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By post

North Penrith Development Stages 2B, 2C, 2D and 3B - Review of Consistency with Transport Management and Accessibility Plan

Landcom has commissioned Parsons Brinckerhoff to undertake a review of the remaining stages of the North Penrith Development for consistency with the Concept Plan approved under Part 3A of the Environmental Planning and Assessment Act (1979) (EP&A Act) on 9 November 2011. This letter addresses the NSW Department of Planning & Infrastructure Director General's Requirements and issues raised by Penrith City Council during consultation for the remaining stages regarding intersection and road layouts within the site's road network.

1. Changes to the North Penrith Development

Parsons Brinckerhoff prepared the original North Penrith Development Transport Mobility and Accessibility Plan (TMAP) (Parsons Brinckerhoff, October 2010) submitted in support of the Part 3A Concept Plan DA. Since submission of the approved Concept Plan there have been some changes to the North Penrith Development. From a traffic, transport and access perspective, the major changes include:

1. a re-ordering of the development staging
2. changes to development yield and mix
3. changes to the local street network, including:
 - a) the addition of Walshaw Street, Laimbeer Place and Durant Street
 - b) the re-orientation of laneways between Empire Circuit and William Hart Crescent
 - c) the deletion of a short dead-end road on the south side of Lord Sheffield Way between Combewood Avenue and Dunshea Street.

2. Director General's requirements

The NSW Department of Planning & Infrastructure (DP&I) has issued Director General's Requirements (DGRs) relating to transport and accessibility during after occupation of the new development stages. They include:

- Detail access arrangements at all stages of operation and measures to mitigate any associated traffic impacts.
- Describe the measures to be implemented to promote sustainable means of transport including public transport usage and pedestrian and bicycle linkages in addition to addressing the potential for implementing a location specific sustainable travel plan with consideration of the capacity of the public transport network.
- Demonstrate that the design of the public domain areas adjacent to the Rail Station complement any redevelopment plans for the Penrith Rail Station (*to be addressed by JBA Planning – not included in this assessment*).
- Demonstrate consistency with the Concept Plan in regards to traffic generation and any potential need for upgrading or road works, including upgrade works for the Parker Street, Oxford Street, Coreen Avenue and Richmond Road intersection, the Castlereagh Road and Peachtree Road intersection and the provision of any widened kerb-side lanes to accommodate the proposed bus corridor to Coreen Avenue.
- Demonstrate that adequate access for large vehicles can be accommodated along the commuter car park access route.
- Relevant Policies and Guidelines:
 - ▶ Guide to Traffic Generating Developments (RTA)
 - ▶ *EIS Guidelines – Road and Related Facilities (DP&I) (to be addressed by JBA Planning – not included in this assessment)*
 - ▶ NSW Planning Guidelines for Walking and Cycling.

Where applicable, these DGRs will be assessed by comparison of the currently proposed development compared to the approved Concept Plan. Issues will be dealt with by exception, i.e. if the original Concept Plan application was deemed to have demonstrated the issue raised and there has been no change to the development on this area/topic, the issue will not be re-considered in detail.

3. Penrith City Council issues

Parsons Brinckerhoff understands that Penrith City Council (PCC) has raised the following issues during consultation for Stage 2B, 2C and 2D roads:

1. Council believes that a one-lane roundabout or other traffic management device such as traffic signals is required at the intersection of Combewood Avenue and Thornton Drive. This issue was also raised by Council during the Concept Plan.
2. Council also raised potential minor safety issues at the closely spaced intersections of:
 - ▶ Hudson Place and Woodrow Way on William Hart Crescent

- ▶ Laimbeer Place and Durant Street on Empire Circuit.

Council requested that these intersections be assessed as part of the development application.

4. Access arrangements at each stage

4.1 External road network connections

Four access points connect the development to the road network, including:

1. a new access to Coreen Avenue, west of Coombes Drive (eastern intersection), now constructed as part of Stage 1, called Sydney Smith Drive
2. the existing commuter car park access road, renamed as Combewood Avenue, to be connected to as part of Stage 2B
3. a connection through to the Castlereagh Road/Peachtree Road intersection, renamed as Thornton Drive, to be connected to as part of Stage 2B
4. a connection to The Crescent near the current entrance to the Penrith Training Depot, called Mountain View Crescent, constructed as part of Stage 2A.

The TMAP analysis concluded that these four access points would provide sufficient capacity to accommodate all movements into and out of the site. Two access points have already been constructed, or will be constructed by the end of Stage 2A. The remaining two access points will be constructed as part of initial works supporting the release of Stage 2B. Therefore, upon the release of the first lots of Stage 2B, all access four points will be constructed.

4.2 Internal street connections

Following the completion of Stage 2A, all streets on the eastern side of the development will be complete. The remaining internal connections will be progressively constructed as part of each stage:

- As part of Stage 2B, Thornton Drive will be constructed, connecting Stages 1 and 2A with the new stage and with Castlereagh Road.
- As part of Stage 2C, William Hart Drive and connecting roads including Player Avenue, Woodrow Way and Bristol Street will be constructed.
- In Stage 2D, the remaining roads in the north-western corner of the development will be constructed, including the western half of Empire Circuit, Hudson Place, Durant Street, Walshaw Street and Laimbeer Place.
- In Stage 3A, Lord Sheffield Circuit through the village centre will be constructed.
- In the final stage, Stage 3B, Lord Sheffield Circuit will be connected through to Combewood Avenue and Dunshea Street.

This construction program allows the important connections remaining to be constructed as part of the next stage, whilst matching the remaining development with the access provided.

5. Sustainable transport measures

5.1 Walking and cycling

The development remains committed to providing the sustainable transport measures identified in the TMAP. Footpaths are provided on both sides of the street with a width of 1.5 m, which is sufficient for a wheelchair and a pram to pass according to Austroads *Guide to Road Design Part 6A: Pedestrian and Cyclist Paths*.

Connections between the commuter car park and the northern side of Penrith Station are included, as is the cycle connection from the intersection of Combewood Avenue and Thornton Drive to the commuter car park.

One modification to the development is the removal of the bicycle lane on Combewood Avenue between Coreen Avenue and Thornton Drive. This cycle route will be replaced by the section of cycleway already constructed along Castlereagh Road and a cycle route along Thornton Drive between Castlereagh Road and Combewood Avenue. This will include 1.5 m wide cycle lanes in each direction on Thornton Drive and Combewood Avenue.

The pedestrian bridge over the water feature (connecting to Radcliffe Place) will be 3.0 m wide, which is consistent with the desired width for a commuter shared path recommended in Austroads *Guide to Road Design Part 6A: Pedestrian and Cyclist Paths*. The inclusion of a pedestrian refuge or pedestrian crossing across Lord Sheffield Circuit at Klenig Place will be explored during the Construction Certificate design stage, after consultation with Council. This facility would connect the bridge to the Village Centre and Penrith Train Station.

5.2 Public transport

Provision has been made for the future entry of bus services into the development, as per the measures outlined in the TMAP. Namely:

- A widened kerbside lane on all bus corridors along a bus corridor from Coreen Avenue to the northern side of Penrith Station to accommodate bus priority or peak period clearways should it be required.
- Reservation of land suitable for a bus underpass of the Western Rail Line.
- A bus stop capable of accommodating up to two buses in the village centre within 100 m walk from Penrith Station entrance. The bus stop would include a bus shelter or awning with seating as it would cater for boarding passengers as well.
- Bus stops in each direction on the boulevard near the first intersection inside the development. Bus shelters would be provided for stop identification and passenger comfort. These would be installed when the bus route is provided.

5.3 Travel plans

The travel plan for the project is being implemented as per the details provided in the TMAP. This includes the provision of 'welcome packs' given to residents, which will include information on public transport, walking and cycling, including:

- welcome letter (including direction to the 131 500 travel information line and website)
- train network map

- train timetables for Penrith Station
- bus map
- bus timetables for all bus routes serving the Penrith Interchange
- leaflet: Using the bus for the first time
- Penrith City Council cycle map
- site cycle and footpath map (including cycle locker locations)
- leaflet: How to use cycle lockers
- leaflet: Fares/Travel passes
- two free weekly travel passes per household.

6. Traffic, transport and access review of Stages 2B, 2C, 2D, 3A and 3B for consistency with approved Concept Plan

A review of the Stage 2B, 2C, 2D, 3A and 3B road and intersection layout drawings (11 October 2012) has been undertaken for consistency with the transport issues covered in the TMAP. Topics covered include number of residences, traffic impact, street layout, intersections and access, road hierarchy, provisions for pedestrians and cyclists, parking, service vehicle access. The level of detail for Stage 3A is currently low. For this stage, the road hierarchy, road cross sections and other information (where available) has been reviewed.

6.1 Development yield and traffic generation

There have been changes in the development yield since the approval of the Concept Plan in November 2011. The current applications are for subdivision to create residential lots and superlots (containing a mixture of residential, retail, commercial and industrial land use), as well as the road and other infrastructure required to support them. Any departure from the floor space approved under the Concept Plan would need to be assessed as part of future applications. This assessment is therefore confined to the number of residential dwellings currently proposed based on the lots created.

The revised residential development yield for the remaining stages of the development is summarised in Table 1. It shows that Stage 2C has reduced by 15 dwellings and 2D has increased by 11 dwellings. Similarly, Stage 3A has increased by 56 apartments and has had a 100 unit seniors living/aged care facility added (moved from Stage 1), while Stage 3B has reduced by 75 dwellings. Overall, there is a net decrease of 23 dwellings in Stages 2B, 2C, 2D, 3A and 3B. The number of dwellings proposed for the project as a whole is slightly under the 1,000 number assessed in the TMAP.

The Part 3A Application contained three industrial lots, two fronting Coreen Avenue either side of Sydney Smith Drive and one on Thornton Drive. Since the submission of the Concept Plan, the two industrial lots on Coreen Avenue have been converted to residential lots. There may also be changes in the retail and commercial floor space. However, the floorspace yields are not covered in the current development applications.

Table 6.1 Change in residential yield in current Stages 2B, 2C, 2D, 3A and 3B

Concept Plan stage	Concept Plan residential yield	Currently proposed stage	Currently proposed development yield
Part 2B, 2D	124 dwellings	2B	124 dwellings
Part 2B	100 dwellings	2C	85 dwellings
Part 2B	106 dwellings	2D	117 dwellings
2A	274 dwellings	3A	330 dwellings plus 100 seniors living/aged care*
Part 2D	150 dwellings	3B	75 dwellings
Total of equivalent areas	754 dwellings	Total of remaining stages	731 dwellings 100 seniors living/aged care*

(1) Senior living/aged care facility included in TMAP in other stage

The TMAP assessed a total yield including a range of between 900 and 1,000 residential dwellings. Traffic generation and impact was assessed based on the upper limit. The proposed reduction in development yield of 23 dwellings compared to the Concept Plan is within the development range originally proposed and under the maximum assessed in the TMAP. This reduction on its own would result in less traffic generation for the remaining Stages. However, changes in other land uses, including industrial, commercial and retail floorspace may change the net traffic generation.

6.2 Traffic impact

Considering the reduction in residential development, the impact of the reduction of the handful of trips would be a slight reduction in delays and queue length at surrounding intersections, but is essentially the same as the scenario assessed in the TMAP. The TMAP concluded that some of the major intersections in the area would be operating at or above capacity. The reduction would slightly ease pressure on these intersections compared to the scenario assessed in the TMAP. The impact of changes in other land uses has not been assessed. These will be the subject of future development applications.

6.3 Street layout

6.3.1 Access

The overall road layout and road hierarchy proposed in the remaining stages is essentially the same as that assessed in the TMAP. Minor changes to local streets include:

- a) the addition of Walshaw Street, Laimbeer Place and Durant Street
- b) the re-orientation of laneways between Empire Circuit and William Hart Crescent from east-west to north-south
- c) the deletion of a short dead-end road on the south side of Lord Sheffield Way between Combewood Avenue and Dunshea Street.

The additional local streets should improve access for local residents by providing the opportunity for circulation without impacting on Sydney Smith Drive. The re-orientation of the laneways should have minimal impact, as would the deletion of the dead-end street between Combewood Avenue and Dunshea Street provided that alternative access is provided to the adjacent buildings.

In addition, a median has been added to Woodrow Way, separating the carriageways. A gap has been left at Stoddard Lane to facilitate access. There are no properties with direct access onto Woodrow Way. The effect of this change would be minor.

6.3.2 Intersections

Intersection layout and control within the development is essentially the same as the TMAP, with minor adjustments caused by the changes to local streets described in section 6.3.1. Council has raised some issues regarding the layout and control of three intersections within Stages 2B and 2C. These issues are addressed in section 9.

Works are planned at the intersections of:

- Castlereagh Road / Peachtree Road/Thornton Drive – add right-turn bay on Castlereagh Road into Thornton Drive, allow right-turns out of Thornton Drive
- Combewood Avenue/Thornton Drive – install give-way controlled intersection.

These works will occur within Stage 2B and are scheduled to commence in July 2013. The design for the intersection is currently being reviewed by RMS.

Minor road widening works at the intersection of Combewood Avenue and Coreen Avenue to provide turning space for semi-trailers are planned prior to the occupation of the supermarket in Stage 3A.

The creation of a second right-turn bay from Richmond Road into Coreen Avenue and the installation of a seagull' treatment on Coreen Avenue at the eastern intersection with Coombes Drive were recommended as part of the TMAP. The amount of road upgrade cost contributions was set by the TMAP. Following the works-in-kind at the intersection of Castlereagh Road/Peachtree Road/Thornton Drive, any remaining contributions will be directed towards these projects.

6.3.3 Street width

The currently proposed street widths are slightly different from those proposed in the TMAP and the approved Concept Plan. Locations of change include:

- Lord Sheffield Circuit (main street section) was originally planned with an 11.6 m wide carriageway. This has been increased to 12.0 m with wider parking lanes and narrower through lanes.
- Lord Sheffield Circuit (bus corridor section) was originally planned with a 13.4 m wide carriageway. This has been increased to between 13.6 m and 13.8 m through wider kerbside parking/bus lanes that are wide enough to accommodate cycle lanes alongside parked vehicles and narrower traffic lanes.
- Combewood Avenue, south of Thornton Drive, was originally going to have parking and a shared cycle/pedestrian path on its eastern side (no parking on its western side). This has been changed to cycle lanes on each side of the road, a regular footpath on the eastern side and no parking on either side. The road carriageway width has increased from 9.3 m to 10.6 m.

- Combewood Avenue, north of Thornton Drive, has retained its original configuration of parking on its eastern side (no parking on its western side) and regular footpaths on both sides, but with an increased road carriageway width of 10.6 m with widened traffic lanes.
- Local streets such as Thornton Drive have increased from 9.6 m to 10.0 m to provide more room for parked vehicles.
- Minor local streets such as Empire Circuit (western side) and William Hart Drive have had their width increased from 7.6 m to 8.0 m to provide more room in the event of two vehicles parking opposite each other.

The additional width assists with the turning movement of garbage trucks and allows space for door opening from parked vehicles.

6.3.4 Speed control

The road from Coreen Avenue to the North Penrith commuter car park (now renamed as Combewood Avenue) included speed control devices, potentially due to problems relating to its straight nature and lack of surrounding land use to cause drivers to naturally slow down. The proposed road network increases land use adjacent to this road, but retains the straight alignment. The future presence of pedestrians, cyclists and new cross-streets on Combewood Avenue means that the control of speeds will still be important for the protection of vulnerable road users and improved road safety at the new intersections. We recommend that speed control devices be retained in some form to reduce the risk and severity of crashes.

Due to the high number of pedestrians moving around the village centre, speed control could also be considered at the entry points to the village centre and at the raised pedestrian crossing. This could include advice to drivers about the change in street environment and improve adherence to the 40 km/h speed limit.

6.4 Parking

Off-street private parking for residences within the development is to be provided in accordance with the North Penrith Design Guidelines 2012 Version 3 (Landcom, February 2012). The parking rates defined in this document are consistent with the rates described in the TMAP. Due to the level of detail currently available for Stage 3A (the Village Centre), it is assumed that there has been no change to the planned number of off-street public parking from that which was described in the TMAP.

On-street parking is typically proposed on both sides of the street within the development. The locations of on-street parking are consistent with what was assumed for the TMAP, although the minor changes to street layout may have necessitated minor changes to the total amount of on-street parking. Due to the level of detail currently available for the signs and linemarking, details of the allocation of on-street parking are not currently available. It is assumed that it will be consistent with the TMAP.

The removal of kerbside parking on the eastern side of Combewood Avenue south of Thornton Drive mainly affects residential lots in Stage 3B. Precise details of the layout within Stage 3B are not available, so we are unable to determine the number of residential buildings fronting Combewood Avenue. Alternative on-street parking will be available within 70 metres walk.

6.5 Service vehicle access

Spot checks of the road alignment have been undertaken to determine if Council's garbage vehicles can make the necessary turns. The results indicate that all turns can be made by 12.5 m long rigid trucks. On the higher-order roads, such as Combewood Avenue, Lord Sheffield Crescent and Sydney Smith Drive, the turns can be completed without crossing road centrelines. However, on local streets, some crossing of the road centreline is required. This is considered acceptable given the low frequency of traffic on these streets and the lower frequency of use by trucks. The local streets would not have painted road centrelines. The narrower roads are suitable for residential streets to reduce speeds and the area of pavement to be maintained.

7. Provision for heavy vehicles along commuter car park route

The commuter car park layout was designed to cater for the turning requirements of semi-trailers accessing the loading dock at the rear of the proposed supermarket. We understand that the commuter car park has been built according to these plans.

The internal road network was designed for semi-trailers to enter via Combewood Avenue and leave via either Thornton Drive onto Castlereagh Road or Lord Sheffield Circuit/Sydney Smith Drive onto Coreen Avenue. Works required to enable this movement included the widening of Combewood Avenue at Coreen Avenue. These works are still planned as part of Stage 3A.

8. Compliance with guidelines

Of the three referenced guidelines in the DGRs, the first and last ones are relevant to the traffic and transport assessment, namely:

- Guide to Traffic Generating Developments (RTA)
- NSW Planning Guidelines for Walking and Cycling.

The vehicle trip generation rates from the *Guide to Traffic Generating Developments* (Version 2.2, October 2002) were used as the basis for the traffic impact calculations. To reflect the higher public transport usage of the development due to its proximity to Penrith Train Station and walking distance from Penrith CBD, the vehicle trip rates from the Guide were converted to total trip numbers on all modes and re-calculated based on a mode share with higher public transport and walking mode share.

Footpaths and shared paths within the development would be designed with regard to the *Planning guidelines for walking and cycling* (NSW Planning, December 2004). Similarly, commercial buildings would be required to provide cyclist end of trip facilities, including bike locking and showers, as per the requirements of the *Planning guidelines for walking and cycling*.

On selected streets, marked cycle lanes are proposed within the kerbside lane. These would be accommodated with a 1.5 m wide cycle lane, which complies with the RMS *NSW Bicycle Guidelines*. The proposed shared path width of 3.0 m complies with Austroads *Guide to Road Design Part 6A: Pedestrian and Cyclist Paths*.

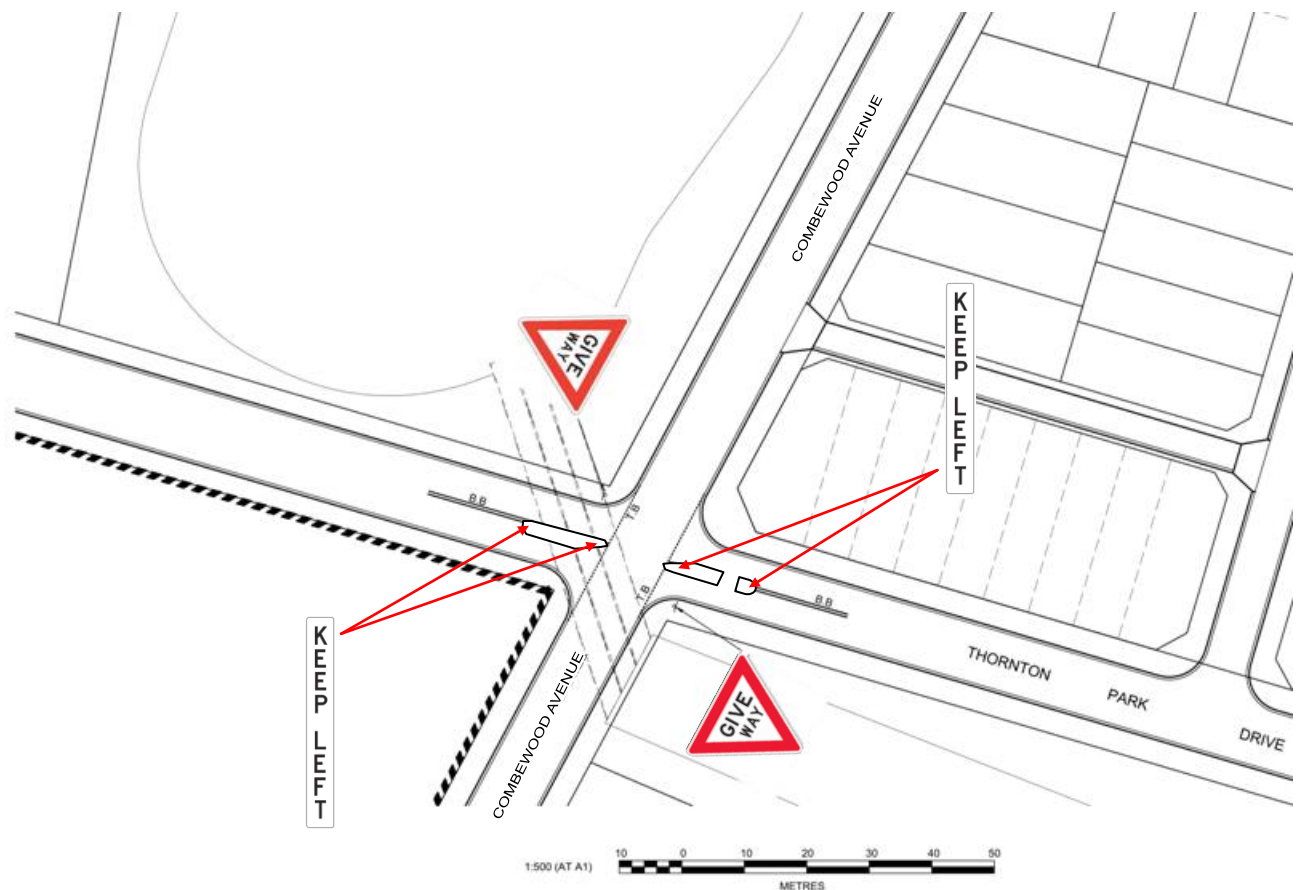
9. PCC intersection concerns

9.1 Intersection of Combewood Avenue and Thornton Drive

We understand that Council has requested consideration of the conversion of this intersection from a give-way controlled intersection (north-south priority) to a one-lane roundabout. Parsons Brinckerhoff has previously undertaken traffic analysis of several options for the layout and control of this intersection. The conclusions were that the proposed give-way controlled intersection has sufficient capacity to cater for the anticipated future demand, i.e. the upgrade to a roundabout is not required for traffic capacity.

We have reviewed the proposed intersection layout with regard to road safety. To address Council's concerns, median islands and 'Keep Left' signs have been added on Thornton Drive to provide a visual queue to a driver within their field of view that they are approaching the intersection and that they need to pay attention to it. This is intended to change the drivers' perception of the straight alignment of Thornton Drive and reduce the risk that a driver could pass through the intersection without realising that they have to give-way.

Figure 9.1 Proposed treatment at the intersection of Combewood Avenue and Thornton Drive



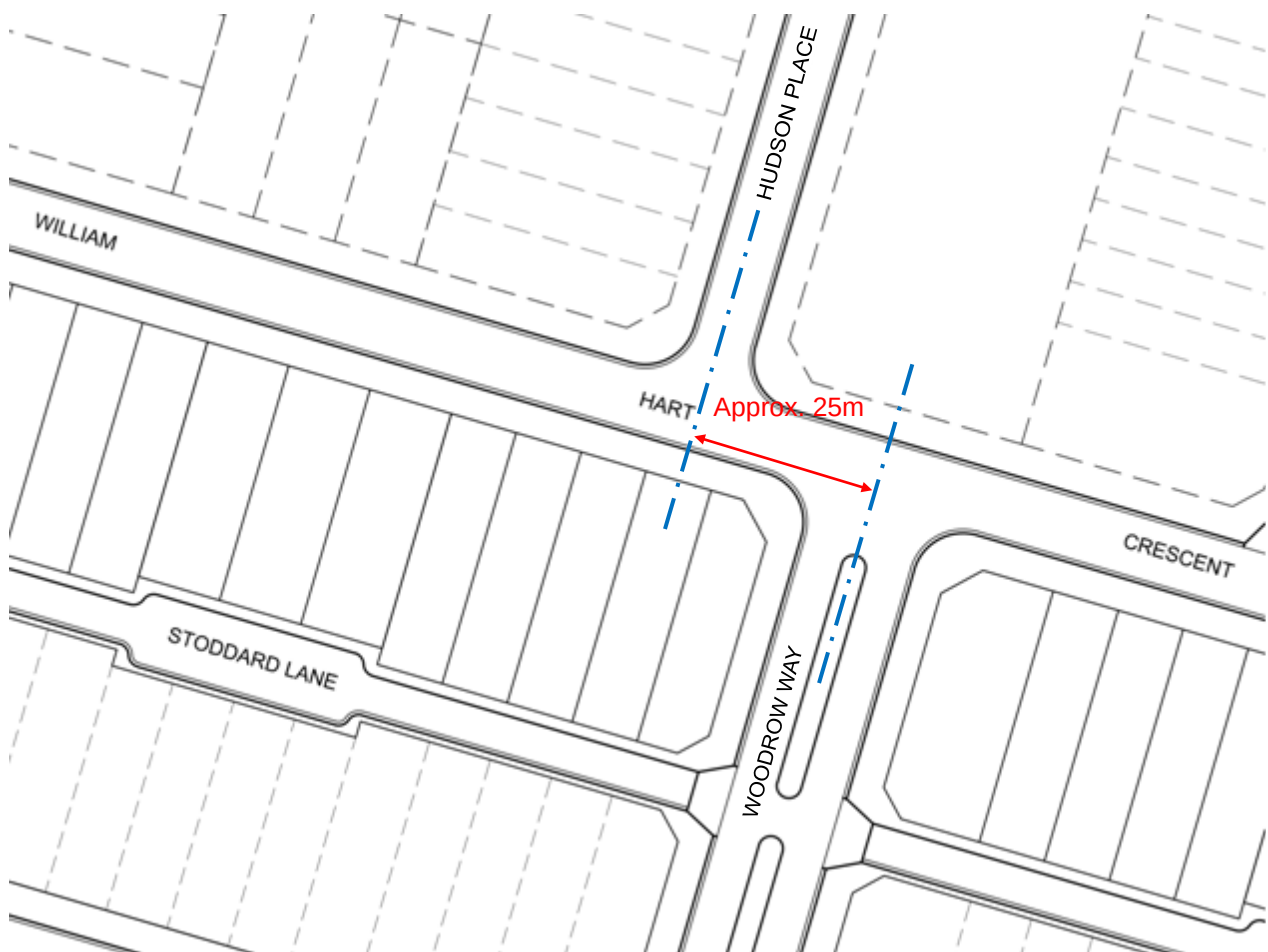
9.2 Intersections of William Hart Crescent with Hudson Place and William Hart Crescent with Woodrow Way

The distance between the intersections of William Hart Crescent with Hudson Place and William Hart Crescent with Woodrow Way is approximately 21 metres (measured between centrelines). The intersections form a left-right stagger. In the road hierarchy for the development, the streets involved are local streets. All three are expected to experience low traffic volumes, with less than 500 vehicles per day.

The Australian Model Code for Residential Development (AMCORD) outlines the minimum distance for a left-right stagger of 20 m. The distance between the two roads complies with this minimum distance.

Woodrow Way is a divided carriageway road, effectively increasing the stagger distance between the left and right-turns for vehicles travelling from Hudson Place into Woodrow Way. The tightest turns would be for vehicles travelling from Woodrow Way into Hudson Place. These turns have been tested using Austroads turning templates. It was found that there is sufficient distance for a design car to make the left-right movement without overlapping the reverse movement.

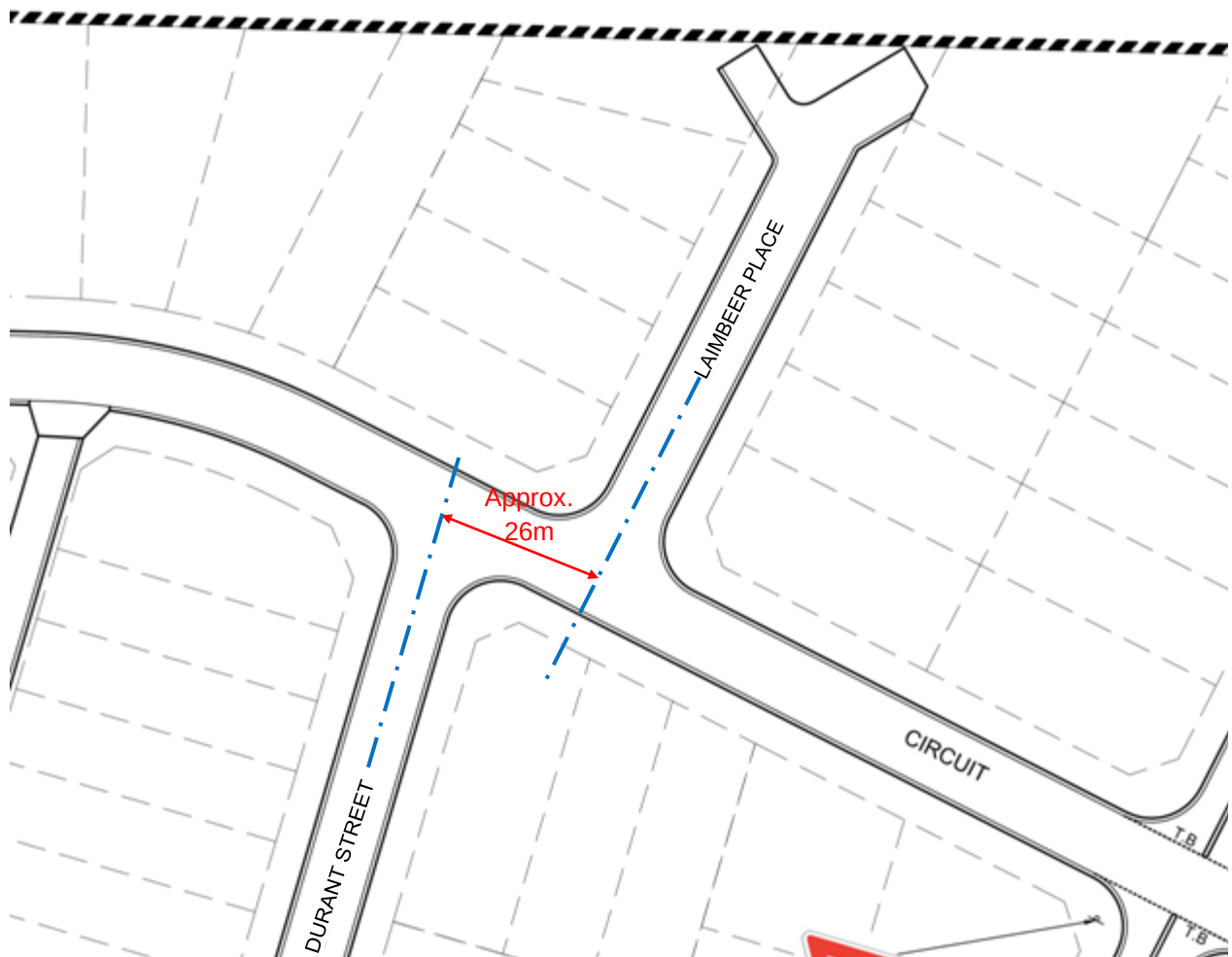
Figure 9.2 Distance between intersections of William Hart Crescent with Hudson Place and William Hart Crescent with Woodrow Way



9.3 Intersections of Empire Circuit with Durant Street and Empire Circuit with Laimbeer Place

The distance between the intersections of Empire Circuit with Durant Street and Empire Circuit with Laimbeer Place is approximately 26 metres (measured between centrelines). The intersections form a right-left stagger. In the road hierarchy for the development, the streets involved are local streets and a laneway. AMCORD outlines the minimum distance for a right-left stagger of 5 m. The distance between the two roads complies with this minimum distance.

Figure 9.3 Distance between intersections of Empire Circuit with Durant Street and Empire Circuit with Laimbeer Place



10. Summary

Parsons Brinckerhoff has undertaken a review of available plans for Stages 2B, 2C, 2D, 3A and 3B of the North Penrith Development for consistency with the transport issues covered in the 2009 TMAP. The review has covered development yield, development type, traffic generation, traffic impact, street layout, intersections and access, road hierarchy, provisions for pedestrians and cyclists, parking and service vehicle access. The proposed modified development is considered to be generally consistent with the Concept Plan assessed for the approved Concept Plan. There have been some changes to the development, including a re-ordering of the development stages, and changes in development yield and local street layout. The following points are made regarding these changes:

- The impact of the reduction of residential dwellings would be a slight reduction in traffic generation queue length and average delay. The impact of changes in retail, commercial and industrial land use will be assessed as part of future development applications.
- The provisions for pedestrians and cyclists are generally consistent with the TMAP.
- The bicycle lane on Coreen Avenue between Coreen Avenue and Thornton Drive has been replaced by a connection along Thornton Drive between the Castlereagh Road cycleway and Combewood Avenue.
- The changes to local streets are likely to improve access for local residents and the median added to Woodrow Way would not have adverse impacts.
- Intersection layout and control within the development is essentially the same as the TMAP. Upgrades of the intersections of Castlereagh Road/Peachtree Road/Thornton Drive and Combewood Avenue/ Thornton Drive are planned in Stage 2B. Other intersection upgrades at Richmond Road/ Coreen Avenue and Coreen Avenue/Coombes Drive will be provided subject to remaining funding from the amount identified in the TMAP.
- Street widths have changed from the TMAP with slightly wider parking lanes and narrower travel lanes in some locations. The overall increase in carriageway width should assist with the turning movement of garbage trucks.
- Speed control measures are recommended for Combewood Avenue and on the main street section of Lord Sheffield Circuit outside the North Penrith Station forecourt.
- The proposed parking is consistent with the parking outlined in the TMAP. Some minor changes to on-street parking have been necessitated by the changes to local roads and cycle lanes.
- The streets within the development have been designed for the turning requirements of Council's garbage vehicles. Some crossing of the centreline is required on local street, which is considered acceptable given the low traffic volumes.
- Access for semi-trailers has been provided via Combewood Avenue and the commuter car park. A minor upgrade at the intersection of Combewood Avenue at Coreen Avenue is planned before the occupation of the supermarket to provide turning space for semi-trailers.
- Traffic and trip generation is based on the rates provided in the RMS Guide to Traffic Generating Developments.
- Footpath and cycle path widths have been designed to comply with the requirements of *NSW Planning Guidelines for Walking and Cycling*, the *RMS NSW Bicycle Guidelines* and *Austrroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths*. Bicycle parking and facilities within the commercial development will be provided in accordance with the requirements of *NSW Planning Guidelines for Walking and Cycling*.

- Penrith City Council has raised issues regarding the following. The issues and the conclusions of this assessment are:
 - ▶ The need for a one-lane roundabout is required at the intersection of Combewood Avenue and Thornton Drive (previously known as Grace Drive): the currently proposed sign-controlled intersection has sufficient intersection capacity. The proposed small median islands on each approach of Thornton Drive with 'Keep Left' signs should reduce the risk of a collision with vehicles travelling on Combewood Avenue.
 - ▶ The closely spaced intersections of William Hart Crescent with Hudson Place and William Hart Crescent with Woodrow Way: the streets involved are forecast to have very low traffic volumes, the intersection spacing complies with the requirements of AMCORD and provides sufficient turning space for two cars.
 - ▶ The closely spaced intersections of Empire Circuit with Durant Street and Empire Circuit with Laimbeer Place: the streets involved are forecast to have very low traffic volumes, the intersection spacing complies with the requirements of AMCORD, turning space is not considered to be an issue.

If you have any questions regarding this review, please call me on (02) 9272 1415.

Yours sincerely



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Parsons Brinckerhoff