

Technical Advisory Note

Quality Information	
Project:	Gurner Avenue, Austral – DA-1295/2021 and DA-1298/2021
Project Number:	SCT_00269
Document Name:	Response to RFI - Traffic
Date:	10/06/2022
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Background

SCT Consulting was engaged by Landcom to undertake a traffic study to support a Development Application (DA) for a residential subdivision that could yield around 422 dwellings at Gurner Avenue, Austral. The site is under Lot 184 DP 1237400, located in the Liverpool City Council Local Government Area (LGA).

Liverpool City Council has conducted a preliminary assessment of the submitted DA documents and requires more information as detailed in a letter dated 25 March 2022. Transport for NSW has also provided their referral letter dated 27 May 2022.

This technical memo responds to the additional information sought by:

- Council on traffic-related matters under the headings of Urban Design and Traffic in the RFI
- Engineering advice from Council dated 22 February 2022 (issued separately to the RFI)
- Transport for NSW referral letter dated 27 May 2022.

Response to Council traffic-related RFI

East DA (DA-1298) Reference	West DA (DA-1295) Reference	Council RFI	Landcom Response
3 (part)	3 (part)	The active transport map identifies a separated cycleway on the eastern side of the entry street which does not align with the cycleway as per the current design for Edmondson Avenue. The Active Transport map (Chapter 5.7) should indicate, address and incorporate the proposed cycleway routes as per the adopted 'Liverpool Bike Plan' and the current design for Edmondson Avenue Upgrade works.	<p>We have included a proposed cycleway connection along Edmondson Avenue as per the adopted 'Liverpool Bike Plan'. However, the Bike Plan has not indicated that the proposed cycleway is on the western side of Edmondson Avenue. We are also not aware of the current design for Edmondson Avenue Upgrade works is publicly available.</p> <p>We have incorporated this comment and change the cycleway along Edmondson Avenue such that it is on the western side that aligns with Council's plans.</p>
9	23	Further analysis is required of the capacity of the surrounding external road network and key intersections to accommodate the traffic generation from the proposed subdivision and others in the surrounding area including the proposed expansion of the Al Faisal (from 600 students now to 1200 under current DA and to around 6000 in the future). It is noted the current TIA assessed the capacity of the existing external road network in the area based on desktop review and typical traffic conditions provided by Google Maps.	<p>The adopted approach of traffic assessment is based on the fact that the proposed yield of the site is consistent with the Liverpool Growth Centre Precincts DCP. Hence, it is assumed that the trip generation of the development would be accommodated by the planned infrastructure (as considered in the <i>Austral & Leppington North Precincts Traffic Assessment prepared by AECOM in 2011 and Austral and Leppington North Precinct Plan – Post Exhibition Planning Report</i> in 2012) that would mitigate the impacts of traffic generated by the proposed site.</p> <p>In relation to the cumulative impacts of Al Faisal and our proposal, it should be considered by the associated SSDA traffic assessment since the scale and potential impacts of the expansion of Al Faisal (primary school and high school) is quite significant and requires rezoning and our proposal as referred above is consistent with the Liverpool Growth Centre Precincts DCP. Also, the consideration of impacts and infrastructure upgrades required for the expansion of Al Faisal (in cumulative with other planned and committed developments) particularly at the intersection of Gurner Av / Fourth Av and Gurner Av / Edmondson Av have already been requested by DPE and TfNSW.</p>
10	24	The Austral & Leppington North Precincts Traffic Assessment prepared by AECOM in 2011 for the former NSW Department of Planning and Infrastructure that was referred to in the TIA identified that three lanes in each direction will be required on Fifteenth Avenue to the east of the Sydney Water Supply Channel to meet the expected ultimate traffic generation. To date, there has not been any government funding commitment for the upgrade of Fifteenth Avenue. As recent media reports have shown traffic	The adopted approach of traffic assessment is based on the fact that the proposed yield of the site is consistent with the Liverpool Growth Centre Precincts DCP. Hence, it is assumed that the trip generation of the development would be accommodated by the planned infrastructure (as considered in the <i>Austral & Leppington North Precincts Traffic Assessment prepared by AECOM in 2011 and Austral and Leppington North Precinct Plan – Post Exhibition Planning Report</i> in 2012), in this case including the upgrade of Fifteenth Avenue and associated critical intersections that have SIC funding allocated, to mitigate the impacts of traffic generated by the proposed site.

East DA (DA-1298) Reference	West DA (DA-1295) Reference	Council RFI	Landcom Response
		congestion has been a major issue on Fifteenth Avenue and other roads in the Austral area.	The planned infrastructure including those upgrades associated with Fifteenth Avenue would cater for the planned 14,000 dwellings of the Austral Leppington North Precincts and another 80,000 dwellings in the remainder of the South West Growth Area, as well as the background traffic growth. Our proposed development would have contributed less than 0.5% of traffic growth and the regional infrastructure requirements.
11	25	The subdivision and proposed roads shall be in accordance with the updated DCP (Liverpool Growth Centre Precincts DCP 2021).	The subdivision and proposed streets of this DA has been designed using a combination of the updated DCP (Liverpool Growth Centre Precincts DCP 2021) and the Western Sydney Street Design Guidelines. The changes and justifications of deviations from the updated DCP is included in Table 5-1 to Table 5-4 overleaf.
12	26	A revised Table 5-1 Cross section justifications will need to be provided which includes a column for the design aspects under the revised Council DCP.	Refer to updated Table 5-1 to Table 5-4 overleaf.
13	27	It is to be noted that this DA follows from another DA (DA-1295/2021) over the land that will excise this development site from the remainder of the landholding to the west. Therefore, the resolution of traffic issues raised under that DA (DA-1295/2021) will be necessary for this DA to proceed.	Our traffic assessment and report has considered the cumulative impacts of both sites and hence would apply to both DAs.
N/A	Engineering Advice memo	Proposed road connection to the site appears to be from Crown Street and Edmondson Ave only. These roads are only 5.5m wide and not considered sufficient to serve a development of this size.	The proponent has no control of the land to the west of 35 Gurner Avenue development, which is required for the delivery of the eastern half of Edmondson Avenue between our site and Gurner Avenue. However, we have acknowledged the half-road condition in the traffic assessment report. An assessment was completed and documented in Section 5.1.4 of the traffic report and confirmed that the traffic conditions would be acceptable under the half-road conditions in the interim.
		Edmondson Ave is a proposed collector road and needs to be shown in accordance with Council's DCP.	Refer to updated Table 5-1 overleaf.
		Other roads shown are not in accordance with our DCP road layout.	The subdivision and proposed streets of this DA has been designed using a combination of the updated DCP (Liverpool Growth Centre Precincts DCP 2021) and the Western Sydney Street Design Guidelines. The changes and justifications of deviations from the updated DCP is included in Table 5-1 to Table 5-4 overleaf.

Table 5-1 Cross section changes and justifications - Entry Street

Road name	Guideline/DCP	Road classification	Cross section (m)					Justification
			Verge	Parking	Carriageway	Parking	Verge	
Entry Street (A)	Western Sydney Street Design Guidelines	B3.6 Local Collector	Varies (footpath and planting)	2	6.4	2	Varies (planting and footpath) + 2.5 (shared path)	<ul style="list-style-type: none">– The proposed width of carriageway and parking is 11.2m, which is 0.2m wider than the cross-section prescribed in the DCP. The extra 0.2m is to provide slightly wider parking areas which satisfies AS2890.1 with a minimum of 2.1m for parallel parking.– The 7.0m travel lanes also comply with the DCP requirements that for a collector street, at least one of the travel lanes in each direction should have a minimum width of 3.5m that are suitable for buses.– The proposed off-road cycleway is provided on one side only to reduce conflicts with pedestrians. It will be provided on the western side that aligns with Council's plans.– Footpaths are provided on both sides in the proposed design, which is consistent with DCP design.– The proposed road reserve is wider than DCP mainly due to the varied planting zones.
			Total road reserve: 22.7					
	Liverpool Growth Centre Precincts DCP 2021 DCP	Collector road	0.5 (boundary offset) + 2.5 (shared path) + 1.5 (planting) = 4.5	11			1.5 (planting) + 2.5 (shared path) + 0.5 (boundary offset) = 4.5	
			Total road reserve: 20					
	Proposed design	Collector road	0.6 (buffer) +1.5 (footpath path) + 2.5m (cycle path) + 0.6m separator + varies (planting)	2.1	7.0	2.1	varies (planting) + 1.5 (footpath path) + 0.6 (buffer)	
			Total road reserve: 26.9-29.4					

Table 5-2 Cross section changes and justifications - East-West Spine (B) and Edge Street (E)

Road name	Guideline/DCP	Road classification	Cross section (m)					Justification
			Verge	Parking	Carriageway	Parking	Verge	
East-West Spine (B) and Edge Street (E)	Western Sydney Street Design Guidelines	B3.3 Local Street Type 2	Varies (footpath and planting) = 4.35	2.4	5.6	-	Varies (planting and footpath) = 4.35	Local street - East-West Spine (B): <ul style="list-style-type: none">Converting a footpath to a shared path facilitates the cyclists and enhance the cycle network for the western precinct.Parking is provided on both sides of the road which is also consistent with the DCP.Since one parking lane is embedded in the planting zone, the total carriageway width is 10.4m which is slightly wider than the DCP provision. Edge Street (E) <ul style="list-style-type: none">The cycleway would facilitate the cycle network and its connectivity. It is mountable to allow for a fire engine during an emergency.Given there is no residential dwellings on one side of the edge road, the parking has been removed on one side while the parking is embedded in the planting on the other side.
			Total road reserve: 16.7					
	Liverpool Growth Centre Precincts DCP 2021 DCP	Local street	0.5 (boundary offset) + 1.5 (footpath) + 1.5 (planting) = 3.5	9			1.5 (planting) + 1.5 (footpath) + 0.5 (boundary offset) = 3.5	
			Total road reserve: 16					
	Proposed design	Local street - East-West Spine (B)	0.6 (buffer) +2.5 (shared path) +2.4 (planting) = 5.5	2.4	5.6	Embedded in the planting zone	2.4 (planting) + 1.5m (footpath) + 0.6 (buffer) = 4.5	
			Total road reserve: 18					
		Local street - Edge Street (E)	0.4 (buffer) +varies (bike lane) +0.6 (separator)	-	6.1	Embedded in the planting zone	2.4 (planting) + 1.5m (footpath) + 0.6 (buffer) = 4.5	
			Total road reserve: 12-13.5					

Table 5-3 Cross section changes and justifications – Shared zone

Road name	Guideline/DCP	Road classification	Cross section (m)					Justification
			Verge	Parking	Carriageway	Parking	Verge	
Shared Zones	Western Sydney Street Design Guidelines	B3.3 Local Street Type 1	Varies (footpath and planting)	2	5.5	Embedded in the planting zone	Varies (planting and footpath)	<ul style="list-style-type: none">Generally, all proposed shared zone sections still allow for two-way traffic and parking on one side of the shared zone, which is consistent with the intent of the DCP for the same provision.A dedicated parking lane is not provided as per the DCP, when the roads do not front any residential development or the proposed parking spaces are embedded in the planting zone.A minimum of 3.4m lane (for one-way traffic) and 5.5m lane (for two-way traffic) are proposed for these shared zones, which are considered acceptable.The road cross section (C3 and I) includes two one-way driveway width a landscaped median. This is considered acceptable due to the provision of open space and there is limited impact on traffic circulation. It is expected that no-stopping signage would be installed to avoid blockage by parked cars. The narrowed street benefits a pedestrian and cyclist friendly environment.The cycleway (D) would facilitate the cycle network and its connectivity to eastern precinct. It is mountable to allow for a fire engine during an emergency. Given there are no dwellings on
			Total road reserve: 13.6					
	Liverpool Growth Centre Precincts DCP 2021 DCP	Access street (Note that there is no shared zone referenced in the DCP)	0.5 (boundary offset) + 1.5 (footpath) + 1.5 (planting) = 3.5	8			1.6 (planting)	
			Total road reserve: 13.1					
	Proposed design	Shared Zones (Street Type C1 & C2)	0.6 (buffer) + varies (planting)	2.4	5.5	-	Varies (planting) + 0.6 (buffer)	
			Total road reserve: 12-13.6					
		Shared Zones (Street Type C3)	0.6 (buffer) + varies (planting)	-	3.4 + 3.5	2.4	Varies (median park) + 0.6 (buffer)	
			Total road reserve: 23.1					
		Shared Zones (Street Type D)	0.6 (buffer) + varies (planting)	2.4	5.5	-	2.6 (cycleway)	
			Total road reserve: 8.9-14.2					
	Swale Street (Street Type H)	0.6 (buffer) + varies (planting) + 1.5 (footpath)	-	4	-	13.4 (median park) + 2.4(planting) + 0.6 (buffer)		
		Total road reserve: 25						

Road name	Guideline/DCP	Road classification	Cross section (m)					Justification
			Verge	Parking	Carriageway	Parking	Verge	
		Swale Street (Street Type I)	0.6 (buffer) + 2.4 (planting)	-	4+4	-	11 (median park) + 2.4 (planting) + 0.6 (buffer)	one side of the edge road, the parking has been removed. – Roads (H, J, K) will operate as one-way streets to serve a limited number of dwellings It is expected that no stopping signages would be installed to avoid blockage by parked cars.
			Total road reserve: 25					
		WSP Street (Street Type J)	0.6 (buffer) + varies (planting)	-	4.3	-	-	
			Total road reserve: 6.2-7.8					
		Trafficable path (Street Type K)	1.2		4.6			
			Total road reserve: 5.8					

Table Error! No text of specified style in document.-4 Cross section changes and justifications – Laneway

Road name	Guideline/DCP	Road classification	Cross section (m)					Justification
			Verge	Parking	Carriageway	Parking	Verge	
Laneway	Western Sydney Street Design Guidelines	B3.5 Residential laneway	1.5	-	5.5	-	1.5	– There is no change on cross section compared with DCP.
			Total road reserve: 8.5					
	Liverpool Growth Centre Precincts DCP 2021 DCP	Laneways	0.75	-	5.5	-	0.75	
			Total road reserve: 7					
	Proposed design	Laneway (Street Type G&F)	0.75	-	5.5	-	0.75	
			Total road reserve: 7					

Response to TfNSW RFI

Reference	TfNSW RFI	Landcom Response
1	Future provision of traffic control signals on any road requires the consent of TfNSW in accordance with Section 87 of the Roads Act, 1993. The approval and installation of traffic signals is dependent on general warrants in accordance with TfNSW requirements for Traffic Signal Design – Section 2 Warrants. TfNSW will review and assess any future new signals upon receipt of warrant assessment showing warrants for installation of traffic signals are met.	Noted, but this does not apply to this development application.
2	The Traffic and Access Study prepared by SCT Consulting dated 27 October 2021 refers to a Traffic Assessment prepared by AECOM in 2011. Given the development growth within the Austral-Leppington Southwest Growth Centres Precinct, the applicant is to consider a recent traffic study.	<p>We are not aware of any recent traffic study that has been done for the Austral-Leppington Precinct that is publicly available. Can TfNSW provide a copy of this report?</p> <p>We understood that the Al Faisal College Traffic and Accessibility Assessment prepared for the SSDA, used the <i>Austral and Leppington North Precinct Plan – Post Exhibition Planning Report 2012</i>. Is this the report that TfNSW is referring to?</p>
3	The traffic study is to include the cumulative traffic impacts associated with the development and any other proposed/approved developments in the Austral-Leppington Southwest Growth Centres Precinct and specifically the proposed Al-Faisal College on Gurner Avenue.	See responses for item 4.
4	<p>The traffic report prepared by SCT Consulting dated 27 October 2021 provides the following scenarios:</p> <ul style="list-style-type: none"> a) Northbound traffic gives way to southbound traffic (AM) b) Southbound traffic gives way to northbound traffic (PM) c) Northbound traffic gives way to southbound traffic (AM) d) Southbound traffic gives way to northbound traffic (PM) <p>It is unclear as to which intersections have been assessed. TfNSW requires SIDRA modelling to show predicted growth with general practice usually showing modelling for day of opening plus 10 years post development. TfNSW requests the intersection of Edmondson Avenue and Fifteenth Avenue to be assessed in the SIDRA modelling. SIDRA outputs shall be submitted for further review.</p>	<p>The modelling undertaken in the SCT Consulting report is for Edmondson Avenue during the interim scenario. On-street parking is not restricted for the 5.5 m wide half-road, so drivers need to give way to pass each other if there is a parked car (the remaining width would be less than 3.5 m).</p> <p>SIDRA modelling was carried out to evaluate the potential queue length as a result of opposing vehicles needing to give-way to each other. It is confirmed that the maximum queue length would occur when northbound traffic gives way to the southbound traffic in the PM peak hour. However, the queue of two vehicles is acceptable, supporting this temporarily narrower street layout.</p> <p>The adopted approach of traffic assessment is based on the fact that the proposed yield of the site is consistent with the Liverpool Growth Centre Precincts DCP. Hence, it is assumed that the trip generation of the development would be accommodated by the planned infrastructure (as considered in the <i>Austral & Leppington North Precincts Traffic Assessment prepared by AECOM in 2011 and Austral and Leppington North Precinct Plan – Post Exhibition Planning Report in 2012</i>) that would mitigate the impacts of traffic generated by the proposed site. Therefore no traffic modelling was undertaken.</p>

Reference	TfNSW RFI	Landcom Response
		However, based on TfNSW's request, additional traffic modelling will be undertaken at the intersection Edmondson Avenue and Fifteenth Avenue. The modelling outputs will be submitted in a separate cover note.
5	The Traffic and Access Study states that the proposed yield is consistent with the Liverpool Growth Centre DCP. Council shall be satisfied that the development is consistent with the dwelling density for the Austral-Leppington Precinct.	Noted.
6	In NSW, TfNSW is responsible for the setting and signposting of safe and appropriate speed limits in accordance with the NSW Speed Zoning Guidelines. That is, TfNSW is the only authorised organisation that can approve speed zoning changes and authorise installation of speed zoning traffic control devices on the road network within New South Wales. Therefore, the Developer must obtain written authorisation from TfNSW to install the Speed Zone signs and associated pavement markings.	Noted.
7	<p>TfNSW require the following criteria to be met for a 10 km/h shared zone in accordance with TDT2014/003 Design and Implementation of shared zones including provisions for parking:</p> <p>Site classification:</p> <p>To classify as a Category 1 shared zone, the road related area must provide clearly different coloured and textured surface treatments from the surrounding roads and does not have any kerbs. This is a requirement for 'Greenfield' locations. To classify as Category 2 shared zone the road must provide adequate entry/exit treatments and traffic calming. For a Category 2 shared zone to be considered it is to have narrow or no footpaths, where pedestrians are forced to use the road. Category 2 requires approval to retain kerbs and must maintain traffic flow where there is provision for parking. Justification is required if the proposed shared zone kerb and gutter is retained.</p> <p>Site information:</p> <p>Mid-block 7 day traffic volume and traffic speed data analysis including photos of count location/s (for Category 2). The design must clearly highlight to drivers that the priority is for pedestrians</p> <p>Design principles:</p> <p>The design principles for shared zones are to be defined to ensure the proposed scheme incorporates the necessary features to provide an appropriately safe environment. The proposed scheme must clearly define the:</p>	<p>Site classification:</p> <p>The project are proposing Category 1 shared zones.</p> <p>Site information:</p> <p>The streets that we are proposing to be shared zones do not exist yet in a new subdivision, hence no traffic volume and speed surveys can be undertaken. However, given these shared zones are not proposed on any through routes and are providing access to the selected local residential areas, none of these streets proposed as shared zones are expected to carry over 1,000 veh/day. Signs will be placed on entries and exits of all shared zones or speed zone areas would apply such that drivers and pedestrians are clear of the priority.</p> <p>Design principles:</p> <p>Our current concept generally follows these design principles. We will ensure the detailed design of these shared zones also follow these design principles.</p>

Reference	TfNSW RFI	Landcom Response
	<ul style="list-style-type: none"> – Street space / kerb and gutter / delineation – Entrance / exit points – Traffic signs – Pavement surface – Traffic calming features / treatments – Forward visibility – Vehicle mix and accessibility requirements – Car parking – Bicycles – Mobility and vision impaired requirements – Lighting and drainage 	
8	Assessment of the Shared Zone plans reveals Street D/Shared Zone 2 indicates a cycleway. Council is to be satisfied that the cycleway is in accordance with the pedestrian and cycle network stipulated in the Liverpool Growth Centre DCP. TfNSW does not support cycleways along shared zones. Furthermore, cross section for Street D/Shared Zone 2 indicates mountable kerb between the shared zone pavement and the cycleway. This should be a level service in accordance with the technical direction.	The proposed cross-section of this type of street is correct. The street typology will be renamed to avoid the confusion.
9	The submitted Traffic and Access Study identifies the access points for the precinct to be from Edmondson Avenue and Crown Street within the wider network. Edmondson Avenue is identified as a transit boulevard. Council should be satisfied of this arrangement and the traffic impacts on Edmondson Avenue.	Noted.
10	The development is generally in accordance with the Austral DCP ILP. Any deviations and the internal local road network shall be to the satisfaction of Council. The variation to the ILP shall not present impacts on the wider road network.	Noted.
11	Consideration shall be given to line marking at the intersection of Edmondson Avenue and Gurner Avenue at half road construction. This is to ensure the efficiency of turning vehicles to stay on the correct path to avoid conflict with entering and exiting vehicles.	Noted.

