

01 June 2022

Christopher Ephraums  
Senior Development Manager  
Residential Development Mirvac  
Level 28, 200 George Street Sydney  
NSW 2000 Australia

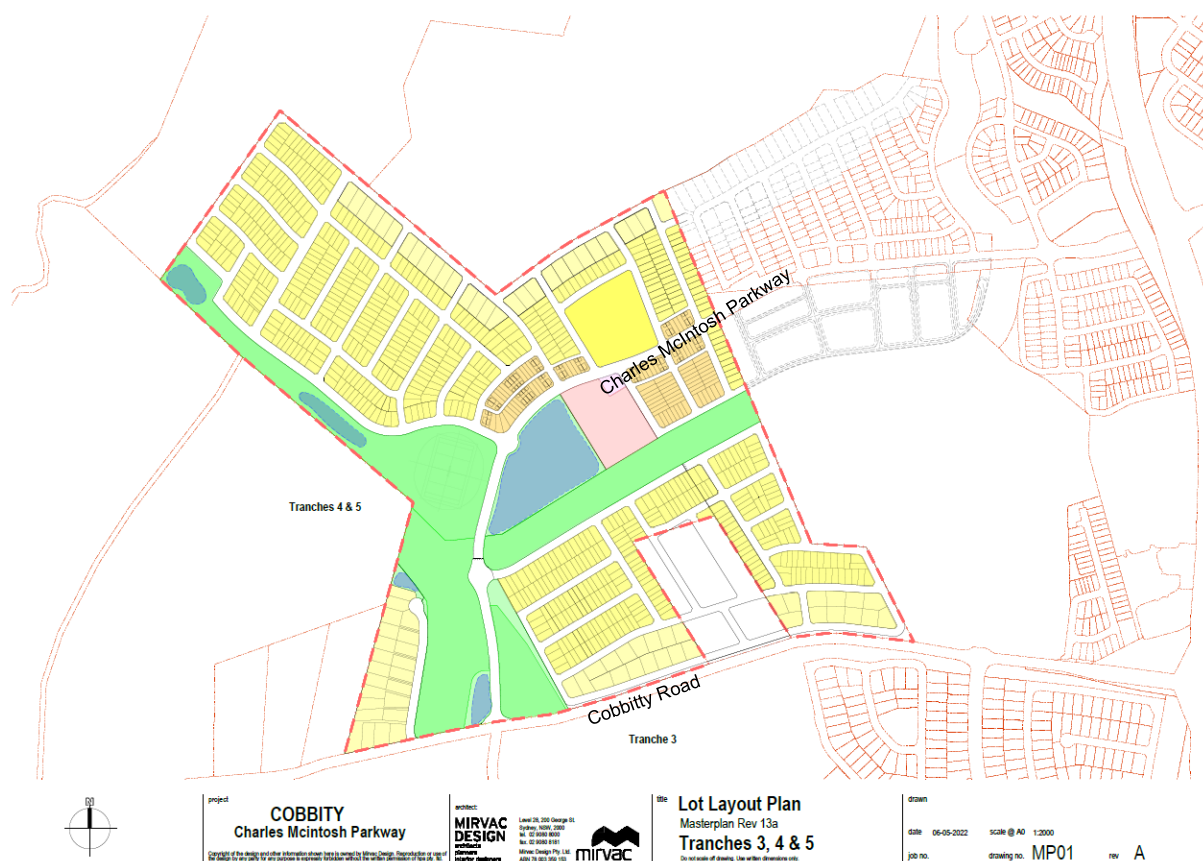
Dear Christopher,

## 421 THE NORTHERN ROAD COBBITTY UPDATED MASTERPLAN AND ILP AMENDMENT - TRAFFIC IMPACT ASSESSMENT REPORT

### Introduction

This letter has been prepared by SCT Consulting as a traffic impact assessment to support an updated masterplan for a residential subdivision at 421 The Northern Road, Cobbitty (also referred to as Lot 2005 DP 1162239 and the site). The updated master plan is shown in **Figure 1**.

**Figure 1 Proposed updated master plan**

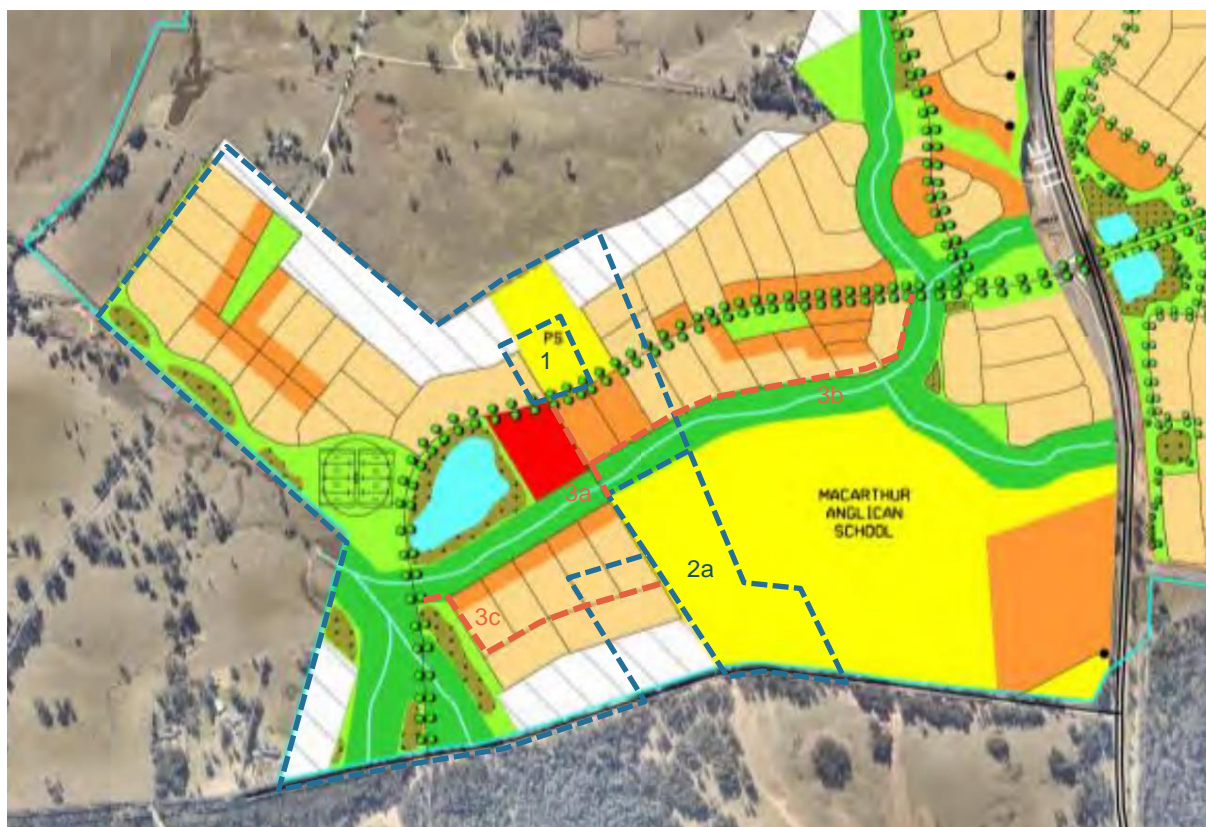


The updated master plan seeks the following ILP and DCP amendments:

1. Reduction of the public school site from 3.5ha to 2ha site, with a subdivision plan to be provided of in due course
2. Update of the subdivision plan to yield a total of approximately 903 dwellings, including
  - a. the transition of lands to the east of Lot 1 DP 1014583 from community (school) uses to residential uses, yielding approximately 107 residential dwellings
3. Changes in road hierarchies and layout including:
  - a. Removing the proposed road (bridge) that runs north-south over the riparian corridor (i.e. between Road No. 01 and Charles McIntosh Parkway within the Stage 4 subdivision area
  - b. Downgrading of collector road next to the local centre to a local street
  - c. Reclassifying the collector road (Road No.01) adjoining the riparian corridor as a collector road instead of through the middle of the subdivision
4. Changes in open space including:
  - a. Shrinking the passive open spaces adjacent riparian corridors and incorporating the use into the riparian corridor design
  - b. Shrinking the footprint of the sports field precinct but providing the same infrastructure as initially considered per latest design
  - c. Removing the triangle park in the northwest and replacing it with a wide treed boulevard

A summary of the key changes proposed is shown in **Figure 2**.

**Figure 2 Proposed updated master plan**



Source: SCT Consulting, 2022

## Background

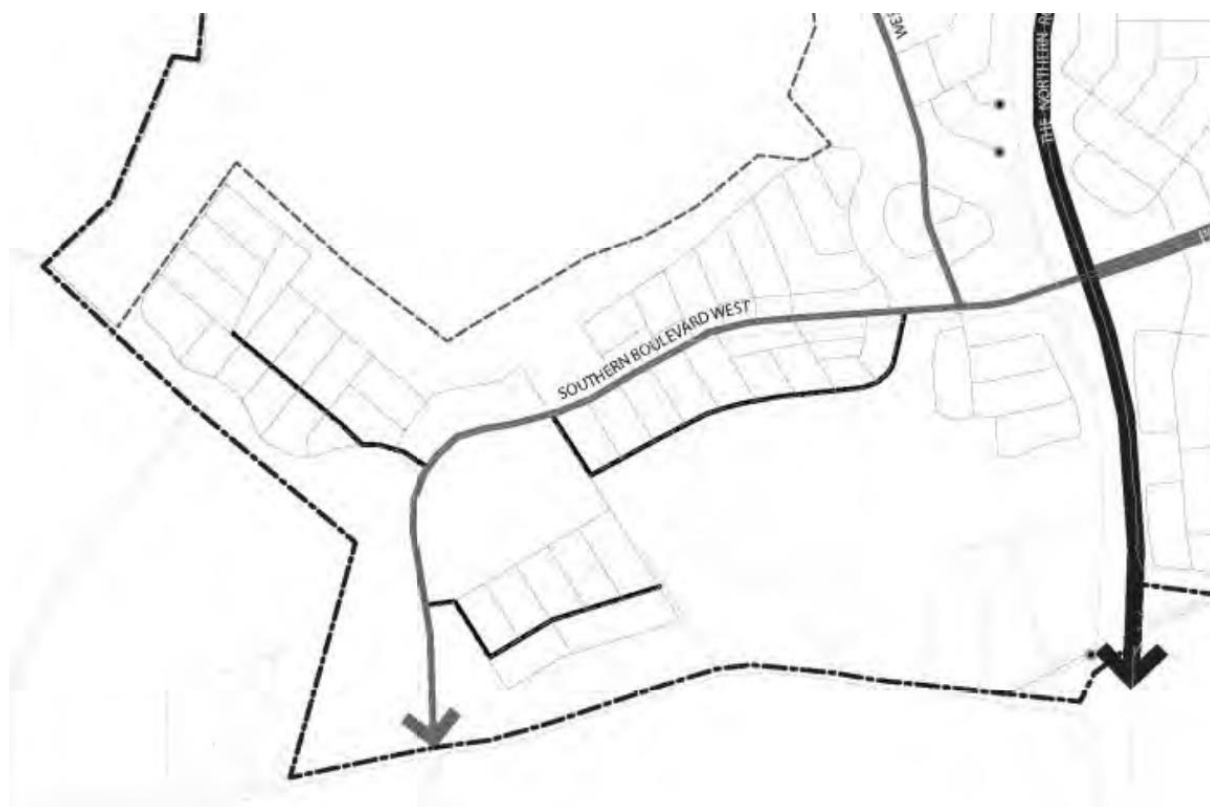
A Traffic and Transport Assessment was prepared for the original Oran Park Precinct ILP, that assessed the likely impacts of the ILP and identified the infrastructure required to support urban development as part of the Oran ILP. The Oran Park Precinct DCP 2007 was also prepared to:

- Communicate the planning, design and environmental objectives and controls against which Camden Council will assess future Development Applications (DAs)
- Consolidate and simplify the planning controls in the Oran Park Precinct
- Provide guidance on the orderly, efficient and environmentally sensitive development of the Oran Park Precinct as envisaged by the South West Sector Structure Plan as refined by the Oran Park Precinct Indicative Layout Plan
- Require the preparation of more detailed planning and design controls for important components of the Oran Park Precinct
- Promote high quality urban design outcomes within the context of environmental, social and economic sustainability.

The DCP 2007 prescribed that the minimum residential dwelling target for the Oran Park Precinct is 7,540. Where variation to the sub-precinct dwelling targets is proposed, an applicant is to demonstrate that the overall dwelling target of 7,540 dwellings for the precinct can still be achieved. Based on the lands within Lot 2005 DP 1162239, it is estimated that the minimum yield of the site is approximately 414 residential dwellings based on the minimum dwelling yield targets of sub-precincts B (part of), D (part of), F (part of) and E.

The DCP also prescribed Charles McIntosh Parkway as a 2-lane sub-arterial, that connects between The Northern Road and Cobbitty Road. In addition, there are three collector street proposed within the site, as shown in **Figure 3** (as extracted from Figure 5 of the DCP).

**Figure 3 Street Network Plan (DCP 2007)**



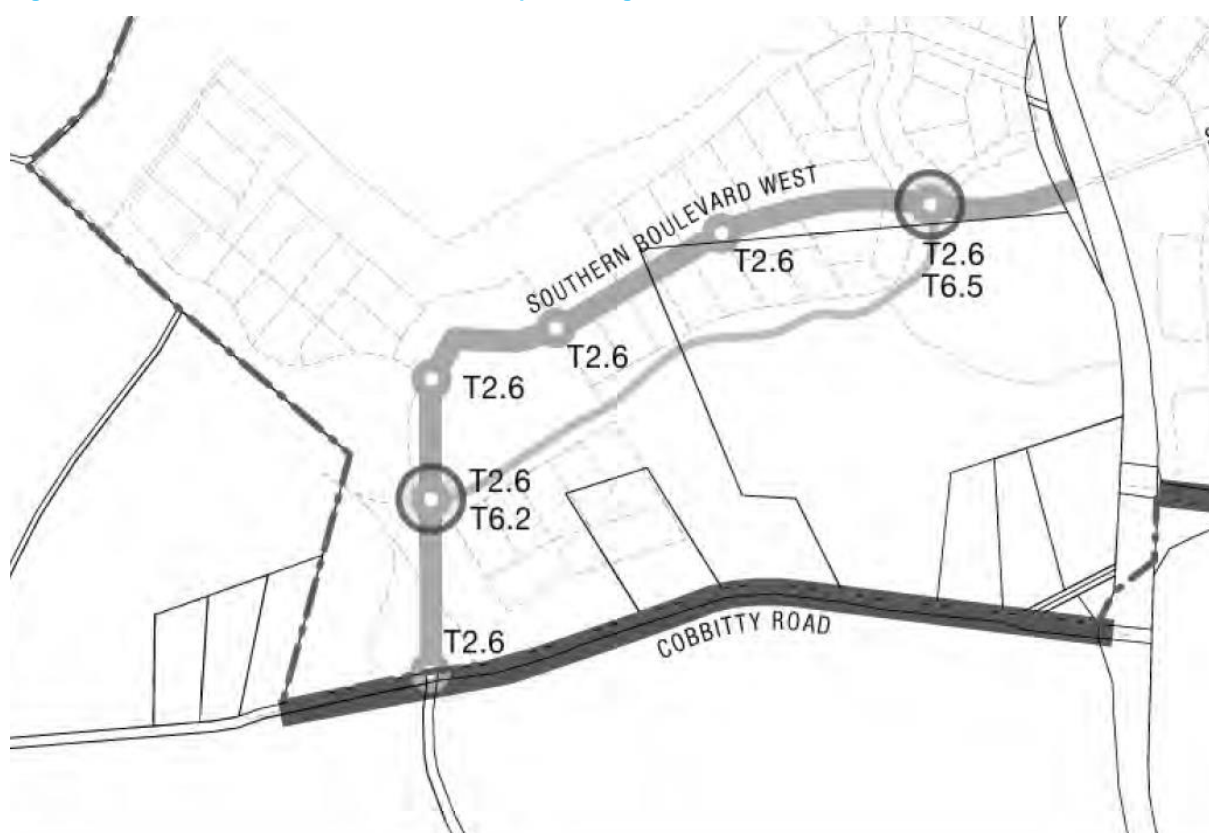
Source: Oran Park Precinct DCP 2007

Subsequently, Council prepared Oran Park Section 94 Contributions Plan that included other works that are considered necessary to meet a demand that arises because of development expected to occur within each Precinct, including works that facilitate connections to surrounding precincts and that have not been identified by the Growth Centres Commission to be provided via special infrastructure contributions. These 'local' works will be provided through the Council placing conditions of development consent on development approvals that occasion the need for the facilities.

These local transport infrastructures that are relevant to the site includes (and shown in **Figure 4**):

- 4 roundabouts along Charles McIntosh Parkway within the site boundary including one at the intersection of Cobbitty Road and Charles McIntosh Parkway (Items T2.6)
- A 2-lane culvert crossing over the riparian corridor (Item T6.2)

**Figure 4 Oran Park S94 Contributions Plan - Transport Management Facilities**



Source: Oran Park and Turner Road Precincts Section 94 Contributions Plan

This traffic impact assessment has been prepared to support the changes proposed as part of the updated master plan and to identify any likely impacts as a result of the proposed changes.

### Existing conditions

The site is formally known as Lot 2005 in DP 1162239 The Northern Road, Cobbitty. The site forms an irregular shaped parcel of land providing a frontage to Cobbitty Road of approximately 959m. The site is currently used for farming.

The site is located within the Oran Park Precinct as part of the South West Growth Area. The areas surrounding the site primarily comprise a mixture of vacant and rural land (mostly to the north and the west) and residential land uses similar to that proposed within the subject site. Macarthur Anglican School occupies the land to the immediate east.



The proposed site will be accessed from Charles McIntosh Parkway acting as a local collector road connecting The Northern Road and Cobbitty Road at its completion.

Charles McIntosh Parkway is currently constructed between The Northern Road and Wisteria Rise and will ultimately be extended to join Cobbitty Road. It is a 2-lane sub-arterial road acting as a collector and providing connection to all development of this southwestern portion of the Oran Park Precinct. It is planned as a bus capable road and a regional cycleway.

Cobbitty Road is an east-west running collector road to the south of the site. It intersects with The Northern Road to the east and with Werombi Road to the west and provides a connection between the suburbs of Oran Park and Cobbitty. The two-lane undivided road has a signposted speed limit of 80km/h, with a school zone of 40km/h near Macarthur Anglican School.

Macquarie Grove Road intersects with Cobbitty Road to the southwest of the site and forms a T-intersection (which would be upgraded to a roundabout with four legs associated with the subdivision). Macquarie Grove Road has a speed limit of 70km/h and has one lane in each direction.

The Northern Road has been upgraded to a 4-lane divided arterial road, acting as a major road corridor connecting Penrith to the north and Narellan to the south across Western Sydney. It intersects with Charles McIntosh Parkway and Cobbitty Road as traffic signals. Further upgrades to the layout of these traffic signals are intended as the South West Growth Area continues to grow.

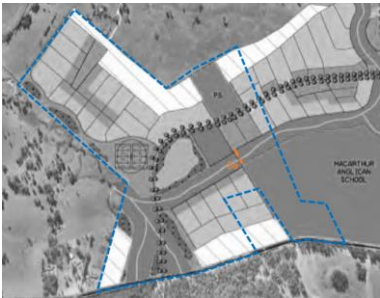
A bus stop is available on Cobbitty Road to the south of the site where bus route 31 operates between Cut Hill Road in Cobbitty and Camden. It provides two services in the morning and one service in the afternoon on school days only.


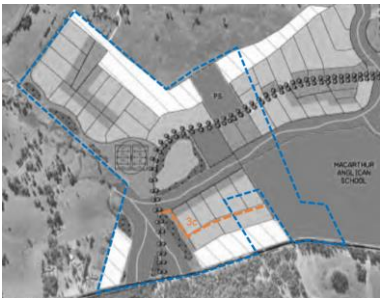
Given the rural feature, the area where the site is located currently has no dedicated cycling facilities or footpaths. The nearest shared path is on the eastern side of The Northern Road, which is about 1km away from the site.

## Proposed road hierarchy changes from the Oran Park Precinct ILP

The proposed key network and road hierarchy changes from the ILP and the justifications for the proposed changes are summarised in **Table 1**.

**Table 1 Justification of road network and hierarchy changes**

Proposed changes	Justification of changes
<p>Removing the proposed road (bridge) that runs north-south over the riparian corridor (i.e. between Road No. 01 and Charles McIntosh Parkway within the Stage 4 subdivision area</p> 	<p>The removal of the road bridge would improve the functioning of the hierarchy of connected streets by removing a potential rat run. The bridge was classified as a local street but could attract through traffic as drivers seek to access between Cobbitty Road to the south and The Northern Road to the east.</p> <p>However, we propose to maintain this connection as a pedestrian bridge that would enable greater engagement with the public domain by pedestrians and cyclists as they no longer conflict with vehicles. It would enable higher quality water sensitive urban design measures by reducing the intrusion of a road into this ecological zone.</p> <p>The removal of a road corridor reduces the number of intersections that pedestrians need to cross but retains the permeability of the connection. The bridge provides a valuable link across the riparian corridor that makes walking and cycling more attractive, particularly with reduced conflicts with vehicles.</p> <p>The pedestrian and cyclist link will provide direct and safe connection for local residents to access the public school and local centre, without the need to drive and reducing the reliance on vehicular travel within the precinct.</p>

Proposed changes	Justification of changes
<p>Downgrading of collector road next to the local centre to a local street</p> 	<p>The southern collector road next to the local centre was designated as a collector road despite there being very little catchment for it. The proposed subdivision layout means that most residents would be able to access Charles McIntosh Parkway directly via these north-south local streets, rather than using the collector road to the south of the subdivision to access Charles McIntosh Parkway. Therefore, the collector road is not going to collect the local traffic and would not actually function as a collector road.</p> <p>This is similar to Wainright Drive through BHL's Oxley Ridge estate which ended up being delivered as a local road.</p> <p>Hence, we propose this road north of the riparian corridor to be delivered as a local road.</p>
<p>Reclassifying the collector road (Road No.01) adjoining the riparian corridor as a collector road instead of through the middle of the subdivision</p> 	<p>The revised collector road is a direct and convenient east-west connection. It is less circuitous, so will improve legibility. As it no longer includes intersections with unusual give way priorities (e.g. the north and east being the priority and south giving way), the safety of the road will be improved.</p> <p>By avoiding a collector function road that cuts through the centre of the residential subdivision, higher traffic volumes will run around the periphery of the precinct, improving opportunities to cross for pedestrians and improving attractiveness for cycling.</p> <p>The revised collector road still connects with Charles McIntosh Parkway at the same location – the roundabout just south of the riparian corridor.</p> <p>The proposed layout also avoids the collector road passing through a separately owned property (Lot 1 DP 1014583) meaning it can be delivered by one developer (the proponent) and provide access to potential future lots to the east of this subdivision, which would otherwise be reliant on local streets. This would improve road functioning during staged delivery of the precinct. There is no proposed change to the cross-section for this road type so the variations in the carriageway, variations in carriageway width, on-street parking, incorporation of water sensitive urban design measures, street tree planting, and pedestrian amenities are all achieved in the same way as the ILP design.</p> <p>This change has already been included in the Tranche 3 Stage 1 DA Updated Traffic Report.</p>

## Public Transport Network

The proposed subdivision is within proximity to bus services (route 31) that currently operate along Cobbitty Road and Macquarie Grove Road. As development continues within the surrounding area and when Charles McIntosh Parkway is completed between The Northern Road and Cobbitty Road, it is expected that Charles McIntosh Parkway would become part of Oran Park's public transport network as per the DCP. Future bus services along Charles McIntosh Parkway will provide more direct public transport services for future residents of this subdivision.

There are no proposed changes in the updated master plan along Charles McIntosh Parkway that would affect / impact on future bus operations.

## Pedestrian and Cycle Network

The local walking and cycle network proposed as part of the updated master plan will connect into the wider walking and cycle network along Charles McIntosh Parkway, according to the DCP. Overall, the proposed local street network and layout support pedestrian connectivity to the wider precinct through the availability of off-road

pedestrian footpaths on all local streets connecting future residential lots with key infrastructure including public transport routes and public open space.

The pedestrian and cyclist link over the riparian corridor will provide direct and safe connection for local residents to access the public school and local centre, without the need to drive and reducing the reliance on vehicular travel within the precinct.

## Proposed development and yield changes

The updated master plan seeks the following ILP and DCP amendments:

1. Reduction of the public school site from 3.5ha to 2ha site
2. Update of the subdivision plan to yield a total of approximately 903 dwellings, including the transition of lands to the east of Lot 1 DP 1014583 from community (school) uses to residential uses, yielding approximately 107 residential dwellings

A summary of the proposed land use changes and updated yield is provided in **Table 2**. The proposed 903 residential dwelling satisfies the minimum yield dwelling target of 414 as suggested in the ILP.

**Table 2 Proposed land use changes and updated yield**

Area	Proposed changes	Updated master plan yield assumptions
Lands to the east of Lot 1 DP 1014583 (and west of Macarthur Anglican School)	Transition from community (school) uses to residential, to yield 107 dwellings	107 residential dwellings
Public school site	Reduction from 3.5ha to 2ha	1,000 students <sup>1</sup>
Remainder of Lot 2005 DP 1162239	Update of subdivision plan to yield 796 dwellings	796 residential dwellings
	N/A	A local centre of approximately 5,150m <sup>2</sup> (this is not an amendment to be sought in the updated master plan)
<b>Total residential dwellings</b>		<b>903</b>
<b>Total number of students</b>		<b>1,000</b>
<b>Total retail areas</b>		<b>~5,150m<sup>2</sup></b>

## Trip generation and potential traffic impacts

Although the proposed 903 residential dwelling satisfies the minimum yield dwelling target of 414 as suggested in the ILP, the potential traffic impacts on the surrounding critical road network have been considered as a result of the proposed master plan update.

Based on a trip generation rate of 0.99 and 0.95 (AM peak and PM peak) vehicle trips per low-density dwelling from the *Technical Direction TDT 2013/04a*, the updated master plan, with an additional 903 residential dwellings, would be expected to generate up to 894 vehicle trips during the peak hours.

Based on a trip generation rate of 0.67 for AM peak hour vehicle trips for a metropolitan public school from the *TfNSW Guide to Traffic Generating Developments for schools (GTA Consultants, 2014)*, the proposed 2ha school site with up to 1,000 students would be expected to generate up to 670 vehicle trips during the AM peak hours. It is not expected the school would generate any traffic during the PM commuter peak hour.

Based on a trip generation rate of 5.9 and 12.3 (AM peak and PM peak) vehicle trips per 100m<sup>2</sup> of retail from the *Technical Direction TDT 2013/04a*, the updated master plan would be expected to generate up to 633 vehicle trips during the PM peak hours.

<sup>1</sup> Assumption supplied by SINSW for the development of a 2ha school site.

A summary of the updated yield and the associated changes in trip generation is provided in **Table 3**.

**Table 3 Proposed updated yield and associated changes in trip generation**

Land uses	Updated master plan yield	Trip rates		Trip generation	
		AM	PM	AM	PM
Residential	903	0.95 per dwelling	0.99 per dwelling	858	894
School	1,000	0.67 per student	N/A	670	N/A
Local centre	5,150m <sup>2</sup>	5.9 per 100m <sup>2</sup>	12.3 per 100m <sup>2</sup>	304	633
<b>Total</b>				<b>1,832</b>	<b>1,527</b>

The updated master plan is expected to generate up to 1,832 peak hour trips, but not all of these trips would enter or exit externally to the precinct from The Northern Road or Cobbitty Road. For example, we have assumed that only 70 per cent of the student traffic will be generated externally to the precinct, hence 30 per cent of the student traffic would not travel through the Cobbitty Road / Charles McIntosh Parkway roundabout or the Charles McIntosh Parkway / The Northern Road traffic signals. The same principle applies to the trip generation of the local centre where 25 per cent of the traffic would be internal to the precinct and only 75 per cent will be generated externally to the precinct.

The traffic modelling also considered a potential 70 residential dwellings that could be generated from Lot 1 DP1014583.

The proposed trip generation associated with the updated master plan are distributed to the surrounding road network based on 2036 traffic movements forecast in the *The Northern Road upgrade, The Old Northern Road to Peter Brock Drive Review of Environment Factors – Traffic and Transport Assessment*. Based on these assumptions, 20-30% of the additional trips to be generated as part of the updated master plan would originate / destine towards Cobbitty Road via the completed Charles McIntosh Parkway and 70-80% of the additional trips to be generated as part of the updated master plan would originate / destine towards The Northern Road via the completed Charles McIntosh Parkway.

The proposed trip generation associated with the updated master plan are added to the 2022 surveyed traffic volumes on all the movements entering and exiting Charles McIntosh Parkway at the two critical intersections. All the other movements that are not associated with turning in and out of Charles McIntosh Parkway were estimated based on:

- 2036 traffic movements forecast in the *The Northern Road upgrade, The Old Northern Road to Peter Brock Drive Review of Environment Factors – Traffic and Transport Assessment* for the intersection of Charles McIntosh Parkway / The Northern Road.
- Factoring the existing traffic movements by 2.2% p.a. for the intersection of Charles McIntosh Parkway / Cobbitty Road.

The combined forecast turning movements at the two critical intersections of The Northern Road / Charles McIntosh Parkway and Cobbitty Road / Charles McIntosh Parkway are shown in **Figure 5** and **Figure 6** for the 2036 AM and PM commuter peak hours respectively.



**Figure 5 Additional trip generation and distribution during the AM commuter peak hour**

										The Northern Road					

**Table 4 2036 AM and PM peak hour intersection performance – The Northern Road / Charles McIntosh Parkway**

	2036 AM					2036 PM				
	Volumes	Degree of saturation	Average delay (s)	Level of service	95% queue (m)	Volumes	Degree of saturation	Average delay (s)	Level of service	95% queue (m)
Southern approach – The Northern Road	1,352	0.561	49.9	D	140	2,228	0.731	47.5	D	225
Eastern approach – Peter Brock Drive	553	0.654	55.4	D	180	637	0.747	59.2	E	96
Northern approach – The Northern Road	1,738	0.651	41.0	C	200	1,656	0.543	44.9	D	155
Western approach – Charles McIntosh Parkway	844	0.647	53.1	D	114	491	0.394	34.1	C	84
<b>Total intersection</b>	<b>4,487</b>	<b>0.654</b>	<b>47.7</b>	<b>D</b>	<b>200</b>	<b>5,012</b>	<b>0.747</b>	<b>46.8</b>	<b>D</b>	<b>225</b>

**Table 5 2036 AM and PM peak hour intersection performance – Cobbitty Road / Charles McIntosh Parkway**

	2036 AM					2036 PM				
	Volumes	Degree of saturation	Average delay (s)	Level of service	95% queue (m)	Volumes	Degree of saturation	Average delay (s)	Level of service	95% queue (m)
Southern approach – Charles McIntosh Parkway	223	0.260	10.0	A	11	222	0.310	11.3	A	14
Eastern approach – Cobbitty Road	488	0.430	5.9	A	23	861	0.647	5.9	A	48
Northern approach – Charles McIntosh Parkway	192	0.326	12.3	A	16	110	0.133	8.1	A	5
Western approach – Cobbitty Road	613	0.586	7.0	A	35	379	0.406	7.3	A	19
<b>Total intersection</b>	<b>1,526</b>	<b>0.586</b>	<b>7.8</b>	<b>A</b>	<b>35</b>	<b>1,572</b>	<b>0.647</b>	<b>7.2</b>	<b>A</b>	<b>48</b>

## Conclusion

The change of the road network and hierarchy from the ILP are justified in this report. They all provide more benefits than what has been suggested in the ILP in terms of site accessibility and road network permeability. It also creates a pedestrian and cyclist-friendly environment for future residents.

SIDRA modelling was undertaken with the total traffic volumes at the two critical intersections, to understand the potential impacts of these trips expected to generate as a result of the updated master plan. The SIDRA analysis confirmed that both intersections are forecast to operate at LoS D during the peak hours in 2036, which is considered to be acceptable as a performance requirement.

Yours sincerely

**Andy Yung**

Director

[andy.yung@sctconsulting.com.au](mailto:andy.yung@sctconsulting.com.au) | 0468 862 482

Suite 1 Level 10, 99 Mount Street, North Sydney 2060

**SCT Consulting**

