / New Winton Road - Intersection Analysis Summary

Time Period		2020		2030		2040	
		DOS	LOS	DOS	LOS	DOS	LOS
5-1	AM Peak Hour	0.34	A	0.47	A	0.64	B
5-1	PM Peak Hour	0.26	A	0.38	B	0.79	B

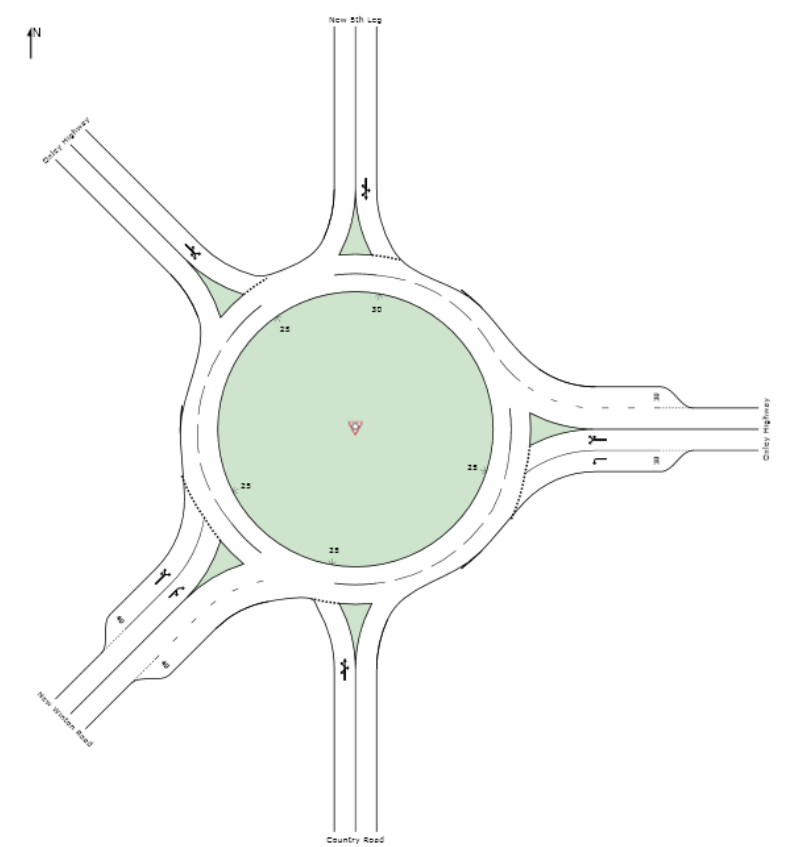
The results show that the intersection will operate satisfactorily during both peak periods for all of the analysis years with excellent levels of DOS and LOS.

The LOS values are based on intersection delays which is per the RMS standard for determining the level of service.

Additional Option

Further to modelling the Country Road / Oxley Highway / New Winton Road intersection as a four led roundabout, it has also been modelled under the scenario whereby a fifth leg has been included to/from the area to the north. The northern leg is assumed to provide a more direct connection between the B7 Business Park and the Oxley Highway. The adopted layout is shown in Figure 8.3.

Figure 8.3: Country Road / Oxley Highway / New Winton Road Recommended Intersection Layout



The results of the SIDRA modelling for the Country Road / Oxley Highway / New Winton Road roundabout with the additional north approach are summarised in Table 8.2.

Table 8.2: Country Road / Oxley Highway / New Winton Road - Intersection Analysis Summary

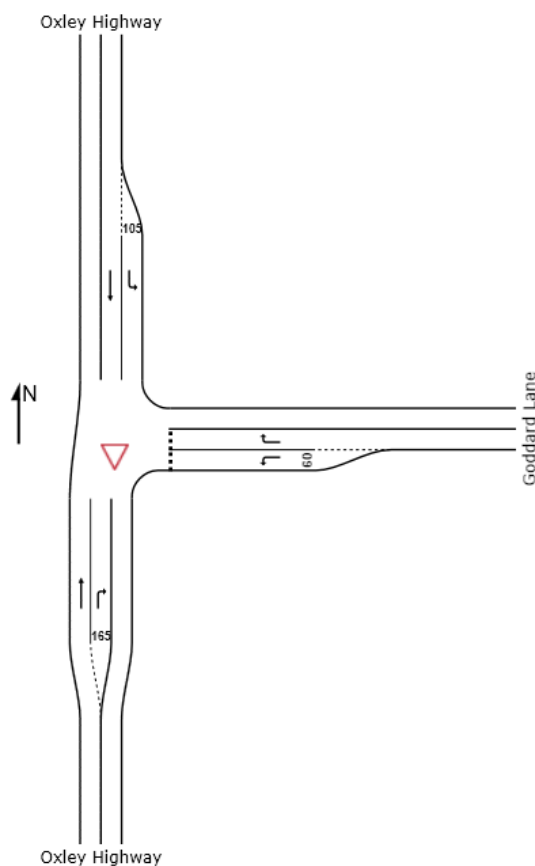
Time Period		2020		2030		2040	
		DOS	LOS	DOS	LOS	DOS	LOS
5-1b	AM Peak Hour	0.41	A	0.65	A	0.72	B
5-1b	PM Peak Hour	0.30	A	0.45	B	0.99	C

The results show that the intersection will operate satisfactorily during both peak periods for 2020, and 2030 with excellent levels of DOS and LOS. However, the approach to/from the north is expected to attract additional traffic to the roundabout which opposes the other approaches. As a result the traffic from the South and Southwest (Country Road and New Winton Road) experience heavier queues and delays and overall intersection capacity constrained.

8.3.2 Goddard Lane / Oxley Highway

The Goddard Lane / Oxley Highway intersection has been modelled as a priority controlled intersection as shown in Figure 8.4.

Figure 8.4: Goddard Lane / Oxley Highway Recommended Intersection Layout



The results of the SIDRA modelling for the Goddard Lane / Oxley Highway intersection are summarised in Table 8.3.

Table 8.3: Goddard Lane / Oxley Highway - Intersection Analysis Summary

Time Period		2020		2030		2040	
		DOS	LOS	DOS	LOS	DOS	LOS
5-2	AM Peak Hour	0.09	A	0.13	B	0.30	B
5-2	PM Peak Hour	0.16	A	0.19	B	0.33	C

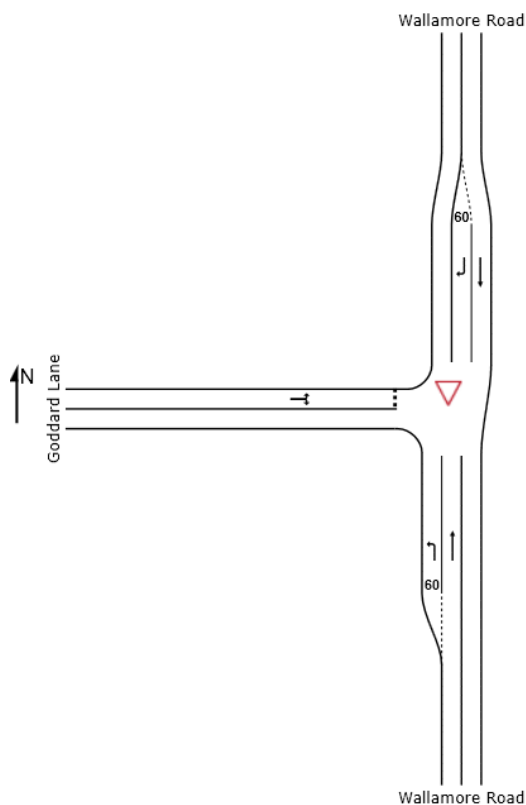
The results show that the intersection will operate satisfactorily during both peak periods for all of the design years with excellent levels of DOS and LOS.

The LOS values are based on intersection delays which is per the RMS standard for determining the level of service.

8.3.3 Goddard Lane / Wallamore Road

The Goddard Lane / Wallamore Road intersection has been assessed as a priority controlled intersection and is shown in Figure 8.5.

Figure 8.5: Goddard Lane / Wallamore Road Recommended Intersection Layout



The results of the SIDRA modelling for the Goddard Lane / Wallamore Road intersection are summarised in Table 8.4.

Table 8.4: Goddard Lane / Wallamore Road - Intersection Analysis Summary

Time Period		2020		2030		2040	
		DOS	LOS	DOS	LOS	DOS	LOS
5-3	AM Peak Hour	0.08	A	0.12	A	0.29	B
5-3	PM Peak Hour	0.17	A	0.23	A	0.63	A

The results show that the intersection will operate satisfactorily during both peak periods for all of the analysis years, with acceptable levels of DOS and LOS.

The LOS values are based on intersection delays which is per the RMS standard for determining the level of service.

8.4 Summary

The modelling and intersection analysis results indicate the following:

- Intersection 5-1 Country Road / Oxley Highway / New Winton Road – will require increased capacity for the Oxley Highway (E) to New Winton Road movement for the roundabout to function satisfactorily.
- Intersection 5-1b Country Road / Oxley Highway / New Winton Road – with the additional of a north approach the roundabout is more popular for traffic travelling to/from the north. As such additional intersection capacity may be required by 2040.
- Intersection 5-2 Goddard Lane / Oxley Highway - The existing intersection arrangement is sufficient to accommodate the forecast traffic volumes.
- Intersection 5-3 Goddard Lane / Wallamore Road - Based upon Austroads guidance, it is recommended that the intersection will require to be a channelized intersection.

It is noted that the planning for these intersections is based on the forecast traffic demand and will require further design and development to confirm their final form and layout.