



Traffic Impact Assessment

Townson Road Rezoning, Colebee

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1. Introduction

TRAFFIX has been commissioned by Mecone to undertake a traffic impact assessment in support of a proposed rezoning of lands located on the southern side of Townson Road, Colebee between the Colebee release area and Bells Creek. The application seeks approval for the rezoning of the Townson Road Precinct from Zone 1(a) General Rural to Zone R2 Low Density Residential.

The site lies within the North West Growth Centre (NWGC) which in addition to the South West Growth Centres, was established in 2005 by the NSW Government to assist in the supply of land for urban development and to sustainably prepare and manage Sydney's growth between 2006 and 2036. The NWGC includes approximately 10,000 hectares and aims at providing 70,000 new dwellings for 200,000 people.

The NWGC shown in **Figure 1** comprises a total of 16 Precincts. The Townson Road Precinct previously formed part of the Schofields West Precinct and was subsequently released by the Minister for Planning and Infrastructure to enable rezoning and development of the lands for residential purposes.

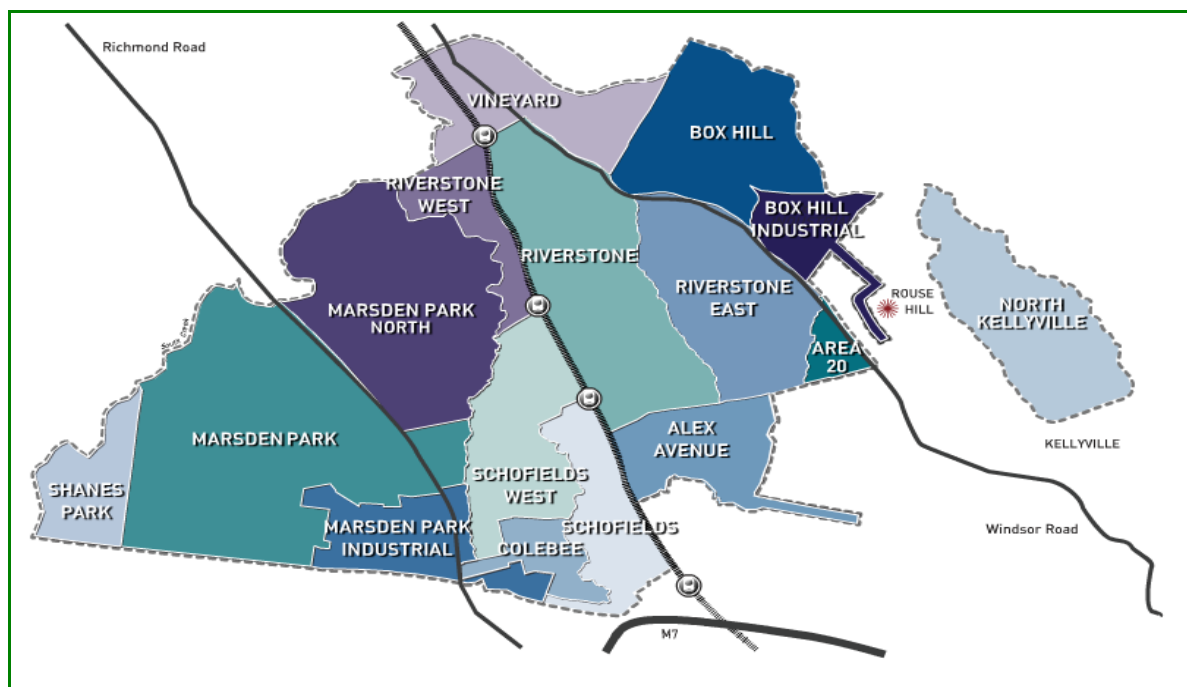


Figure 1: North West Growth Centres (source Growth Centres Commission)



This report documents the findings of our investigations and should be read in the context of the Planning Proposal, prepared by Mecone. In this regard the report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing and future road hierarchy
- Section 4: Describes the proposal
- Section 5: Assesses traffic impacts of the proposed rezoning
- Section 7: Discusses access and internal design aspects
- Section 8: Presents the overall study conclusions.



2. Location and Site

The site lies within the Schofields West Precinct and is located approximately 35 kilometres to the north-west of the Sydney Central Business District and 15 kilometres north-west of Parramatta within the Blacktown Council LGA.

In a more local context the site is bounded by Townson Road to the north, Colebee Release Area to the south, Stonecutters Ridge Golf Course Estate (which is also part of the Colebee Release Area) to the east and Bells Creek which forms the western site boundary.

The site has a total area of approximately 30 hectares, with the majority of the site being occupied by rural land (Zoned 1(a)), with the exception of a small residential building in the north-eastern corner of the site. Access to the site is currently achievable via Townson Road only. Access to the southern lot is achievable from Richmond Road

A Location Plan is presented in **Figure 2**, with a Site Plan presented in **Figure 3**.

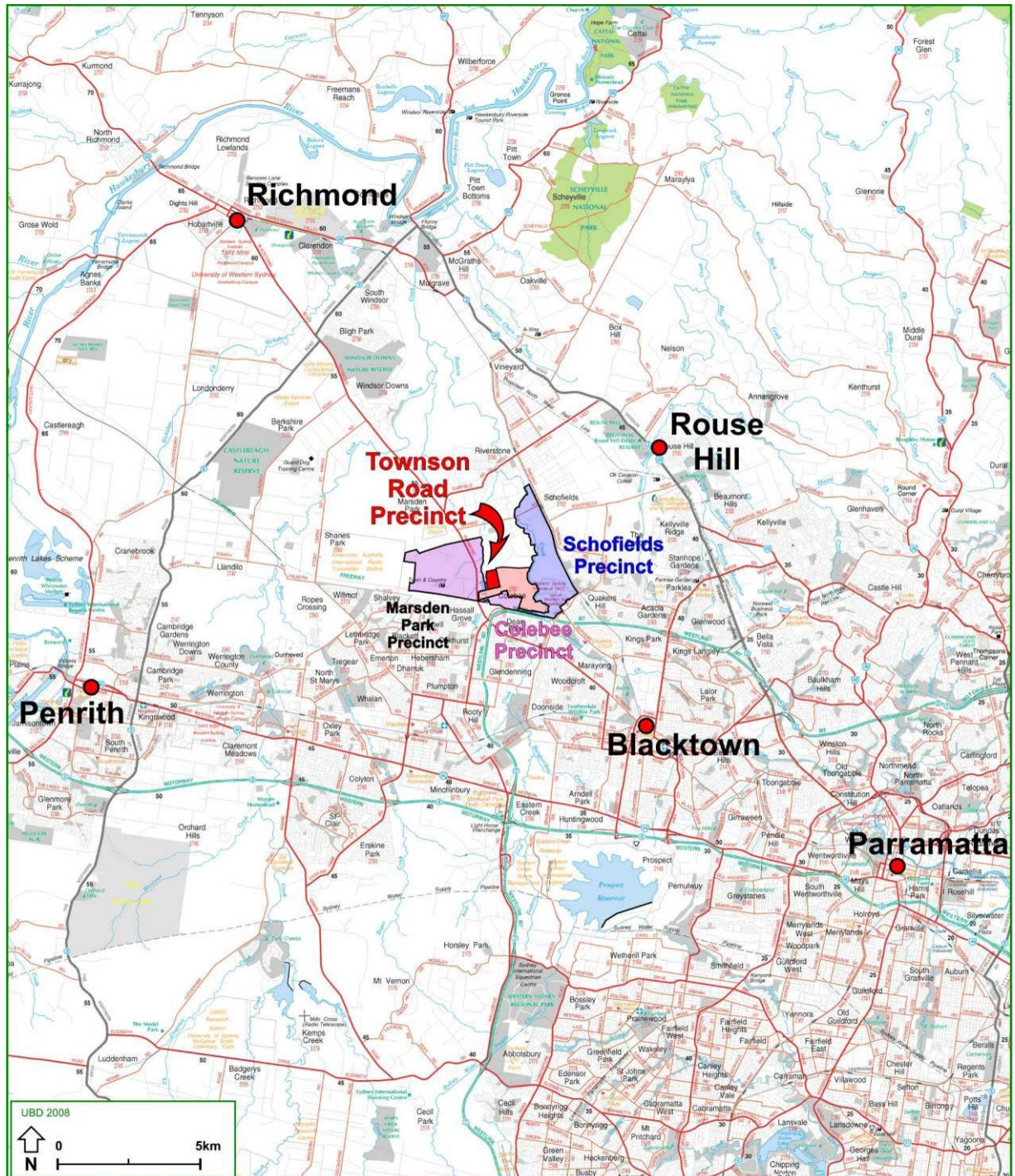


Figure 2: Site Location



Figure 3: Site Plan



3. Road Hierarchy

3.1 Existing Road Hierarchy

The existing road hierarchy in the locality of the site is discussed below:

Westlink M7 Motorway

The Westlink M7 Motorway is a four lane motorway serving Sydney's west. It links the M2 at Baulkham Hills, the M4 at Eastern Creek and the M5/Hume Highway at Prestons. It provides an outer orbital function linking the western suburbs with Sydney's major Motorways.

Richmond Road:

An RMS Main Road (MR 537), that runs in a north south direction between Blacktown Road (to the north) and Lyton Street (to the south) and is an unclassified Regional Road (RR 7154), between Lyton Street and its intersection with Balmoral Street and Third Avenue. The environment along Richmond Road varies considerably on either side of the Westlink M7, and therefore the following traffic conditions are only valid for the section of Richmond Road that lies to the north of the M7 Motorway. Richmond Road generally carries in the order of 25,000 vehicles per day (vpd), and is subject to a 80km/h speed zoning in the vicinity of the site.

Townson Road:

Townson Road is a local road that generally runs east-west, between Richmond Road in the west and Meadow Road in the east. It is subject to a 60km/h speed zoning, and carries a single lane of traffic in either direction along an undivided carriageway. It should be noted that Townson Road has no road markings, and provides access to the subject site.

South Street:

South Street a local road that runs in an east-west direction between Carnarvon Road in the east and Glengarrie Road in the west, turning to a north-south direction from Glengarrie Road in the north to its termination in the south. South Street has no lane markings and is subject to a 60km/h speed zoning. It carries a single lane of traffic in either direction along an undivided carriageway.



Hollinsworth Road:

Hollinsworth Road is a local road that generally runs in an east-west direction from Richmond Road in the east to Main Street in the west. It carries a single lane of traffic in either direction along an undivided carriageway.

3.2 Future Road Hierarchy

The majority of existing roads within the NWGC require significant upgrades to accommodate the proposed future development yield associated with the NWGC. As a result, the Roads and Maritime Services (RMS) developed the *North West Growth Centre Road Framework (2011)* which provided the outline to assist in the development of an integrated and strategic road network.

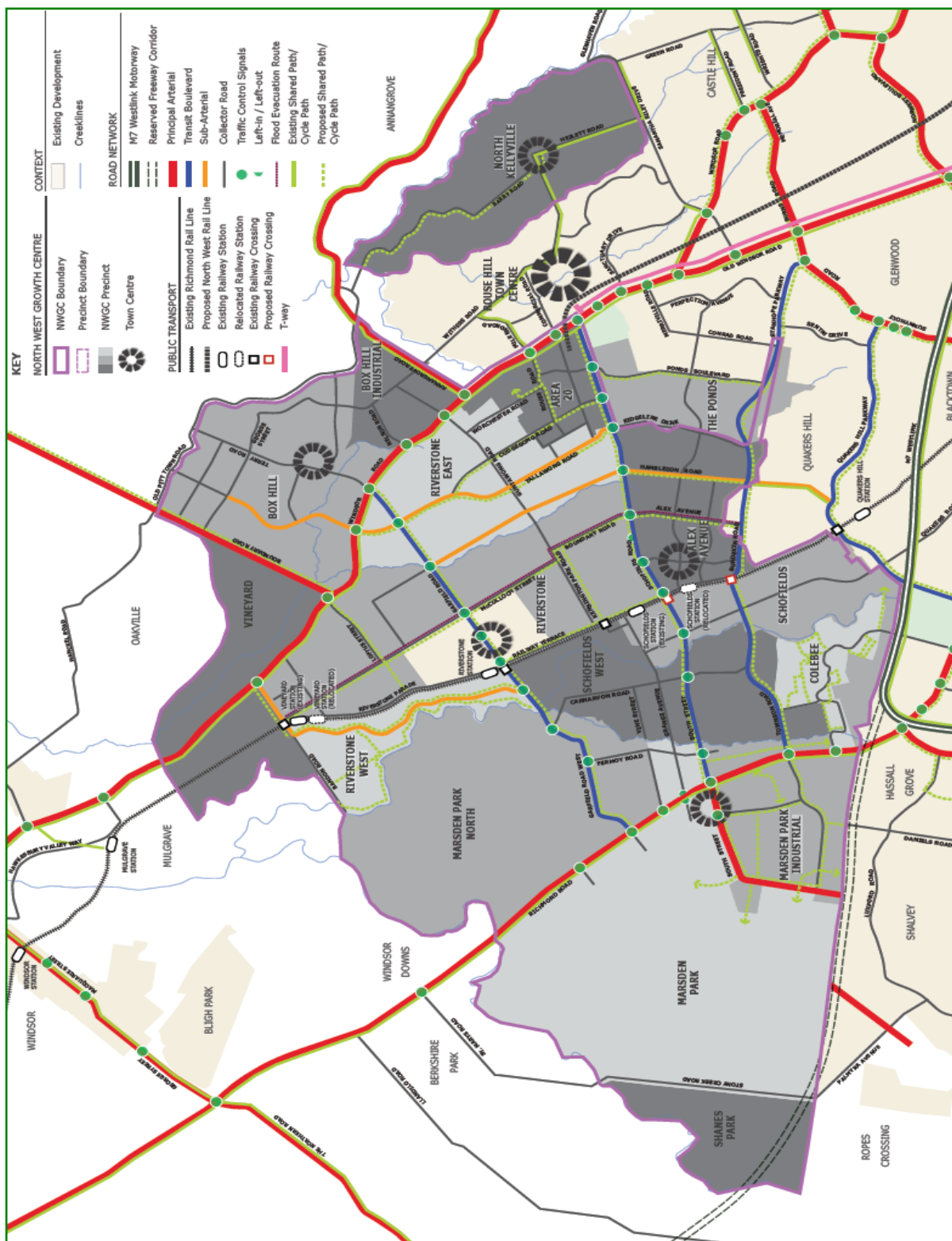
The *NWGC Road Framework* built on the previous assessments undertaken by the RMS and other Government Bodies including the *Growth Centre Structure Plan (2006)* and identified that following roads to be constructed or upgraded by the RMS:

Richmond Road as a Principle Arterial

Garfield Road, Schofields Road and Townson Road / Burdekin Road / Stanhope Parkway as Transit Boulevards.

Subsequently, the RMS prepared a concept plan design for the upgrade of Richmond Road from the M7 Motorway / Rooty Hill Road North intersection to Vine Street / Richmond Road intersection in the north. The upgrade includes the construction of a four lane divided carriageway with an 80km/hr speed limit plus the construction of two new signalised intersections with Townson Road and South Street, providing access to the Colebee and Marsden Park precincts.

The *NWGC Road Framework* developed a future road hierarchy which identifies the future alignment of the Principle Arterial roads, Transit Boulevards, Sub Arterial and Collector roads, based on the existing and future road network. This future network is provided in **Figure 4**.



Source: Transport for NSW: Northwest Growth Centres Road Framework Report – May 2011

Figure 4: Existing & Proposed Road Hierarchy



The *NWGC Road Framework* identifies a future road network hierarchy with 3 major road functions. These functions include:

- Principle Arterial: major roads that connect with motorways, linking centres and communities, with posted speeds of 80km/h and 70km/h. Although largely dedicated to a transport function, they typically include pedestrian and cycle access and provide for a higher volume of traffic at higher speed.
- Transit Boulevards: link with Principal Arterials incorporating a mix of public transport facilities and land service functions, with typical posted speeds of 60km/h. Settlements and development including residential, educational, retail and business districts, are associated with Transit Boulevards and Sub-Arterials, supporting a public transport function. They also have a higher pedestrian and cycle access function. Principal Arterials have a higher order transport function than Transit Boulevards and generally have a lower response to adjacent land uses due to higher speeds, access controls, safety and amenity, and
- Sub-Arterials: connect with Transit Boulevards with typical posted speeds of 50km/h, serving more of a community role, providing access to adjacent properties with a significant transport function. Sub-Arterials are typically owned and maintained by local Councils, and link to local roads.

These road classifications and general layout form the basis of the future road network from which all subsequent analysis has been based. In this regard strategic modelling has been undertaken by the RMS for the predicted future traffic volumes for both the 2026 interim scenario and the 2036 ultimate scenario using the RMS's detailed modal of the Sydney road network. The basis of the assessment and the assumptions is provided in the *NWGC Road Framework* report and summarised below:

- Development yields were based on rates of release of residential lots in each growth centre precinct, split to match the precincts in the traffic model,
- The level and distribution of employment was based on a rate of one job per dwelling.
- The development generation, modal splits and origin / destination was established by the Ministry of Transport using the Sydney Transport Model (STM).
- AADT volumes were developed assuming that a 2-hour morning peak represented 15% of daily traffic flows.



The results of this modelling is summarised in **Table 1** below for the critical roads within the NWGC and demonstrates the significant increase in traffic volumes forecasted within the precinct over between 2007 and 2031. It is however noted that the future traffic volumes will be dependent on the timing of the release of developable area by the Department.

Table 1: RMS Traffic Forecasts for the NWGC (Source: RMS 2010)

Road	AADT 2007	Forecast AADT 2026 (with assumed road improvements)	AADT 2031
Windsor Road	20,600-54,100	40,200-83,100	38,800 – 77,600
Old Windsor Road	29,000-57,900	44,200-81,200	46,200 – 82,300
Richmond Road	25,400-30,500	38,000-59,700	36,300 – 88,000
Sunnyholt Road	35,400-57,400	35,800-69,000	41,500 – 73,900
Quakers Hill Parkway	16,800-36,200	6,000-42,500	33,500 – 46,700
Hambledon Road	10,200-23,800	19,400-45,200	22,500 – 42,600
Garfield Road (East & West)	8,700-14,800	26,000-46,900	32,500 – 68,200
Railway Terrace	7,000-14,200	6,300-25,200	26,700 – 34,900
Schofields Road & Grange Road	6,300-17,400	15,500-37,000	27,600 – 39,700
Riverstone Parade	6,500-12,800	22,700-36,500	9,900 – 24,900
Quakers Road	n/a	21,600	21,800 – 24,800
Stanhope Parkway	11,700-17,100	21,900-34,200	18,900 – 36,300
Townson Road	2,100	15,200-28,200	18,700 – 32,900
Shanes Park Road	n/a	12,000-30,000	27,200 – 49,900
Burdekin Road	5,500-7,900	16,500-27,800	18,900 – 20,400
Terry Road	30-1,300	6,600-27,400	2,300 – 33,500
Withers Road / The Water Lane	1,100-11,800	7,700-19,400	16,500 – 27,500
Alex Avenue	800	11,700	4,500



3.3 Public Transport

Due to the low density rural nature of Marsden Park and Colebee precincts, public transport to the area is limited. The site is currently serviced by a single bus route being the Busways Route 757. The existing bus services that operate in the locality are shown in **Figure 5**

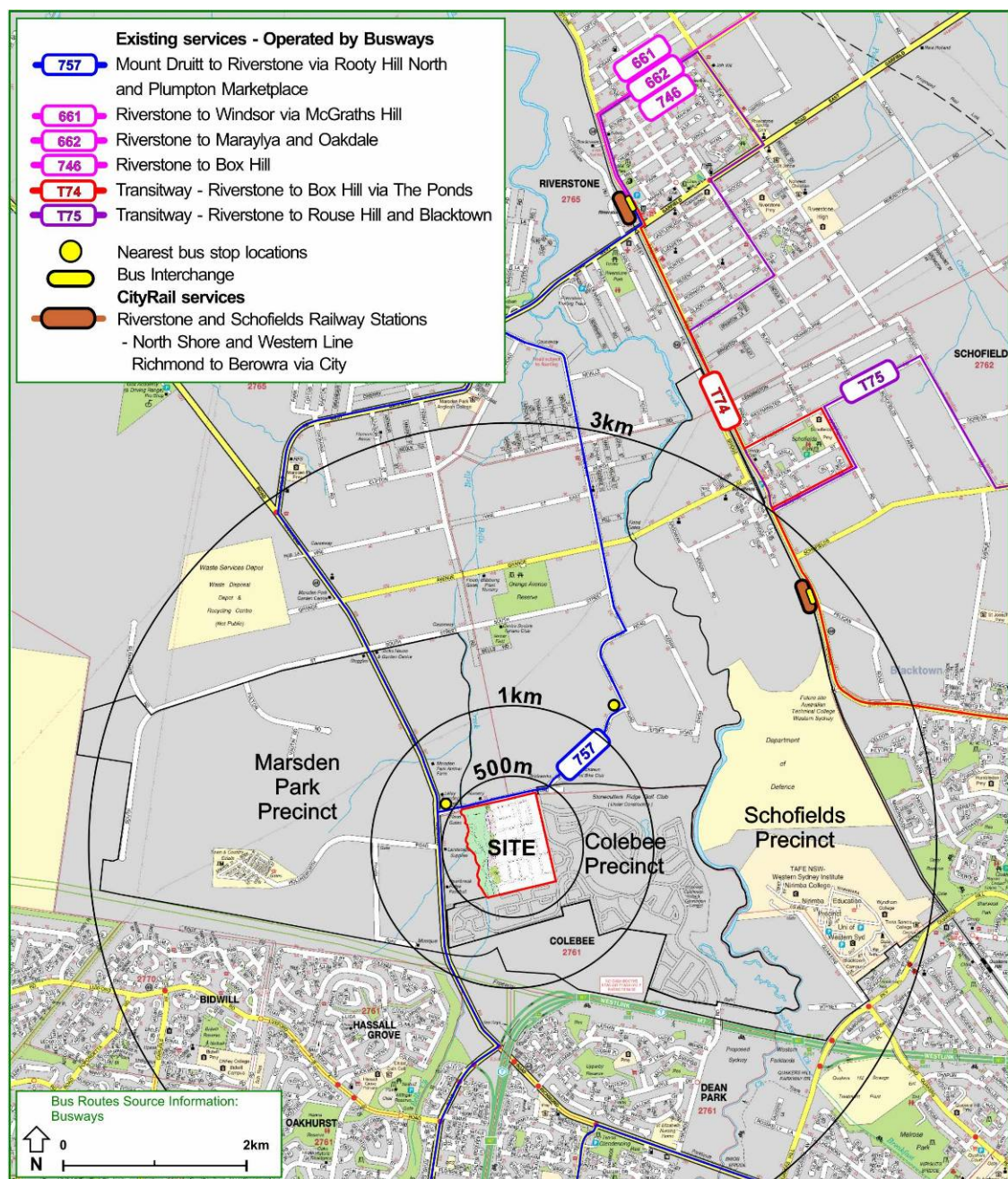


Figure 5: Public Transport Routes



Notwithstanding as density within the NWGC increases, access to both rail and the local bus network are expected to improve. It is anticipated that new services would be provided and would generally follow collector roads with strategic bus corridors provided along Transit Boulevards and Principle Arterial roads. The future bus and rail network published in the NWGC Road Framework report is shown in **Figure 6** for the area adjacent to the subject site.

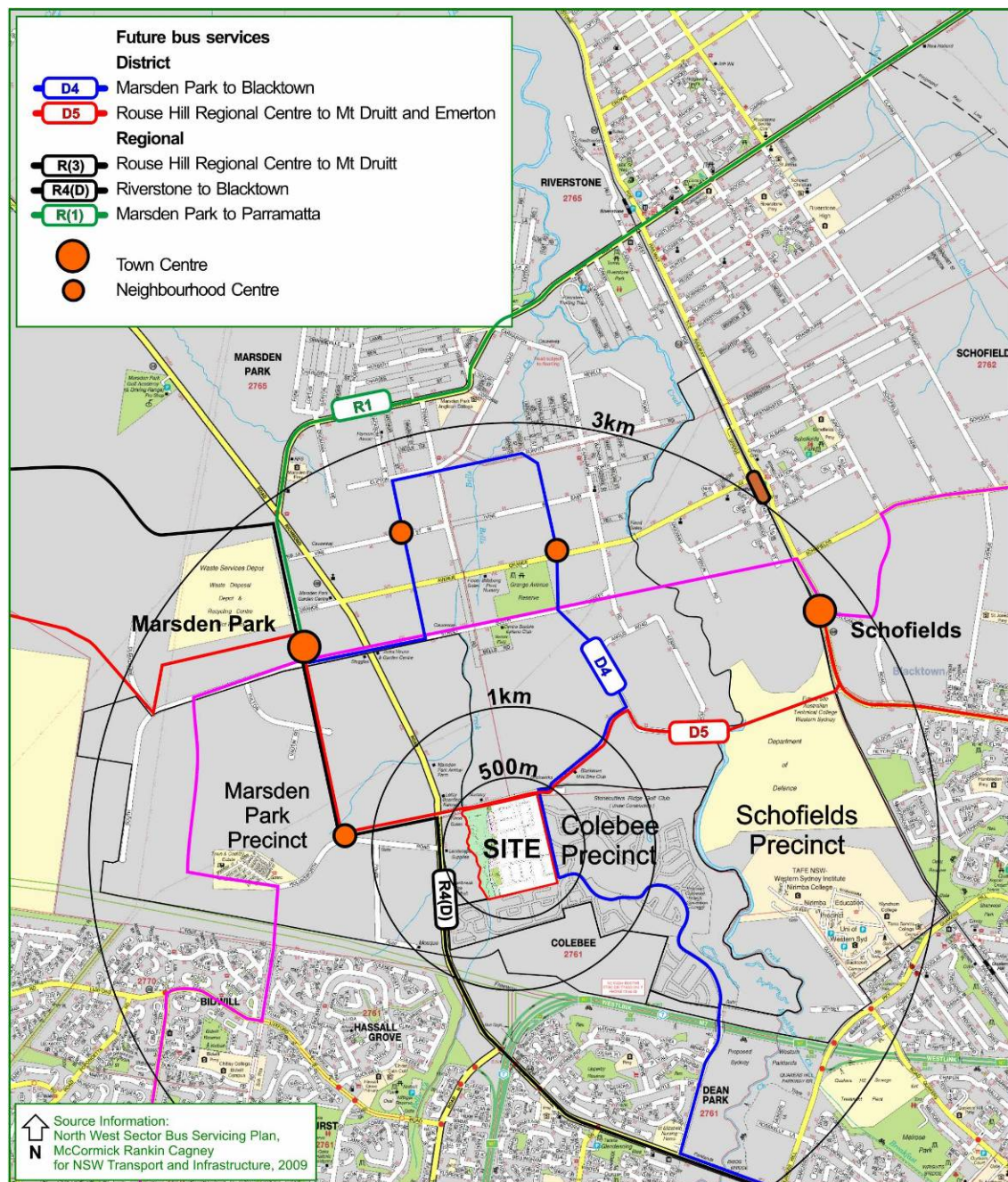


Figure 6: Future Public Transport Network



3.4 Existing Intersection Performances

As discussed above, the NSW Government recently approved the Richmond Road Upgrade. As part of Review of Environmental Factors a SCATES network was developed by Road Delay Solutions to assess the future operation of critical intersections along its length. This included (but was not limited to) the intersections of

📍 Townson Road / Richmond Road

📍 Colebee Road / Richmond Road

The assessment of these intersections was undertaken using the SCATES computer program to determine their performance characteristics under the future 2036 traffic conditions. The model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown below:

.



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

A summary of the modelled results are provided in **Table 2** below.

Table 2: 2036 Existing Intersection Operation (Excluding Proposed Development)

Intersection Description	Control Type	Period	Degree of Saturation	Critical Movement Delay	Level of Service
Townson Road / Richmond Road	Signal	2036 AM	1.29	351	F
		2036 PM	0.99	76	F
Colebee Road / Richmond Road	Signal	2036 AM	0.96	12	A
		2036 PM	0.96	38	C

The results above demonstrate the future operations of the critical intersections in the locality based on the trip rate assumptions and relevant distributions adopted for the Review of Environmental Factors for the Richmond Road upgrade. Notwithstanding this, it is stressed that the most relevant use of this information is the comparison with the future intersection performances as a result of the rezoning of the Townson Road Precinct.



4. Description of Proposed Development

Approval from the Blacktown City Council is sought for the rezoning of the Townson Road Precinct from Zone 1(a) to Zone R(2) (Low Density Residential). The application will require an amendment to SEPP (Sydney Region Growth Centres) 2006. A detailed description of the proposal is provided in the Planning Proposal prepared by Mecone which is summarised below:

- To rezone the land to allow for residential development, through the establishment of a residential land-use zone.
- Variety of lot sizes, ranging from 300m² and greater, in order to facilitate the creation of a sustainable integrated community.
- To establish a planning framework that sets a benchmark for high-quality residential development in the North West region.

Although the final site layout has not been completed, an indicative subdivision layout plan is provided in **Figure 7** with a complete set of the Urban Design plans prepared by Group Development Services Pty Ltd provided in **Appendix A**. The indicative subdivision plan includes:

- Provision for the future development of approximately 390 residential dwellings.
- Construction of new internal road network in accordance with the NWGC Blacktown City Council's DCP. These roadways are generally proposed with carriageway widths of between 10.6m and 16.0m in width depending on their classification and function.
- Proposed new intersection with Townson Road to facilitate left in / left out movements only.
- Two connections to the proposed north-south collector road that forms the site's eastern boundary. This proposed collector road lies within the Colebee Precinct and is to be constructed by the developers associated with the Medallist Lands in consultation with the proponent of this application. It is anticipated that these connections will facilitate full turning movements to/from the Townson Road Precinct however the final layout will be subject to detailed design at the Development Application stage.
- Two new intersections with the Smiths Land Access Road (also known as Colebee Road). It is expected that these intersections will be constructed as roundabout controlled intersections however the final layout will be subject to detailed design at the Development Application stage.



5. Traffic Impacts

5.1 Trip Generation

The Roads & Maritime Services publication entitled the *Guide to Traffic Generating Developments* recommends the following peak hourly traffic generation rates for residential uses:

- 0.85 trips per hour per standard residential dwelling (9 daily trips / dwelling)

The majority of the proposed 390 dwellings are expected to be standard format residential dwellings. As such, the subject site could be expected to generate a maximum generation of 331 vehicles per hour, and a total of 3,510 vehicle trips per day.

Notwithstanding this, the trip rates adopted for the Richmond Road upgrade are considered more representative of the likely future trip rates of the Townson Road Precinct. In this regard, the Traffic Impact Assessment which forms part of the Richmond Road Upgrade - Review of Environmental Factors (dated November 2011) adopts a residential trip rate of 0.57 trips per dwelling during peak periods.

Application of this rate to the proposed 410 dwellings results in a peak hour generation of 222 veh/hr. These trips are to occur in an 80:20 split in the direction of peak flow which results in the following:

- AM Peak: 222veh/hr: 177 outbound ; 45 inbound
- PM Peak: 222 veh/hr: 45 outbound ; 177 inbound.

The impacts of these trips on the future road network are discussed in the sections below.



5.2 Peak Period Intersection Performances with Development

The future intersection performances have been assessed by Road Delay Solutions adopting the trip rates discussed above and the future distributions used for the assessment of the Richmond Road upgrade. The assessment also takes into account the future intersection designs for the critical intersections as approved by the RMS.

A summary of the 2036 base case traffic volumes and the 2036 + Development traffic volumes are provided in **Appendix B** which also provides the approved signal layout plans for the critical intersections of Richmond Road with Townson Road and Richmond Road with Colebee Road. The assessment was undertaken using SCATES and adopts the same distribution model as that used in the assessment of the Medallist lands. In this regard, the distribution reflects the same strategic assumptions as those adopted in the overall assessment of traffic impacts within the North West Growth Centre and as such have not been amended. The results of this analysis is summarised below.

Table 3: Intersection Performance – 2036 Volumes + Development Traffic

Intersection Description	Scenario	Period	Degree of Saturation	Critical Movement Delay	Level of Service
Townson Road / Richmond Road	Approved	AM	1.29	351	F
		PM	0.99	76	F
	2036 + Townson Rd Precinct	AM	1.25	316	F
		PM	0.99	77	F
Colebee Road / Richmond Road	Approved	AM	0.96	12	A
		PM	0.96	38	C
	2036 + Townson Rd Precinct	AM	0.95	13	A
		PM	0.98	50	D

It can be seen from the above table that all intersections will continue to operate with similar delays and levels of service during both the AM and PM peak periods with the exception of the intersection of Colebee Road with Richmond Road where the LoS decreases from C to D as a result of the development. This is however consistent with the future intersection requirements and network planning for the NWGC which aims at providing a LoS D or better for the design year of 2036 and



assumes no change in modal splits including public transport . Accordingly, the future operation of the intersection of Colebee Road with Richmond Road is consistent with the future network requirements of the NWGC and is therefore supportable on traffic planning grounds.



6. Access & Internal Design Aspects

6.1 Access

Access to the external road network from the Land release is proposed via five (5) separate accesses locations. This will ensure that adequate accessibility is provided to the release area and that it is integrated with the surrounding lands.

The major access to the land release will be via the Smiths Land Access Road (also known as Colebee Road) which is to form a signalised intersection with Richmond Road. It is anticipated that due to the superior operation of the intersection of Colebee Road and Richmond Road in comparison to Townson Road and Richmond Road that the majority of traffic movements leaving the NWGC from the Townson Road Precinct will be via this intersection. Access to Colebee Road is proposed via two separate roundabout controlled intersections located approximately 145 metres and 400 metres west of the eastern site boundary.

A secondary access is also proposed to Townson Road. In accordance with the NWGC Road Framework report, this access is proposed as left in / left out only. As it provides only limited accessibility to the arterial road network compared to Colebee Road, or the proposed north-west access road (discussed below) it is expected that this access will accommodate generally low traffic volumes during peak periods.

The Colebee release precinct proposes the construction of a north-south orientated collector road traversing the Townson Road Precinct's eastern site boundary linking the Colebee Road and Townson Road via two roundabout controlled intersections. Two new priority controlled intersections with this unnamed collector road from the Townson Road Precinct is proposed which will provide additional accessibility to the precinct.

The design of these accesses will be considered at the Development Application stage and will meet the requirements of the NWGC DCP and relevant standards including AUSTROADS to ensure access to the land release can be achieved safely and efficiently.



6.2 Internal Design

The indicative internal road network is shown in **Appendix A** and seeks to provide a high level of connectivity whilst limiting through connections to the major road network and hence deterring “rat running”. The layouts have been designed having regard for the objectives of Blacktown Council’s Growth Centres Precinct DCP 2010 including:

- To establish a hierarchy of interconnected streets that give safe, convenient and clear access within and beyond the Precinct;
- To assist in managing the environmental impacts of urban development including soil salinity and stormwater;
- To contribute to the creation of an interesting and attractive streetscape
- To facilitate energy efficient lot and building orientation; and

The future geometric road design is shown in Figures 8-10 below.

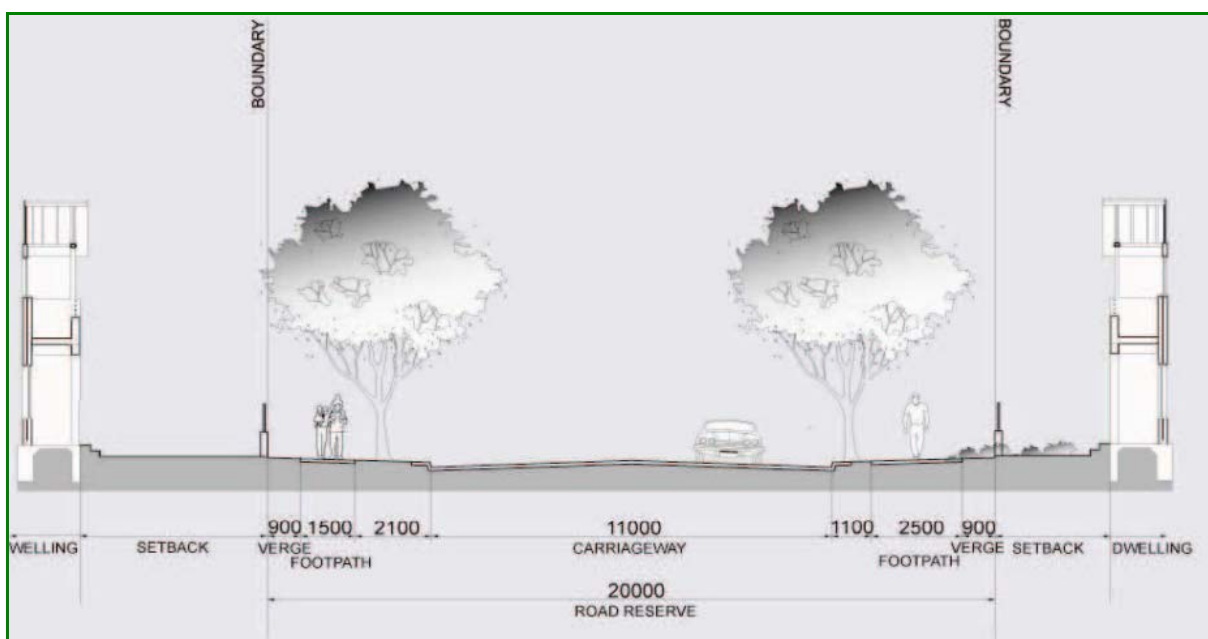


Figure 8: Typical Collector Road Cross Section

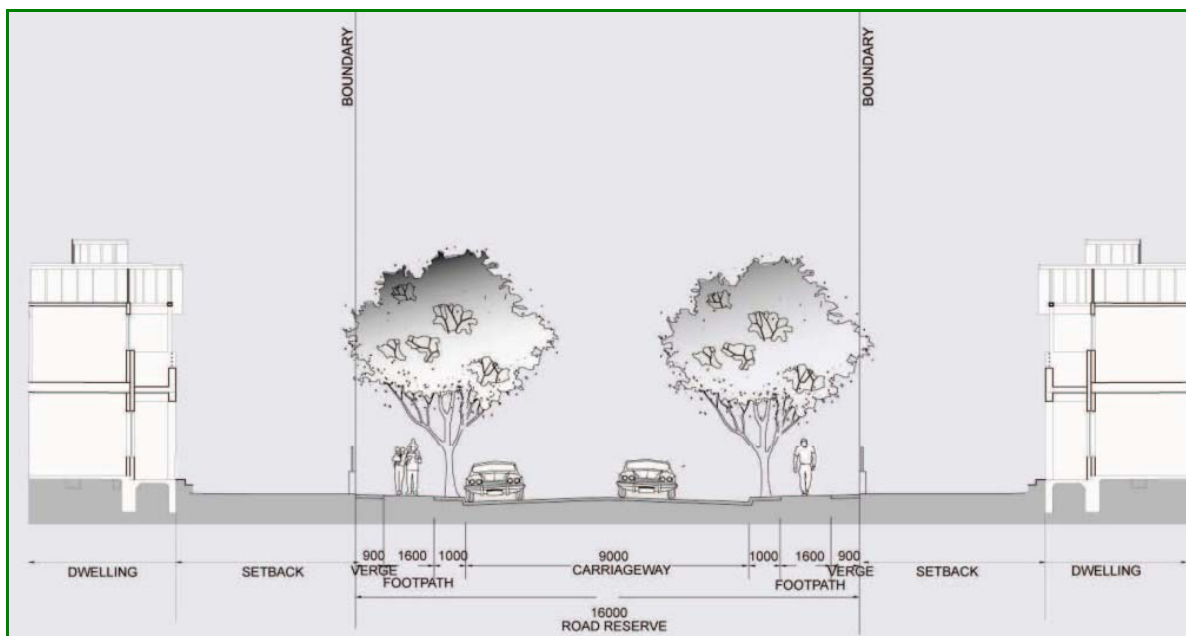


Figure 9: Typical Local Street Cross Section

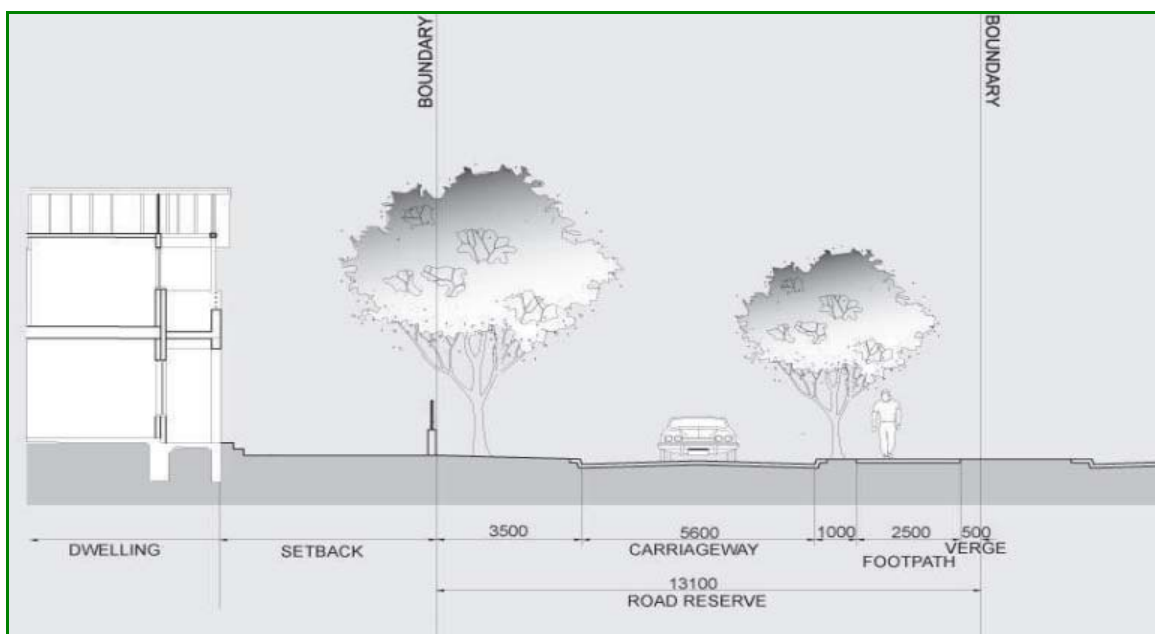


Table 4: Typical Access Street Cross Section



The key components of the future road network is summarised in **Table 5**.

Table 5: Internal Road Hierarchy and Geometric Design

Road Type	Road Reserve	Carriageway	Nature Strip	Speed Limit	AADT
Access Street	13.1m	5.6m	1x3.5m & 1x4.0m	50km/h	<1,000
Local Street	16.0m	9.0m	2x3.5m	50km/h	1,000 – 3,000
Collector Road	20.0m	11.0m	2x4.5m	60km/h	3,000 - 10,000

The ILP indicates that the future North-South road (to be constructed by others) will eventually form the main north-south link and will operate with a local collector road function. All other roads within the ILP will be constructed as either local street's or access streets to encourage reduced vehicle speed and pedestrian friendly road environments.

Based on the above, the proposed future road layout reflects the requirements of Council's DCP and is therefore considered supportable. The detailed design of the road layouts and internal intersection layouts will be reviewed at the detailed design stage to ensure that compliance with relevant Australian Standards (including AUSTROADS) is met and that the future network operates safely and efficiently. The design of future road connections with the future north-south road will also be undertaken in consultation with the adjoining land holder to ensure consistency in the road design.



7. Conclusions

The following conclusions are noteworthy:

- Approval from Blacktown City Council is sought for the rezoning of the Townson Road Precinct from Zone 1(a) to Zone R2 (Low Density Residential) which will require an amendment to SEPP (Sydney Region Growth Centres) 2006.
- The proposed rezoning will result in the delivery of approximately 390 new residential dwellings which will assist in meeting the North West Growth Centres target of 70,000 new dwellings by 2036.
- The impacts of the rezoning on the future road network have been assessed having regard for the North West Growth Centre Road Framework and other planning controls adopted for the design of the future road network. The analysis demonstrates consistency with these requirements and as such the development is considered supportable on traffic planning grounds.
- Access to the land release is proposed via five new intersections with Colebee Road, Townson Road and the new north-south collector road to be constructed by the land owners of the Medallist Lands to the west of the site. This provides an effective and efficient distribution of traffic
- The proposed road network has been designed in accordance with Council's DCP and the key geometric considerations have been satisfied.

The assessment satisfactorily demonstrates that the traffic generated by the assumed development yield under the rezoning is supportable and further refinement will be possible at development application stage/s.



Appendix A

Indicative Layout Plan



Appendix B

Intersection Modelling Results

INTERSECTION DELAY PERFORMANCE for PM PEAK for FILE RICHBAS1															
TCS No. & L/S	Main Road					Side Road					Total				
	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord
	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS
	Rate	Rate	per	Hour		Rate	Rate	per	Hour		Rate	Rate	per	Hour	
	Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu		
4519C	37	36	27	4674	0.96	21	21	118	649	0.96	58	57	38	5323	0.96
4450F	70	63	53	4245	0.99	57	57	143	1432	0.99	126	119	76	5677	0.99

TOT	107	98	40			78	78	135			185	176	58	L/S = E	

HIGHEST DS	0.99					0.99					0.99				



INTERSECTION DELAY PERFORMANCE for AM PEAK for FILE RICHBAS1																
TCS No. & L/S	Main Road						Side Road						Total			
	Isol	Cord	Cord	Pcu	Cord		Isol	Cord	Cord	Pcu	Cord		Isol	Cord	Cord	Pcu
	dlay	dlay	Sec	per	DS		dlay	dlay	Sec	per	DS		dlay	dlay	Sec	per
	Rate	Rate	per	Hour			Rate	Rate	per	Hour			Rate	Rate	per	Hour
	Pc/h	Pc/h	Pcu				Pc/h	Pc/h	Pcu				Pc/h	Pc/h	Pcu	
4519A	15	4	3	4900	0.96		14	14	149	337	0.96		29	18	12	5237
4450F	413	402	331	4366	1.29		172	172	519	1191	1.29		585	573	371	5557
TOT	428	406	158				186	186	437				614	591	197	L/S = F
HIGHEST DS					1.29						1.29					1.29

INTERSECTION DELAY PERFORMANCE for PM PEAK for FILE RICHDEV1															
TCS No. & L/S	Main Road					Side Road					Total				
	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord
	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS
	Rate	Rate	per	Hour		Rate	Rate	per	Hour		Rate	Rate	per	Hour	
	Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu		
4519D	53	51	38	4784	0.98	26	26	139	662	0.98	79	76	50	5446	0.98
4450F	70	64	54	4291	0.99	58	58	146	1434	0.99	128	123	77	5725	0.99

TOT	123	115	46			84	84	144			207	199	64	L/S = E	

HIGHEST DS					0.99					0.99					0.99

