



**Penrith Rugby League Club Limited**  
Western Sydney Community Conference Centre  
Traffic and Parking Impact Assessment

April 2018

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# 1. Introduction

## 1.1 Background

GHD has been engaged by Panthers Rugby Leagues Club Limited, on behalf of CABC, to undertake a traffic and parking impact assessment of the Western Sydney Community Conference Centre (WSCCC) at Panthers located at 123 Mulgoa Road, Penrith.

A Masterplan Transport Strategy for the entire Panthers Precinct has been developed and includes parking and transport analysis of the entire precinct. A Voluntary Planning Agreement (VPA) for the Panthers Development has been signed by representatives of Roads and Maritime Services (Roads and Maritime), Penrith City Council and Panthers Rugby League Club on the 28<sup>th</sup> November 2012 which outlines triggers for road upgrades associated with staging developments within the Panthers precinct. The VPA is currently being reviewed and amended to incorporate changes to the land uses within the Panthers precinct including Lot 4 that incorporates the proposed WSCCC.

The VPA that is currently being revised includes an agreed set of traffic modelling parameters including land use trip generation, traffic distribution for the developments within the precinct and land use Gross Floor Areas (GFA), dwelling or mixed-uses. A summary of the agreed parameters is included in **Appendix A**.

This statement has been prepared to provide a traffic and parking impact assessment for the proposed WSCCC, with reference to the revised VPA and relevant Council Development Control Plans and Panthers Precinct Master Plan – Transport Strategy -GHD July 2014 (Transport Strategy).

This statement refers directly to the Western Sydney Community Conference Centre Development Application which consists of Lot 4 within the masterplan.

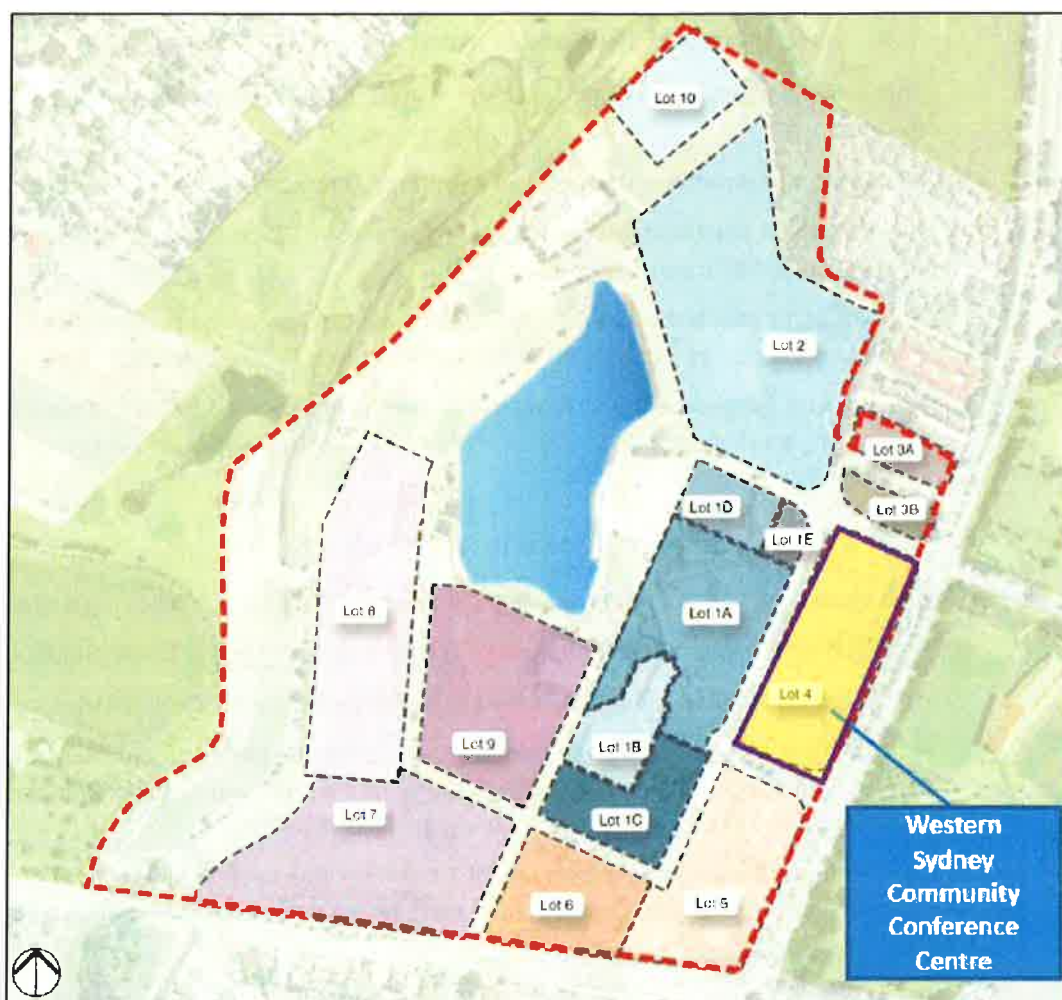
## 1.2 Previous traffic studies

The previous reports and statements prepared by GHD for this development include:

- A Masterplan Transport Strategy which comprised a parking and transport strategy for the entire Panthers Precinct, including Lot 4 (*Panthers Precinct Master Plan – Transport Strategy* referred to henceforth as the *Transport Strategy*) – July 2014.
- A Traffic Impact Statement, which provided a comparison of the traffic impacts of the updated land uses associated with the proposed ESQ 1818 Development (for Lots 2, 3a and 3b) and the previously approved land uses (as contained in the *Transport Strategy*) – March 2016.
- A Traffic Statement that analysed the changes in traffic impacts associated with the removal of the internal Riverlink Road, which was previously proposed to run in a north-south direction through the ESQ 1818 at Panthers Development – July 2016.

## 1.3 Site location and proposed development summary

The subject site for the WSCC (Lot 4) development is located on the western boundary of the site adjacent to Mulgoa Road. Retreat Drive is located to the north of the site and Panthers Place is located south of the site. The location of WSCC within the context of the overall Panthers Precinct is displayed in Figure 1.



**Figure 1 Panthers precinct development lots**

Source: Architectus Draft Urban Design Report – modified by GHD

The proposed WSCCC development consists of two stages. Stage 1 comprises of a community and conference centre, while Stage 2 comprises of a hotel, serviced apartments and exhibition space (retail). Parking is provided via a basement parking area for the use of community centre, conference centre and hotel and separate parking for the serviced apartments and staff for the exhibition area. Key features of WSCCC are provided in Table 1 with Stage 1 architectural drawings attached in **Appendix B** and Stage 2 in **Appendix C**.

**Table 1 Western Sydney Community Conference Centre key features**

Land Use	Number (rooms/seats)	GFA (m <sup>2</sup> )
Conference Centre	1,000 seats	2,380
Community Centre	N/A	1,186
Hotel	190 rooms	10,700
Serviced Apartments	137 Keys	8,630
Exhibition space (Retail)	N/A	980



## 1.4 Purpose of this statement

This statement provides a traffic and parking impact assessment of the proposal and discusses the following:

- **Existing conditions** – a review of existing road features and traffic volumes;
- **Proposed development** – provides details of the development proposal and a review of additional traffic generated;
- **Traffic impact assessment** – provides an assessment of the performance of the existing intersections and following the development of the site with reference to the VPA; and
- **Parking assessment** – a review of the parking provision and layout in relation to relevant Australian Standards (AS2890), Penrith City Council DCP requirements and the Transport Strategy.

## 1.5 Study assumptions and limitations

This assessment for the proposed development is based upon the following assumptions

- Architectural plans and development use breakdown provided Turner Studio Architects.
- Intersection survey counts for the AM and PM period conducted in 2016.
- Traffic distribution assumptions in relation to arrival and departure profiles and routes through the network as outlined in the VPA for the proposed development, based on the Transport Strategy previously approved traffic distribution.
- The background traffic growth rate of 1.5 percent has been applied to surveyed weekday AM and PM peak 2016 traffic volumes to estimate future scenario traffic volumes.

This study assumptions include:

- The conditions of the surrounding network are based on information either supplied by the traffic surveys, Google Maps and Streetview.
- Trip generation rates for the future developments have been taken from the approved Transport Strategy and Traffic Modelling Parameters outlined in **Appendix A**.

This report and assessment for the proposed development are based on the following architectural drawings (refer to Table 2) produced by Turner Studio Architects and attached in **Appendix B** and **Appendix C**.

**Table 2 Proposal drawing list**

Drawing Number	Revision	Issue Date	Title
<b>Stage 1</b>			
S1-DA-010-007	Traffic Review	3/4/2018	Stage 1 Development Application: Basement 01
S1-DA-010-008	Traffic Review	3/4/2018	Stage 1 Development Application: Ground Level
<b>Stage 2</b>			
DA-110-008	Traffic Review (D)	29/3/2018	GA Plans: Basement 01
DA-110-009	Traffic Review (F)	29/3/2018	GA Plans: Ground Level
DA-110-010	Traffic Review (C)	29/3/2018	GA Plans: Level 01
DA-110-020	Traffic Review (C)	29/3/2018	GA Plans: Level 02

## **1.6 Disclaimer**

This statement has been prepared by GHD for Panthers Rugby Leagues Club Limited and may only be used and relied on by Panthers Rugby Leagues Club Limited for the purpose agreed between GHD and the Panthers Rugby Leagues Club Limited as set out in Section 1.4 of this statement.

GHD otherwise disclaims responsibility to any person other than Panthers Rugby Leagues Club Limited arising in connection with this statement. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this statement were limited to those specifically detailed in the statement and are subject to the scope limitations set out in the statement.

The opinions, conclusions and any recommendations in this statement are based on conditions encountered and information reviewed at the date of preparation of the statement. GHD has no responsibility or obligation to update this statement to account for events or changes occurring subsequent to the date that the statement was prepared.

The opinions, conclusions and any recommendations in this statement are based on assumptions made by GHD described in Section 1.5 of this report. GHD disclaims liability arising from any of the assumptions being incorrect.

## 2. Existing conditions

### 2.1 Existing site

The existing site comprises of an at-grade car park consisting of approximately 680 car spaces within Lot 4. Currently there is access to the car park area from the internal access road (Panthers Link Road) west of the site, allowing vehicles to access and egress to Mulgoa Road via Panther Place or Retreat Drive. A secondary car park access is available from Panther Place. See Figure 2 and Figure 3 for site location.



**Figure 2 Site location**

Source: Sixmaps – modified by GHD



**Figure 3 Existing site**

Source: Turner Architects



## 2.2 Existing road network characteristics

This section provides an understanding of the existing road network surrounding the site.

### 2.2.1 Road hierarchy

Roads within NSW are categorised in two ways:

- By Classification (ownership)
- By the function that they perform.

#### Road Classification

Roads are classified (as defined by the *Roads Act 1993*) based on their importance to the movement of people and goods within NSW (as a primary means of communication).

The classification of a road allows Roads and Maritime to exercise authority of all or part of the road. Classified roads include Main Roads, State Highways, Tourist Roads, Secondary Roads, Tollways, Freeways and Transitways.

For management purposes, Roads and Maritime has three administrative classes of roads. These are:

- **State Roads** – Major arterial links through NSW and within major urban areas. They are the principle traffic carrying roads and fully controlled by Roads and Maritime with maintenance fully funded by Roads and Maritime. State Roads include all Tollways, Freeways and Transitways; and all or part of a Main Road, Tourist Road or State Highway.
- **Regional Roads** – Roads of secondary importance between State Roads and Local Roads which, with State Roads provide the main connections to and between smaller towns and perform a sub arterial function in major urban areas. Regional roads are the responsibility of councils for maintenance funding, though Roads and Maritime funds some maintenance based on traffic and infrastructure. Traffic management on Regional Roads is controlled under the delegations to local government from Roads and Maritime. Regional Roads may be all part of all or part of a Main Road, Secondary Road, Tourist Road or State Highway; or other roads as determined by Roads and Maritime.
- **Local Roads** – The remainder of the council controlled roads. Local Roads are the responsibility of councils for maintenance funding. Roads and Maritime may fund some maintenance and improvements based on specific programs (e.g. urban bus routes, road safety programs). Traffic management on Local Roads is controlled under the delegations to local government from Roads and Maritime.

#### Functional Hierarchy

Functional road classification involves the relative balance of the mobility and access functions. Roads and Maritime define four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

- **Arterial Roads** – generally controlled by Roads and Maritime, typically no limit in flow and designed to carry vehicles long distance between regional centres.
- **Sub-Arterial Roads** – can be managed by either Roads and Maritime or local council. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their aim is to carry through traffic between specific areas in a sub region, or provide connectivity from arterial road routes (regional links).

- **Collector Roads** – provide connectivity between local roads and the arterial road network and typically carry between 2,000 and 10,000 vehicles per day.
- **Local Roads** – provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

A summary of the key roads in proximity to the subject site is provided below.

Panthers and the Penrith City generally are serviced by two state classified roads, namely Great Western Highway and Mulgoa Road. Further to the south, Mulgoa Road also provides access to the M4 Motorway.

### 2.2.2 Mulgoa Road

Mulgoa Road is a classified State Road linking the Penrith City Centre and Mulgoa Village. It is generally a four-lane divided road north of Glenmore Park, and to the south of Glenmore Park is a two-lane undivided Road. Mulgoa Road is signposted at 60 km/h through the study area and currently carries an average annual daily traffic volume of 38,000 vehicles per day in the section south of Preston Street, Jamisontown. Mulgoa Road is the main traffic route into and out of Penrith and has a number of signalised intersections along its length. See Figure 4.



**Figure 4 Mulgoa Road looking north**

Source: Google maps Streetview

### 2.2.3 Retreat Drive

Retreat Drive is a private road which provides access to Penrith Panthers and Penrith Mountainview Aged Care facility (north of the site) – see Figure 5. The road is four lanes divided in an east-west direction between Mulgoa Road and the roundabout and two lanes undivided north of the roundabout. It is signposted at 10 km/h speed as it provides access to the car park facility and conveys approximately 200 vehicles during the peak hour periods (based on 2016 survey data).



**Figure 5 Retreat Drive looking west**

Source: Google maps Streetview

#### **2.2.4 Ransley Street**

Ransley Street is a local road which provides access towards Nepean Square shopping centre located east of the site as indicated in Figure 6. The road is two lanes undivided in an east-west direction between Mulgoa Road and Station Street. It is signposted as a 50 km/h and conveys approximately 350 (two way) vehicles during the peak hour periods (based on 2016 survey data).



**Figure 6 Ransley Street looking east**

*Source: Google maps Streetview*

#### **2.2.5 Panthers Link Road**

Panthers Link Road is an internal link road providing access between Panther Place, Retreat Drive and the at-grade parking facility (see Figure 7). The road is undivided with typically one lane in each direction and access to kerbside drop off and bus stop facilities. The posted speed limit is 10 km/h.



**Figure 7 Panthers Link Road looking north**

*Source: Google maps Streetview*

### **2.3 Public and active transport**

In reviewing the site and its accessibility to public and active transport opportunities, reference is made to the NSW Planning Guidelines for Walking and Cycling (2004). This document outlines a recommended walkable distance of 400 m to 800 m to public transport and other local amenities or a 1.5 km cycle distance. Details of accessibility to public transport opportunities are outlined below.



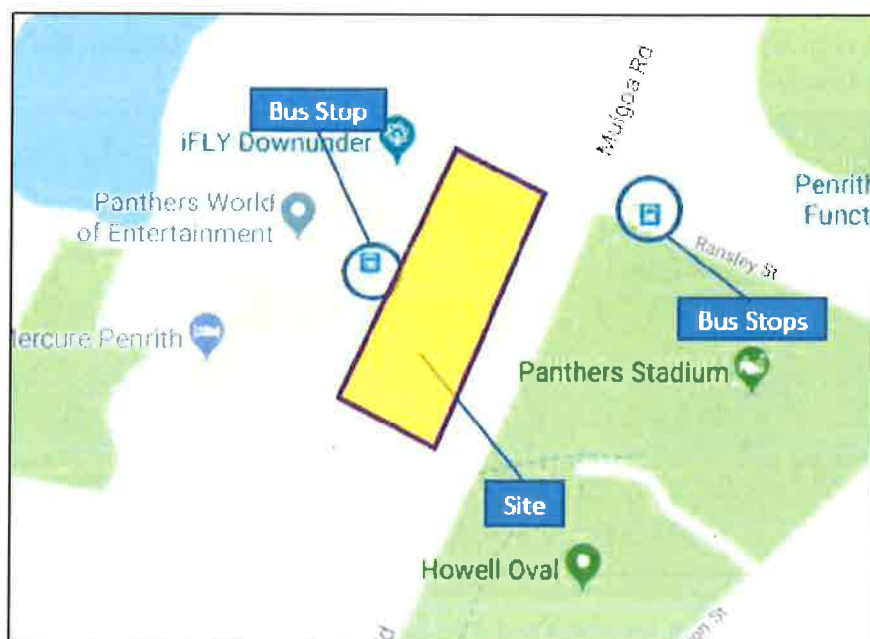
### 2.3.1 Bus services

As indicated in Figure 8, the nearest bus stops to the site are located approximately 150 m south of the site at the Penrith Panthers Leagues Club stop. An additional bus stop is located approximately 150 west of the site in Ransley Street. A summary of the bus services operating from these bus stops is provided in **Table 3**.

These bus stops are considered to be within a suitable (400 m) walking distance from the site.

**Table 3 Bus services**

Route	Frequency	Route Description
688	Weekday: Nominally 60 minute intervals Weekend: No service	Penrith to Emu Heights (Loop Service)
689	Weekday: Nominally 60 minute intervals Weekend: No service	Penrith to Leonay (Loop Service)
690P	Weekday: Nominally 60 minute intervals Saturday: Four services nominally 120 minute intervals Sunday: Two services	Springwood to Penrith
691	Weekday: Four services nominally 120 minute intervals Weekend: Three services	Mount Riverview to Penrith
1688	Weekday: Two services Weekend: Nominally 60 minute intervals	Penrith to Leonay and Emu Heights (Loop Service)

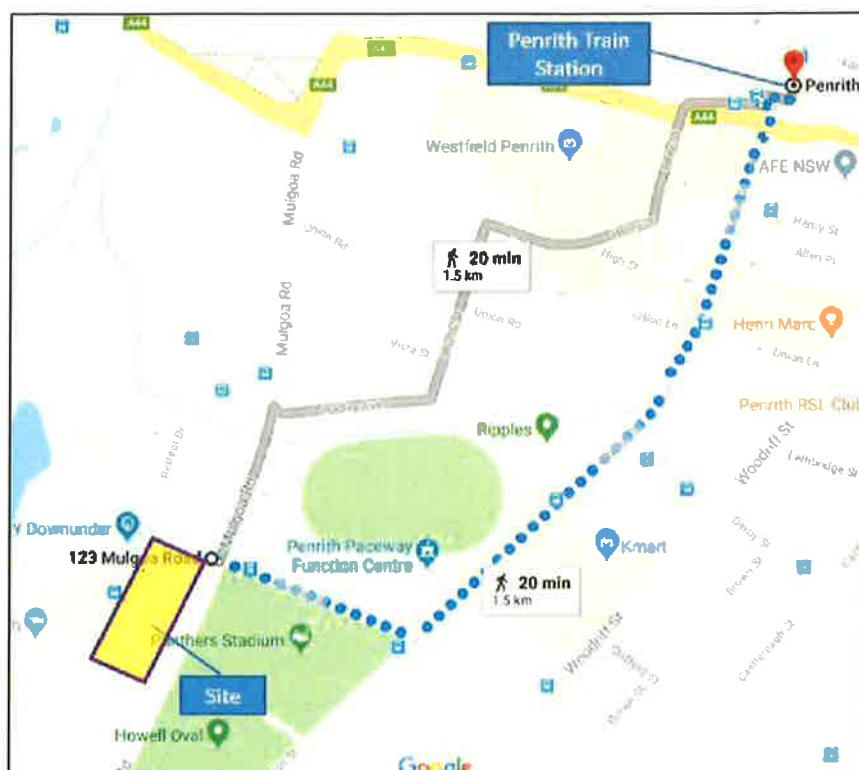


**Figure 8 Bus stops**

Source: Google maps – Modified by GHD

### 2.3.2 Train services

Penrith station is located approximately 1.5 km walking distance northeast of the site. Penrith Station is serviced by the T1 North Shore, Northern and Western Line and Blue Mountains train services providing regular services to Blacktown, Parramatta and Sydney CBD. Access to the train services is considered to be within a suitable cycle distance from the site (see Figure 9).



**Figure 9 Location of Penrith train station**

Source: Google maps – Modified by GHD

### **2.3.3 Bicycle access**

The existing bicycle routes within the vicinity of the proposal site are shown in Figure 10 as identified from the Roads and Maritime Cycleway Finder website.

As shown, there are currently off-road bicycle routes within close proximity to the site along Mulgoa Road and provides designated cycle ways to Penrith CBD and other surrounding areas.

According to the Panthers website, there is no formal bicycle parking currently provided within the site boundaries.





**Figure 10 Existing bicycle network**

Source: Transport for NSW Centre for Road Safety – Modified by GHD

### **2.3.4 Walking access**

The pedestrian network is reasonably well developed, with footpaths provided along all roads within the vicinity of the subject site. Signalised pedestrian crossing facilities are provided at the Mulgoa Road, Ransley Street intersection and a marked foot crossing mid-block on Retreat Drive between Mulgoa Road and the Retreat Drive roundabout

## **2.4 Assessment of existing traffic conditions (2016)**

### **2.4.1 Traffic surveys (2016)**

In order to obtain traffic data, Matrix Traffic and Transport Data completed traffic turning counts for the AM and PM peak periods on Wednesday 6<sup>th</sup> April 2016 at the following locations:

- Mulgoa Road / Great Western Highway / High Street;
- Mulgoa Road / Ransley Street / Retreat Drive;
- Retreat Drive Roundabout;
- Mulgoa Road / Panther Place;
- Mulgoa Road / Jamison Road; and
- Jamison Road / Harris Street

The surveys were undertaken at the following times to identify the AM and PM peak hours of road network activity:

- 7:00 am – 9:00 am
- 4:00 pm – 6:00 pm.

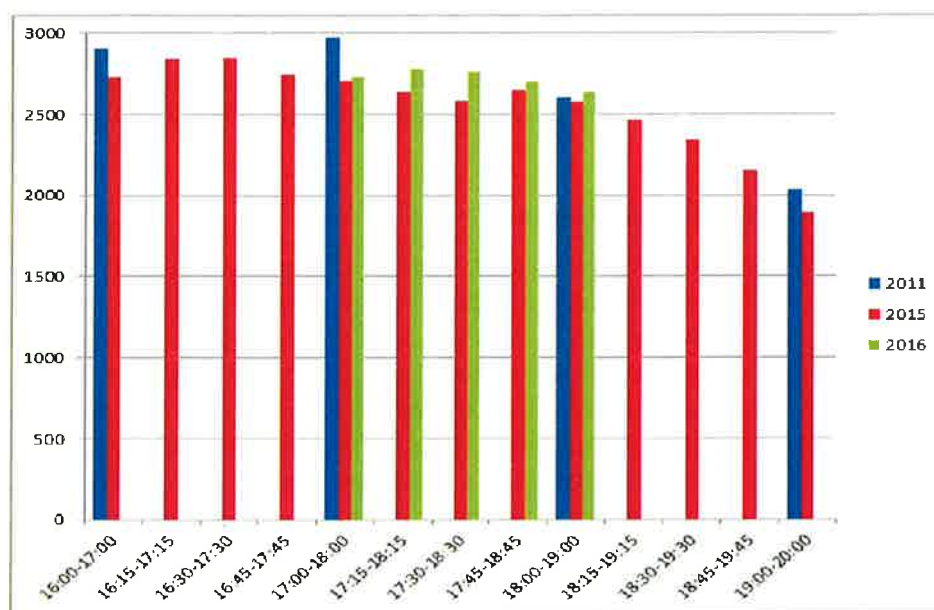
The PM peak hour surveys data was used to identify the change in traffic volumes/growth between 2011 and 2016 on the road network in proximity to the subject site.

## 2.4.2 Comparison of 2011, 2015 and 2016 PM peak hour traffic data

In order to identify the changes in traffic growth over the preceding five years (from 2011) in PM peak periods, the 2016 survey data was compared to the 2011 surveys (undertaken to support the analysis in the *Transport Strategy*).

Additionally GHD sourced traffic survey counts collected by Roads and Maritime in May 2015 on the roads in proximity to the development subject site to provide an additional point of context.

A comparison between the total traffic volumes at Mulgoa Road, Ransley Street and Retreat Drive intersection for 2011, 2015 and 2016 in the PM peak hour are displayed in Figure 11.



**Figure 11 Total PM traffic at the Mulgoa Road, Ransley Street and Retreat Drive intersection**

Figure 11 indicates that the traffic volumes on the road network in proximity to the subject site have typically decreased between 2011 and 2015/2016.

The changes in traffic (both in terms of volume and percentage) at the intersection of Mulgoa Road, Ransley Street and Retreat Drive as detailed in the available data sources are displayed in Table 4.

**Table 4 Changes in peak hour traffic volumes (2011 – 2016)**

Peak Hour		2011	2015	2016
16:00 - 17:00	Traffic Volumes	2905	2,735	-
	% Change	-	-6%	-
17:00 - 18:00	Traffic Volumes	2973	2,710	2728
	% Change	-	-10%	-9%
18:00 - 19:00	Traffic Volumes	2607	2,575	2639
	% Change	-	-1%	1%
19:00 - 20:00	Traffic Volumes	2033	1,893	-
	% Change	-	-7%	-

The data in Table 4 indicates that there has been a reduction in traffic volumes of up to 9% - 10% in PM peak traffic volumes on the road network in proximity to the subject site when comparing the 2015/2016 traffic data to the 2011 traffic data.

A review of the video provided by the survey company (for the 2016 surveys) indicates that vehicles typically cleared the intersection within their allocated phase times and there were no observed tail backs from adjoining intersections interrupting traffic flows. Accordingly, there is no evidence to indicate that congested conditions (associated with increased traffic demand) are suppressing traffic throughput and we are unable to identify the reasons for the reduction in traffic volumes between 2011 and 2015/2016.

However, in order to be conservative (where appropriate) the turning movements of the 2016 traffic volumes were scaled up to match the 2011 traffic volumes. This was undertaken to be conservative on the basis that the available data indicates that the 2011 volumes represent the "worst case" scenario.

### 2.4.3 Intersection operation

The performance of a road network is largely dependent on the operating performance of key intersections, which are critical capacity control points. SIDRA intersection modelling software was used to assess the proposed peak hour operating performance of intersections of interest on the surrounding road network. The criteria for evaluating the operational performance of intersections is provided by the Roads and Maritime Services Guide to Traffic Generating Developments (2002) and reproduced in Table 5. The criteria for evaluating the operational performance of intersections is based on a qualitative measure (i.e. Level of Service), which is applied to each band of average vehicle delay. Typically, a Level of Service (LOS) D or better is considered acceptable.

**Table 5 Level of service criteria for intersections**

Level of Service	Average Delay per Vehicle (seconds/veh)	Traffic Signals, Roundabouts	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control modes	At capacity, requires other control mode
F	> 70	Over Capacity Unstable operation	Over Capacity Unstable operation

As part of the Voluntary Planning Agreement (VPA) for the Panthers Precinct proposed developments an intersection analysis has been undertaken on key intersections within proximity of the site including:

- Mulgoa Road / Great Western Highway / High Street;
- Mulgoa Road / Ransley Street / Retreat Drive;
- Retreat Drive Roundabout;
- Mulgoa Road / Panther Place;
- Mulgoa Road / Jamison Road; and
- Jamison Road / Harris Street

The analysis for the VPA includes a comparison of the existing and future intersection operations and upgrades incorporating traffic generation for future developments within the precinct (with inclusion of WSCCC). The VPA assumes a set of upper estimate design parameters and traffic distribution as outlined in **Appendix A** with the objective to meet overall network intersection operation of LoS D and minimise intersection vehicle queue lengths to reduce the impact on adjoining intersections.

The VPA assessment for the WSCCC was based on an assumed upper Gross Floor Area (GFA), seating and hotel/serviced apartment provision and the council agreed traffic generation rate.

Table 6 outlines a comparison of the VPA trip generation provision with the proposed WSCCC provisions outlined by Turners Studio Architects.

**Table 6 Western Sydney Community Conference Centre trip generation comparison with VPA**

Land Use	Trip Generation Rate	VPA Assessment provision	VPA Trip Generation	Proposed provision (Turners Studio Architects)	Proposed Trip Generation
Conference Centre	0.32 trips per seat	1000 seats	320 trips	1000 seats	320 trips
Community Centre	AM Peak: 2.81 trips / 100 m <sup>2</sup> GFA PM Peak: 2.5 trips / 100 m <sup>2</sup> GFA	1,400 m <sup>2</sup>	AM: 40 trips PM: 35 trips	1,186 m <sup>2</sup>	AM: 34 trips PM: 30 trips
Exhibition Centre (Retail)	2 trips / 100 m <sup>2</sup> GLFA (GLFA=0.75 x GFA)	2,120 m <sup>2</sup>	32 trips	980 m <sup>2</sup>	15 trips
Hotel	0.5 trips / room	190 rooms	95 trips	190 rooms	95 trips
Serviced apartments	0.5 trips / room	137 rooms	69 trips	137 rooms	69 trips
<b>Total trips (peak)</b>			<b>556 trips</b>		<b>533 trips</b>

Based upon the comparison trip generation outline in Table 6, it can be seen that the trip generation for the proposed WSCCC by Turners Studio Architects is less than the VPA assessment. Therefore, the VPA assessment is a worst-case scenario and future intersection operation and required roadworks are to align with the VPA. Reference is to be made to the VPA for any required road upgrades to support additional traffic generation resulting from the WSCCC, surrounding future development proposals within the Panthers Precinct and background traffic growth.

### 3. Parking provision

#### 3.1 DCP parking requirement

Penrith Council has produced a Development Control Plan and associated parking rates. This traffic impact statement assesses the parking component of the WSCCC at Panthers based on the Penrith City Council Development Control Plan 2014 (DCP) Part C10 Transport, Access and Parking and the Panthers Precinct Master Plan – Transport Strategy. Table 7 provides a summary of the minimum DCP parking requirements for the proposed development.

The proposed development is to be staged, with Stage 1 consisting of the Community and Conference Centre facilities and Stage 2 consisting of the hotel, serviced apartments and exhibition (retail) space.

**Table 7 Western Sydney Community Conference Centre DCP parking requirement**

Stage	Land Use	Component	DCP Rate	Variable (rooms / seats / GFA)	Parking Requirement
1	Conference Centre	Common foyer with Community and Conference Centre	-	300 m <sup>2</sup> GFA	Not considered a parking generator
		Conference Centre	1 space per 3.5 seats	1,000 seats (2,380 m <sup>2</sup> GFA)	286 spaces
1	Community Centre	Room	1 space per 6 m <sup>2</sup> of seating area + 1 space per employee	850 m <sup>2</sup> GFA	141 + employees
		Foyer	-	86 m <sup>2</sup> GFA	Not considered a parking generator
		Amenities (Kitchen/Store)	-	250 m <sup>2</sup> GFA	Not considered a parking generator
				<b>Stage 1 subtotal</b>	<b>427 (+ employees)</b>
2	Hotel	Rooms	1 space per unit + 1 space per manager + 1 space per employee	190 rooms	190 + employees
2	Serviced Apartments	Rooms	1 space per unit + 1 space per manager + 1 space per employee	137 Keys	137 + employees
2	Exhibition space	Retail	1 space per 30 m <sup>2</sup>	980 m <sup>2</sup>	33
				<b>Stage 2 subtotal</b>	<b>360 (+ employees)</b>
<b>Total</b>	<b>Total</b>				<b>787 (+ employees)</b>



### **3.2 Stage 1 – Community and Conference Centre parking**

Turners Studio Architect drawings have outlined that during Stage 1 of the development there will be a total provision of 396 spaces within the basement car park with the following breakdown:

- Conference centre: 286 spaces (including 12 accessible spaces)
- Community centre: 80 spaces
- General club parking: 30 spaces (which will be utilised as hotel parking in Stage 2)

Additionally during Stage 1, modifications of the existing at-grade car park will result in the provision of 129 car spaces.

Although the DCP parking requirements for the Stage 1 development is closely achieved, it is anticipated that due to the mixed use within the Stage 1 development, that the provision of the basement car park could facilitate the likely parking demand required for the Community and Conference Centre component.

It is noted there is a loss of general club parking from the existing at-grade parking area of approximately 680 spaces to 159 spaces (129 spaces at grade and 30 spaces within the basement). Investigations are currently underway to utilise some of the area allocated for the Western Sydney Community and Sports Centre (Lots 7, 8, 9) that is proposed not to be proceeding to offset the loss of existing parking.

Additionally, it is noted that as a result of the Roads and Maritime Services proposed road widening of Mulgoa Road the existing at-grade parking provision would have been reduced. This in itself would have reduced the available at grade parking from the existing 680 spaces to approximately 570 spaces (a loss of some 110 spaces) despite what development (if any) would have occurred within Lot 4.

### **3.3 Stage 2 – Hotel, service apartments and retail parking**

At the completion of Stage 2, the development proposed to provide a total of 673 spaces consisting of the following breakdown:

- Basement parking area
  - Conference Centre parking: 286 spaces
  - Community Centre: 80 spaces
  - Hotel parking: 158 spaces
  - Total: 524 spaces (including 12 accessible spaces)
- Multi-storey parking area
  - Ground Floor exhibition/retail staff parking: 38 spaces
  - Ground Floor serviced apartments drop off: 2 spaces
  - Upper levels serviced apartments: 109 spaces
  - Total: 149 spaces

The parking provision considers the rate outlined the DCP and modifications outlined in the *Panthers Precinct Master Plan – Transport Strategy* which outlines a reduction in parking for the mixed-use within the facility and potential peak average parking demands to provide a more efficient use of the car spaces. This includes a reduction of the serviced apartments and hotel parking provision to 80% of the number of rooms (i.e. a minimum of 152 spaces for the hotel and 109 for the serviced apartments). The proposed provision of 158 and 109 spaces respectively achieves this desired parking provision outlined in the Transport Strategy. The

exhibition (retail component) parking meets the DCP requirement (that can be utilised by staff), as does the conference centre based upon the maximum visitor provision.

Although the community centre component does not achieve the desired DCP provision, consideration should be given to the cross utilisation of parking within each land use of the development with the possible reduction in parking provision required based upon a reduced likelihood of all land uses within the development operating at full use at any one time. Typically, peak functions for the community and conference centre are unlikely to occur concurrently, thereby the parking provision for both facilities could facilitate multi-use.

It is recommended that a Transport Access Guide (TAG) be established which summarises alternate transport options to access the development, outlining where and how these serves can be accessed and frequency of the service. This could include but not limited to:

- Public transport locations (bus /train).
- Active transport (cycle/walking) opportunities.
- Bicycle infrastructure facilities.

Staff and visitors should be encouraged to utilise such facilities, with the TAG advertised in the public domain (i.e. as websites, news media etc.) or as part of staff inductions for new employees and raised at regular team meetings.

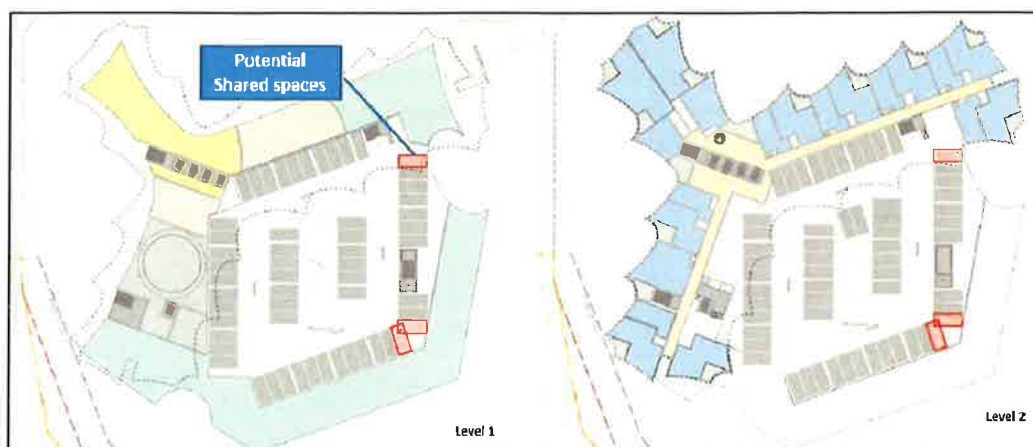
### **3.4 Accessible parking**

The Penrith City Council DCP outlines that accessible car spaces should be provided in accordance Building Code of Australia (BCA) and AS2890. The development contains several types of land used, which are typically public in nature. Applying the rate for public facilities outlined in the BCA of one accessible space per 50 car spaces (2%) and based on the basement Stage 2 parking provision of 524 car spaces, a minimum of 11 accessible spaces should be provided.

The basement parking area provides 12 designated access spaces for the use of the mix of facilities (Community and Conference centre and hotel) within the development that utilise the basement parking area.

The number of adaptable units for the serviced apartment component has not been defined at this stage of the project. It is recommended that each adaptable apartment is complemented with a designated accessible car space. The current parking layout does not identify accessible parking spaces within the served apartment parking area, however, there is an opportunity to provide the shared spaces required for the accessible car space in the unutilised areas in the corner of the parking modules, without the loss of parking proposed. With this approach, the multi-storey parking area for the serviced apartments could facilitate 6 accessible spaces as shown in

Figure 12.



**Figure 12 Potential serviced apartments accessible parking locations**

### 3.5 Bicycle Parking

Penrith City Council DCP provides the bicycle parking suggested rates be in accordance with Planning Guidelines for Walking and Cycling (NSW 2004). This document outlines the suggested provision of bicycle parking for public community centres as 3-5% of the staff number for staff bicycle parking and 5-10% of the number of staff for visitor bicycle parking provision.

The number of staff is not known at this stage of the project, however located within Stage 1 of the community and conference centre is a staff bicycle facility, incorporating spaces to store five bicycles and complemented with end of trip facilities of showers, toilets and lockers.

It is suggested that consideration is given to the provision of additional bicycle parking, such as racks, in public areas for the use of visitors (and staff) to the development. Such places could include areas within the open area between Stage 1 and Stage 2 developments.

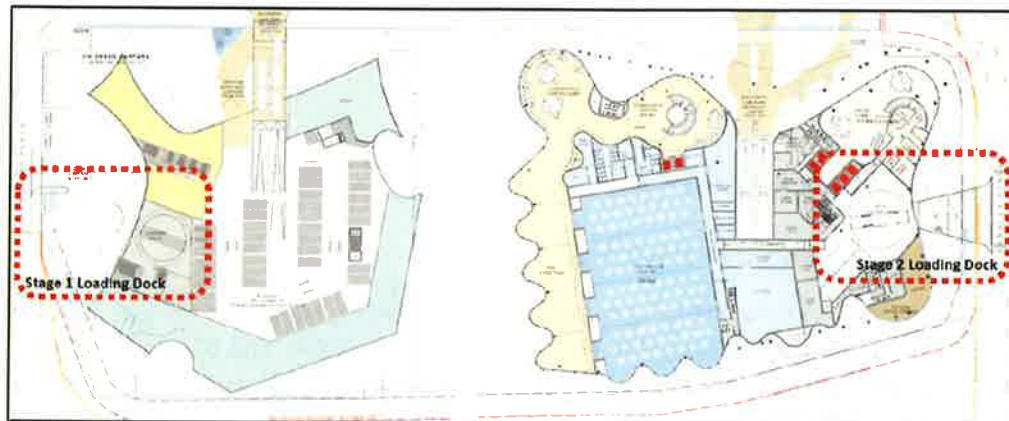
### 3.6 Service vehicle access

Stage 1 of the development provides services vehicle access/egress from Retreat Drive along the northern boundary of the site. The position of the service vehicle access is separate from the public car park access (Panthers Links Road) to provide an improved amenity and safety to the public minimising interaction between the private and service vehicle access locations. The loading area provides two designated service vehicle spaces. One space to facilitate a vehicle up to 8.8 m in length (Medium Rigid Vehicle) and one space up to 12.5 m (Heavy Rigid Vehicle). A mechanical turntable is provided to facilitate the turning of a vehicle up to 12.5 m in length to allow vehicle entry and exit from the loading dock in a forward direction.

Stage 2 of the development provides services vehicle access/egress from Panther Place along the southern boundary of the site. Similar to Stage 1, the position of the service vehicle access is separate from the public car park access (Panthers Links Road) to provide an improved amenity and safety to the public. A mechanical turntable is provided to facilitate the turning of a vehicle up to 10.5 m in length to allow vehicle entry and exit from the loading dock in a forward direction. The turntable also forms the location of a parked service vehicle permitting a parking area for one space for a vehicle up to 10.5 m in length, which is suitable for medium rigid vehicle and waste collection vehicles. A preliminary review of the service vehicle access driveway indicates that width may require a slight widening at the inface with Panther Place to facilitate then acces of the design vehicle, which can be futher refined during future design stages.

See Figure 13 for service vehicle access locations.

It is considered a loading dock management plan would be in place to manage the use and operation of the loading docks. The management plan will outline the operation of the loading dock and provide an opportunity to pre-arrange vehicular access to the loading dock, such as deliveries or waste collection vehicles. Such a plan will assist in managing the arrival and departures of the vehicles, thereby minimising the potential risk of vehicles the on-site parking provision.



**Figure 13 Stage 1 and 2 service vehicle access**

## 4. Parking layout and access review

### 4.1 General layout

An assessment of the car parking has been undertaken using AS2890.1 – Off Street Car Parking. Table 1.1 of AS2890.1 which presents a number of car park classifications applicable to different land-uses. According to the table, the car park will comprise a Class 2 facility, which is suitable for the use of generally medium-term parking (visitors). The parking space dimensions and associated aisle widths for each facility classification are presented in AS2890.1: Figure 2.2 include:

- Class 2 facility:
  - Spaces: 2.5 m x 5.4 m; and
  - Aisle Width: 5.8 m

A review of the parking layout has been completed within the proposed development. The basement parking consists of parking spaces with dimensions of with dimensions of 2.5 m x 5.4 m and aisle widths of minimum 5.8 m.

The proposed parking spaces and aisle dimensions provided align with AS2890.1 user class.

### 4.2 Circulation

Within Stage 1 the basement car parking consists of typically of one-way circulation on the outer aisle with two-way within the central aisles. Proposed one-way sections will require clear signage indicating permitted path of travel. Additionally, a wayfinding signage strategy should be developed to assist drivers to the preferred exit within the basement to minimise traffic movements within the basement car park. Such strategy should include drivers to utilise the south exit ramp to exit to the south of the site (i.e. the M4 motorway) or northern exit for drivers to travel north of the site (i.e. Penrith city centre).

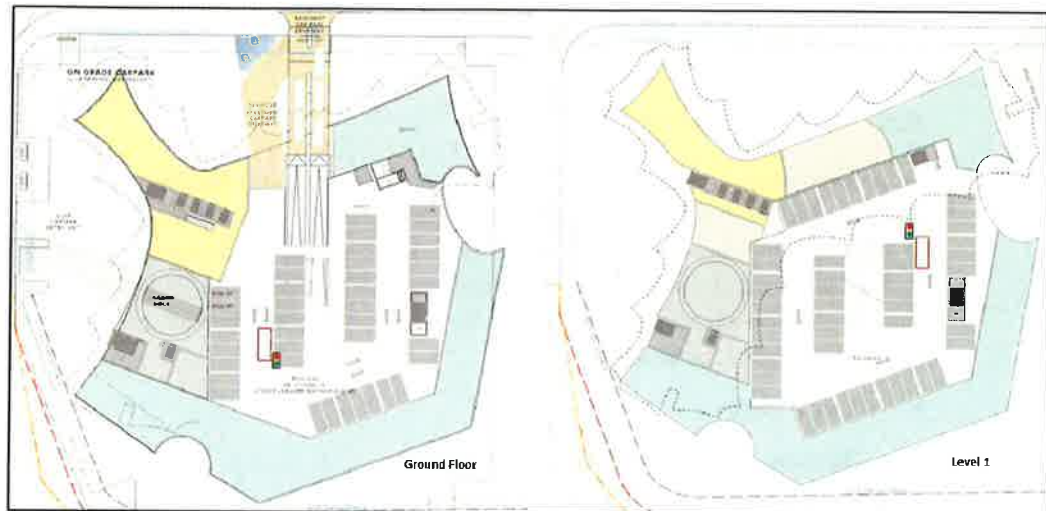
Stage 1 also provides modification of the existing at-grade parking area with access from Panther Place. This at-grade parking area consists of one-way outer circulation aisle and a two-way central aisle, providing access to the designated car spaces.

Turners Studio architectural drawings are attached in Appendix B for proposed Stage 1.

Stage 2 consists of the expansion of the basement car park with circulation generally as per Stage 1. In addition to the basement expansion, the southern basement access/egress also provides access to a multi-story parking facility for the use of the serviced apartments and staff retail parking components. This facility is a one-way circulation with a central ramp connecting the levels. The Ground level contains a dead aisle (no through vehicle movement), as such an end bay has been provided to allow vehicles to turn around and exit in a forward direction in the event parking being fully utilised. This turning area must be kept clear at all times.

Turners Studio architectural drawings are attached in Appendix C for proposed Stage 2. It is noted that the turning area on the ground floor to access the ramp is not sufficient to allow two vehicles to pass unobstructed without stopping. Traffic management measures would need to be implemented to prioritise the movements with the use of signal control in place to manage the two-way movement and minimise vehicle conflicts. Such manage system that could be considered is shown in Figure 14.





**Figure 14 Potential serviced apartment parking access traffic management control**

### 4.3 Accessible parking

Also within the layout, there is provision for accessible car spaces. Section 2.2 of AS2890.6 requires parking space dimensions 2.4 m x 5.4 m with an access aisle width of 5.8 m and a shared area of 2.4 m x 5.4 m between spaces.

The proposed car park has been designed to provide compliant parking space with minimum dimensions of 2.5 m by 5.4 m, minimum aisle width of 5.8 m and a shared space of 5.4 m by 2.5 m, which meets the minimum requirement.

### 4.4 Site access review

The sight distance requirements are described in Section 3.2 of AS2890.1 and are prescribed on the basis of the signposted speed limit or 85<sup>th</sup> percentile vehicle speeds along the frontage road.

Egress from the site is on Panthers Link Road which currently has a posted speed limit of 10 km/h. Retreat Drive is in a low-speed environment with access to car park facilities and contains traffic control measures (i.e. roundabout) to assist in maintaining traffic speeds. AS2890.1 sight distance requirements are only provided for speeds from 40 km/h. As a result of the traffic control measure and speed limit, a review of the higher speed is considered "worse case" scenario. The sight distance at 40 km/h requires a desirable visibility distance of 55 m and a minimum distance of 35 m. The proposed driveway exits are located on a straight section of the road alignment with no anticipated permanent obstructions to affect the visibility from the driver when exiting the site. Vegetation should be kept clear of the required site lines.

The car parking egress on Panthers Link Road will not permit right turn movements from the car parking area to minimise vehicle conflict and provide improved efficiency for vehicles exiting the car park. Wayfinding signage within the basement should be provided within to direct drivers to the preferred egress location. Should driver's utilise the incorrect egress, the existing roundabout facilities on Panthers Link Road and Panther Place and Retreat Drive intersection will assist drivers in navigating to their intended destination.

As per the exiting arrangement, right turn bay from Panthers Link Road into the car parking area have been proposed to minimise impact to the through movement of vehicles along Panthers Link Road.

## 5. Summary and conclusion

### 5.1 Proposed Works

This traffic impact assessment statement outlines the traffic, transport, parking and access impacts as a result of the proposed Western Sydney Community Conference Centre located on Lot 4 within the Penrith Panthers Precinct. The development comprises of:

- Stage 1
  - Community Centre (1,186 m<sup>2</sup> GFA)
  - Conference Centre (1000 seats)
  - Basement parking: 396 spaces (including 12 accessible spaces)
  - At Grade parking: 129 spaces
- Stage 2
  - Hotel (190 rooms)
  - Serviced apartments (137 keys)
  - Exhibition space/retail (980 m<sup>2</sup> GFA)
  - Basement parking: 524 spaces (including 12 accessible spaces)
  - Multi-storey parking: 147 spaces (plus 2 drop off spaces)

### 5.2 Traffic impact

The broad conclusion of the traffic impact assessment within the report is as follows:

- The traffic generation of the proposed development based on the agreed trip generation rates is 533 trips, which is compatible with the 556 trips assessed as part of the VPA analysis. Therefore the intersection operation and required roadworks are to align with the VPA requirement.
- Reference is to be made to the VPA for any required road upgrades to support additional traffic generation resulting from the WSCCC, surrounding future development proposals within the Panthers Precinct and background traffic growth.

### 5.3 Parking provision and layout

The broad conclusions of the parking assessment within the report are as follows:

- An assessment of the statutory parking requirement against the Penrith City Council DCP indicates that the development is required to provide 427 and 360 spaces with Stage 1 and 2 respectively, for a total 782 parking spaces (excluding employees) at the completion of Stage 2 of the development. The development also refers the Panthers Precinct Master Plan – Transport Strategy that considers a reduction in parking (notably for the Hotel and Serviced apartment components).
- The DCP parking requirements for the Stage 1 development is closely achieved with the provision of 366 spaces for the community and conference centre. It is anticipated that due to the mixed use within the Stage 1 development, that the provision of the basement car park could facilitate the likely parking demand required for the Stage 1 Community and Conference Centre component.
- At the completion of Stage 2, the development proposes to provide a total of 673 spaces. It is noted however for:

- The hotel and serviced apartments components, the proposed development meet the *Panthers Precinct Master Plan – Transport Strategy*, which considers the reduction of the parking provision for these uses to 80% of the rooms.
- The exhibition (retail) component meets the DCP parking requirements
- The community centre component does not achieve the desired DCP provision. However, consideration should be given to the cross utilisation of parking use within each land use of the development with the possible reduction in parking provision required based upon a reduced likelihood of all land uses within the development operating at full use at any one time. Typically, peak functions for the community and conference centre are unlikely to occur concurrently, thereby the parking provision for both facilities could facilitate multi-use.
- The Roads and Maritime Services proposed road widening of Mulgoa Road the existing at-grade parking provision would have been reduced. This in itself would have reduced the available at grade parking from the existing 680 spaces to approximately 570 spaces (a loss of some 110 spaces) despite what development (if any) would have occurred within Lot 4.
- The loss of existing general club parking from the at-grade parking area of approximately 680 spaces is proposed to be offset with implementation of a parking area located in Lots 7, 8, 9 of the Panthers Precinct (under investigation). This area was originally allocated for the Western Sydney Community and Sports Centre that is proposed not to be proceeding.
- The layout of the car park is generally in accordance with AS2890.1 and AS2890.6.
- Service vehicle parking areas (loading docks) are located within the development, separate from the car park access. Access from Stage 1 loading dock is via Retreat Drive and can facilitate vehicles up to 12.5 m in length, while Stage 2 loading dock is accessed via Panther Place and can facilitate vehicles up to 10.5 m in length. Both permit entry and exit of vehicles in a forward direction via the use of a mechanical turntable.

## 5.4 Mitigation measures

It is recommended that the following key mitigation measures be implemented for the development:

- A loading dock management plan to manage the arrival and departures of service vehicles to the site reducing the potential of multiple service vehicle arrivals.
- A Transport Access Guide to identify alternate travel options for visitors and staff to encourage sustainable transport and reducing parking demand.
- Additional bicycle parking, such as racks, in public areas for the use of visitors (and staff) to the development.
- Traffic management control (signals) within the serviced apartment car parking area to manage two-way movement on the ground floor to the ramp to the first floor.
- Accessible parking can be provided within the serviced apartments car parking for up to 6 spaces without the loss of parking under the current parking arrangement.
- Wayfinding signage strategy should be developed to assist drivers to the preferred exit within the basement to minimise traffic movements within the basement car park.
- Provision of an additional parking area (in Lots 7, 8, 9) to offset the loss of existing at-grade parking in Lot 4.
- The provisions of required road network upgrades outlined in the agreed VPA.

## **5.5 Conclusion**

Based on the assumptions and investigations undertaken by GHD and the conclusions drawn above, it is considered that the proposed development satisfies the planning requirements on traffic engineering grounds with consideration to reduce parking rates and mitigation measures outlined. The reduction of parking rate applied could be supplemented with the consideration of cross facility use of the parking provision and implementation of Transport Access Guides to encourage sustainable transport options and reducing parking demand. Furthermore, the forecast traffic generation associated with the proposed development aligns with the VPA analysis.

DRAFT

## Appendices





## **Appendix A** Voluntary Planning Agreement Traffic Modelling Parameters

# Panthers Precinct Modelling Parameters

Table 1 - Summary of Scenarios for traffic modelling

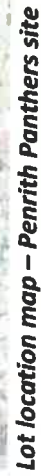
Scenario	Year of modelling	Lot	Development Stage/ Land Use	Number (units/dwelling)	Number GFA (m <sup>2</sup> )	Trip Generation Rate
Existing	2016 base model	1A	Existing Club Expansions	N/A	N/A	N/A – Included in existing Base Traffic model ^
		1B	Existing Chifley Hotel	N/A	N/A	N/A – Included in existing Base Traffic model ^
		1E	fly	N/A	N/A	N/A – Included in existing Base Traffic model ^
		Lot 8	NRL Academy	N/A	N/A	N/A – Included in existing Base Traffic model ^
1	2019	Lot 6	Seniors Living	151 dwellings	25,488 m <sup>2</sup>	0.4 trips / dwelling
2	2020	Lot 3A + 3B	ESQ Stage 1 – Residential	152 dwellings	12,843 m <sup>2</sup>	0.5 trips / dwelling
		Lot 2	ESQ Stage 2A/2B – Residential	186 dwellings	17,080 m <sup>2</sup>	0.5 trips / dwelling
			ESQ Stage 2A/2B – Retail	N/A	1,292 m <sup>2</sup>	2 trips/100 m <sup>2</sup> GLFA (GLFA = 0.75 x GFA)
3	2021	Lot 4	Western Sydney Conference and Community Centre			
			• Conference Centre	1000 seats	2,400 m <sup>2</sup>	0.32 trips per seat *
			• Community Centre	N/A	1,400 m <sup>2</sup>	AM Peak: 2.81 trips /100 m <sup>2</sup> GFA *
						PM Peak: 2.5 trips /100 m <sup>2</sup> GFA *
			• Panther Retail	N/A	2,120 m <sup>2</sup>	2 trips/100 m <sup>2</sup> GLFA (GLFA = 0.75 x GFA) *
4	2022	Lot 2	• Hotel	190 rooms	9,500 m <sup>2</sup>	0.5 trips / room *
			• Serviced Apartments	137 rooms	11,100 m <sup>2</sup>	0.5 trips / room *
			ESQ Stage 3 – Residential	142 dwellings	12,030 m <sup>2</sup>	0.5 trips / dwelling
			ESQ Stage 4/5 – Residential	370 dwellings	34,000 m <sup>2</sup>	0.5 trips / dwelling
			ESQ Stage 4/5 – Retail	N/A	2,208 m <sup>2</sup>	2 trips/100 m <sup>2</sup> GLFA (GLFA = 0.75 x GFA)
5	2024	Lot 1C	Entertainment Leisure Centre	N/A	2,600 m <sup>2</sup>	0.6 trips/100 m <sup>2</sup> GFA
			Retail	N/A	1,200 m <sup>2</sup>	2 trips/100 m <sup>2</sup> GLFA (GLFA = 0.75 x GFA)
			Residential	48 dwellings	4,100 m <sup>2</sup>	0.5 trips / dwelling
			Existing Club – Future Expansion	N/A	5,000 m <sup>2</sup>	1 trip/100 m <sup>2</sup> GFA
			Commercial Office and indoor recreation			
6	2025	Lot 1A	• Commercial office	N/A	7,500 m <sup>2</sup>	AM Peak: 1.6 trips /100 m <sup>2</sup> GFA #
		Lot 9	• Indoor Recreation	N/A	7,500 m <sup>2</sup>	PM Peak: 1.2 trips /100 m <sup>2</sup> GFA
		Lot 7	Car Park	N/A		0.5 trips/100 m <sup>2</sup> GFA
7	2026	Lot 1D	• Serviced Apartments	84 dwellings	6,495 m <sup>2</sup>	N/A: Parking area only – No additional traffic flow has been assumed.
			• Retail	N/A	900 m <sup>2</sup>	0.5 trips / room
			• Car Park	N/A	N/A	2 trips/100 m <sup>2</sup> GLFA (GLFA = 0.75 x GFA)
8	2031	Lot 5	Residential	300 dwellings	25,500 m <sup>2</sup>	N/A – traffic generation associated with land use
						0.5 trips / dwelling

(\*) Lot 4 rates for Western Sydney Community and Conference Centre (based on ITE and first principles) and rates for Hotel/Service apartment/retail components Panthers Prescient Masterplan. Approved by Council email from Joel Carson dated 15/1/2018.

- (#) RMS TDT 2013/04a: Guide to Traffic Generation Developments – Updated traffic surveys

- (\*) The masterplan traffic generation not applicable as these developments were completed prior to the base model of 2016. As agreed at Council meeting with Joel Carson and Walter Sinnadurai (29/1/2018)

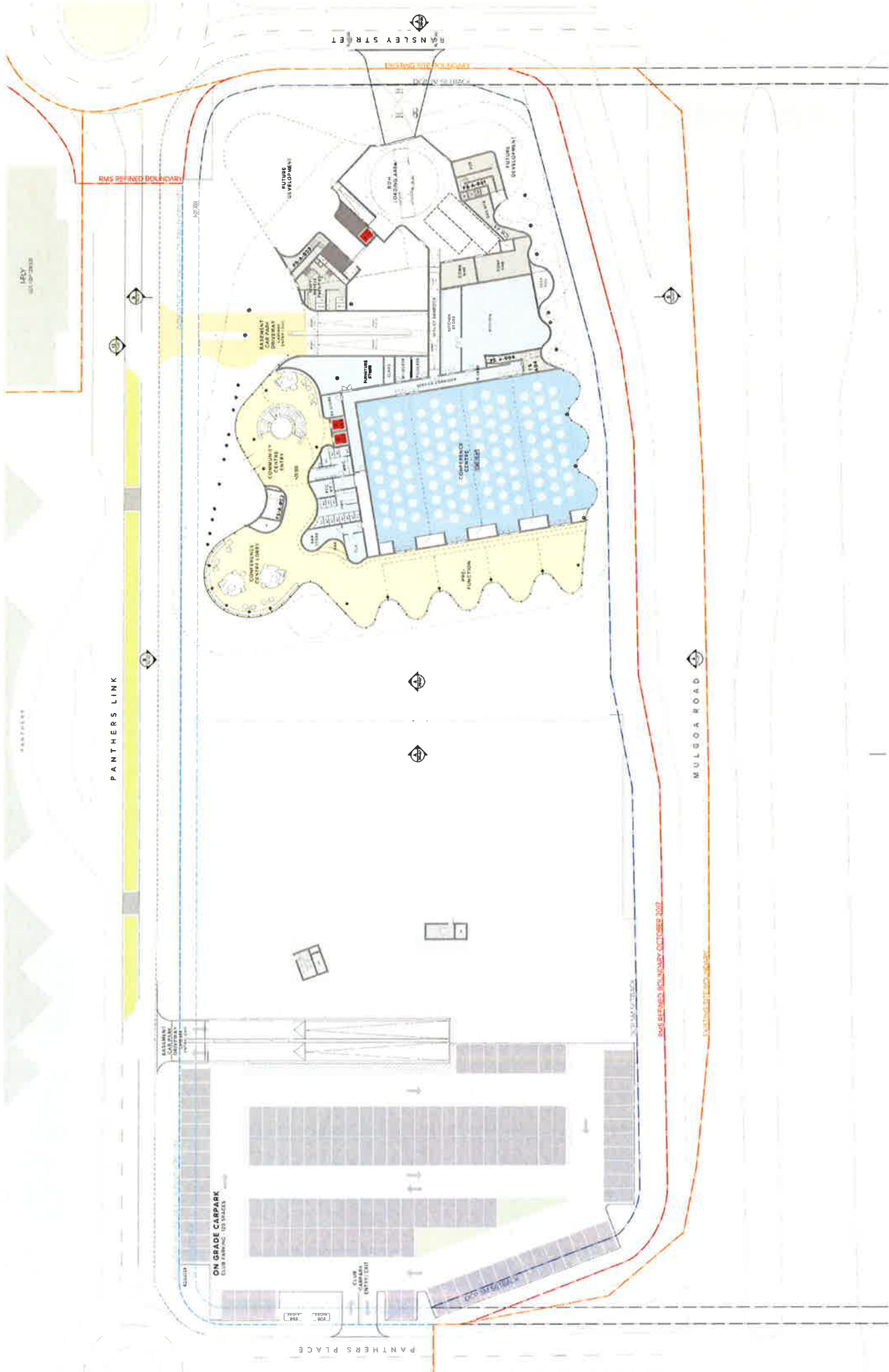
- Trip generation rates as per Table 1 above is agreed by Council via email from Joel Carson dated 29/1/2018
- Lot 10 (planned zone substation) is no longer proceeding



## **Appendix B** – Stage 1 Architectural Drawings

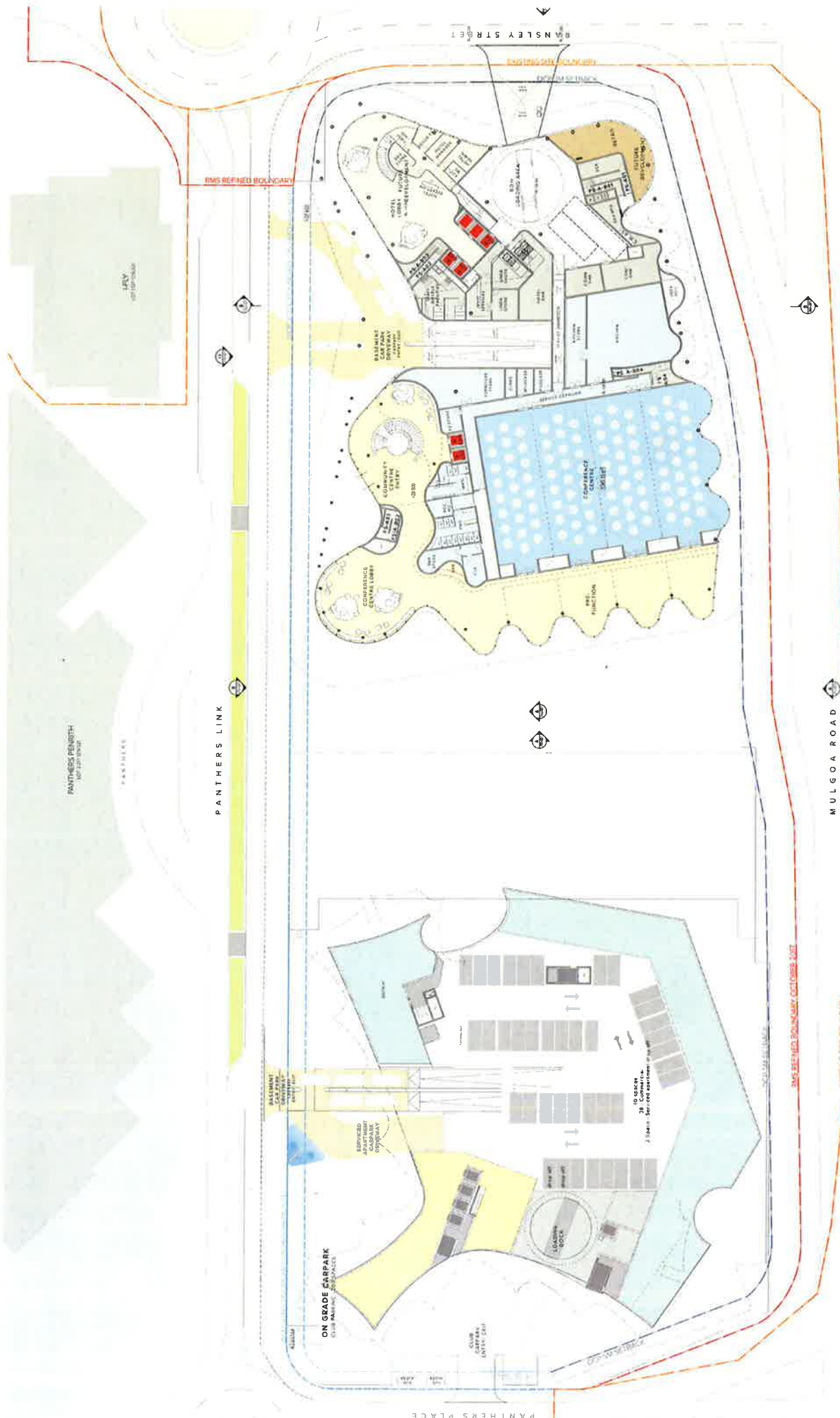




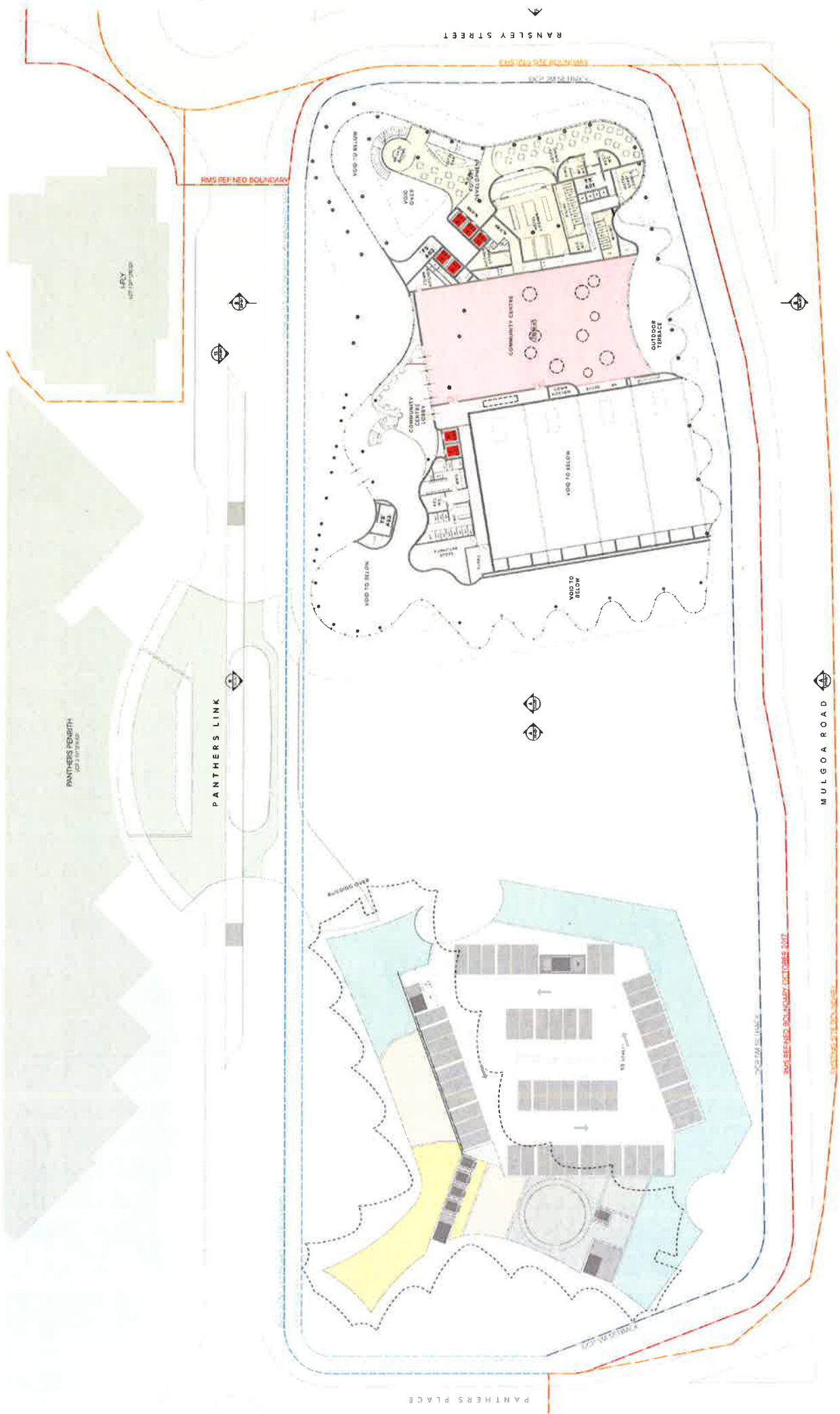


## **Appendix C – Stage 2 Architectural Drawings**











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