



Australian Arms Hotel, Penrith Transport and Parking Assessment

Prepared for:
NRA Collaborative

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APPENDICES

- A. INTERSECTION MOVEMENTS COUNTS SURVEY (MARCH 2018)
- B. PARKING OCCUPANCY SURVEY (MARCH 2018)
- C. PARKING LAYOUT
- D. SWEPT PATHS AND PROPOSED TRAFFIC MANAGEMENT MEASURES
- E. STRATEGIC TRAFFIC MODEL (TRAFFIC GROWTH PER YEAR 2016-2026)

1 Introduction

This traffic and parking assessment report has been prepared by The Transport Planning Partnership (TTPP) on behalf of NRA Collaborative to accompany the proposed expansion of Australian Arms Hotel located at 351 and 359 High Street, and 18 Lawson Street, Penrith. While the existing hotel is proposed to be altered to retain the heritage character, the expansion is proposed to take place at the existing beer garden, at-grade car park and commercial premises located north of the existing hotel.

The proposed redevelopment consists of the following key features:

- Retention of the existing pub
- Provision of a new hotel accommodation to accommodate a total of 115 hotel rooms
- Provision of a new conference and function facility
- Provision of a new café in a landscaped area
- Provision of a new basement car park with approximately 64 spaces
- Provision of a loading dock with a turntable served from Lawson Lane
- Provision of a 10km/h shared zone in Lawson Lane with a porte cochère entrance to the hotel.

This report sets out an assessment of the anticipated transport impacts of the proposed development, including the following:

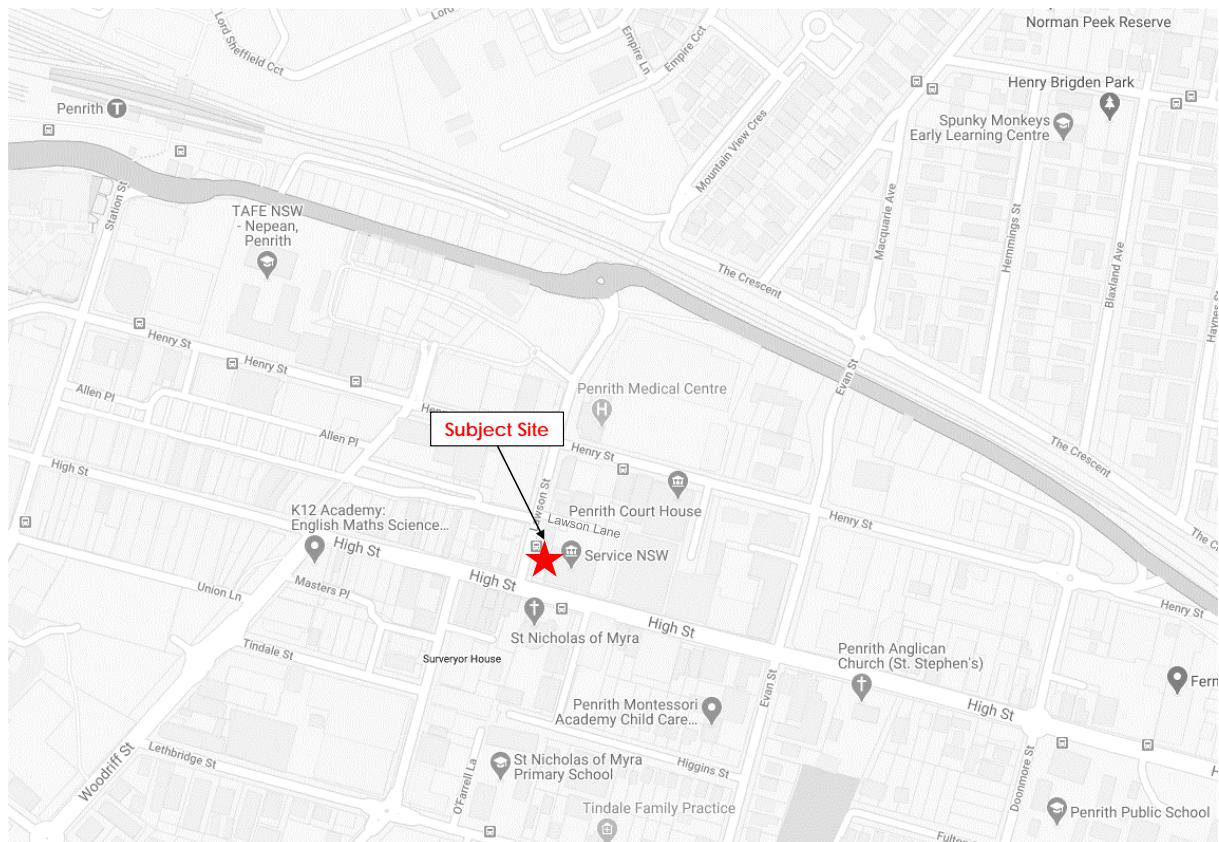
- existing transport conditions surrounding the site
- car parking, pedestrian and bicycle requirements
- the traffic generating characteristics of the proposed redevelopment
- suitability of the proposed access arrangements for the site
- the transport impact of the development on the surrounding road network.

2 Existing Transport Conditions

2.1 Site Location

The subject site is located on lot parcels at 351 and 359 High Street and 18 Lawson Street, Penrith, as shown on Figure 2.1. The site is bound by High Street to the south and Lawson Street to the west, with Lawson Lane bisecting the site.

Figure 2.1: Site Location and its Surrounding Environs



Source: Google Maps Australia

The subject site is located within the Justice Precinct as one of the Opportunity Precincts for future developments in the Penrith city centre as part of the City Centre vision.

2.2 Existing Site

The existing pub is a local heritage building that provides approximately 230m² of bar and lounge area on the ground floor, and 6 hotel rooms and a manager's suite in the upper level. A covered beer garden with some 120m² of seating area is connected to the pub.

An at-grade car park is located to the rear of the pub off Lawson Lane and provides 24 spaces. 'No Parking' zones are provided on both sides of Lawson Lane.

2.3 Road Network

Lawson Street is located along the western boundary of the subject site and is a local road under the jurisdiction of Penrith City Council. It runs from north to south connecting North Street, Henry Street and High Street. It has one traffic lane in each direction with restricted parking lanes on both sides of the road between High Street and Henry Street.

Lawson Street is a 40km/h high pedestrian activity area between south of Lawson Lane and High Street. A Bus zone is currently located on the east side of Lawson Street just outside the subject site.

High Street is located along the southern boundary of the subject site and runs through the Penrith city centre. High Street generally has one travel lane in each direction with restricted kerbside parking on both sides of the road but is a one-way road westbound between Station Street and Henry Street.

High Street is a 40km/h high pedestrian activity area and has a three tonnes load restriction through the Penrith city centre.

Henry Street is a two-way road that stretches between Great Western Highway and High Street in an east to west direction. The road has one traffic lane in each direction with a combination of unrestricted and restricted kerb side parking on both sides of the road.

Lawson Lane is a two-way laneway providing access to the rear car park of the Australian Arms Hotel and two other car parks of the neighbouring properties. All turning movements are permitted at its intersection with Lawson Street.

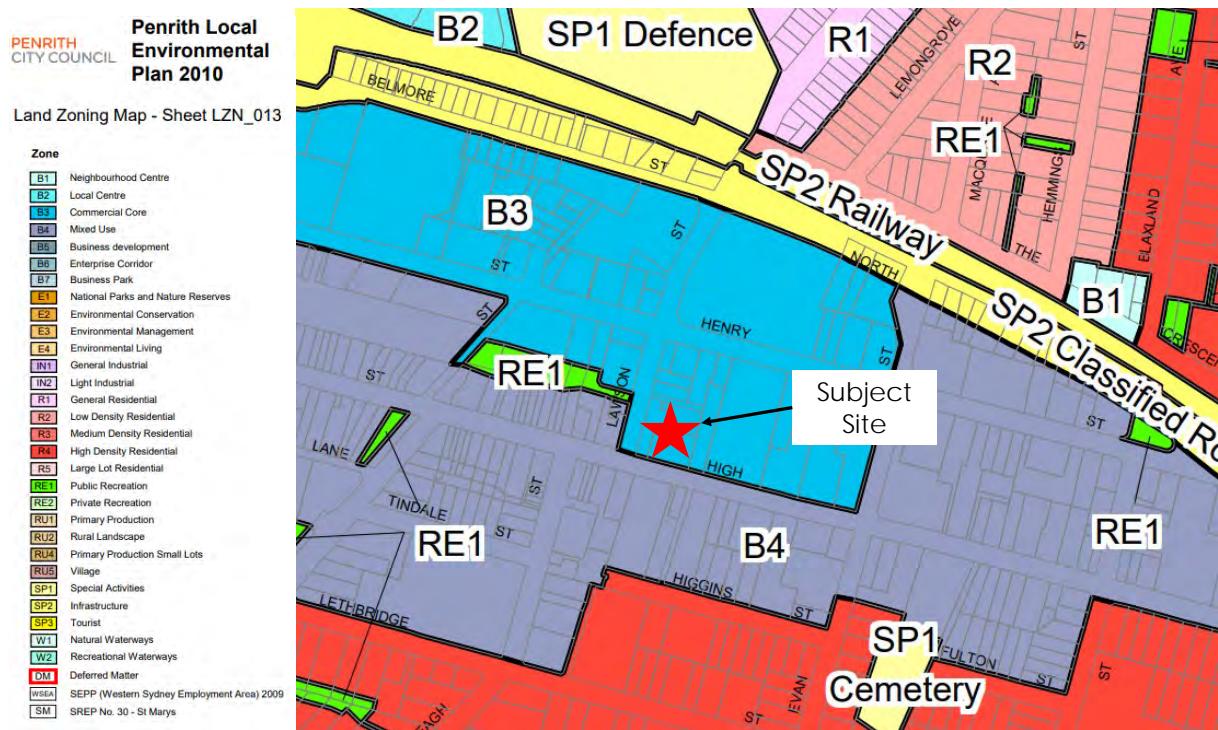
2.4 Current Land Use

The subject site is situated at 351 and 359 High Street and 18 Lawson Street within a B3 Commercial Core zone. A B3 Commercial Core zone is defined as an area that provides a wide range of retail, business, office, entertainment, community and other suitable land uses that serve the needs of the local and wider community.

The permitted use of the B3 Commercial Core zone includes hotel or motel accommodation, function centres, entertainment facilities and car parks.

The surrounding land uses as shown in Figure 2.2 include B3 Commercial Core zone, B4 Mixed and RE1 Public Recreation zone. The RE1 zone located to the west of the subject site in Edwards Place is currently used as a short-term car park.

Figure 2.2: Existing Land Use



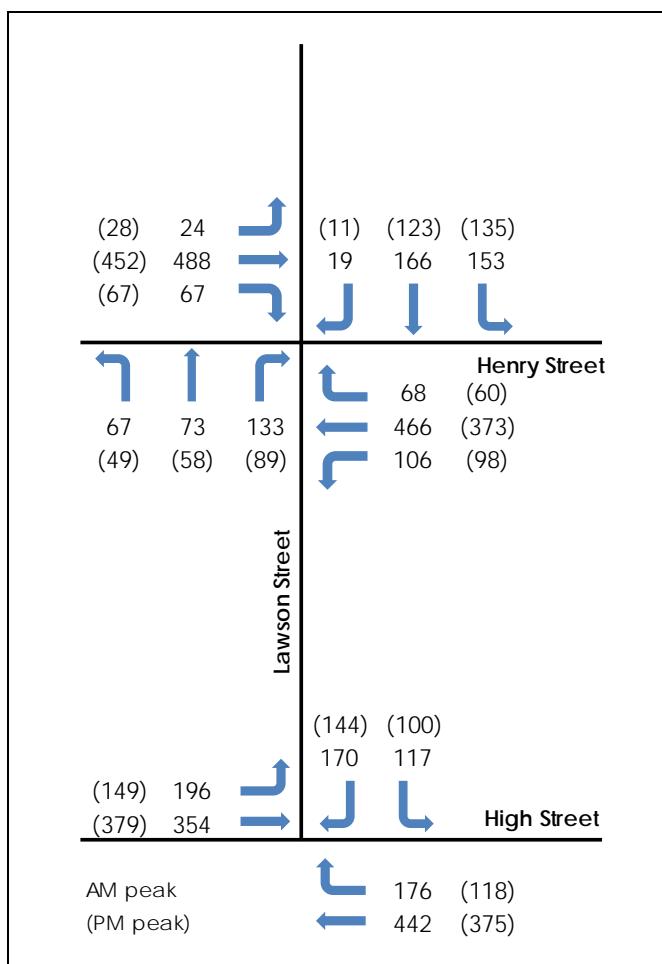
Source: Penrith City Council LEP 2010 (last accessed 2/7/2020)

2.5 Existing Background Traffic

TPPP commissioned a turning movement survey to record traffic volumes at the intersection of Henry Street with Lawson Street and the intersection of High Street with Lawson Street during the PM peak period on Thursday 15 March 2018 and during the AM peak period on Thursday 22 March 2018. The traffic survey was undertaken during the Planning Proposal stage and is deemed valid. Traffic survey was not repeated in 2020 due to the current Covid-19 situation where traffic volumes will not be representative of typical conditions.

Figure 2.3 shows the existing peak hour traffic at these intersections. Survey data is shown in Appendix A.

Figure 2.3: Existing Traffic Volumes (2018)



Note: AM peak hour (7.45am-8.45am) and PM peak hour (4.30pm-5.30pm)

2.6 Existing Parking Facilities

In response to the requirements stipulated in Penrith Development Control Plan (DCP) 2014, the on-site car park is not required to fully accommodate the likely parking demand associated with the development. The DCP allows a maximum of 60% of the total number of commercial parking spaces required by the development to be provided on-site. Refer to Section 4.1 for further details.

On this basis, the proposed redevelopment would not fully accommodate the parking demand within the proposed basement car park and would most likely generate some demands on the surrounding streets and off-street public car parks.

A parking demand survey was undertaken in the vicinity of the site in order to appreciate the impacts of the parking demand associated with the operation of the proposed development. The parking demand survey was carried out during the following periods:

- Between 7am and 5pm on Thursday 15 March 2018 and between 5pm and 9pm on Thursday 22 March 2018

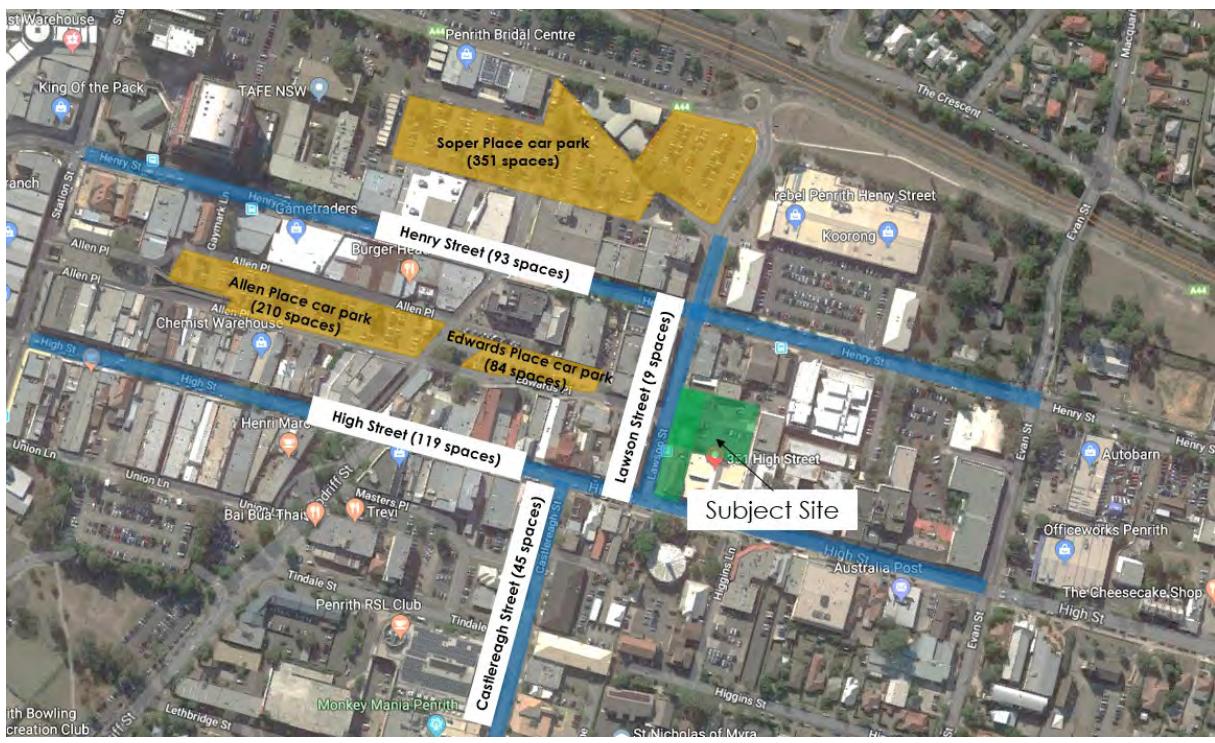
- Between 7am and 5pm on Saturday 17 March 2018 and between 5pm and 9pm on Saturday 24 March 2018.

Survey data is shown in Appendix B. As mentioned earlier, parking survey undertaken in 2018 is considered valid and no survey was repeated in 2020 due to the existing Covid-19 situation.

The survey locations recorded 911 spaces on both sides of the following streets and off-street public car parks, including the disabled parking, loading zone and reserved/authorised parking (refer to Figure 2.4):

- High Street (119 spaces)
- Lawson Street (9 spaces)
- Castlereagh Street (45 spaces)
- Henry Street (93 spaces)
- Edwards Place off-street public car park (84 spaces)
- Allen Place off-street public car park (210 spaces)
- Soper Place off-street public car park (351 spaces).

Figure 2.4: Extent of the Parking Demand Survey



The objective of the parking demand survey was to determine the occupancy of each parking space.

2.6.1 Parking Supply

Table 2.1 provides a summary of the parking supply at the surveyed roads and off-street public car parks, excluding a total of 16 spaces that are designated for disabled parking, loading zone and reserved/authorised parking. Thus, the total parking supply is 895 spaces within the survey area.

Table 2.1: Parking Supply in the vicinity of the Site

Parking Location	Sub-Area	Untimed	Timed-15 minutes	Timed-Half Hour	Timed-1 Hour	Timed-2 Hours	Timed-3 Hours	Total
High Street	Station Street opposite of Woodriff Street	0	0	29	0	0	0	29
	Opposite of Woodriff Street to Lawson Street	0	5	10	0	0	0	15
	Lawson Street to Evans Street	7	0	12	0	0	0	19
	Evans Street to Higgins Lane	0	4	0	11	0	0	15
	Higgins Lane to Castlereagh Street	0	0	5	0	0	0	5
	Castlereagh Street to Woodriff Street	0	0	12	0	0	0	12
	Woodriff Street to Station Street	0	0	24	0	0	0	24
Lawson Street	Henry Street to Lawson Lane	0	0	0	2	0	0	2
	High Street to Edwards Place	0	0	0	4	0	0	4
	Edwards Place to Henry Street	0	0	0	3	0	0	3
Castlereagh Street	Lethbridge Street Round About to Tindale Street	0	0	13	0	0	0	13
	Tindale Street to Masters Place Car Park	0	0	2	0	0	0	2
	Masters Place Car Park to High Street	0	0	6	0	0	0	6
	High Street to John Cram Place	0	0	3	0	0	0	3
	John Cram Place to Lethbridge Street roundabout	0	0	5	16	0	0	21
Henry Street	Station Street to Woodriff Street	0	0	0	19	0	0	19

Parking Location	Sub-Area	Untimed	Timed-15 minutes	Timed-Half Hour	Timed-1 Hour	Timed-2 Hours	Timed-3 Hours	Total
	Woodriff Street to Lawson Street	0	0	0	13	0	0	13
	Lawson Street to Evans Street	0	0	0	12	0	0	12
	Evans Street to Lawson Street	11	0	0		0	0	11
	Lawson Street to Woodriff Street	0	0	0	11	0	0	11
	Woodriff Street to Gaymark Lane	2	0	0	21	0	0	23
	Gaymark Lane to Station Street	0	0	0	4	0	0	4
Edwards Place off-street public car park	-	0	0	0	0	82	0	82
Allen Place off-street public car park	-	0	0	0	41	160	0	201
Soper Place off-street public car park	-	259	0	0	0	0	87	346
Total		279	9	121	157	242	87	895

Notes:

(1) Disabled parking, loading zone and reserved/authorised parking have been excluded in the above numbers.

(2) No parking zones are in operation:

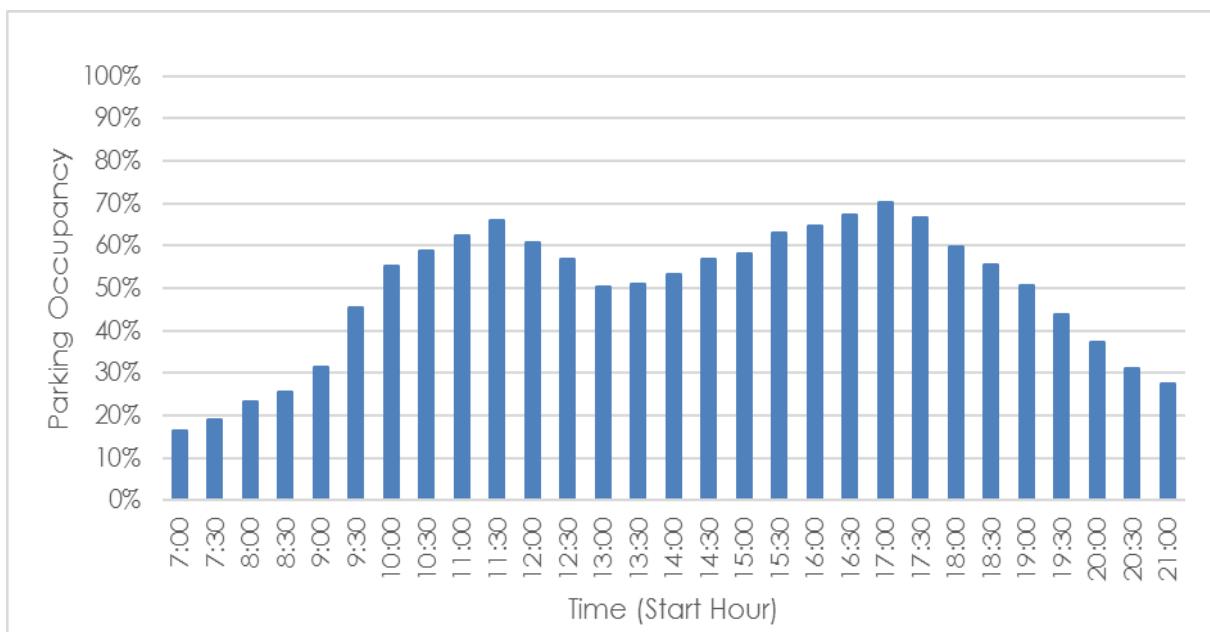
- Henry Street between Lawson Street and Evans Street (23 spaces) 3:30pm-6:30pm Monday to Friday.
- Henry Street between Woodriff Street and Gaymark Lane (2 spaces) 8:30am-6pm Monday-Friday, 8:30am-12:30pm Saturday.
- High Street between Lawson Street and Evans Street (7 spaces) 7am-6pm Monday to Friday.

2.6.2 Parking Demand

2.6.2.1 Weekday (Thursday)

The parking demands recorded for the overall survey area on Thursday are depicted graphically on Figure 2.5.

Figure 2.5: Overall Survey Area – Parking Occupancy (Thursday)



The results indicate that overall the highest parking occupancy occurred at 5pm before the parking demands reduced significantly for the rest of the day. During this peak period, the parking supply was 863 spaces due to parking restrictions with some 248 spare spaces available in the survey area.

The parking demands throughout Friday for the individual parking locations are shown graphically on Figure 2.6 through to Figure 2.12.

Figure 2.6: High Street – Parking Supply vs Demand (Thursday)¹

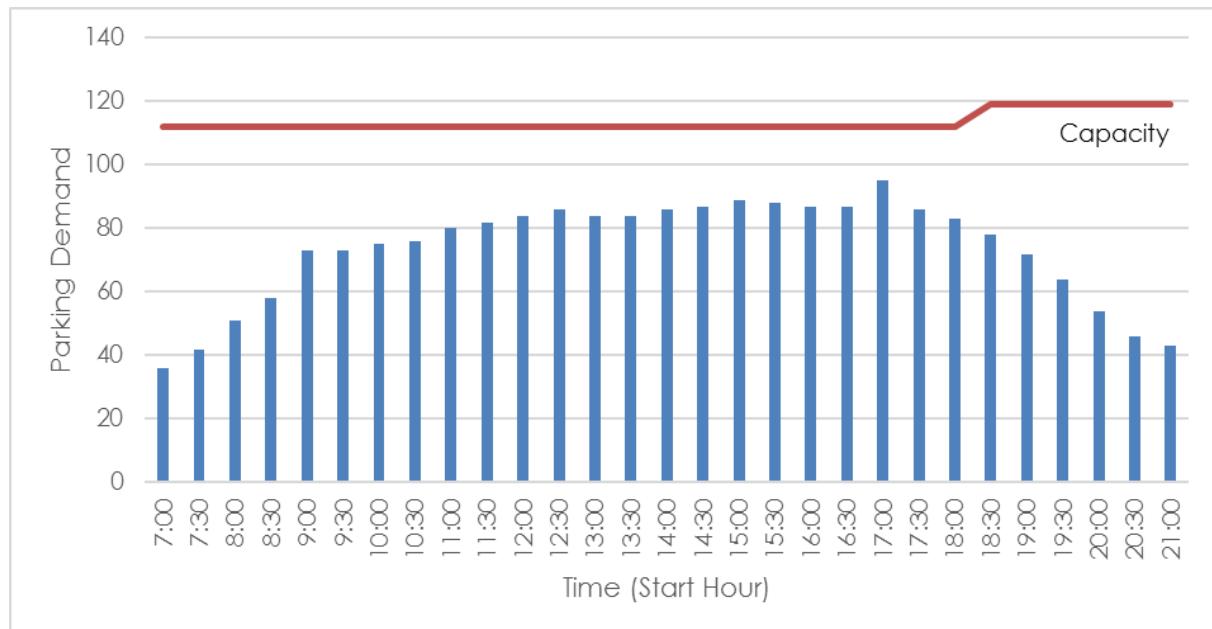
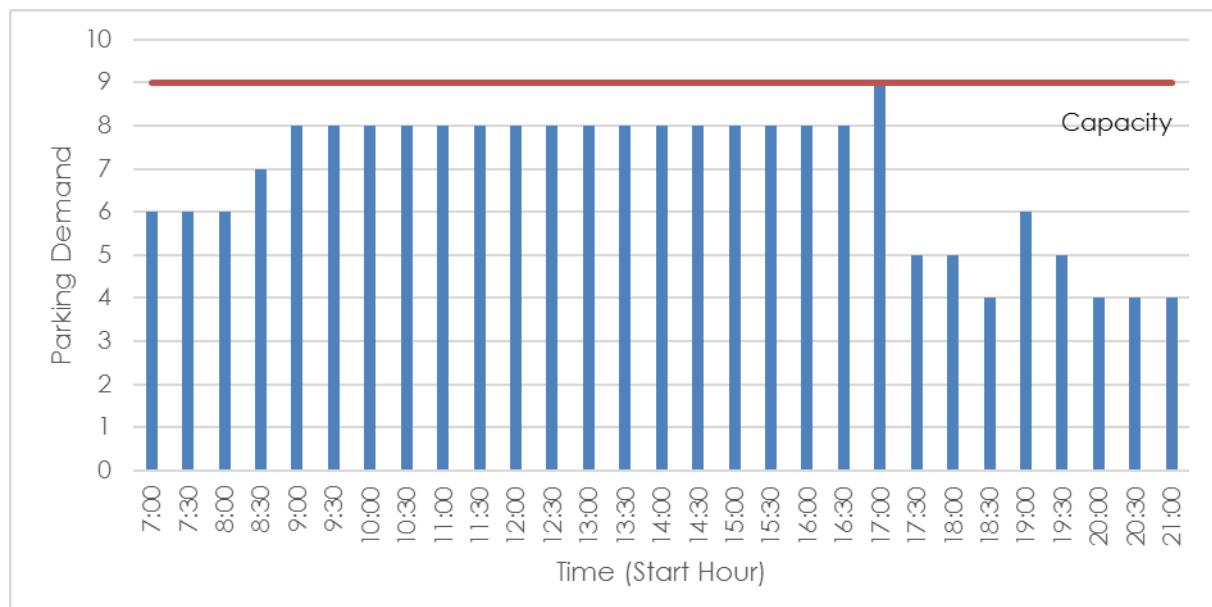


Figure 2.7: Lawson Street – Parking Supply vs Demand (Thursday)



¹ Parking supply reduces between 7am-6pm Monday to Friday when no parking zone is operational between Lawson Street and Evans Street.

Figure 2.8: Castlereagh Street – Parking Supply vs Demand (Thursday)

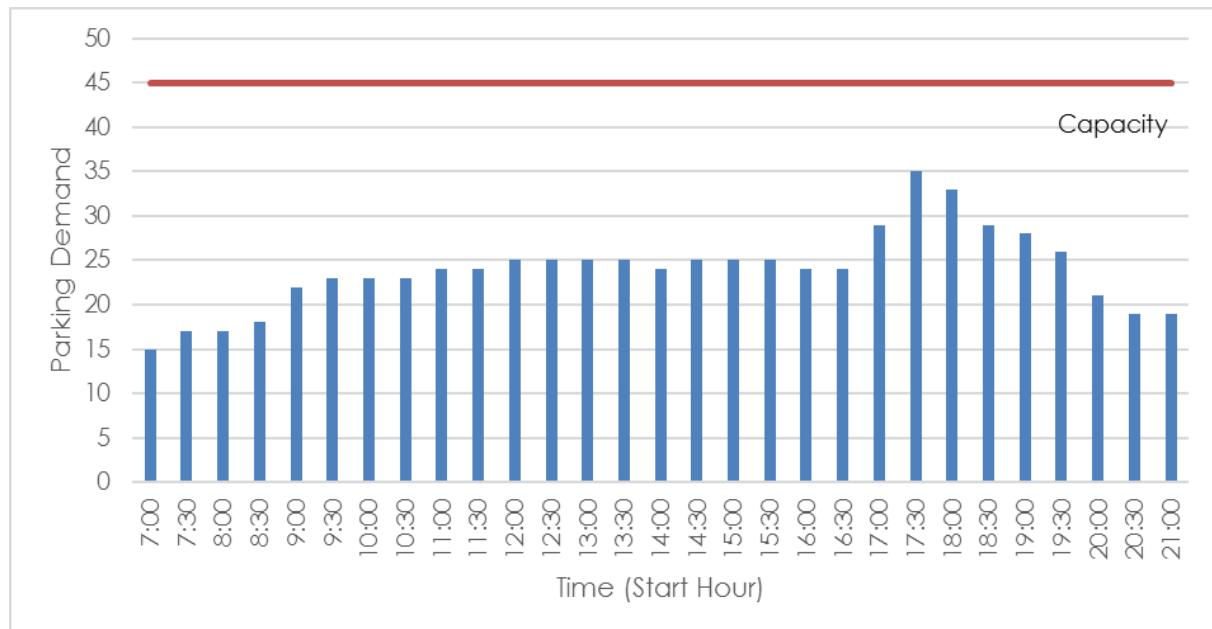
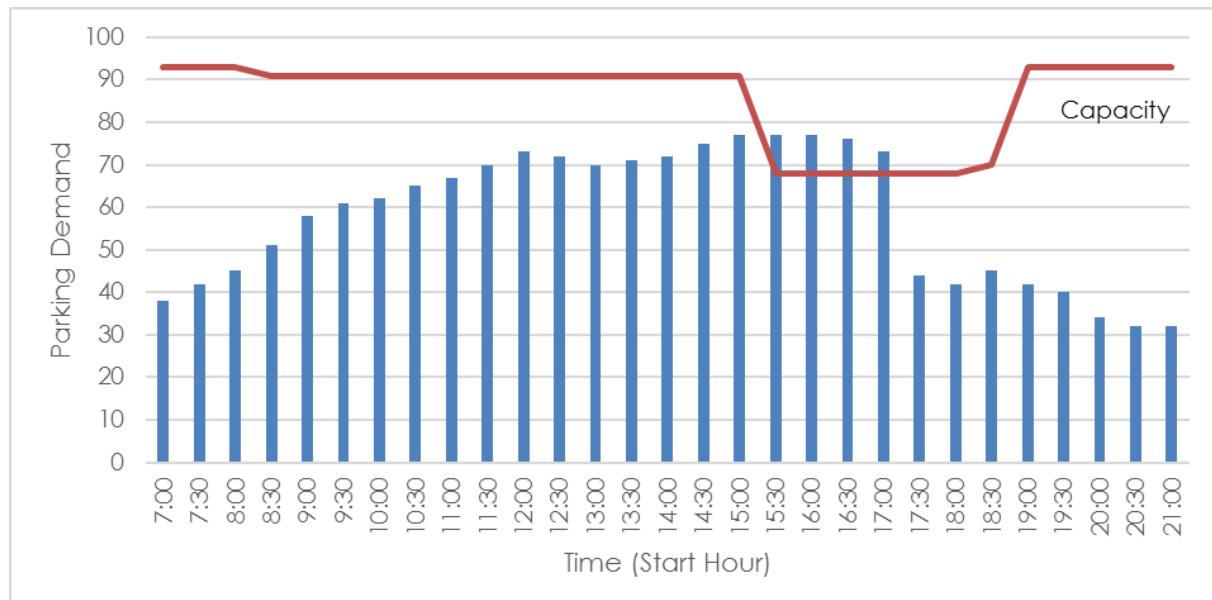


Figure 2.9: Henry Street – Parking Supply vs Demand (Thursday)²



² Parking supply reduces between 8:30am and 6pm Monday to Friday when the No Parking zone is operational in Henry Street between Woodriff Street and Gaymark Lane.

Parking supply reduces between 3:30pm and 6:30pm Monday to Friday in Henry Street eastbound kerbside lane between Lawson Street and Evans Street when the No Parking zone is operational, however, there were parked vehicles in the No Parking zone during this time period.

Figure 2.10: Edwards Place Off-Street Car Park – Parking Supply vs Demand (Thursday)

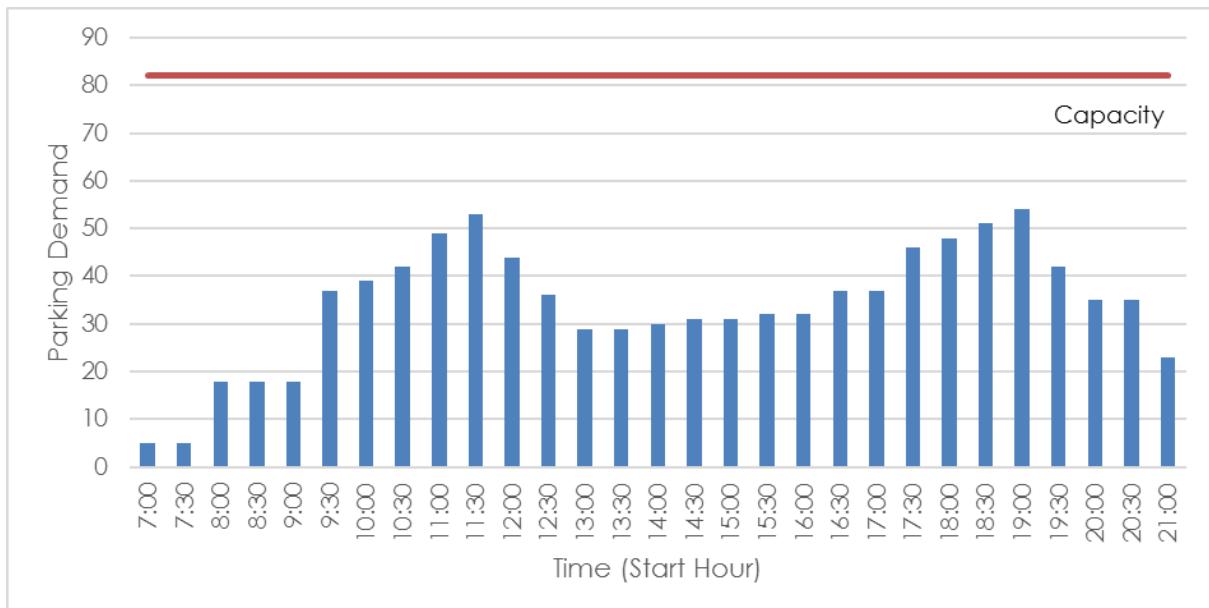


Figure 2.11: Allen Place Off-Street Car Park – Parking Supply vs Demand (Thursday)

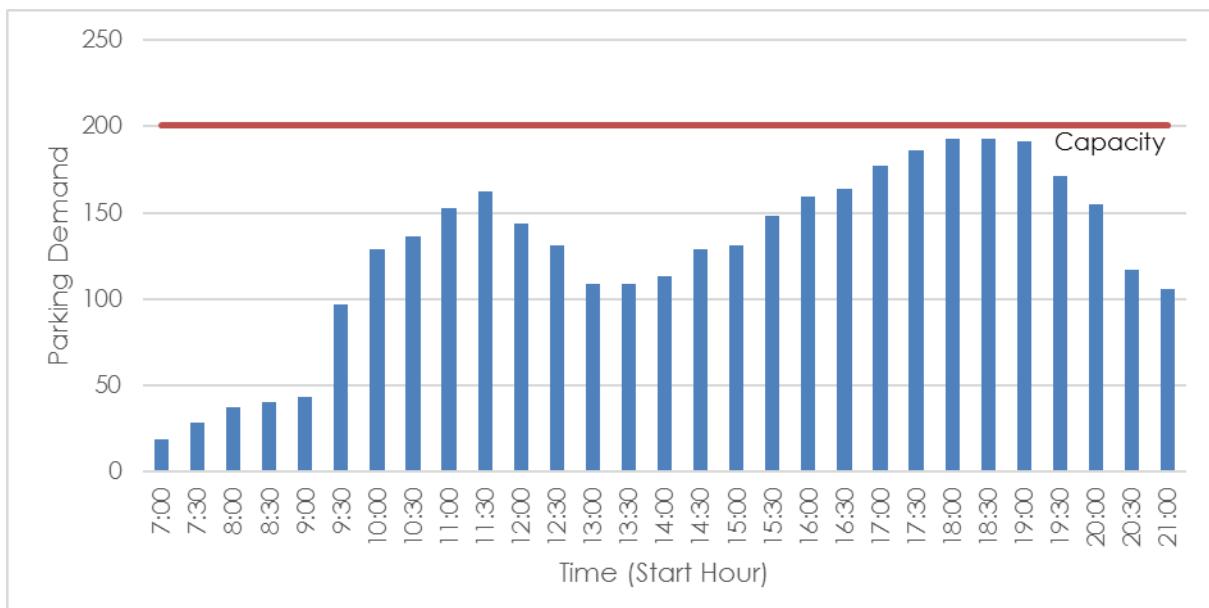
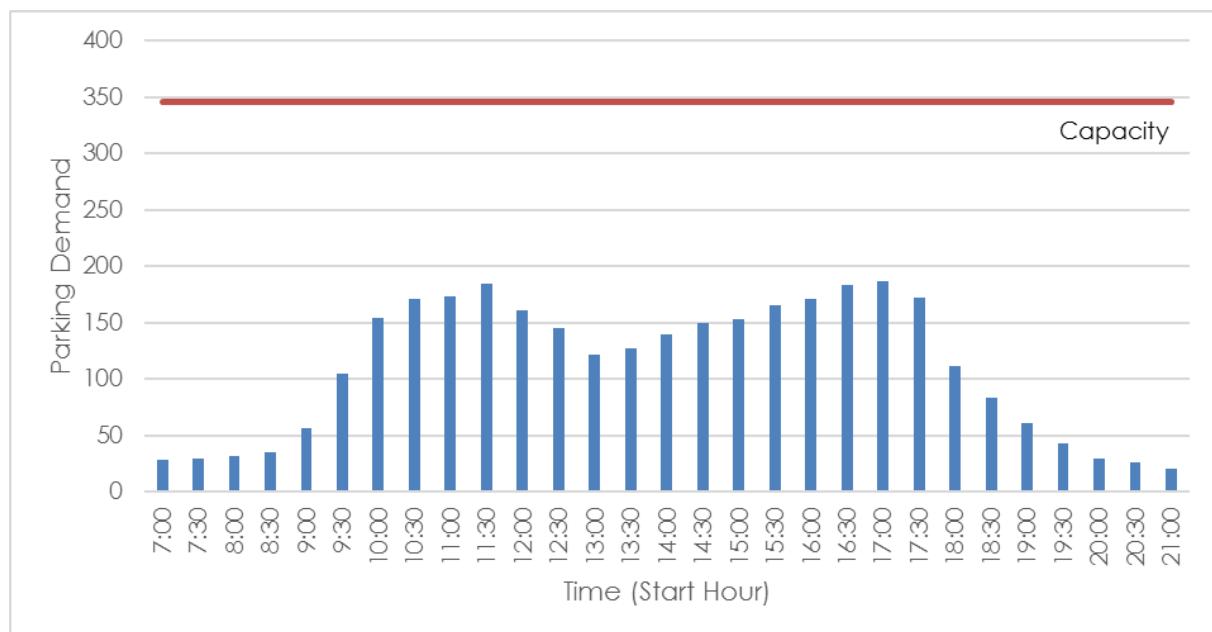


Figure 2.12: Soper Place Off-Street Car Park – Parking Supply vs Demand (Thursday)



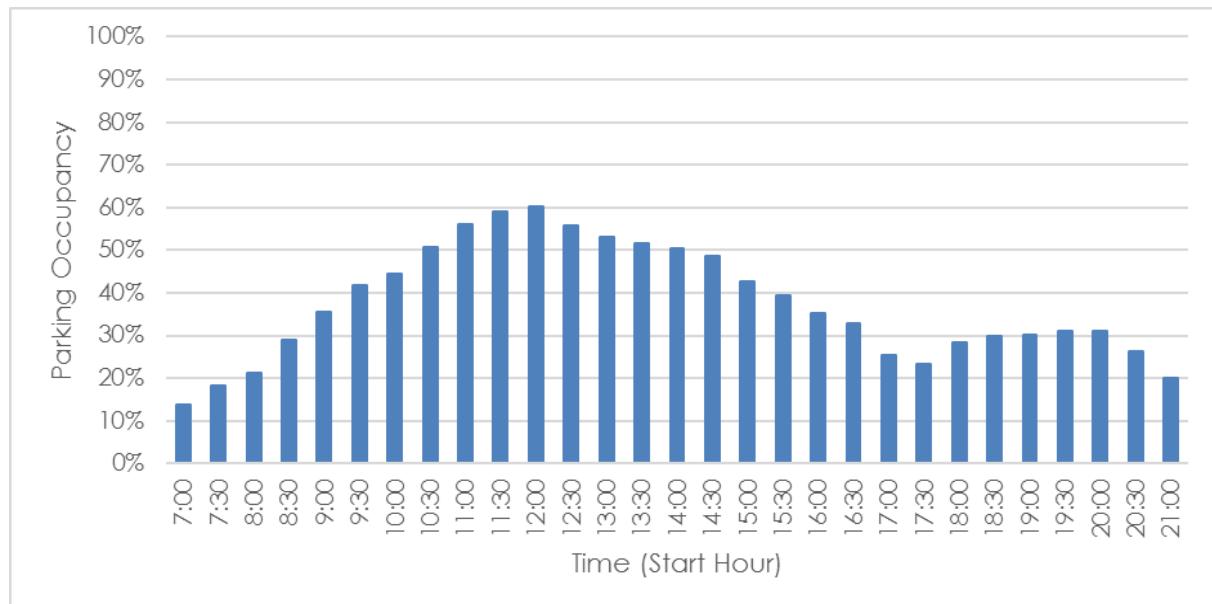
Allen Place off-street public car park experienced the highest parking demands out of the three off-street car park areas in the near vicinity of the site. While the peak parking demands were high with a peak occupancy nearing capacity at the Allen Place off-street car park, there were ample vacant parking spaces in the Edwards Place off-street car park which is located much closer to the subject site. There were even more vacant spaces in the Soper Place off-street public car park where untimed parking spaces are provided.

Parking in Henry Street was above capacity at 3:30pm due to illegal parking in the No Parking zone when it was operational between 3:30pm and 6:30pm. The highest legal parking demand on Henry Street was 85% that occurred at 3pm. Lawson Street showed the highest parking demand as the parking was at full capacity at 5pm. On average, the occupancy rate in kerbside parking varied between 17% and 71% throughout the survey period on Friday.

2.6.2.2 Weekend (Saturday)

The parking demands recorded for the overall survey area on Saturday are depicted graphically in Figure 2.13.

Figure 2.13: Overall Survey Area – Parking Occupancy (Saturday)



The results indicate that the overall highest parking occupancy occurred at 12pm (60%) on Saturday before the parking demands reduced for the rest of the day. During this peak period, some 356 to 398 spare spaces were available in the survey area.

The parking demands through Saturday for the individual parking locations are shown graphically on Figure 2.14 to Figure 2.20.

Figure 2.14: High Street – Parking Supply vs Demand (Saturday)

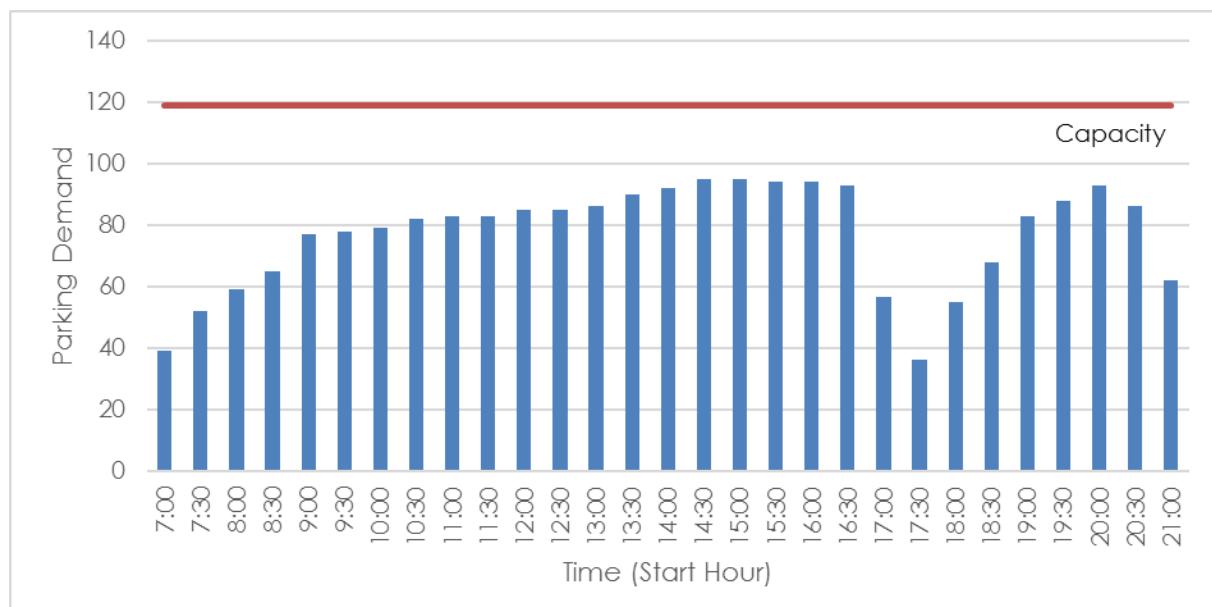


Figure 2.15: Lawson Street – Parking Supply vs Demand (Saturday)

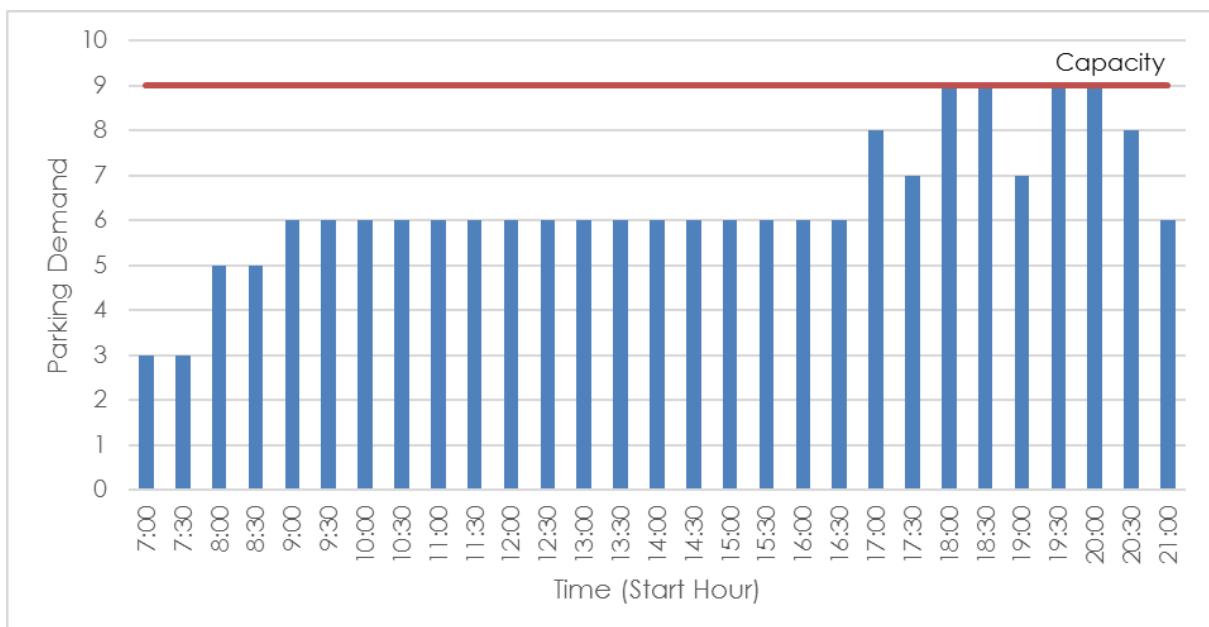


Figure 2.16: Castlereagh Street – Parking Supply vs Demand (Saturday)

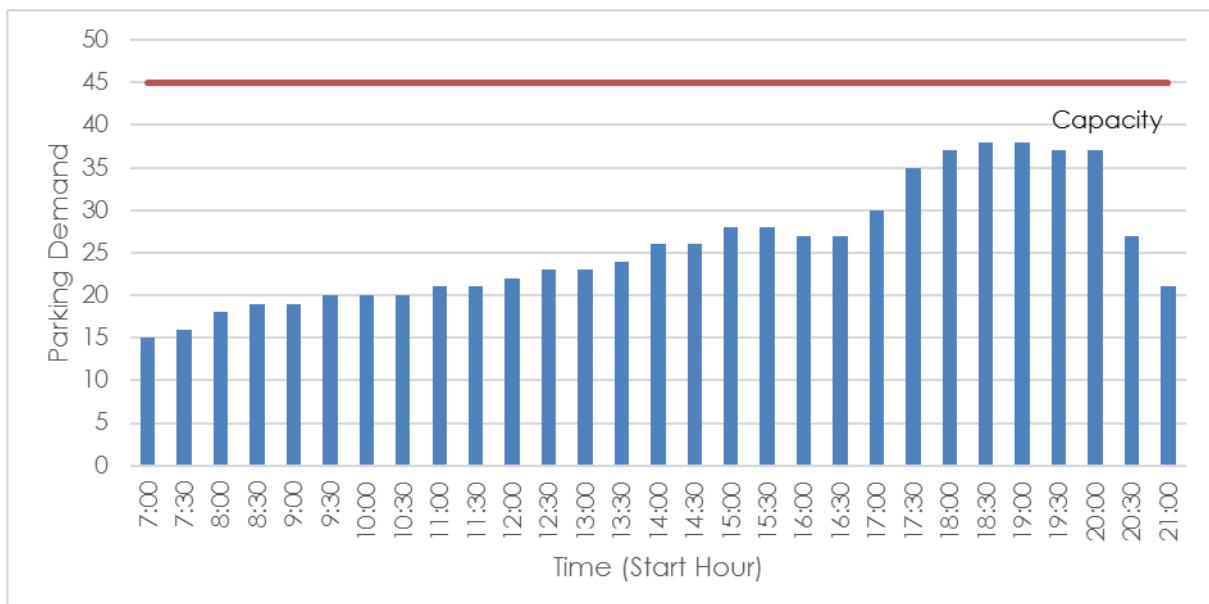


Figure 2.17: Henry Street – Parking Supply vs Demand (Saturday)³

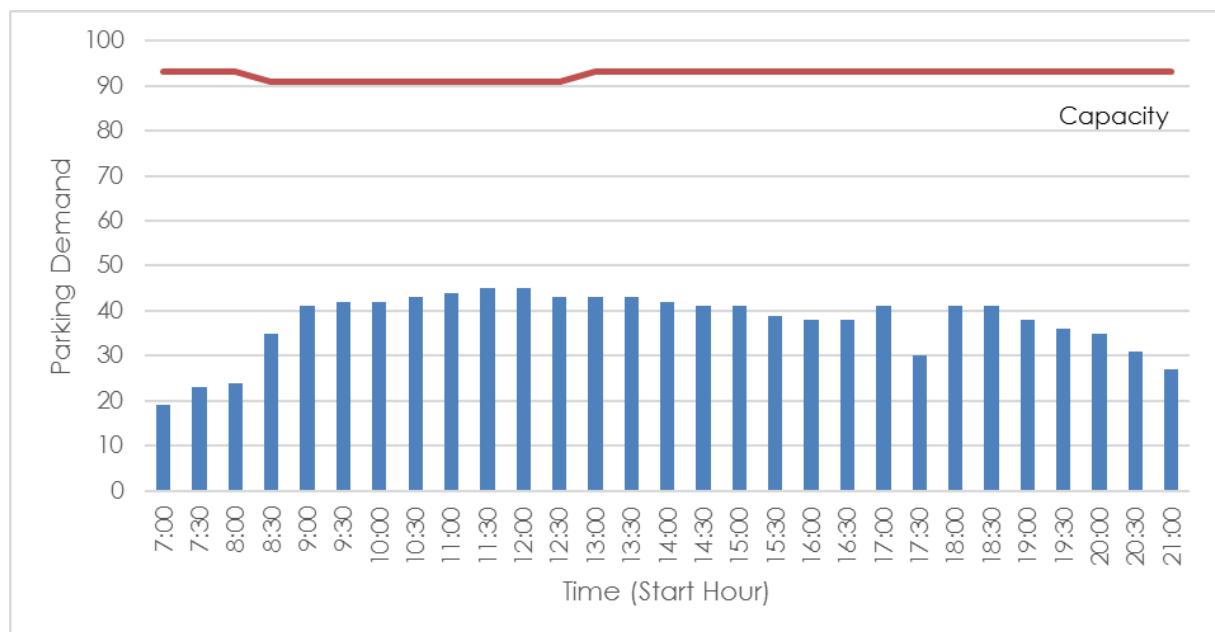
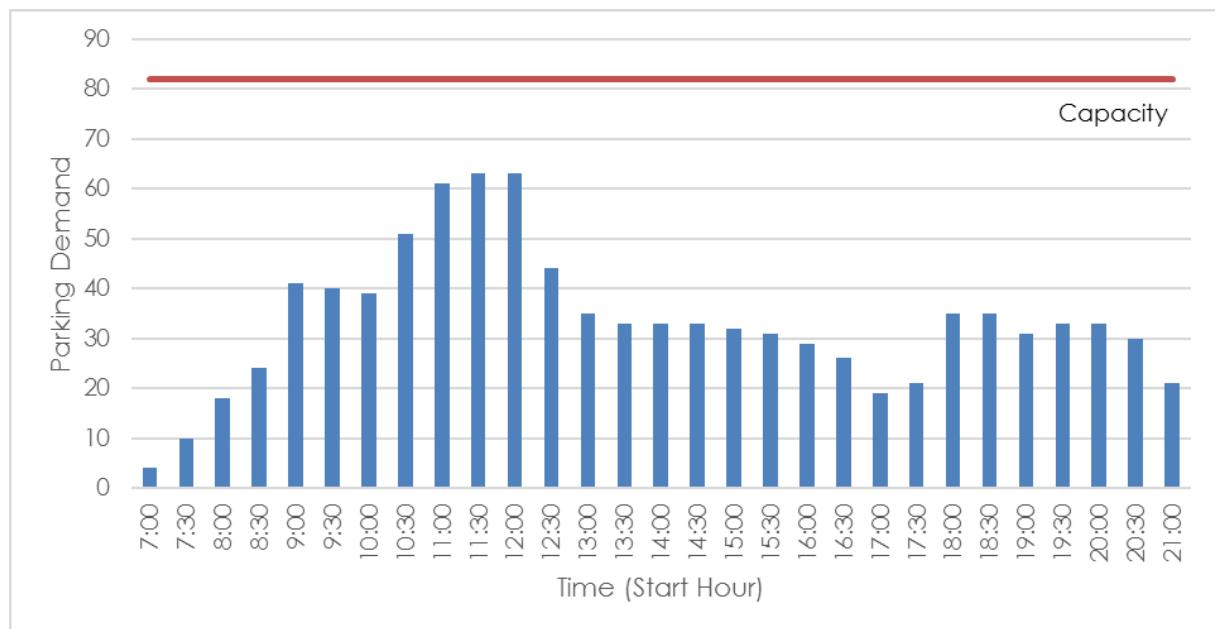


Figure 2.18: Edwards Place Off-Street Car Park – Parking Supply vs Demand (Saturday)



³ Parking supply reduces between 8:30am and 12:30pm Saturday when the No Parking zone is in operation between Woodriff Street and Gaymark Lane.

Figure 2.19: Allen Place Off-Street Car Park – Parking Supply vs Demand (Saturday)

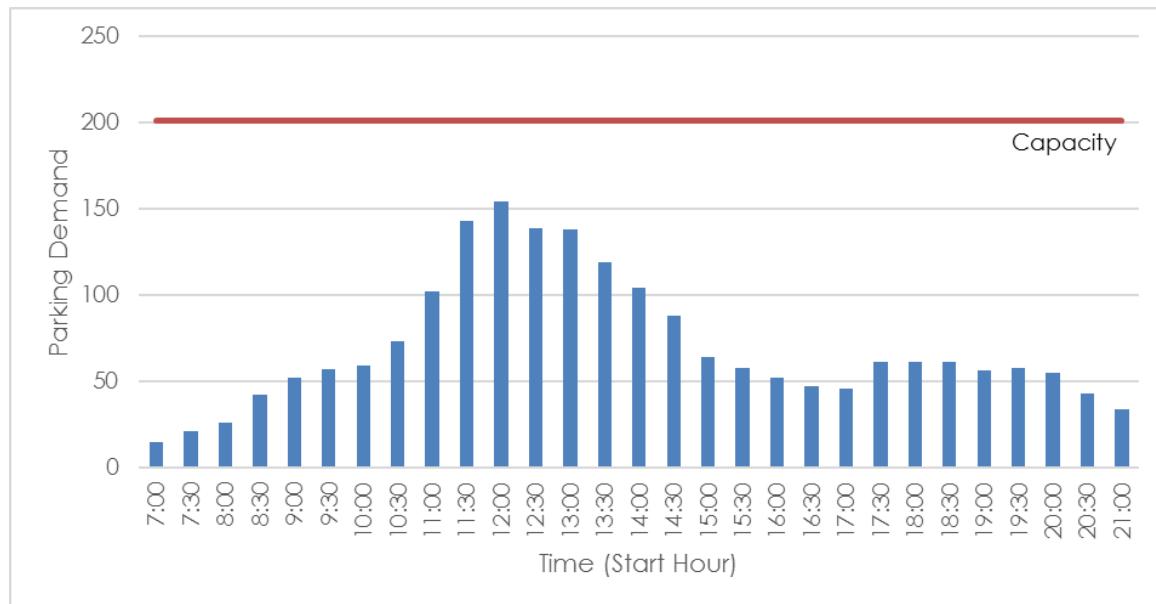
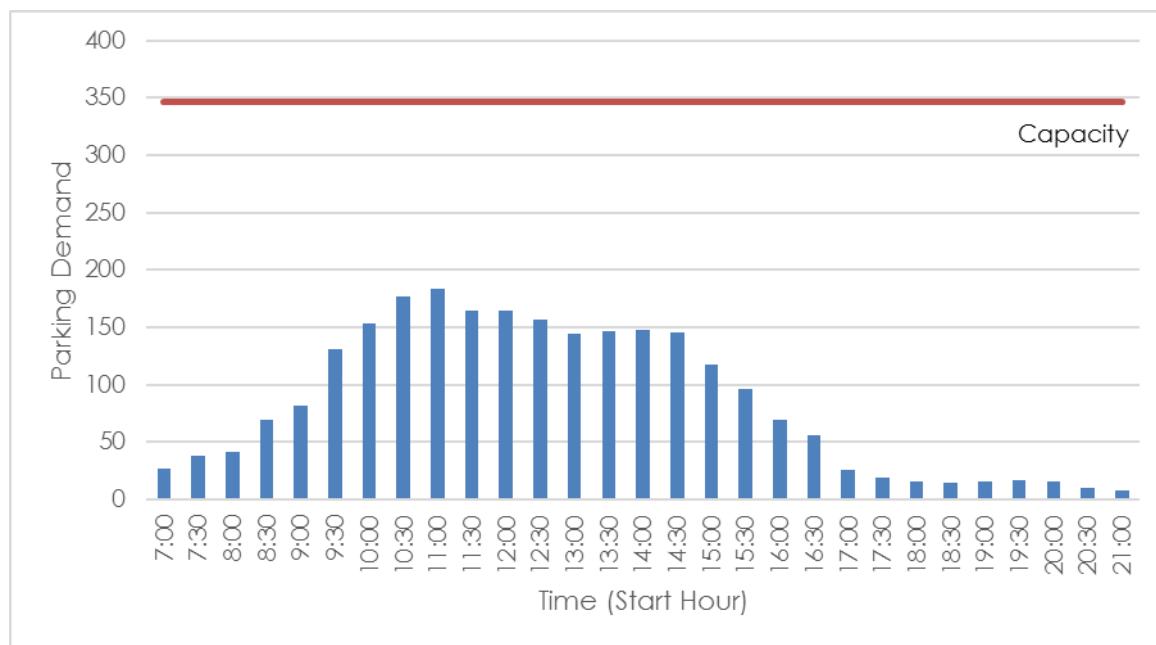


Figure 2.20: Soper Place Off-Street Car Parking – Parking Supply vs Demand (Saturday)



The Edward Place off-street public car park experienced the highest parking demands in the survey area. The peak parking demands for all three off-street public car parks were moderate and generally occurred between 11am and 12pm on Saturday with a sufficient number of spare spaces available within the car parks.

Parking on-street showed the parking demands varied between 20% and 100% on Henry Street and Lawson Street on Saturday. On average, the occupancy rate in kerbside parking varied between 30% and 75% on Saturday.

2.7 Public Transport Facilities

The subject site is well served by public transport, being located in proximity to multiple bus stops and Penrith railway station.

A summary of the existing public transport services and their respective frequencies during peak periods are provided below.

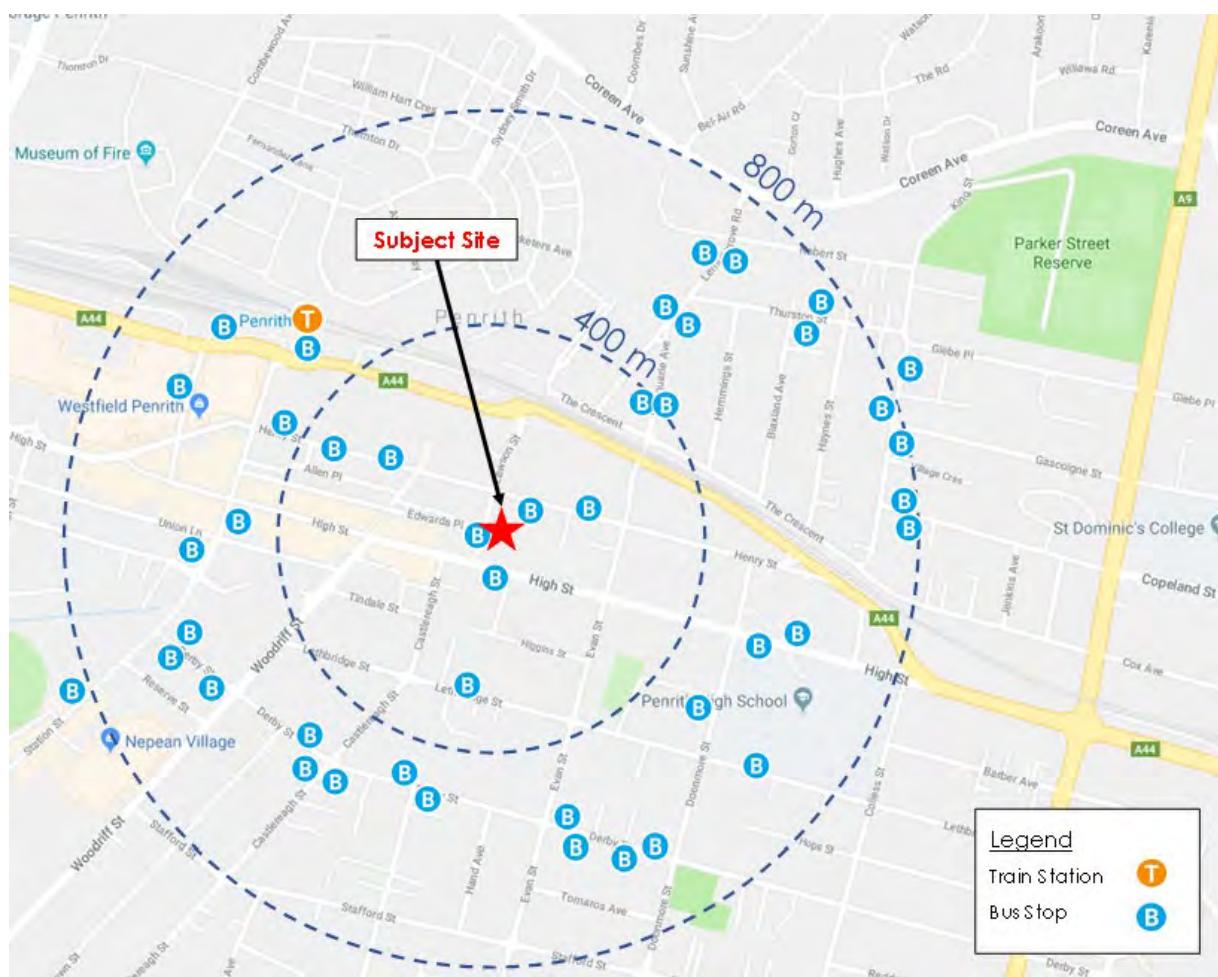
Table 2.2: Existing Public Transport Services and Frequencies

Service	Route	Route Description	Site Proximity	Frequency (on-peak/off-peak)	
				Weekday	Saturday
Bus	673	Windsor to Penrith via Bligh Park, Illandilo & Cranebrook	< 400m	30-mins-hourly/ 1 services	2 services
	677	Richmond to Penrith via Londonderry & The Northern Road	Immediately outside site	4 services / 2 hours	2 services
	678	Richmond to Penrith via Agnes Banks, Castlereagh & Cranebrook	< 300m	2 services	2 services
	688	Penrith to Emu Heights (loop service)	<30m	2 services / hourly	Hourly
	689	Penrith to Leonay (loop service)	<30m	1 service / hourly	Hourly
	770	Penrith to Mt Druitt via Claremont Meadows, St Marys & Colyton	<30m	30-mins / 30-mins	Hourly
	774	Penrith to Mt Druitt via St Marys & Oxley Park	<400m	30-mins / 30-mins	Hourly
	775	Penrith to Mt Druitt via St Marys & Erskine Park	<30m	30-mins / 30-mins	Hourly
	776	Penrith to Mt Druitt via St Marys & St Clair	<30m	30-mins / 30-mins	Hourly
	780	Penrith to Cambridge Park, Ropes Crossing & Mt Druitt	Immediately outside site	15-mins / 30-mins	30 mins to hourly
	782	Penrith to St Marys via Cambridge Gardens & Werrington Station	<30m	30-mins / 30-mins	Hourly
	785	Penrith to Werrington Station via Cambridge Park	<280m	30-mins / 30-mins	Hourly
	786	Penrith to Cranebrook via Greygums Road	<280m	30-mins / 30-mins	Hourly
Rail	T1 Western Line	Between Emu Plains or Richmond & City	< 850m	15-mins / 30-mins	15 to 30 mins
	Blue Mountains Line	Between Bathurst & Central*	< 850m	Hourly	Every 2 Hours

*Note: Most services operate between Lithgow and Central.

The site proximity to surrounding public transport services is graphically presented in Figure 2.21.

Figure 2.21: Site Proximity to Existing Public Transport Services



Basemap source: Google Maps Australia

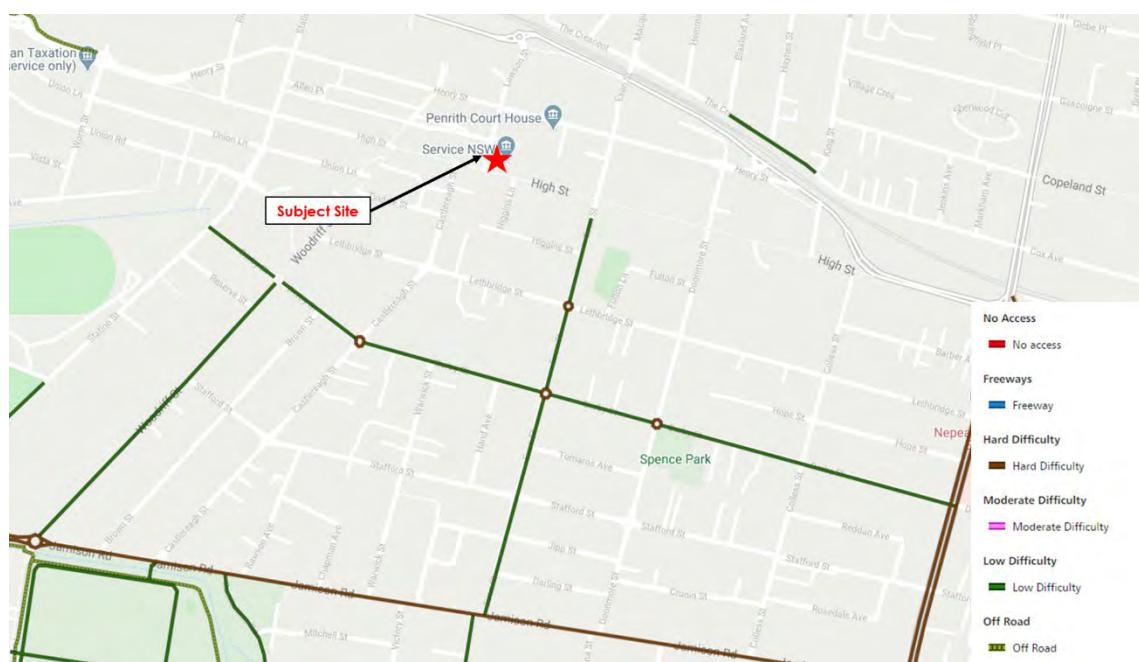
2.8 Pedestrian and Cyclist Facilities

Pedestrian footpaths are provided on all roads surrounding the site, except for some low pedestrian traffic roads such as Lawson Lane. Pedestrian crossing facilities through signalised intersections are available in all surrounding streets including the signalised crossings with audio facility at the intersection of Lawson Street with High Street, located immediately next to the subject site.

A pedestrian zebra crossing has recently been installed at a mid-block location on Henry Street, east of Lawson Street to assist crossing to/from a retail car park.

Cycling routes surrounding the site include off-road and on-road environments as shown in the cycleway network map in Figure 2.22.

Figure 2.22: Surrounding Cycleways



Source: Roads and Maritime Services Cycleway Finder 2016 (last accessed 1/7/2020)

2.9 Future Developments

A research on the Penrith city centre indicates the following developments are being planned in the vicinity of the subject site:

- Redevelopment of the Union Street car park into mixed use buildings
- Proposed residential super lot at 164 Station Street to accommodate about 2,000 new apartments (DA has been lodged).

Soper Place multi-level car park is scheduled to start construction in 2020.

Penrith City Council has invited partners to develop within the Opportunity Precincts as part of the City Centre vision to maximise the City's potential as the "New West". Construction of Penway Place (between Union Road and High Street) is scheduled to begin in 2020 and will feature two towers offering up to 187 residential apartments plus a vibrant public plaza and retail precinct.

3 Proposed Redevelopment

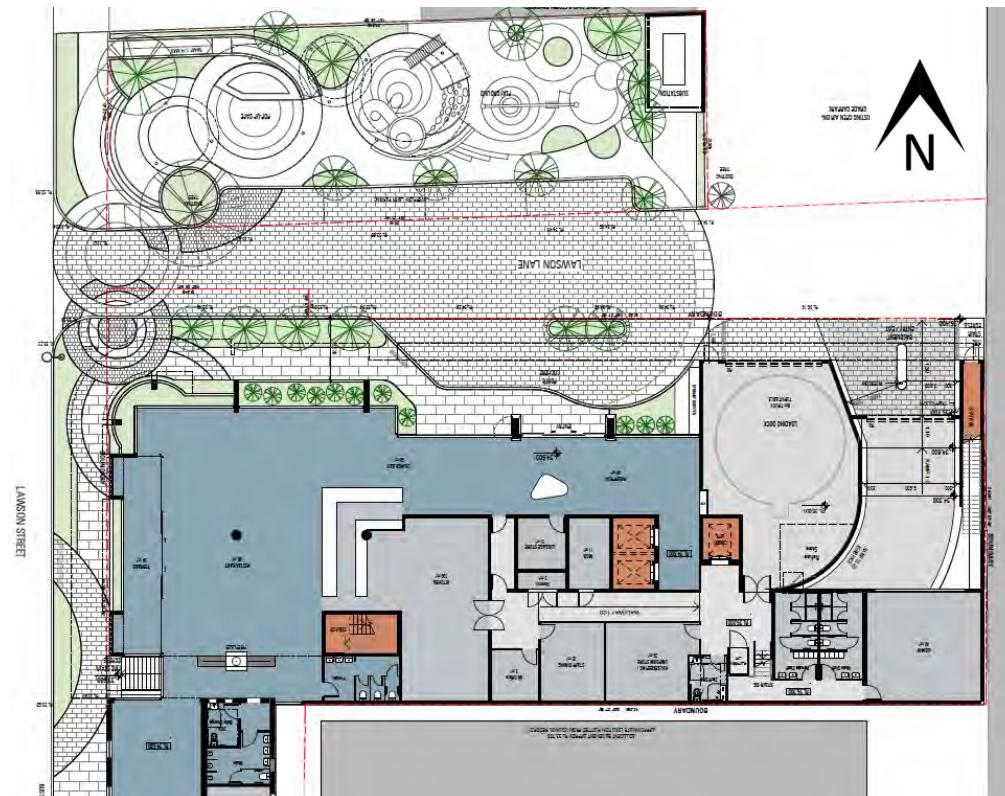
3.1 Proposed Design

The proposed redevelopment consists of the following key features:

- Retention of the existing pub
- Provision of a new hotel accommodation to accommodate a total of 115 hotel rooms
- Provision of a new conference and function facility
- Provision of a new café in a landscaped area
- Provision of a new basement car park with approximately 64 spaces
- Provision of a loading dock with a turntable in Lawson Lane
- Provision of a 10km/h shared zone in Lawson Lane with a porte cochère entrance to the hotel.

The ground floor layout plan is shown in Figure 3.1 and the proposed car park plans are presented in Appendix C.

Figure 3.1: Proposed Ground Floor Layout



Source: NRA Collaborative Pty Ltd (20 July 2020)

The proposal comprises the following land uses and sizes:

- Hotel: 115 rooms
- Conference centre: 260 m² (pre-function area excluded as the two areas are not intended to be occupied simultaneously)
- Restaurant: 280m² (including 34m² terrace and 60m² lounge bar)
- Pub (the existing public bar: 80m², bistro: 60m² and gaming 32m² to be maintained).

The conference centre/function room located on the first floor of the hotel building is to be made available for private functions.

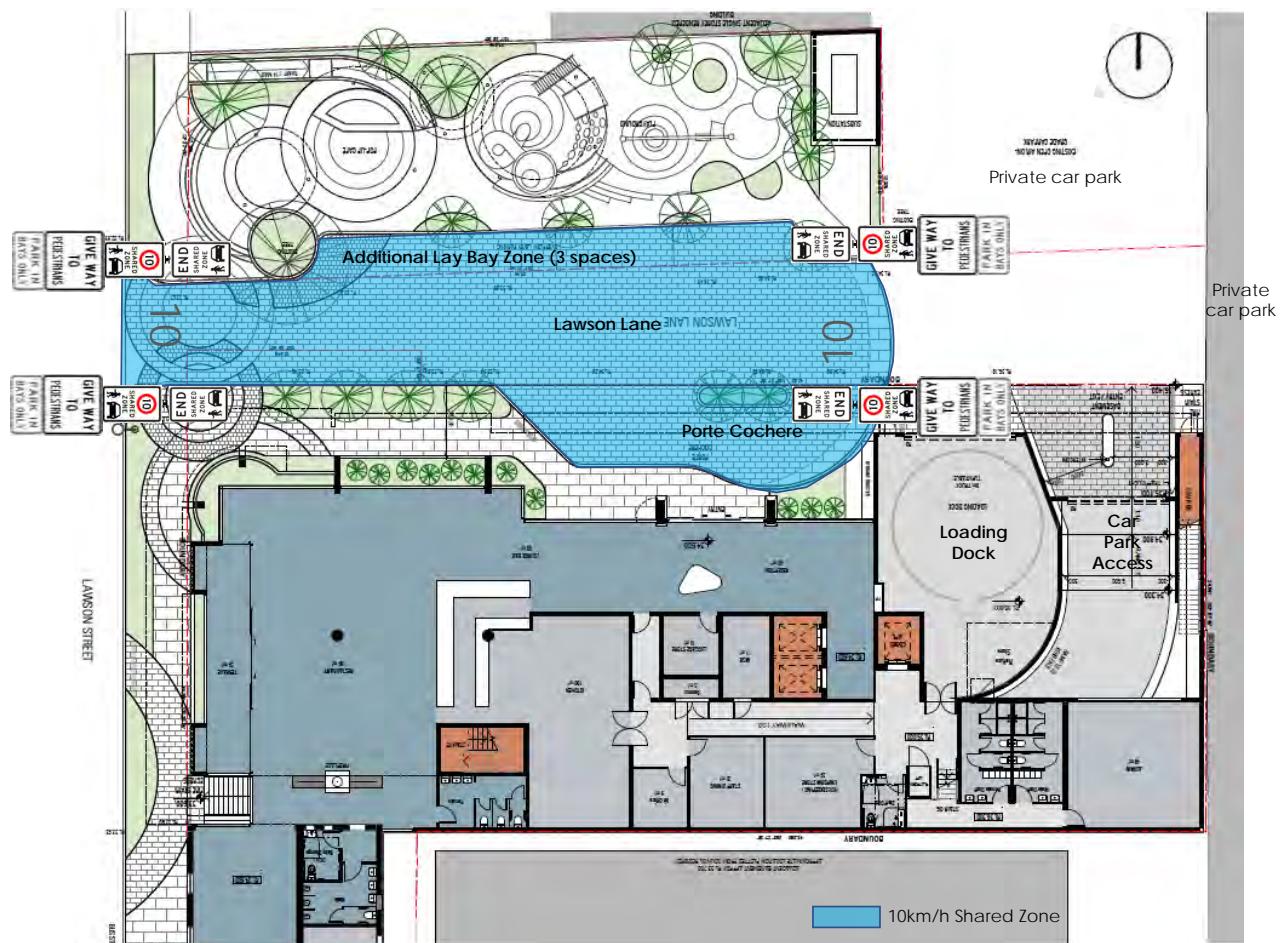
In addition, it is anticipated that the ancillary facilities would be able to accommodate a total of 600 visitors comprising:

- Conference centre: 200 visitors
- Restaurant: 200 customers
- Pub: 200 customers.

3.2 Shared Zone in Lawson Lane

It is proposed to implement a 10km/h shared zone (category 1) in Lawson Lane to be shared by vehicles and pedestrians between Lawson Street and the eastern end of the proposed porte cochère, subject to approval. The extent of the shared zone is shown in Figure 3.2.

Figure 3.2: Shared Zone in Lawson Lane



Category 1 shared zones are provided on a road with clearly different coloured and textured surface treatment from the surrounding roads, and typically does not have kerbs.

In accordance with the Transport for NSW (or TfNSW, formerly Roads and Maritime Services) Technical Direction TTD 2016/001 (February 2016), kerbs would not be provided in the shared zone to ensure a discernible change in the environment from the surrounding roads, and to facilitate the ease of movement and indicate the priority for pedestrians, especially disabled pedestrians.

The proposed shared zone would be designed in accordance with the TfNSW specifications, including the road surface treatment with no provision of kerbs, speed limit, marked parking bays and the associated signage.

Lawson Lane currently varies in width and varying widths are proposed to be maintained between 6m and 12m, with a greater width provided in the eastern end near the car park entrance and exit. The relatively narrower width in the entry of the shared zone would encourage drivers to reduce their speeds. Access to car park and loading bay is kept to the eastern end of Lawson Lane which is outside the shared zone.

It is noted that the Lawson Lane shared zone is only applicable between Lawson Street and the eastern end of the proposed porte cochère. Given there are a number of car park accesses located in the eastern end of Lawson Lane, the road section between the proposed loading bay and the cul-de-sac should be excluded from the shared zone where the priority is reverted to vehicular traffic through the use of End Shared Zone sign and asphalt pavement.

The applicant would consult with TfNSW to seek their approval of the proposed shared zone in Lawson Lane.

3.3 Drop Off Zone

A drop off zone would be provided on the south side of Lawson Lane at the porte cochère entrance. Vehicles such as taxis and private vehicles entering the drop off zone are to make a U-turn movement at the end of the shared zone.

In addition, three overflow layby parking bays are proposed to be provided along the north side of Lawson Lane.

3.4 Loading Bay

A loading bay is proposed to be accessed in Lawson Lane and to facilitate delivery vehicles and waste collection vehicles which would occur predominantly during the night time. Appendix D shows the swept path of an 8.8m Medium Rigid Vehicle entering and leaving the loading bay in a forward direction with the use of a turntable.

3.5 Pedestrian Access

Pedestrian access to the subject site will be via the main entrance on Lawson Lane.

The shared zone on Lawson Lane would be a pedestrian priority environment and as such no pedestrian crossing facilities would be provided.

Pedestrian access to the nearby on-street parking spaces and off-street public car parks would be accommodated by the existing pedestrian crossing facilities that are available in the surrounding streets.

4 Parking Assessment

The objective of the following parking assessment is to estimate the parking requirement and the parking impacts of the proposed development, and to provide an outline of the parking layout review.

4.1 Parking Provision

4.1.1 DCP Parking Requirements

Penrith Development Control Plan (DCP) 2014 – Section 10 Transport, Access and Parking: Table C10.2: Car Parking Rates states that a maximum of the total number of commercial parking spaces required by a development. This DCP requirement is extracted as follows:

Penrith City Centre – A maximum 60% of the total number of commercial parking spaces required by a development, other than for service vehicles, car washing bays and parking spaces allocated to people with a disability, are to be provided on-site.

The balance of the total required number of spaces not provided on-site would need to be subject to a contribution under an adopted Contribution Plan or as set by the terms of a Voluntary Planning Agreement.

In light of the above DCP requirement, the proposed basement car park would not fully accommodate the likely parking demands associated with the subject site. Notably, Section 10.5.1 (4) of the DCP states that any reduction of parking spaces required for a particular site if the reduced provision can be justified in a traffic impact statement in terms of proximity to public transport nodes, opportunity to share parking with another use, or an empirical assessment of car parking.

Table 4.1 provides a summary of the parking demands for the proposed land uses in accordance with the parking rates provided in the Penrith DCP.

Table 4.1: Parking Requirement based on DCP Rates

Land Use	Parking Rate	Proposed Yield	Assumptions on Workforce	Parking Generation (Customers) based on DCP Rates	Parking Generation (Staff) based on DCP Rates	Total Parking Generation based on DCP Rates
Hotel (Proposed)	1 space per unit plus 1 space per manager plus 1 space per 6 employees	115 rooms	2 managers and 6 employees at any one time	115.0	3.0	118
Conference Centre/ Function Room (Proposed)	1 space per 6m ² of seating area, plus 1 space per employee	260m ² seating area	6 employees at any one time	43.3	6.0	49.3

Land Use	Parking Rate	Proposed Yield	Assumptions on Workforce	Parking Generation (Customers) based on DCP Rates	Parking Generation (Staff) based on DCP Rates	Total Parking Generation based on DCP Rates
Restaurant (Proposed)	1 space per 6m ² of seating area, plus 1 space per employee	280m ² floor area (currently 120m ² floor area)	6 employees at any one time	46.7	6.0	52.7
Pub (Existing)	1 space per 4m ² of bar floor area plus 1 per 6m ² lounge and dining room	Public bar: 80m ² Bistro: 60m ² Gaming: 32m ²	4 employees at any one time	34.0	4.0	38.0
Total parking requirement (rounded up)				239	19	258

Table 4.1 shows the DCP parking requirement in terms of simply adding up the individual elements is 258 spaces. Justification for reducing the parking demand is provided in Section 4.1.2 taking into account of multi-purpose trips and the site's proximity to public transport services.

4.1.2 Reduced Parking Demand

The parking requirement would involve a high degree of multi-purpose trips between the conference centre/function room and the hotel, given a proportion of event attendees are expected to stay in the hotel for overnight accommodation if the events are held more than one day, or finished late at night.

Similarly, some of the demand for parking associated with the restaurant and pub is likely to be generated by the conference/function attendees and hotel guests.

Other than the conference/function attendees, the restaurant and pub are intended to cater primarily for a local clientele, particularly residents as well as employees in the town centre who will be able to walk to the hotel at lunch time or after work given the centralised location of the proposed hotel within the town centre. It is however understood that some patrons may choose to drive to the restaurant/pub, particularly on Thursday or Saturday evenings, when there is substantial reduction of traffic and parking activities in the town centre as most of the nearby shops are closed.

In light of the above, the parking requirements would be reduced based on the following assumptions:

- Hotel
 - 20% reduction to the parking requirement associated with the hotel as it would be used by those attending conferences/functions being held at the conference centre/function room.
- Restaurant and pub

- 10% reduction to the parking requirement associated with the restaurant and pub as it would be used by hotel guests
- 10% reduction to the parking requirement associated with the restaurant and pub as these facilities would be used by local clientele who walk to the site.

In light of the above, the reduced parking demands have been summarised in Table 4.2.

Table 4.2: Reduced Parking Demand

Land Use	Parking Generation (Customers) based on DCP Rates	Parking Generation (Staff) based on DCP Rates	Total Parking Generation based on DCP Rates	Proposed Reduction to Customer Parking	Reduced Parking Demand (Customer + Staff)
Hotel (Proposed)	115	3.0	118	-20%	95
Conference Centre/ Function Room (Proposed)	43.3	6.0	49.3	-	49
Restaurant (Proposed)	46.7	6.0	52.7	-20%	43
Pub (Existing)	34.0	4.0	38.0	-20%	31
Total parking requirement	239	19	258	-	219

Note: The number of the parking spaces has been rounded up

The estimated parking demand for the site would be 219 spaces for both visitors and staff, considering patrons tend to visit more than one facility as they stay in the hotel within the site and hence reducing the parking demands associated with the site. Overall, the reduced parking demand (219 spaces) is in the order of 85% of the DCP parking requirement (258 spaces). It is noted that no parking reduction has been applied to the conference/function use of the site as these parking demands are more likely to independent from other uses of the site. For example, guests attending a wedding function are not likely to visit the on-site restaurant/pub.

Given that 64 spaces are proposed, the development technically incurs a shortfall in the order of 157 spaces. This is further discussed in Section 4.1.3 for parking supply on and off the site.

4.1.3 Adequacy of Parking Supply

The basement car park would not fully accommodate the likely parking demand associated with the development as the DCP requires a maximum of 60% of the total number of commercial parking spaces required by the development. The proposed parking provision (64 spaces) is 29% of the total parking requirement (219 spaces).

Nevertheless, the estimated parking demands generated by the site could be accommodated by the parking supply in the surrounding on-street and off-street car parks as shown in the parking survey results in Section 2.6.2. There are vacant spaces along High Street, Henry Street, as well as the Allen Place, Edwards Place and Soper Place off-street public car parks as indicated in the survey results, indicating parking spaces would be available for patrons' use at any given time of the day. The on-street parking along the retail strip currently have spare capacity for most of the day.

Parking spaces in the vicinity of the site are also available in the evening as the survey indicates the peak parking occupancies were 70% at 5pm on Thursday and 60% at 12pm on Saturday within 460m (or 6.5 minute walk) of the site. There is at least a minimum of 256 vacant parking spaces available from 5pm onwards on Thursday, and at least 356 vacant parking spaces from 12pm onwards on Saturday.

Therefore, it is concluded that on-street parking within the vicinity of the site has sufficient capacity to accommodate the estimated parking demands that would be generated by the redevelopment. Furthermore, the upgrade of the existing Soper Place car park into a multi-level car park will provide additional spaces in the vicinity of the subject site. North Street car park which offers 243 car parking spaces has recently been completed in 2020.

In addition, three overflow layby parking spaces are proposed to be provided opposite the porte cochère to accommodate any additional demand.

The above basis would support the parking needs of the site.

4.1.4 Minimisation of Parking Demands

Despite the conclusion that the parking supply within the vicinity of the site has sufficient capacity to accommodate the estimated parking demands, it is considered appropriate to manage parking demand by the following measures:

- Promotion of responsible drink-driving attitude with carpooling with designated drivers and taxi services.
- Encourage the use of alternative transport modes as the site is conveniently located in close vicinity to bus stops and train station.
- Assign on-site parking to a proportion of staff members only to increase the availability of customer parking spaces which have higher turnover due to a relatively shorter length of stay.
- Produce a Transport Access Guide which can be given to staff and customers to indicate how they can travel to the site by means other than car.

4.1.5 Accessible Parking

The DCP specifies that accessible car spaces should be in accordance with Disability (Access to Premises - Buildings) Standards 2010. The parking requirement for car park Class 6 (including land uses such as restaurant, bar area and hotel) is:

- One accessible space for every 50 carparking spaces or part thereof.

Therefore, two accessible parking spaces would be provided within the 64-space basement car park and comply with the Disability Standards.

4.1.6 Bicycle Parking Requirements

The provisions set out in the DCP state that bicycle parking shall be provided in accordance with the *NSW Government – 2004 Planning Guidelines for Walking and Cycling*. The required bicycle parking provision is 3% to 5% of the staff and 3% to 5% of hotel rooms and seating capacity (by number of customers). The following seating capacity has been assumed for the purposes of this assessment:

- Conference centre/function room = 200 customers
- Restaurant = 200 customers
- Pub = 200 customers.

Table 4.3 provides a summary of the bicycle parking requirement.

Table 4.3: Bicycle Parking Requirement

Proposed Land Use Within Site	Unit	Parking Rate	Bicycle Parking Requirement
Hotel	8 staff 115 rooms	3-5% of staff 3-5% of rooms	3.7 to 7.0
Conference Centre/ Function Room	6 staff 200 customers	3-5% of staff 3-5% of seating capacity for customers	6.2 to 10.3
Restaurant	6 staff 200 customers	3-5% of staff 3-5% of seating capacity for customers	6.2 to 10.3
Pub	4 staff 200 customers	3-5% of staff 3-5% of seating capacity for customers	6.1 to 10.2
Total			23 to 38

Note: The number of the parking spaces has been rounded up

Accordingly, the development is required to provide 23 to 38 bicycle parking spaces. It is proposed to provide a total of 20 bicycle racks for staff and customers.

Given the nature of the site and the fact that most customers travel by car, taxi, Uber, public transport and on foot, it is expected that the number of customers that cycle to the site would be low. As such, the proposed provisions are considered adequate. However, if there is a demand for additional spaces, these would be provided on site.

4.1.7 Motorcycle Parking

The DCP does not have any specific requirement for motorcycle parking and as such it is not proposed to provide for motorcycle parking.

4.2 Parking Layout

The proposed development will be served by a two-level basement car park with a car park access off Lawson Lane.

All car parking spaces are configured as 90-degree spaces. Parking spaces for visitors are provided as 2.5m wide or 2.6m wide spaces, with 5.4m length and minimum 6.2m aisle width. The proposed parking bay dimensions satisfy the minimum requirement for Class 2 facilities which are appropriate for hotel use (i.e. 2.5m wide and 5.4m long spaces with 5.8m aisle width).

Parking spaces for staff are provided as small car spaces (2.3m wide and 5.0m long) and are configured as tandem spaces. Staff parking spaces will be marked to indicate the intended use.

Accessible parking spaces are also provided within the basement car park. These spaces are designed in accordance with AS2890.6:2009.

Bike racks will be provided at each level. A 500mm spacing between racks will be provided to accommodate bicycles in accordance with AS2890.3:2015.

It is proposed to provide a turntable within the loading dock to facilitate turn-around of trucks so that trucks would enter and leave the loading dock in a forward direction.

Swept path assessment and proposed traffic management measures are presented in Appendix D.

Overall, the proposed parking layout generally comply with the requirements set out in AS2890.1:2004, AS2890.2:2018, AS2890.3:2015 and AS2890.6:2009.

4.3 Traffic Control System

4.3.1 Ramp Between car park access and Basement 1

A traffic control system involving traffic lights managed by a programmable computerised system with appropriate line marking and signage would be required to manage the single lane, two-way ramp providing access into the basement car park from Lawson Lane.

The traffic control system would be programmed such that all traffic lights would operate in an integrated manner e.g. when the red arrow signal at the driveway is triggered, the traffic

signal at the end of the ramp on Basement 1 would display a green signal. The signals would be installed at the driveway (within the site) would always default to display a green signal.

A queue analysis conducted using SIDRA (a computer intersection capacity analysis computer program) indicates that the 95th percentile queues would be less than one vehicle. The available queue storage space 6.5 long. Therefore, the 95th percentile queue would not overflow into Lawson Lane.

4.3.2 Ramp Between Basement 1 and Basement 2

Traffic mirrors will be provided to manage the one-way ramp flow between Basement 1 and Basement 2. The ramp is not too long so traffic mirrors would be used to enhance visibility of approaching vehicles. Suggested locations for traffic mirrors and waiting bays are shown in Appendix D to manage traffic flows and waiting vehicles.

5 Traffic Analysis

The objective of the following traffic analysis is to determine the potential traffic impacts of the proposed development at the assessed intersections.

5.1 Future Background Traffic

Future traffic growth has been estimated based on the Sydney's Strategic Travel Forecast Model (STFM) provided by TfNSW in March 2020. The STFM is a strategic transport planning model that considers population and employment growths and is used for high level of assessment of major infrastructure proposals, transport strategies and policy decision making.

The STFM provides future year traffic volumes to determine the relative traffic growth between years for application to the baseline traffic (e.g. surveyed traffic volumes) to provide estimations for future year traffic conditions.

Traffic data from the STFM for the relevant roads in the local road network are presented in Table 5.1 and Appendix E. Future developments such as Penrith Lakes, Panthers and Thornton have been included in the land use assumptions in the STFM model.

Table 5.1: STFM Traffic Flow and Growth

Intersection	Road Name	Approach to Intersection	Growth per Annum (2018-2026)	
			AM Peak	PM Peak
Lawson Street-Henry Street	Henry Street	East	-	1.7%
	Lawson Street	South	-	-
	Henry Street	West	0.5%	0.7%
	Lawson Street	North	-	-
Lawson Street-High Street	High Street	East	3.3%	4.6%
	High Street	West	0.6%	1.3%
	Lawson Street	North	-	-

Source: TfNSW (2020)

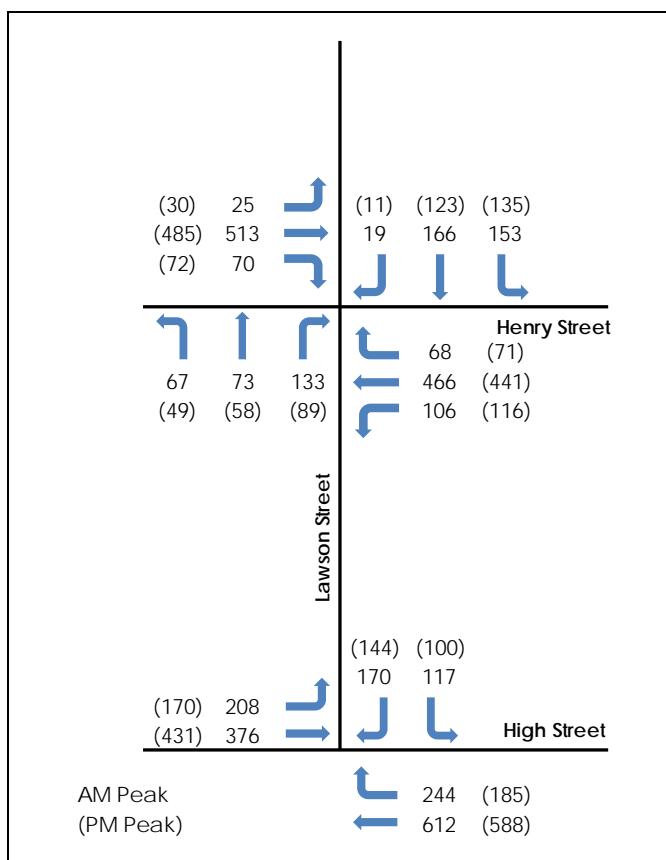
Table 5.2 shows the STM household and employment forecasts for 2026, 2036 and 2041 as compared against 2016 in Penrith city centre (zone 4979). The STFM information is shown in Appendix E.

Table 5.2: STM Household and Employment Forecasts

Zone 4979	2016	2026	2036	2041	Growth (2016-2026)	Growth (2016-2036)	Growth (2016-2041)
Population	997	2,450	3,779	5,300	14.57%	13.95%	17.26%
Employment	12,176	14,292	16,323	16,832	1.74%	1.70%	1.53%

Figure 5.1 shows the estimated future traffic volumes in a 10-year planning horizon.

Figure 5.1: Future Traffic Volumes (2028 Without Redevelopment)



Note: AM peak hour (7.45am-8.45am) and PM peak hour (4.30pm-5.30pm)

5.2 Traffic Generation

5.2.1 Hotel

Roads and Maritime's *Guide to Traffic Generating Developments 2002* provides a traffic generation rate for motel as follows:

- Evening peak hour vehicle trips = 0.4 per unit

The hotel with 108 new rooms (i.e. 115 minus 7 existing rooms) is expected to generate in the order of 43 two-way vehicle trips per hour, in addition to the existing traffic volumes associated with the seven existing rooms which would have been captured in the traffic survey undertaken in March 2018.

5.2.2 Conference Centre

No provision is provided in TfNSW *Guide to Traffic Generating Developments 2002* for conference centres/function rooms. Thus, traffic generation for the conference centre/function room is assessed in a first principles approach. It has been assumed that the conference centre/ function room has the capacity of accommodating a maximum of 200 people.

Conservatively, it has been assumed that 80% (160 guests) would arrive via private cars and 10% (20 guests) would arrive via private drop off/ pick up, and 10% (20 guests) would arrive via a combination of Uber, taxis, public transport (trains or buses) or by walking.

Application of a conservative car occupancy rate of 1.5 guests per car results in the following number of cars:

- 160 guests in private cars @ 1.5 guests per car = 107 cars
- 20 guests in private drop off/ pick up @ 1.5 guests per car = 13 cars.

In terms of traffic movements, the private cars equate to one pre-function vehicle movement (arrival trip) and 1 post-function vehicle movement (departure trip). However, the drop-off/ pick-up movements generate 2 pre-function vehicle movements (an arrival and departure trip) and 2 post-function vehicle movements. On this basis, the following pre-function and post-function traffic generation analysis can be determined:

- 133 pre-function trips (120 arrival, 13 departure)
- 133 post-function trips (13 arrival, 120 departure).

5.2.3 Restaurant

Roads and Maritime's *Guide to Traffic Generating Developments 2002* provides a traffic generation rate for restaurants as follows:

- Evening peak hour vehicle trips = 5 per 100 m² gross floor area

On the basis the restaurant has a seating area of 280m² less the existing 120m² seating area, the net change in traffic generated would be in the order of eight (8) two-way vehicle trips per hour.

5.2.4 Pub

Traffic generation associated with the pub is expected to be reduced from the existing situation due to the multi-purpose trips as discussed in Section 4.1.3. Notwithstanding this, given the traffic generation associated with the existing use of the pub has been captured in the traffic survey undertaken in March 2018, it is proposed to retain the existing traffic generation for analytical purposes. This is considered a robust approach.

5.2.5 Total Traffic Generation

Table 5.3 provides a summary of the total traffic generation as discussed in Sections 5.2.1 to 5.2.4.

As discussed in Section 4.1.2, a reduction would be applied to the traffic generation to account for the “multi-purpose” nature of trips accessing various land uses of the site.

Section 4.1.2 shows the justification in relation to the estimated parking demand is partial of the DCP parking requirement. This is based on a reduction of 20% of the parking demand associated with the hotel use and 20% of the parking demand associated with restaurant. This is because patrons tend to visit more than one facility when they are within the site and hence reduction in vehicular trips. Nonetheless, trips associated with conference/ function use of the site were not reduced as these trips are considered more independent from other uses of the site.

Having said this, the above reduction has only been applied to the traffic generation associated with the net increase in the design yield as shown in Table 5.3, without reducing the existing trips that have already been captured in the traffic counts in relevance to the existing use of the site. On this basis, the analysis is considered robust as traffic reduction due to multi-purpose trips was not made in the existing trips to/from the existing use of the site.

Table 5.3: Traffic Generation Summary

Land Use	Size/Number of People	Traffic Generation Rate	Total Traffic Generation	Reduction due to Multi-Purpose Trips (Refer to Table 4.2)	Reduced Traffic Generation due to Multi-Purpose Trips
Hotel (traffic generation of 12 existing rooms already captured in traffic survey)	108 rooms (net change: 115 minus 7)	0.4 trips/unit	43	-20%	35
Conference Centre/ Function Room	200 people	First Principle (Section 5.2.2)	133	-	133
Restaurant	160m ² (net change)	5 trips per 100m ² GFA	8	-20%	6

Land Use	Size/Number of People	Traffic Generation Rate	Total Traffic Generation	Reduction due to Multi-Purpose Trips (Refer to Table 4.2)	Reduced Traffic Generation due to Multi-Purpose Trips
Pub	Reduction of 58m ² (net change: 172m ² minus 230m ²)	-	Already captured in traffic survey	-	Conservatively assumed traffic generation unchanged from traffic survey
Total			184	-	174

Table 5.3 indicates that the net change in traffic generation associated with the site would be in the order of 174 trips per peak hour (two-way) when a conference/function is held on site, but this would only be 49 two-way trips per peak hour (i.e. 43 trips + 6 trips as bolded in Table 5.3) when no conferences/functions are held.

Conservatively, it has been assumed all of these trips would occur concurrently during the same peak hours, albeit in reality this may not be practicable given the conferences/functions may not occur every day and when they do occur, they may start/end outside the commuter peak periods. For analytical purposes, the net change of traffic generation for 174 trips per peak hour has been adopted in the traffic assessment and is considered a robust approach.

5.3 Traffic Distribution

The directional distribution and assignment of traffic generated by the proposed development would be influenced by a number of factors, including the:

- configuration of the arterial road network in the immediate vicinity of the site
- existing operation of intersections providing access between the local and arterial road network.
- configuration of access point to the site.

Having considered the above, for the purposes of estimating vehicle movements, the proposed directional distributions are shown in Table 5.4 for the AM peak hour. It has been assumed that the reverse travel pattern will occur in the PM peak hour.

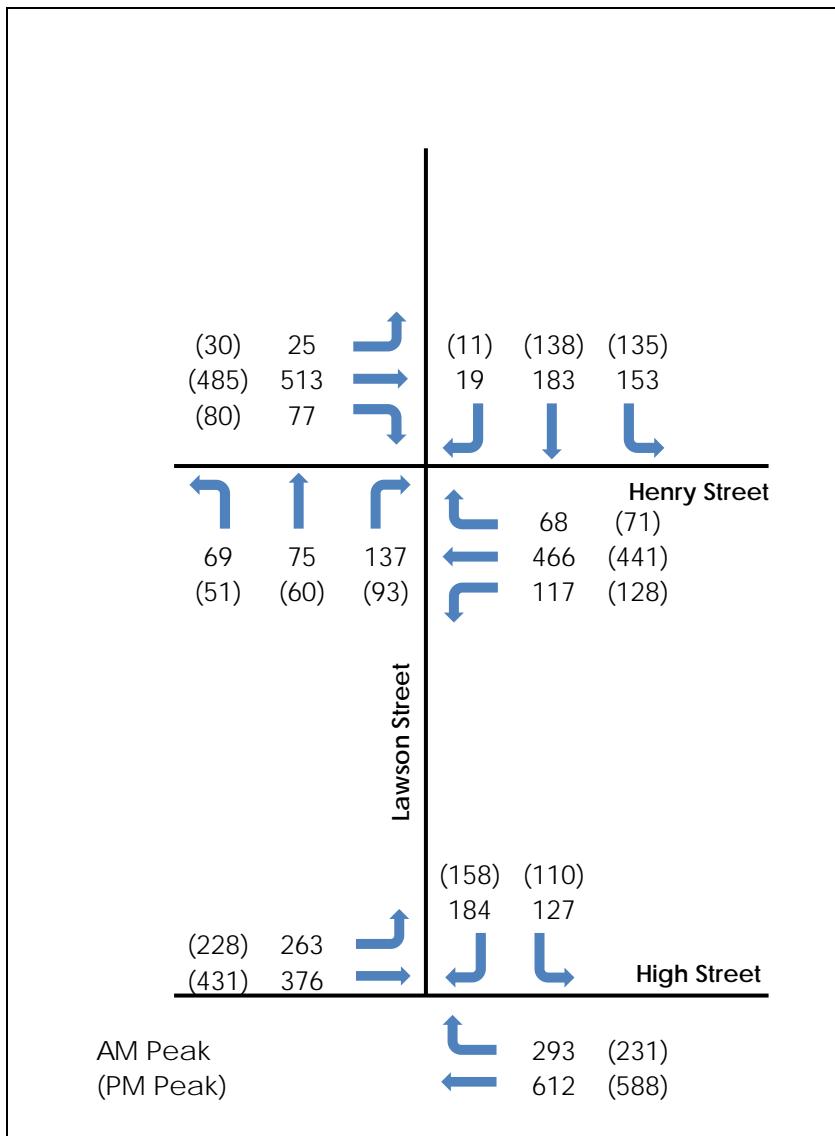
Table 5.4: Traffic Distribution

Travel Direction To/From Lawson Street	AM Peak	PM Peak
North	25%	25%
South	75%	75%
Total	100%	100%

5.4 Future Traffic Volumes

Figure 5.2 presents the traffic forecasts with site related traffic superimposed on the road network. It should be acknowledged that parking may occur on surrounding streets or public car parks as such drivers may not traverse the key intersections. However, it has been conservatively assumed that all site related traffic is distributed to and from the site via the key intersections.

Figure 5.2: Future Traffic Volumes (2028 with Redevelopment)



Note: AM peak hour (7.45am-8.45am) and PM peak hour (4.30pm-5.30pm)

5.5 Intersection Capacity Assessment

The operation of the key intersections has been assessed using SIDRA Intersection 9, a computer based modelling package which assesses intersection performance under prevailing traffic conditions.

Intersection configurations were sourced from TfNSW traffic signal plans and aerial photos. Signal phasing information was obtained in the site inspection to observe operational conditions.

The SIDRA modelling has been refined from the planning proposal stage to calibrate site conditions including the following:

- Turning traffic is held by red arrow at the Henry Street-Lawson Street intersection during the green walk man phase in the adjacent leg for pedestrian protection.
- A pedestrian zebra crossing has been installed at a mid-block location on Henry Street east of Lawson Street.

5.5.1 Model Performance Indicators

SIDRA Intersection 9 modelling provides several useful indicators to determine the level of intersection performance.

5.5.1.1 *Level of Service (LoS)*

LoS is a basic performance parameter used to describe the operation of an intersection. Levels of service indicators range from A (indicating good intersection operation) to F (indicating over-saturated conditions with long delays and queues). At priority controlled (give-way and stop controlled) and roundabout intersections, the LoS is based on the modelled delay (seconds per vehicle) for the most delayed movement (refer to Table 5.5).

Table 5.5: Level of Service Criteria for Intersections

Level of Service	Average Delay (seconds per vehicle)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	good operation	good operation
B	15 to 28	good with acceptable delays and spare capacity	acceptable delays and spare capacity
C	29 to 42	satisfactory	satisfactory, but accident study required
D	43 to 56	operating near capacity	near capacity and accident study required
E	57 to 70	at capacity, at signals, incidents will cause excessive delays, roundabouts require other control mode	at capacity, requires other control mode
F	Greater than 71	unsatisfactory with excessive queuing	unsatisfactory with excessive queuing; requires other control mode

Source: RMS Guide to Traffic Generating Developments, 2002

5.5.1.2 Average Delay

Delay is the difference between interrupted and uninterrupted travel times through the intersection and is measured in seconds per vehicle. At priority controlled intersections, the average delay for the most delayed movement is usually reported.

5.5.1.3 Queue Length

Queue length is measured in metres reflecting the number of vehicles waiting at the stop line and is usually quoted as the 95th percentile back of queue, which is the value below which 95% of all observed queue lengths fall. It reflects the number of vehicles per traffic lane at the start of the green period, when traffic starts moving again after a red signal. The intersection queue length is usually taken from the movement with the longest queue length.

Average queue length is the measure used to determine whether the available length is sufficient for storing traffic queues.

Both queue lengths are reported in the modelling results.

5.5.2 Intersection Operational Conditions

Intersection analysis was conducted for the key intersections based on the existing peak hour flows as shown in Figure 2.3 and the estimated future peak hour flows shown in Figure 5.2 (without redevelopment) and Figure 5.2 (with redevelopment). The analysis results for traffic conditions are presented in Table 5.6.

Table 5.6: Operating Conditions for 2018 Existing Base Case

Scenario	Intersection	Approach	AM Peak Hour				PM Peak Hour			
			Delay (sec/veh)	Level of Service	95 th Percentile Queue (m)	Average Queue (m)	Delay (sec/veh)	Level of Service	95 th Percentile Queue (m)	Average Queue (m)
2018 Existing	Lawson Street-Henry Street	South: Lawson Street	34	C	Left = 15 Through = 53 Right = 53	Left = 9 Through = 33 Right = 33	36	C	Left = 9 Through = 45 Right = 45	Left = 5 Through = 28 Right = 28
		East: Henry Street	14	A	Left = 36 Through = 68 Right = 68	Left = 22 Through = 42 Right = 42	37	C	Left = 107 Through = 107 Right = 53	Left = 66 Through = 66 Right = 32
		North: Lawson Street	28	B	Left = 34 Through = 40 Right = 40	Left = 21 Through = 24 Right = 24	34	C	Left = 36 Through = 34 Right = 34	Left = 22 Through = 21 Right = 21
		West: Henry Street	13	A	Left = 13 Through = 81 Right = 81	Left = 8 Through = 50 Right = 50	13	A	Left = 36 Through = 46 Right = 46	Left = 22 Through = 28 Right = 28
		Intersection	19	B	81	50	28	B	107	66
Lawson Street-High Street	Lawson Street-High Street	East: High Street	16	B	Through = 45 Right = 59	Through = 28 Right = 36	6	A	Through = 53 Right = 53	Through = 33 Right = 33
		North: Lawson Street	45	D	Left = 29 Right = 65	Left = 18 Right = 40	56	D	Left = 41 Right = 44	Left = 25 Right = 27
		West: High Street	12	A	Left = 21 Through = 69	Left = 13 Through = 42	4	A	Left = 6 Through = 39	Left = 4 Through = 24
		Intersection	20	B	69	42	14	A	53	33

Table 5.7: Operating Conditions for 2028 Future base (without Redevelopment)

Scenario	Intersection	Approach	AM Peak Hour				PM Peak Hour			
			Delay (sec/veh)	Level of Service	95 th Percentile Queue (m)	Average Queue (m)	Delay (sec/veh)	Level of Service	95 th Percentile Queue (m)	Average Queue (m)
2028 Future base (without redevelopment)	Lawson Street-Henry Street	South: Lawson Street	34	C	Left = 15 Through = 53 Right = 53	Left = 9 Through = 33 Right = 33	37	C	Left = 10 Through = 45 Right = 45	Left = 6 Through = 28 Right = 28
		East: Henry Street	14	A	Left = 36 Through = 68 Right = 68	Left = 22 Through = 41 Right = 41	48	D	Left = 133 Through = 133 Right = 83	Left = 82 Through = 82 Right = 51
		North: Lawson Street	28	B	Left = 34 Through = 40 Right = 40	Left = 21 Through = 24 Right = 24	34	C	Left = 36 Through = 34 Right = 34	Left = 22 Through = 21 Right = 21
		West: Henry Street	13	A	Left = 14 Through = 86 Right = 86	Left = 9 Through = 53 Right = 53	21	B	Left = 39 Through = 73 Right = 73	Left = 24 Through = 45 Right = 45
		Intersection	19	B	86	53	35	C	133	82
Lawson Street-High Street	Lawson Street-High Street	East: High Street	21	B	Through = 101 Right = 93	Through = 62 Right = 57	7	A	Through = 106 Right = 106	Through = 65 Right = 65
		North: Lawson Street	33	C	Left = 25 Right = 53	Left = 15 Right = 33	57	E	Left = 43 Right = 51	Left = 26 Right = 31
		West: High Street	16	B	Left = 23 Through = 90	Left = 14 Through = 55	4	A	Left = 7 Through = 46	Left = 5 Through = 28
		Intersection	21	B	101	62	14	A	106	65

Table 5.8: Operating Conditions for 2028 Future (with Redevelopment)

Scenario	Intersection	Approach	AM Peak Hour				PM Peak Hour			
			Delay (sec/veh)	Level of Service	95 th Percentile Queue (m)	Average Queue (m)	Delay (sec/veh)	Level of Service	95 th Percentile Queue (m)	Average Queue (m)
2028 Future (with redevelopment)	Lawson Street-Henry Street	South: Lawson Street	34	C	Left = 15 Through = 55 Right = 55	Left = 9 Through = 34 Right = 34	38	C	Left = 10 Through = 48 Right = 48	Left = 6 Through = 30 Right = 30
		East: Henry Street	15	B	Left = 38 Through = 71 Right = 71	Left = 23 Through = 44 Right = 44	53	D	Left = 138 Through = 138 Right = 93	Left = 84 Through = 84 Right = 57
		North: Lawson Street	28	B	Left = 34 Through = 44 Right = 44	Left = 21 Through = 27 Right = 27	34	C	Left = 36 Through = 38 Right = 38	Left = 22 Through = 23 Right = 23
		West: Henry Street	14	A	Left = 15 Through = 91 Right = 91	Left = 9 Through = 56 Right = 56	26	B	Left = 40 Through = 86 Right = 86	Left = 24 Through = 53 Right = 53
		Intersection	20	B	91	56	38	C	138	84
Lawson Street-High Street	Lawson Street-High Street	East: High Street	36	C	Through = 101 Right = 157	Through = 62 Right = 96	11	A	Through = 141 Right = 141	Through = 87 Right = 87
		North: Lawson Street	34	C	Left = 27 Right = 58	Left = 17 Right = 36	71	E	Left = 58 Right = 57	Left = 36 Right = 35
		West: High Street	16	B	Left = 31 Through = 91	Left = 19 Through = 56	4	A	Left = 10 Through = 46	Left = 6 Through = 28
		Intersection	28	B	157	96	18	B	141	87

The results indicate that the key intersections currently operate satisfactorily at LoS C or better during the peak hours as shown in Table 5.6. The modelled operating conditions reasonably match with the observations.

The 2028 base case model (without redevelopment) has taken into account the traffic growth rates based on STFM as detailed in Section 5.1, without the redevelopment traffic. The results in Table 5.7 indicate that the key intersections would operate at LoS C or better. A minor increase in average delay would be expected at the Lawson Street-Henry Street intersection due to the background traffic growth as discussed in Section 5.1.

For the 2028 future case model (with redevelopment), the key intersections would still operate at LoS C similar to the future base case, even with the additional traffic in relation to the subject redevelopment. As shown in Table 5.8, the average delay would increase by three to seven seconds, as compared with the future base case. This indicates the proposed redevelopment, even in a worst case scenario with conference/function held on site, would not impose adverse impacts on the road network in the AM and PM peaks.

6 Conclusions

Based on the analysis and discussions presented within this report, the following conclusions are made:

- The operation of the proposed redevelopment would generate in the order of 219 spaces with some demand to be accommodated within the 64-space car park.
- The parking demands of the remaining 157 spaces could be satisfactorily accommodated in the spare parking spaces that are readily available in the vicinity:
 - There was at least a minimum of 302 and 356 vacant parking spaces being available within 460m (or 6.5 minute walk) of the site during the peak parking occupancy i.e. lunch time trading periods (11am to 2pm) on Thursday and Saturday respectively.
 - There was at least a minimum of 256 vacant parking spaces available within 460m (or 6.5 minute walk) of the site from 5pm onwards on Thursday, and at least 617 vacant parking spaces from 5pm onwards on Saturday, to accommodate the parking demands during the dinner trading periods.
- Notwithstanding the above, the proposed pub would minimise parking demands by promoting responsible drink-driving behaviour with carpooling and taxi services and encouraging the use of public transport as there are options and services for public transport provided to the subject site. Further, the existing Soper Place car park would be upgraded to be a multi-level car park with additional spaces to be provided. This would support the parking needs of the site.
- Conservatively, the site is expected to generate in the order of 174 two-way vehicle trips in the peak hour if conference/function is held on site, otherwise there would be 49 two-way vehicle trips.
- The assessed intersections would operate acceptably at LoS C in a worst case scenario, taking in account the additional traffic associated with background traffic growth and the proposed redevelopment when conference/function is held on site. When conference/function is not held, the typical traffic volumes would be well below this worst case level, and thus traffic impacts would be less than the Scenario 3 modelling results (Year 2028 with redevelopment).
- The parking layout has been designed in accordance with Australian Standard AS2890.1 and AS2890.6.
- The 10km/h shared zone in Lawson Lane between Lawson Street and the western end of the loading bay would be designed in accordance with the TfNSW specifications.
- The loading dock in Lawson Lane would provide a turntable to enable delivery vehicles and waste collection vehicles to enter and leave the loading dock in a forward direction.

Overall, it is concluded that the proposed hotel development at 351 and 359 High Street and 18 Lawson Street, Penrith, is not expected to have an adverse traffic and parking effect on the surrounding transport network.

Appendix A

Intersection Movements Counts Survey (March 2018)

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of Lawson St and Henry St, Penrith

Date:	Thu 22/03/18
Weather:	Fine
Suburban:	Penrith
Customer:	ITPP

North:	Lawson St
East:	Henry St
South:	Lawson St
West:	Henry St

Survey Start	AM:	7:00	PM:	N/A
Vehicular Peakhour		Pedestrians Peakhour		
AM:	N/A	AM:	N/A	
PM:	7:45 AM-8:45 AM	PM:	N/A	

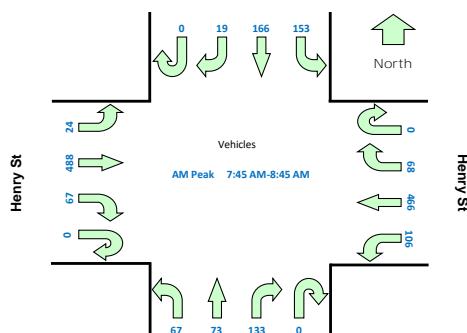
All Vehicles

Period Start	Period End	North Approach Lawson St				East Approach Henry St				South Approach Lawson St				West Approach Henry St				Hourly Total	
		U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	2	23	31	0	13	136	18	0	11	19	12	0	20	116	7	1633	
7:15	7:30	0	3	25	24	0	21	123	32	0	25	11	12	0	16	82	8	1697	
7:30	7:45	0	5	26	26	0	18	117	31	0	16	16	7	0	14	113	7	1790	
7:45	8:00	0	2	47	45	0	24	118	26	0	25	15	16	0	15	110	4	1830	Peak
8:00	8:15	0	3	45	38	0	16	105	37	0	36	15	14	0	15	141	7	1759	
8:15	8:30	0	9	41	48	0	7	115	18	0	31	29	22	0	19	128	8		
8:30	8:45	0	5	33	22	0	21	128	25	0	41	14	15	0	18	109	5		
8:45	9:00	0	3	30	39	0	14	121	24	0	18	13	13	0	17	79	5		

Period Start	Period End	North Approach Lawson St				East Approach Henry St				South Approach Lawson St				West Approach Henry St				Peak total	
		U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total	
7:45	8:45	0	19	166	153	0	68	466	106	0	133	73	67	0	67	488	24	1830	

Graphic

Lawson St



Lawson St

Light Vehicles

Period Start	Period End	North Approach Lawson St				East Approach Henry St				South Approach Lawson St				West Approach Henry St					
		U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
7:00	7:15	0	2	22	31	0	13	135	18	0	11	19	12	0	20	108	6		
7:15	7:30	0	3	25	24	0	21	120	32	0	25	11	12	0	16	82	8		
7:30	7:45	0	5	26	26	0	18	115	31	0	16	15	7	0	14	107	7		
7:45	8:00	0	2	47	45	0	24	114	25	0	25	15	15	0	15	107	4		
8:00	8:15	0	3	45	38	0	16	101	37	0	35	15	13	0	15	137	7		
8:15	8:30	0	9	41	48	0	7	113	18	0	31	29	22	0	18	125	8		
8:30	8:45	0	5	33	22	0	21	124	25	0	41	14	15	0	18	104	4		
8:45	9:00	0	3	30	39	0	13	118	24	0	18	13	13	0	17	79	5		

Heavy Vehicles

Period Start	Period End	North Approach Lawson St				East Approach Henry St				South Approach Lawson St				West Approach Henry St					
		U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
7:00	7:15	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	8	1	
7:15	7:30	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	
7:30	7:45	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	6	0	
7:45	8:00	0	0	0	0	0	0	4	1	0	0	0	1	0	0	0	3	0	
8:00	8:15	0	0	0	0	0	0	4	0	0	1	0	1	0	0	0	4	0	
8:15	8:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	3	0
8:30	8:45	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	5	1	
8:45	9:00	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

Intersection of Lawson St and High St, Penrith



Date:	Thu 22/03/18
Weather:	Fine
Suburban:	Penrith
Customer:	TTPP

North:	Lawson St
East:	High St
South:	N/A
West:	High St

Survey Start			
AM:	7:00	PM:	N/A
Vehicular Peakhour Start			
AM:	N/A	PM:	7:45 AM-8:45 AM

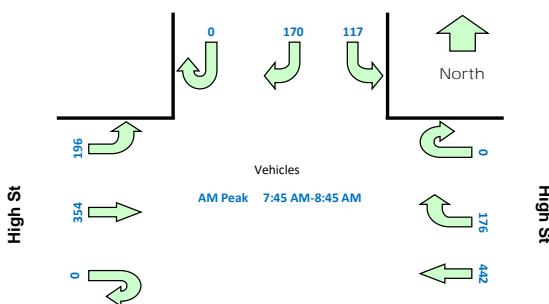
All Vehicles

Time		North Approach Lawson St			East Approach High St			West Approach High St			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	28	21	0	37	120	0	94	29	1368	
7:15	7:30	0	27	26	0	53	121	0	91	38	1434	
7:30	7:45	0	32	22	0	23	91	0	109	33	1431	
7:45	8:00	0	44	30	0	49	111	0	97	42	1455	Peak
8:00	8:15	0	46	32	0	46	118	0	98	55	1390	
8:15	8:30	0	39	24	0	47	109	0	75	59		
8:30	8:45	0	41	31	0	34	104	0	84	40		
8:45	9:00	0	35	24	0	31	116	0	74	28		

Peak Time		North Approach Lawson St			East Approach High St			West Approach High St			Peak total
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
7:45	8:45	0	170	117	0	176	442	0	354	196	1455

Graphic

Lawson St



Light Vehicles

Time		North Approach Lawson St			East Approach High St			West Approach High St		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	28	20	0	37	119	0	94	29
7:15	7:30	0	27	26	0	52	120	0	91	38
7:30	7:45	0	32	22	0	21	90	0	109	33
7:45	8:00	0	44	30	0	47	110	0	96	42
8:00	8:15	0	46	32	0	45	117	0	97	55
8:15	8:30	0	39	23	0	47	108	0	75	59
8:30	8:45	0	41	31	0	34	103	0	84	40
8:45	9:00	0	35	24	0	30	116	0	74	28

Heavy Vehicles

Heavy Vehicles										
Time		North Approach Lawson St			East Approach High St			West Approach High St		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	0	1	0	0	1	0	0	0
7:15	7:30	0	0	0	0	1	1	0	0	0
7:30	7:45	0	0	0	0	2	1	0	0	0
7:45	8:00	0	0	0	0	2	1	0	1	0
8:00	8:15	0	0	0	0	1	1	0	1	0
8:15	8:30	0	0	1	0	0	1	0	0	0
8:30	8:45	0	0	0	0	0	1	0	0	0
8:45	9:00	0	0	0	0	1	0	0	0	0

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

Intersection of Carpark

trafficsurvey.com.au



Date:	Thu 22/03/18
Weather:	Fine
Suburban:	Penrith
Customer:	TTPP

All Vehicles

Time		North Carpark Access				East Carpark Access				South Carpark Access			
		In		Out		In		Out		In		Out	
Period Start	Period End	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck
7:00	7:15	2	0	2	0	1	0	1	0	1	0	3	0
7:15	7:30	5	0	1	0	0	0	2	0	0	0	0	0
7:30	7:45	3	0	2	0	0	0	1	0	1	0	3	0
7:45	8:00	1	0	3	0	0	0	2	0	1	0	0	0
8:00	8:15	7	0	2	0	0	0	2	0	0	0	2	0
8:15	8:30	7	0	3	0	0	0	6	0	3	0	2	0
8:30	8:45	3	0	4	0	0	0	2	0	0	0	3	0
8:45	9:00	2	0	4	0	0	0	0	0	5	0	10	0

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au DNV-GL DNV-GL DNV-GL



TURNING MOVEMENT SURVEY

Date:	Thu 15/03/18
Weather:	Fine
Suburban:	Penrith
Customer:	TTPP

North:	Lawson St
East:	Henry St
South:	Lawson St
West:	Henry St

Survey Start	AM:	N/A	PM:	16:00
Vehicular Peakhour		Pedestrians Peakhour		
AM:	N/A	AM:	N/A	
PM:	4:30 PM-5:30 PM	PM:	N/A	

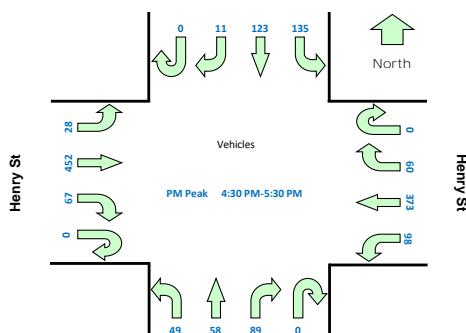
All Vehicles

Time		North Approach Lawson St				East Approach Henry St				South Approach Lawson St				West Approach Henry St				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
16:00	16:15	0	3	17	35	0	20	102	24	0	25	9	20	0	19	87	5	1463	
16:15	16:30	0	6	28	28	0	10	92	17	0	27	13	15	0	12	108	3	1526	
16:30	16:45	0	1	26	27	0	14	101	24	0	20	12	16	0	11	105	5	1543	Peak
16:45	17:00	0	8	31	43	0	18	94	24	0	13	16	11	0	18	94	6	1498	
17:00	17:15	0	1	34	32	0	19	95	31	0	25	10	11	0	18	142	11	1438	
17:15	17:30	0	1	32	33	0	9	83	19	0	31	20	11	0	20	111	6		
17:30	17:45	0	2	25	24	0	9	74	22	0	25	11	7	0	13	100	5		
17:45	18:00	0	7	35	29	0	15	82	23	0	17	12	10	0	11	70	5		

Peak Time		North Approach Lawson St				East Approach Henry St				South Approach Lawson St				West Approach Henry St				Peak total
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	
16:30	17:30	0	11	123	135	0	60	373	98	0	80	58	19	0	67	452	28	1543

Graphic

Lawson St



Time		North Approach Lawson St				East Approach Henry St				South Approach Lawson St				West Approach Henry St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
16:00	16:15	0	3	17	35	0	20	98	24	0	25	9	19	0	19	82	5
16:15	16:30	0	6	28	28	0	10	91	17	0	26	13	15	0	12	108	3
16:30	16:45	0	1	26	27	0	14	96	23	0	20	12	15	0	11	99	5
16:45	17:00	0	8	30	43	0	18	91	24	0	13	16	10	0	18	93	6
17:00	17:15	0	1	33	32	0	19	92	31	0	25	10	10	0	18	136	11
17:15	17:30	0	1	32	32	0	9	78	19	0	31	19	10	0	19	107	6
17:30	17:45	0	2	25	23	0	9	72	21	0	25	10	7	0	13	94	5
17:45	18:00	0	7	35	29	0	15	78	23	0	17	12	10	0	11	69	5

Heavy Vehicles

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of Lawson St and High St, Penrith

Date:	Thu 15/03/18
Weather:	Fine
Suburban:	Penrith
Customer:	TPPP

North:	Lawson St
East:	High St
South:	N/A
West:	High St

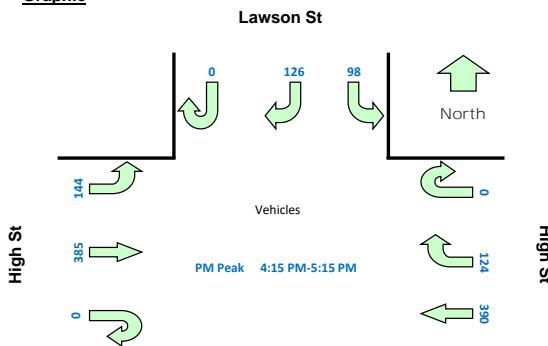
Survey Start			
AM:	N/A	PM:	16:00
Vehicular Peakhour Start			
AM:	N/A	PM:	4:15 PM-5:15 PM

All Vehicles

Period Start	Period End	North Approach Lawson St			East Approach High St			West Approach High St			Hourly Total	
		U	R	L	U	R	WB	U	EB	L	Hour	Peak
16:00	16:15	0	19	26	0	36	97	0	99	48	1257	
16:15	16:30	0	21	22	0	37	110	0	106	39	1267	Peak
16:30	16:45	0	26	28	0	31	91	0	101	34	1265	
16:45	17:00	0	28	18	0	36	93	0	84	27	1221	
17:00	17:15	0	51	30	0	20	96	0	94	44	1205	
17:15	17:30	0	39	24	0	31	95	0	100	44		
17:30	17:45	0	30	19	0	22	96	0	69	31		
17:45	18:00	0	29	24	0	19	84	0	93	21		

Period Start	Period End	North Approach Lawson St			East Approach High St			West Approach High St			Peak total	
		U	R	L	U	R	WB	U	EB	L	Hour	Peak
16:15	17:15	0	126	98	0	124	390	0	385	144	1267	

Graphic



Light Vehicles

Period Start	Period End	North Approach Lawson St			East Approach High St			West Approach High St				
		U	R	L	U	R	WB	U	EB	L	Hour	Peak
16:00	16:15	0	19	26	0	33	97	0	99	48		
16:15	16:30	0	21	22	0	37	110	0	104	38		
16:30	16:45	0	26	28	0	31	91	0	101	33		
16:45	17:00	0	27	18	0	35	93	0	84	27		
17:00	17:15	0	51	30	0	20	96	0	94	43		
17:15	17:30	0	39	23	0	30	95	0	100	42		
17:30	17:45	0	29	19	0	22	96	0	69	31		
17:45	18:00	0	29	24	0	19	83	0	93	21		

Heavy Vehicles

Period Start	Period End	North Approach Lawson St			East Approach High St			West Approach High St				
		U	R	L	U	R	WB	U	EB	L	Hour	Peak
16:00	16:15	0	0	0	0	3	0	0	0	0		
16:15	16:30	0	0	0	0	0	0	0	2	1		
16:30	16:45	0	0	0	0	0	0	0	0	0		
16:45	17:00	0	1	0	0	1	0	0	0	0		
17:00	17:15	0	0	0	0	0	0	0	0	0		
17:15	17:30	0	0	1	0	1	0	0	0	0		
17:30	17:45	0	1	0	0	0	0	0	0	0		
17:45	18:00	0	0	0	0	0	1	0	0	0		

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

Intersection of Carpark

trafficsurvey.com.au



Date:	Thu 15/03/18
Weather:	Fine
Suburban:	Penrith
Customer:	TTPP

All Vehicles

Time		North Carpark Access				East Carpark Access				South Carpark Access		
		In		Out		In		Out		In	Out	Car
Period Start	Period End	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car
16:00	16:15	2	0	0	0	1	0	0	0	0	0	0
16:15	16:30	1	0	4	0	0	0	0	0	3	0	0
16:30	16:45	4	0	2	0	1	0	3	0	1	0	2
16:45	17:00	5	0	3	1	0	0	0	0	2	0	1
17:00	17:15	2	0	4	0	0	0	5	0	4	0	2
17:15	17:30	2	0	0	0	0	0	10	0	4	0	5
17:30	17:45	4	0	4	0	1	0	2	0	4	0	4
17:45	18:00	0	0	3	0	0	0	1	0	3	0	6

Appendix B

Parking Occupancy Survey (March 2018)

TRANS TRAFFIC SURVEY


Parking Occupancy Survey

Date:	Thursday, 15 March 2018
Location:	Penrith
Weather:	Fine
Customer:	TPPP

Public Parking (1/0)	Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy								
								17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00
1		Soper Place Car Park			Unrestricted		124	63	67	25	15	11	9	9	8	5
0					Motor Bike Only		5	0	0	0	0	0	0	0	0	0
1					Unrestricted		135	72	54	45	34	25	21	8	8	5
1					Disable		3	0	0	0	0	0	0	0	0	0
1					3P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		87	51	51	42	35	25	13	13	10	10
1					Disable		2	0	0	0	0	0	0	0	0	0
1		Edward Place Car Park			2P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		82	39	46	48	51	54	42	35	35	23
1					Disable		2	0	0	0	0	0	0	0	0	0
1		Allen Place Car Park			Disable		2	0	0	0	0	0	1	1	1	1
1					1P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		17	15	15	17	17	17	17	16	11	9
1					2P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		160	132	148	153	153	152	136	123	93	87
0					Motor Bike Only		8	0	0	0	0	0	0	0	0	0
1					Disable		7	0	0	0	0	0	0	1	1	1
1					1P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		24	23	23	23	23	22	18	16	13	10
0	Henry St	Station St to Woodriff St	N		Bus Zone		7	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		16	12	12	10	9	9	8	5	5	5
0					Bus Zone		8	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		3	1	1	1	0	0	0	0	0	0
1		Woodriff St to Lawson St			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		13	5	5	4	4	4	4	4	3	3
1		Lawson St to Evans St			1P 8:30am-3:30pm Mon-Fri, 8:30am-12:30pm Sat	No Parking 3:30pm-6:30pm Mon-Fri	12	0	0	0	5	7	7	7	7	7
0					Bus Zone		2	0	0	0	0	0	0	0	0	0
1	Henry St	Evans St to Lawson St	S		Unrestricted	No Parking 3:30pm-6:30pm Mon-Fri	11	0	0	0	0	0	0	0	0	0
0					Bus Zone		3	0	0	0	0	0	0	0	0	0

Parking Survey.xlsx

1			Lawson St to Woodriff St		1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	1	1	1	2	2	2	2	2	2	2
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		9	7	7	7	6	4	4	4	4	4	4
1			Woodriff St to Gaymark La		1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		15	11	11	12	11	8	8	6	5	5	5
1					No Parking 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	0	0	0	0	1	1	1	1	1	1
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		6	5	5	5	6	6	5	4	4	4	4
0					Bus Zone		6	0	0	0	0	0	0	0	0	0	0
1			Gaymark La to Station St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		4	2	2	2	2	1	1	1	1	1	1
0	Lawson St	Soper Place to Henry St	E	No Stopping			1	0	0	0	0	0	0	0	0	0	0
1		Henry St to Lawson La		1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			2	2	1	1	1	1	1	1	1	1	1
0		Lawson La to High St		Bus Zone			4	0	0	0	0	1	1	1	1	1	1
1				Loading Zone			3	0	0	0	0	0	0	0	0	0	0
1	Lawson St	High St to Edwards Pl	W	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			4	4	3	3	2	2	1	1	1	1	1
1		Edwards Pl to Henry St		1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			3	1	1	1	1	3	3	2	2	2	2
0		Henry St to Soper Place		No Stopping			1	0	0	0	0	0	0	0	0	0	0
1	Castlereagh St	Lethbridge St Round About to Tindale St	W	1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			13	11	11	11	9	8	8	5	5	5	5
1		Tindale St to Masters Place Car Park		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			2	2	1	1	1	1	1	1	1	1	1
1		Masters Place Car Park to High St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			6	4	4	4	5	6	4	4	4	4	4
1		High St to John Cram Place	E	1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			3	3	3	3	3	2	2	2	2	2	2
1		John Cram Place to Lethbridge St Round About		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			5	5	5	5	5	5	5	5	4	4	4
1				1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			16	11	11	9	6	6	6	4	3	3	3
1	High St	Station St to Opposite Ofwoodriff St	N	1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			9	8	5	5	3	3	3	4	3	3	3
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			10	9	7	7	6	6	5	5	4	4	4
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			10	9	9	9	9	7	7	7	6	6	6
1		Opposite Ofwoodriff St to Lawson St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			6	6	5	3	3	1	1	1	1	1	1
0				Motor Bike Only			2	0	0	0	0	0	0	0	0	0	0
0				Aus Post Vehicles Only			1	0	0	0	0	0	0	0	0	0	0
0				Taxi Zone			1	0	0	0	0	0	0	0	0	0	0
1				P15 Min 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			5	5	5	5	5	3	2	2	2	2	2
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			4	4	4	4	4	4	3	3	2	2	2
1		Lawson St to Evans St		Unrestricted		No Parking 7am-6pm Mon-Fri	7	0	0	0	1	2	2	2	2	2	2
0				Police Vehicles Only			9	2	2	2	3	3	3	3	3	3	2

Parking Survey.xlsx

0				Police Vehicles Only		2	0	0	0	0	0	0	0	0	0	0	0
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		12	5	3	3	3	3	3	3	3	3	3	2
0	High St	Evans St to Higgins Ln	S	Aus Post Vehicles Only		1	0	0	0	0	0	0	0	0	0	0	0
1				1/4P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		4	1	1	1	1	2	2	1	1	1	1	
1				1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		5	2	2	2	2	2	2	0	0	0	0	
0				Motor Bike Only		2	0	0	0	0	0	0	0	0	0	0	0
1				1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		6	5	5	4	4	4	2	2	2	2	2	
0				Motor Bike Only		1	0	0	0	0	0	0	0	0	0	0	0
0		Higgins Ln to Castlereagh St		Bus Zone		5	0	0	0	0	0	0	0	0	0	0	0
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		5	5	5	5	5	5	5	0	0	0	0	
1		Castlereagh St to Woodriff St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		5	5	5	5	5	5	5	4	3	3		
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		7	7	7	7	6	6	5	5	4	3		
1		Woodriff St to Station St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		6	6	6	6	6	6	6	4	4	4		
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		10	10	10	10	9	9	8	8	6	6		
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		8	7	7	7	7	6	5	5	5	4		
PUBLIC CAPACITY							914										
PUBLIC OCCUPANCIES							576	574	516	485	456	394	337	283	251		
PUBLIC VACANCIES							338	340	398	429	458	520	577	631	663		
PUBLIC % OCCUPANCIES							63%	63%	56%	53%	50%	43%	37%	31%	27%		

 not available for public parking

TRANS TRAFFIC SURVEY


Parking Occupancy Survey

Date:	Saturday, 17 March 2018
Location:	Penrith
Weather:	Fine
Customer:	TPPP

Public Parking (1/0)	Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy								
								17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00
1		Soper Place Car Park			Unrestricted		124	3	3	3	3	5	5	6	3	3
0					Motor Bike Only		5	0	0	0	0	0	0	0	0	0
1					Unrestricted		135	6	6	9	8	7	7	5	4	2
1					Disable		3	1	1	0	0	0	0	0	0	0
1					3P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		87	11	10	3	3	4	5	5	3	3
1					Disable		2	0	0	0	0	0	0	0	0	0
1		Edward Place Car Park			2P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		82	21	21	35	35	31	33	33	30	21
1					Disable		2	0	1	1	1	1	0	0	0	0
1		Allen Place Car Park			Disable		2	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		17	7	7	10	10	12	15	15	10	9
1					2P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		160	56	53	48	47	40	38	34	28	22
0					Motor Bike Only		8	0	0	0	0	0	0	0	0	0
1					Disable		7	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		24	1	1	3	4	4	5	6	5	3
0	Henry St	Station St to Woodriff St	N		Bus Zone		7	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		16	6	6	7	7	9	6	6	6	5
0					Bus Zone		8	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		3	2	1	1	1	2	2	2	2	2
1		Woodriff St to Lawson St			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		13	1	1	2	2	2	2	2	1	1
1		Lawson St to Evans St			1P 8:30am-3:30pm Mon-Fri, 8:30am-12:30pm Sat	No Parking 3:30pm-6:30pm Mon-Fri	12	4	4	10	12	12	12	11	8	8
0					Bus Zone		2	0	0	0	0	0	0	0	0	0
1	Henry St	Evans St to Lawson St	S		Unrestricted	No Parking 3:30pm-6:30pm Mon-Fri	11	0	0	0	0	0	0	0	0	0
0					Bus Zone		3	0	0	0	1	1	1	0	0	0

Parking Survey.xlsx

1			Lawson St to Woodriff St		1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	2	1	1	1	1	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		9	0	0	1	1	0	2	2	2	2
1			Woodriff St to Gaymark La		1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		15	6	7	9	7	3	3	2	2	1
1					No Parking 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	0	1	1	1	1	1	2	2	2
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		6	5	6	6	5	4	4	4	4	3
0					Bus Zone		6	0	0	0	0	0	0	0	0	0
1			Gaymark La to Station St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		4	3	3	3	4	4	4	4	4	3
0	Lawson St	Soper Place to Henry St	E	No Stopping			1	0	0	0	0	0	0	0	0	0
1		Henry St to Lawson La		1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			2	1	1	2	2	2	2	2	2	1
0		Lawson La to High St		Bus Zone			4	0	0	0	0	0	0	0	0	0
1				Loading Zone			3	0	0	0	1	1	0	0	0	0
1	Lawson St	High St to Edwards Pl	W	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			4	3	4	4	4	3	4	4	4	4
1		Edwards Pl to Henry St		1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			3	1	2	3	3	2	3	3	2	1
0		Henry St to Soper Place		No Stopping			1	0	0	0	0	0	0	1	1	1
1	Castlereagh St	Lethbridge St Round About to Tindale St	W	1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			13	10	11	11	11	13	12	10	8	7
1		Tindale St to Masters Place Car Park		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			2	2	2	2	2	2	2	2	2	1
1		Masters Place Car Park to High St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			6	6	6	6	6	5	5	6	2	2
1		High St to John Cram Place	E	1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			3	3	3	3	3	2	2	3	3	2
1		John Cram Place to Lethbridge St Round About		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			5	5	5	5	5	5	5	5	5	5
1				1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			16	7	8	10	11	11	11	11	7	4
1	High St	Station St to Opposite Ofwoodriff St	N	1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			9	0	1	1	1	3	6	8	5	4
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			10	0	0	0	3	4	8	9	9	6
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			10	0	2	8	8	9	8	8	8	3
1		Opposite Ofwoodriff St to Lawson St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			6	0	2	4	4	6	6	6	6	3
0				Motor Bike Only			2	0	0	0	0	0	0	0	0	0
0				Aus Post Vehicles Only			1	0	0	0	0	0	0	0	0	0
0				Taxi Zone			1	0	0	0	0	0	0	1	1	1
1				P15 Min 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			5	1	3	3	4	5	5	5	5	5
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat			4	3	4	4	4	4	4	4	3	3
1		Lawson St to Evans St		Unrestricted		No Parking 7am-6pm Mon-Fri	7	2	2	1	2	4	3	3	3	3
0				Police Vehicles Only			9	1	1	1	1	1	1	1	1	1

Parking Survey.xlsx

0				Police Vehicles Only		2	2	1	0	0	0	0	0	0	0	0	0
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		12	5	6	7	6	5	4	3	3	3	3	
0	High St	Evans St to Higgins Ln	S	Aus Post Vehicles Only		1	0	0	0	0	0	0	0	0	0	0	0
1				1/4P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		4	1	1	4	3	2	1	1	1	1	1	
1				1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		5	0	1	5	4	3	4	4	4	4	3	
0				Motor Bike Only		2	0	0	0	0	0	0	0	0	0	0	0
1				1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		6	3	4	6	6	5	5	5	4	3	3	
0				Motor Bike Only		1	0	0	0	0	0	0	0	0	0	0	0
0		Higgins Ln to Castlereagh St		Bus Zone		5	0	0	0	0	0	0	0	0	0	0	0
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		5	5	4	4	4	5	5	5	5	5	3	
1		Castlereagh St to Woodriff St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		5	0	1	1	2	3	3	4	4	4		
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		7	0	1	1	2	7	7	7	7	7	4	
1		Woodriff St to Station St		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		6	0	0	2	5	5	6	6	6	5		
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		10	0	2	2	5	7	7	9	8	6		
1				1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		8	0	2	2	5	6	6	7	6	3		
PUBLIC CAPACITY							914										
PUBLIC OCCUPANCIES							193	211	254	268	271	278	278	235	179		
PUBLIC VACANCIES							721	703	660	646	643	636	636	679	735		
PUBLIC % OCCUPANCIES							21%	23%	28%	29%	30%	30%	30%	26%	20%		

 not available for public parking

TRANS TRAFFIC SURVEY




Parking Occupancy Survey

Date:	Thursday, 22 March 2018
Location:	Penrith
Weather:	Fine
Customer:	TPPP

Public Parking (1/0)	Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy																				
								7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00
1		Soper Place Car Park			Unrestricted		124	6	6	6	7	15	18	49	53	55	63	52	44	44	47	52	52	55	60	62	67	
0					Motor Bike Only		5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1					Unrestricted		135	10	11	11	12	25	52	57	61	61	62	55	55	45	47	47	47	50	59	60	71	68
1					Disable		3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					3P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		87	12	12	15	16	16	35	48	57	57	60	54	46	33	33	41	51	51	51	51	52	
1					Disable		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Edward Place Car Park			2P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		82	5	5	18	18	18	37	39	42	49	53	44	36	29	29	30	31	31	32	32	37	37
1					Disable		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Allen Place Car Park			Disable		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		17	3	5	5	6	6	13	16	15	15	15	12	12	11	11	11	11	11	12	14	15	16
1					2P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		160	14	21	27	28	30	67	96	103	119	125	116	105	84	84	85	99	100	115	123	126	140
0					Motor Bike Only		8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					Disable		7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		24	2	2	5	6	7	17	17	18	19	22	16	14	14	14	17	19	19	19	21	23	21
0	Henry St	Station St to Woodriff St	N		Bus Zone		7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		16	9	9	9	11	12	13	14	14	14	15	15	15	13	14	14	14	14	16	16	16	15
0					Bus Zone		8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
1		Woodriff St to Lawson St			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		13	5	5	6	6	6	7	7	7	8	8	8	8	9	9	10	11	13	13	13	12	
1		Lawson St to Evans St			1P 8:30am-3:30pm Mon-Fri, 8:30am-12:30pm Sat		12	7	7	7	8	8	9	9	9	9	9	11	10	10	10	9	8	8	8	8	7	
0					Bus Zone		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Henry St	Evans St to Lawson St	S		Unrestricted	No Parking 3:30pm-6:30pm Mon-Fri	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0					Bus Zone		3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Lawson St to Woodriff St			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		9	4	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9	9	9	8	8	
1		Woodriff St to Gaymark La			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		15	6	7	8	8	11	11	11	13	13	14	15	14	14	13	13	15	15	15	15	15	
1					No Parking 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		6	2	3	4	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	
0					Bus Zone		6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Gaymark La to Station St			1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		4	1	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
0	Lawson St	Soper Place to Henry St	E		No Stopping		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Henry St to Lawson La			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0		Lawson La to High St			Bus Zone		4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Parking Survey.xlsx

not available for public parking

TRANS TRAFFIC SURVEY


Parking Occupancy Survey

Date:	Saturday, 24 March 2018
Location:	Penrith
Weather:	Fine
Customer:	TPPP

Public Parking (1/0)	Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy																					
								7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	
1		Soper Place Car Park			Unrestricted		124	9	12	12	22	29	47	58	82	88	90	91	75	61	60	59	58	55	43	32	23	16	
0					Motor Bike Only		5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1					Unrestricted		135	8	15	17	24	27	37	39	38	38	37	36	35	35	35	38	38	37	32	27	19	19	4
1					Disable		3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					3P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		87	10	11	12	23	26	47	56	57	58	38	37	47	48	48	51	50	30	26	18	14	6	
1					Disable		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Edward Place Car Park			2P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		82	4	10	18	24	41	40	39	51	61	63	63	44	35	33	33	33	32	31	29	26	19	
1					Disable		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Allen Place Car Park			Disable		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		17	4	6	6	7	12	12	12	14	17	17	17	16	15	15	15	15	15	14	13	11	11	
1					2P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		160	10	13	17	29	33	37	39	51	76	117	128	114	114	95	81	65	41	36	32	29	29	29
0					Motor Bike Only		8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					Disable		7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-4:30pm Sat		24	1	2	3	6	7	8	8	8	9	9	9	9	9	9	8	8	8	8	7	7	6	6
0	Henry St	Station St to Woodriff St	N		Bus Zone		7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		16	3	6	6	12	12	13	13	13	13	13	13	12	12	12	10	9	9	8	8	8	8	8
0					Bus Zone		8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Woodriff St to Lawson St			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		13	1	2	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
1		Lawson St to Evans St			1P 8:30am-3:30pm Mon-Fri, 8:30am-12:30pm Sat		12	2	2	3	5	6	6	6	6	7	7	7	7	7	7	8	9	10	9	9	9	8	8
0					Bus Zone		2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Henry St	Evans St to Lawson St	S		Unrestricted	No Parking 3:30pm-6:30pm Mon-Fri	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0					Bus Zone		3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Lawson St to Woodriff St			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1		Woodriff St to Gaymark La			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		15	6	6	6	8	9	9	9	9	9	9	9	9	8	8	8	8	7	7	7	6	6	
1					No Parking 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1					1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		6	3	3	3	4	4	4	4	4	5	6	6	6	6	6	6	6	5	5	5	5	5	
0					Bus Zone		6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Gaymark La to Station St			1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		4	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
0	Lawson St	Soper Place to Henry St	E		No Stopping		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		Henry St to Lawson La			1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat		2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
0		Lawson La to High St			Bus Zone		4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Parking Survey.xlsx

not available for public parking

Appendix C

Parking Layout



LOCATION'S EFFECT ON ADJACENT DOCUMENTATION

ADJACENT BASEMENT APPROX RL 33.700
APPROXIMATE LOCATION PLOTTED FROM COUNCIL RECORD

EXTENT OF EXISTING HERITAGE BUILDING OVER

EXTENT OF EXISTING HERITAGE BUILDING OVER

Grease Trap

STAFF

STAFF

2300x5000 (Typ)

STAFF

STAFF

RAMP 1:8

300

5,500

300

1:10

1:5

RAMP 1:5

300

5,500

300

1:10

300

RL 30,200

10x BIKE ANGLE PARKING

TRAFFIC LIGHTS

1,850

7,100

950

2500x5400

2500x5400

2500x5400

BOL

2600x5400 (Typ)

5,900

28 CARBAYS
(incl. 2x DDA CARBAYS + 4x SMALL TANDEM STAFF BAYS)

6,200

6,350

1,800

shoring wall below

RL 31,600

STAIR 02

STAIR 03

FIRE PUMP ROOM

SMOKE LOBBY

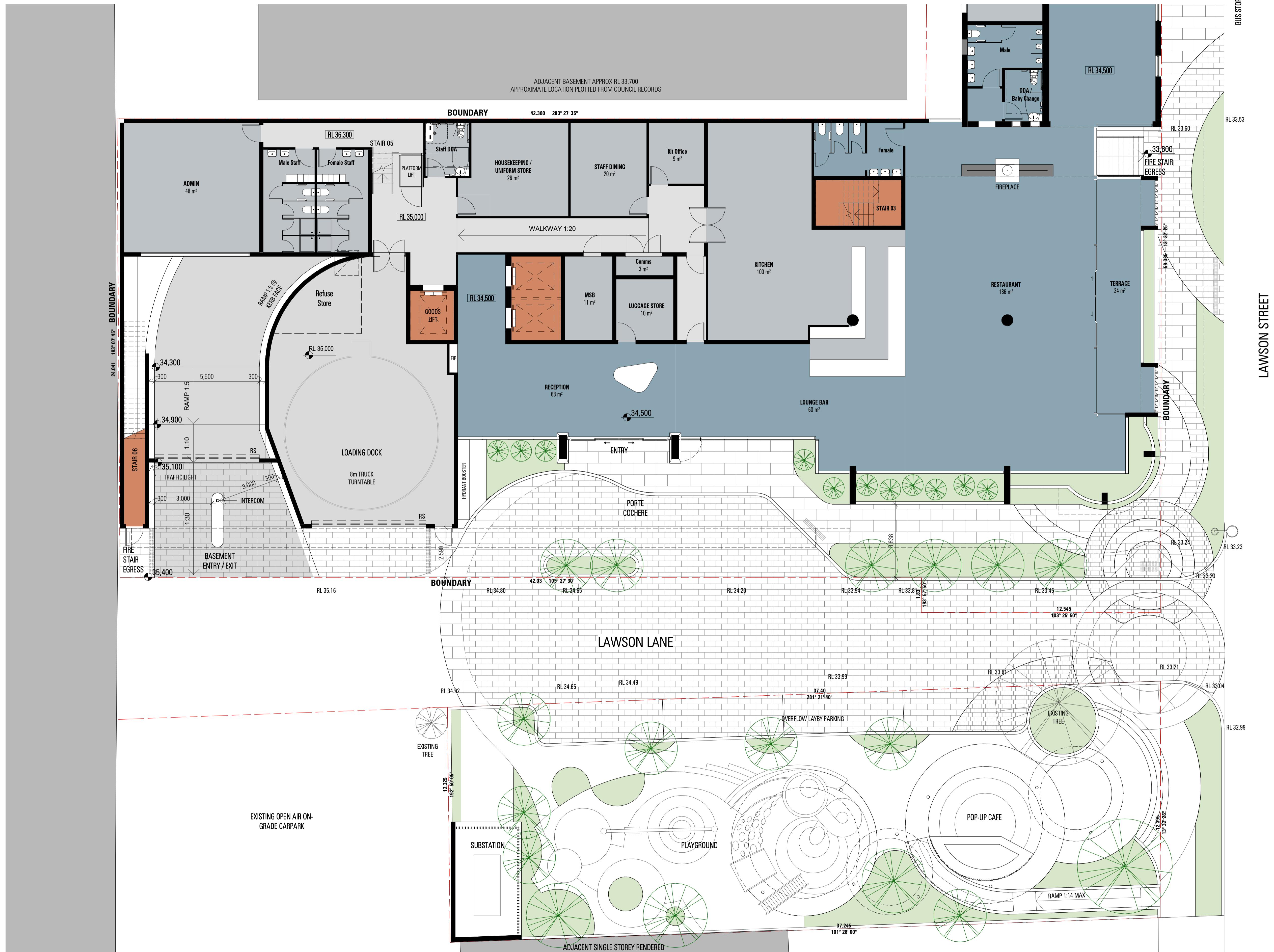
STAIR 01

STAIR 04

SPOON DRAIN TO BASEMENT PERIMETER

PKI Rainwater Tank

I BASEMENT C



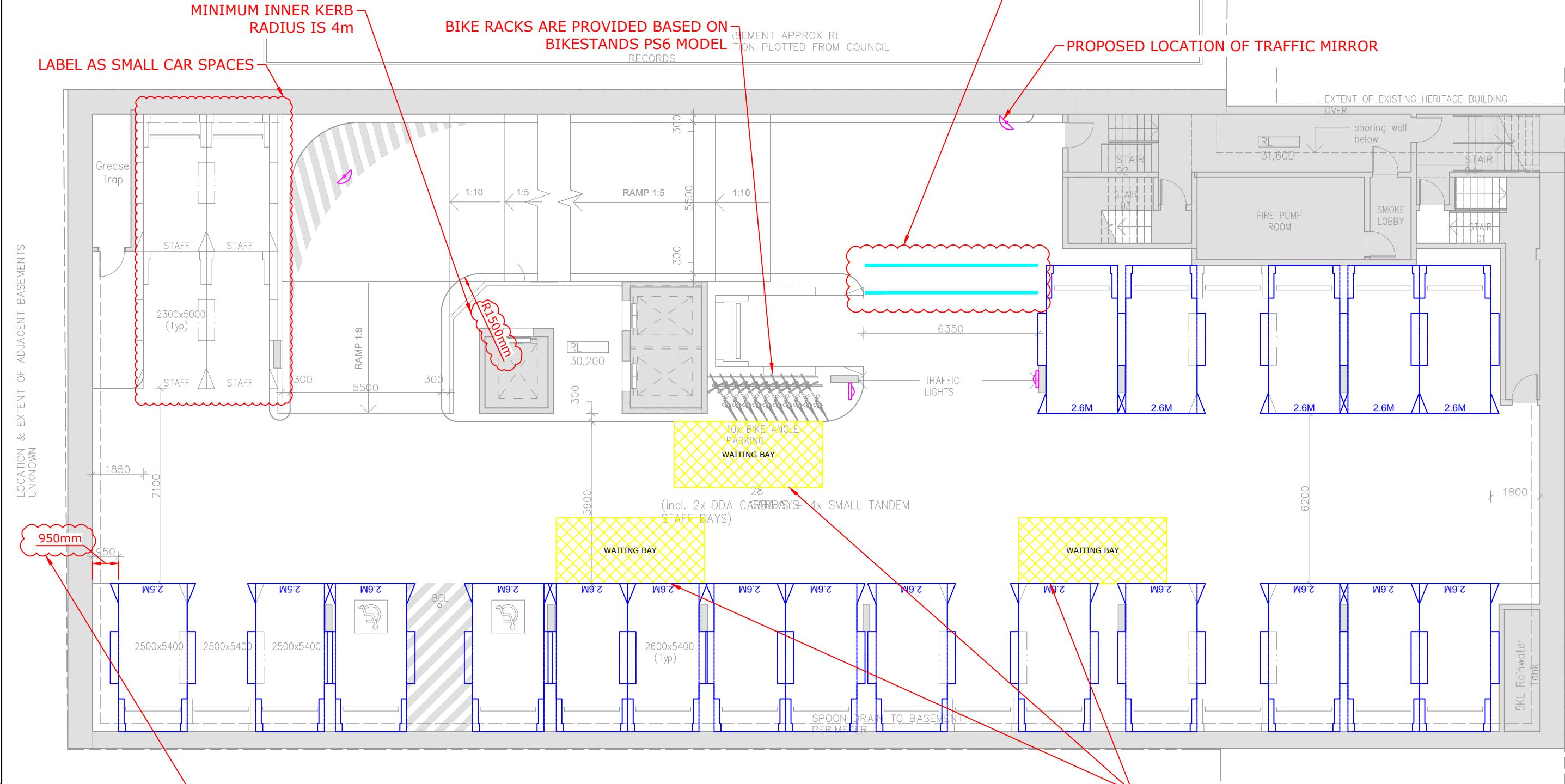
Appendix D

Swept Paths and Proposed Traffic Management Measures

NOTE: ENSURE THE FOLLOWING HEADROOM CLEARANCES ARE PROVIDED:

- ABOVE LOADING DOCK AND AREAS ACCESSIBLE BY TRUCKS: 3.8m (AS ADVISED BY CLIENT)
- ABOVE ACCESSIBLE PARKING SPACES AND SHARED AREAS: 2.5m
- ABOVE OTHER CAR PARKING SPACES, AISLE AND RAMP: 2.2m

PROVIDE VEHICLE DETECTORS WITH DIRECTIONAL SENSOR TO ACTIVATE TRAFFIC LIGHT ON THE GROUND LEVEL WHEN AN EXITING CAR PASSES THROUGH.



Date: 23 July 2020 By: Kaitlin Maitland

Car Park Review

dwg

20100CAD004

FIGURE 2

DATE STAMP

23 JULY 2020

PROJECT No.

20100

SCALE

1:150 @A3

REV.

A

Document Set ID: 9269264

Version: 1, Version Date: 26/08/2020

ttpp
transport planning

PROJECT

AUSTRALIAN ARMS HOTEL, PENRITH

TITLE

CAR PARK REVIEW
BASEMENT 01

DWG No. 20100CAD004
FIGURE 2

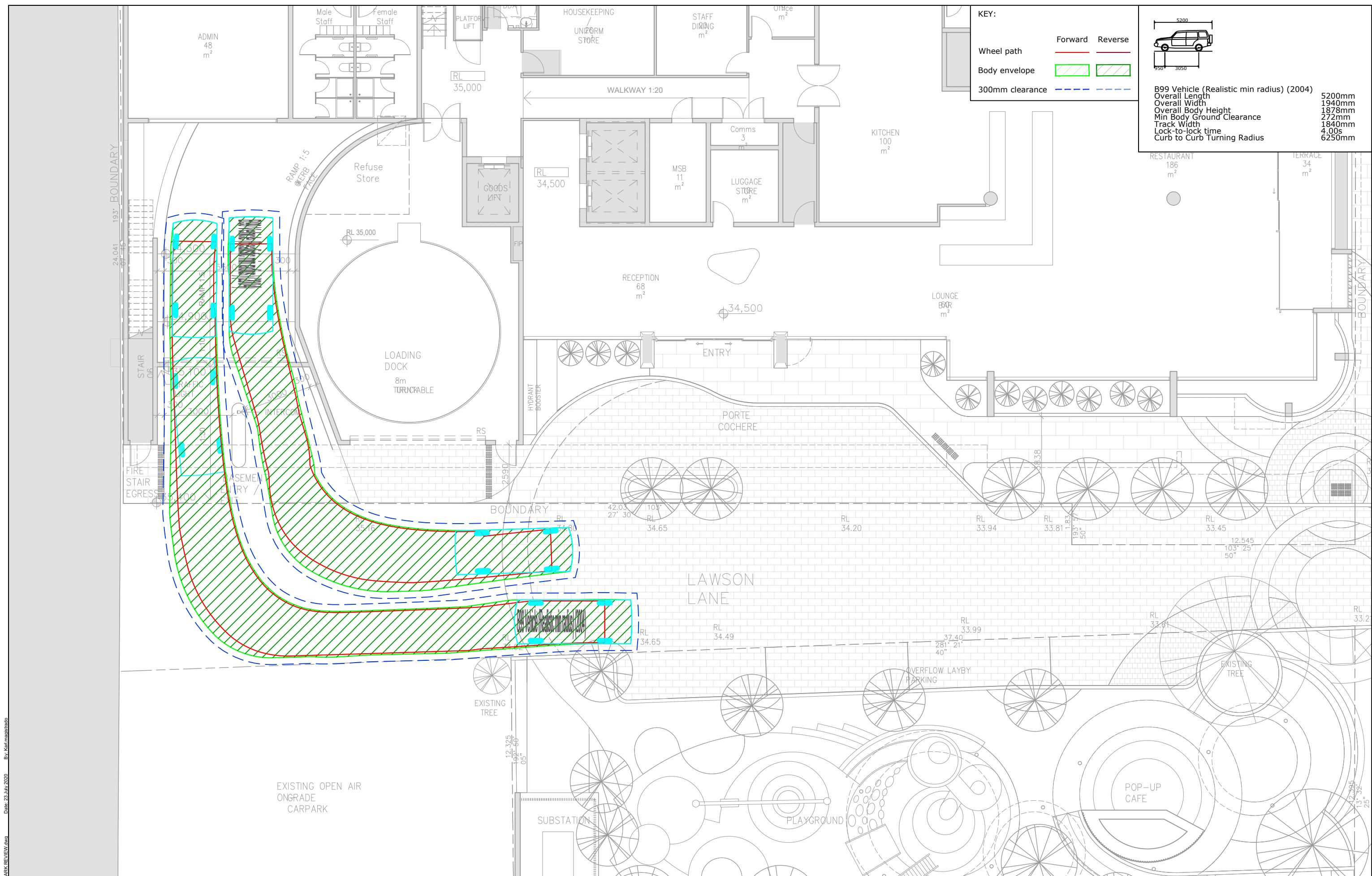
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23 JULY 2020

PROJECT No. 20100

SCALE 1:150 @A3

REV. A



PROJECT

1

1

11

TITLE

1

1

AUSTRALIAN ARMS HOTEL, PENRITH

**B99 VEHICLE SWEPT PATH
GROUND LEVEL - ACCESS DRIVEWAY**

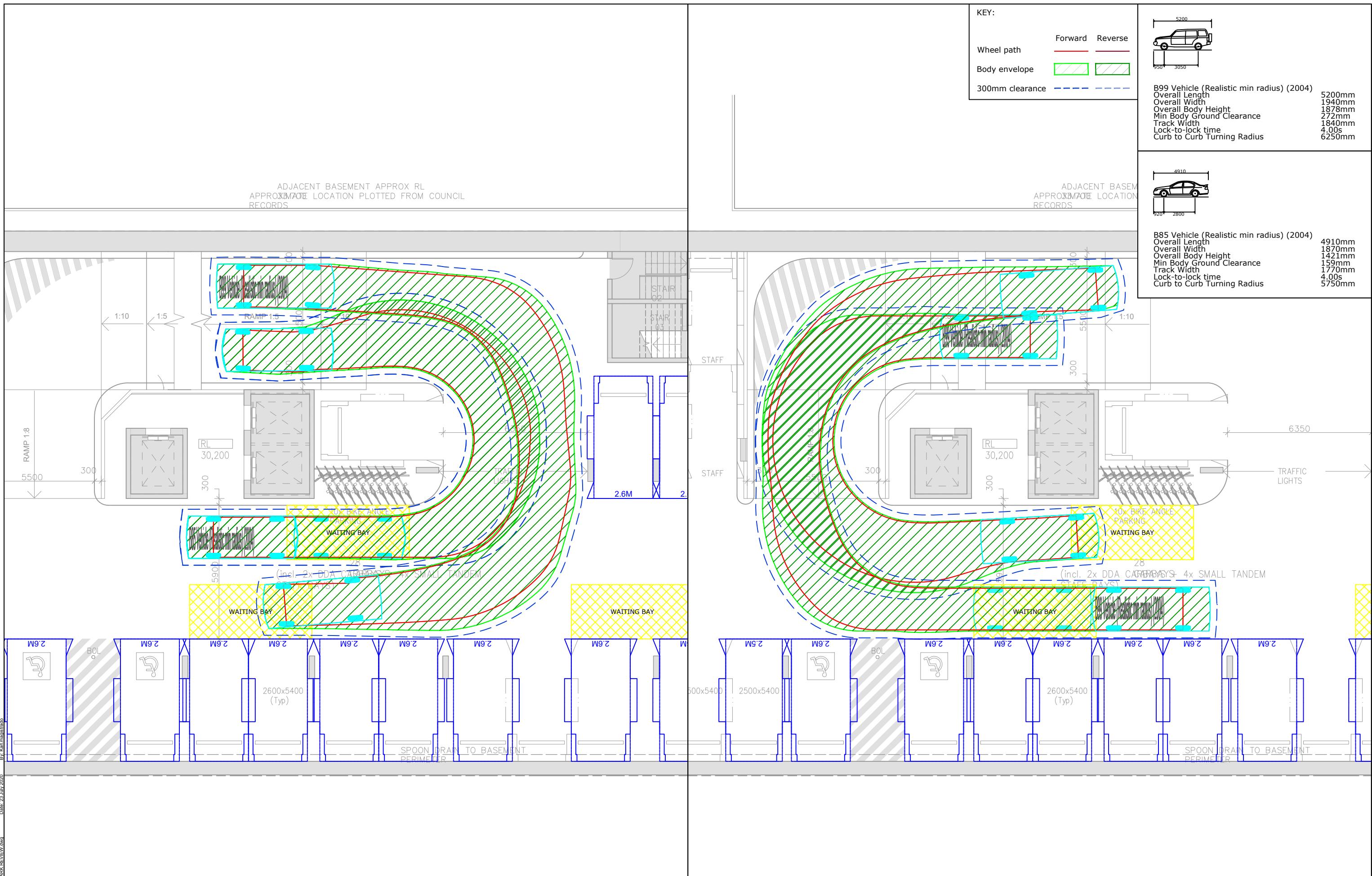
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FIGURE 6

22 JULY 2020

23 JULY 2020

	SCALE
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Document Set ID: 9269264
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REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	DL	KH	23/07/20

ttpp
transport planning

PROJECT

AUSTRALIAN ARMS HOTEL, PENRITH

TITLE

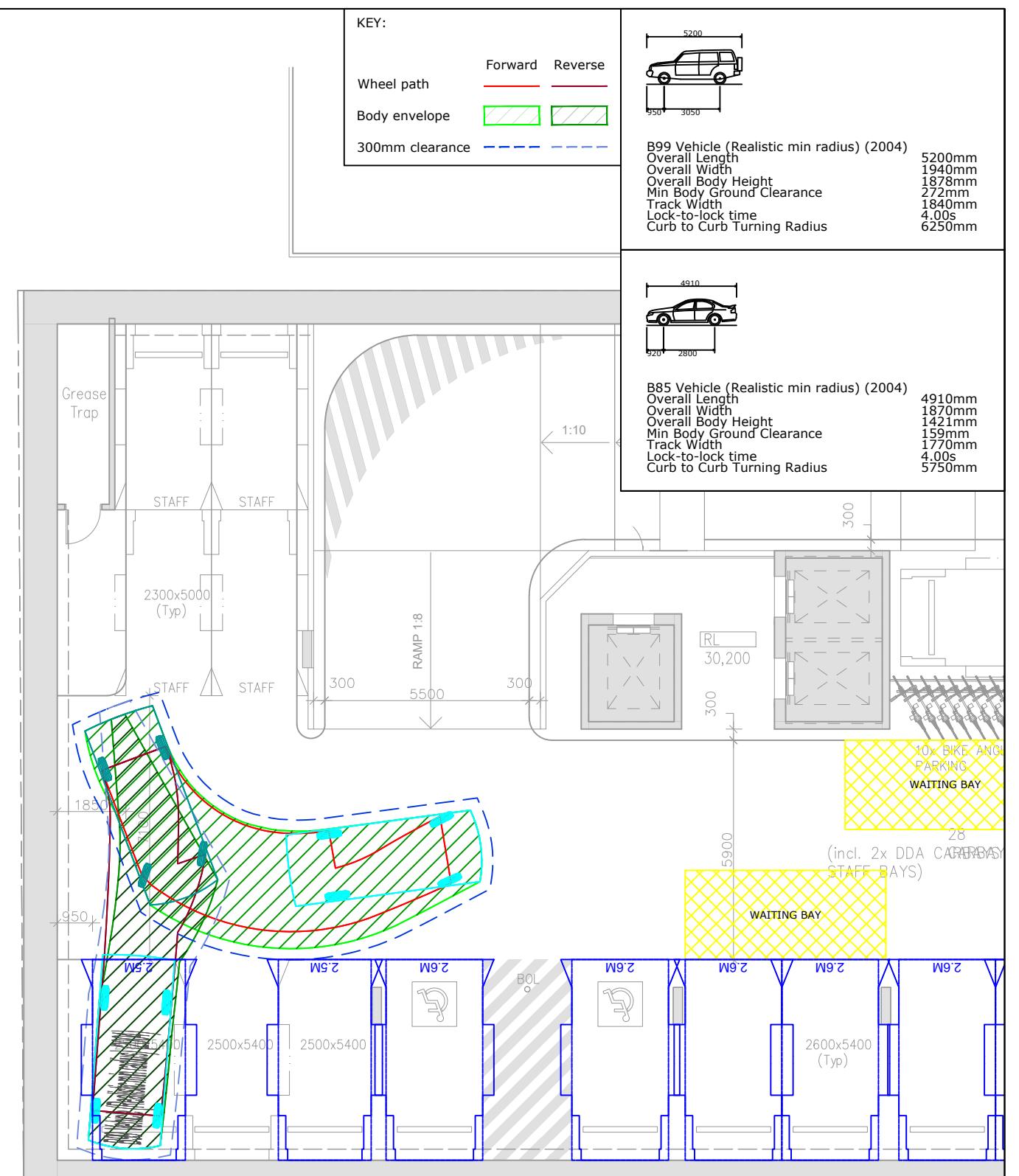
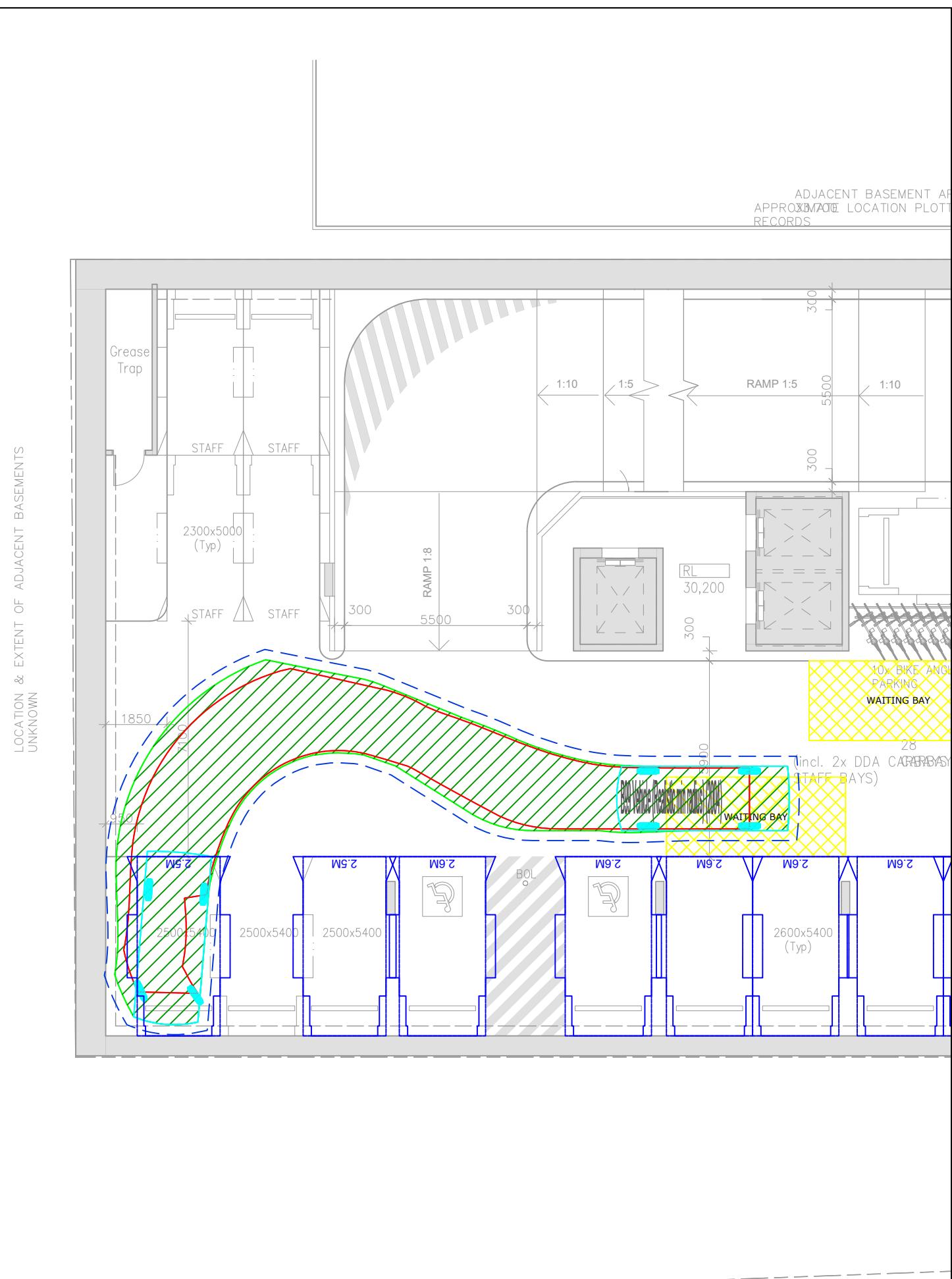
B85 AND B99 VEHICLE SWEPT PATH
BASEMENT 01

DWG No. 20100CAD004
FIGURE 7

DATE STAMP

23 JULY 2020

PROJECT No. 20100
SCALE 1:150 @A3
REV. A



Document Set ID: 9269264

Version: 1, Version Date: 26/08/2020

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ttpp
transport planning

PRO
TITLE

AUSTRALIAN ARMS HOTEL, PENRITH

**B99 VEHICLE SWEPT PATH
BASEMENT 01**

20100CAD004

23 JULY 2020

SCALE
1:150 @A3



PROJECT
TITLE

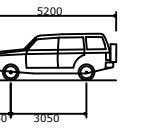
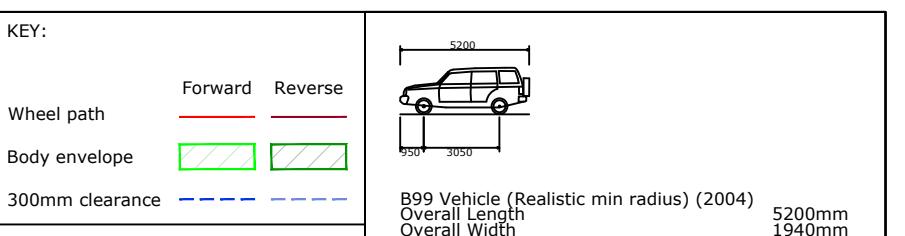
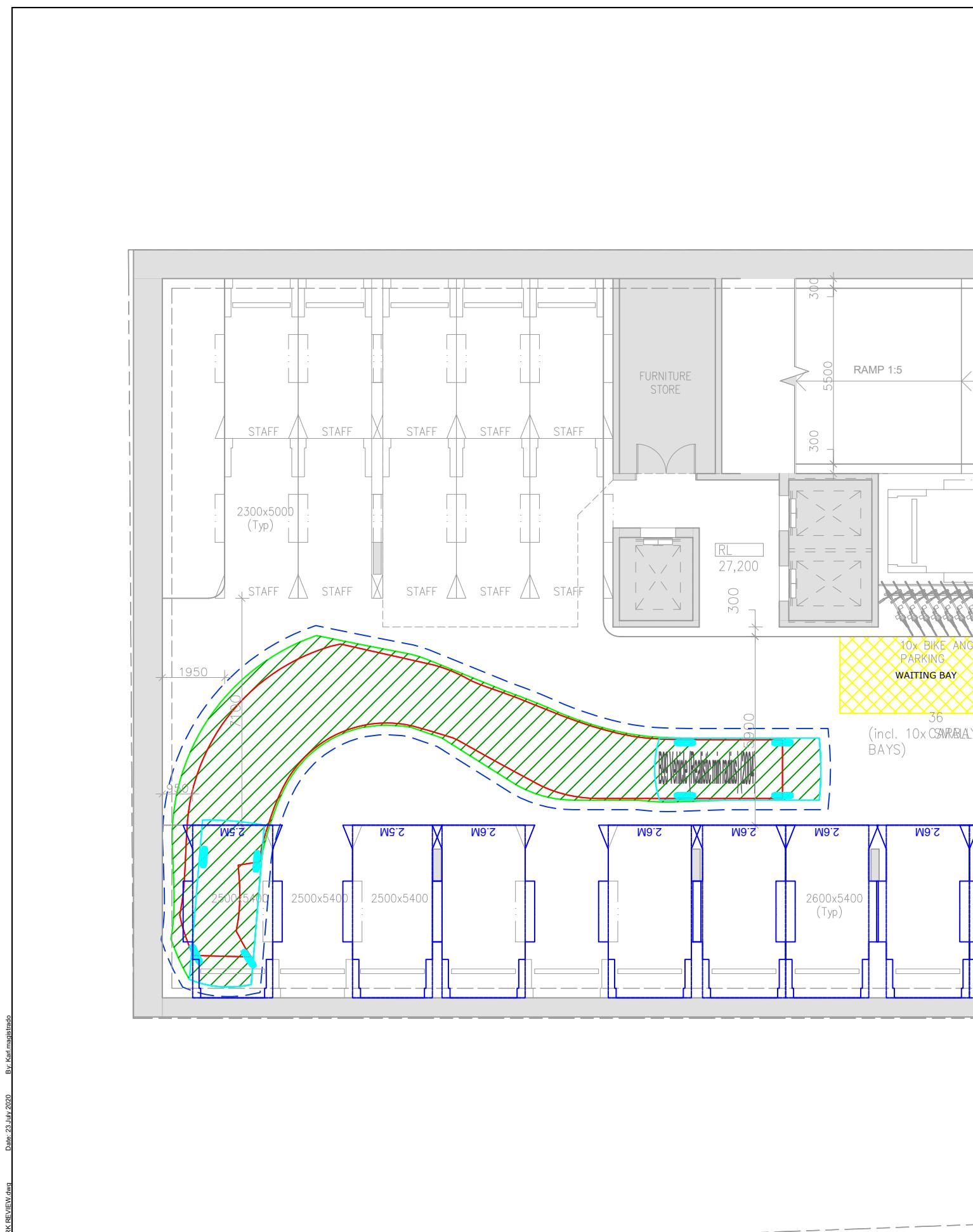
AUSTRALIAN ARMS HOTEL, PENRITH

B85 AND B99 VEHICLE SWEPT PATH
BASEMENT 02

20100CAD004
FIGURE 9

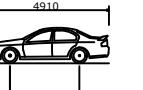
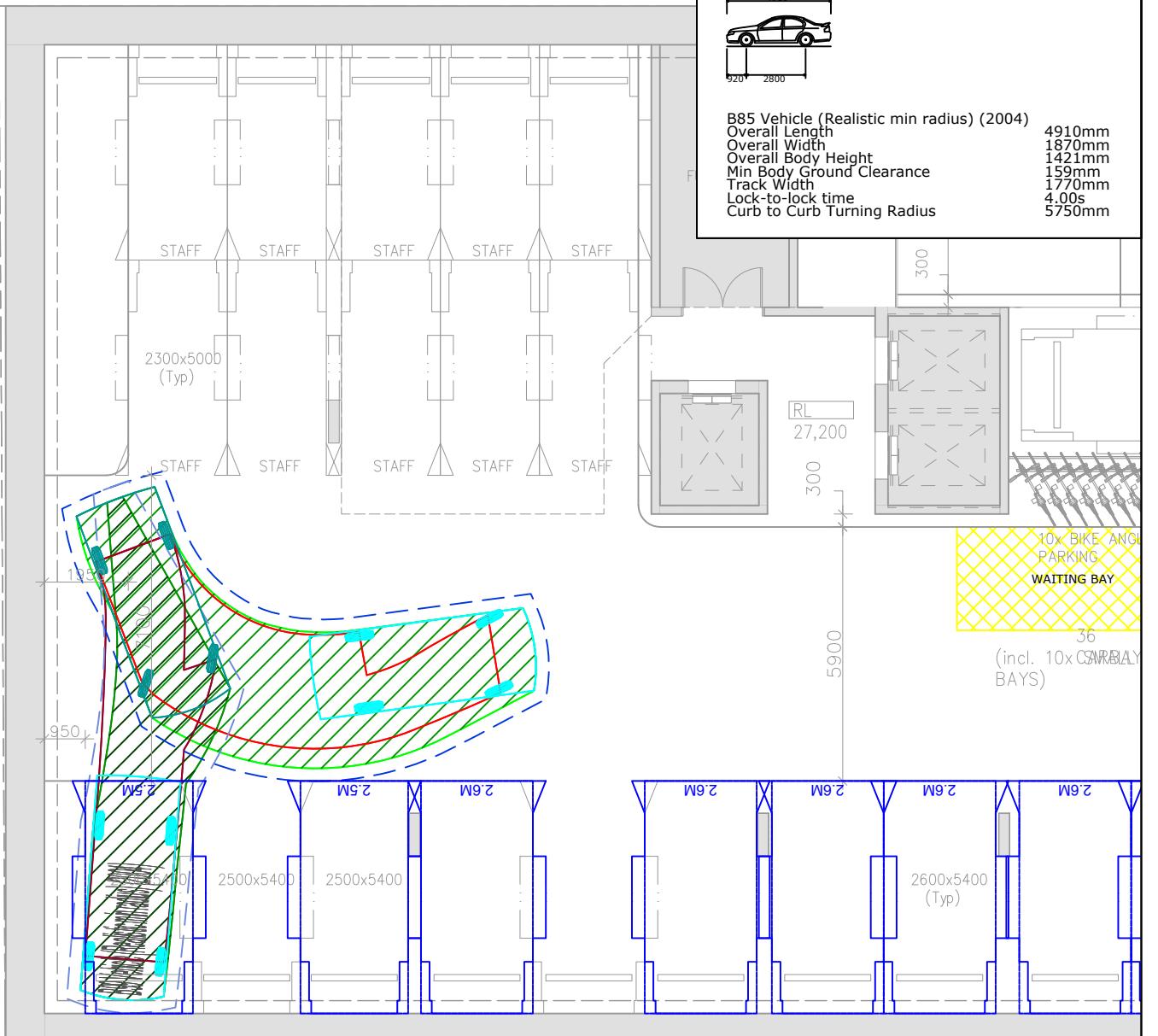
TAMP 23 JULY 2020

T No.	SCALE
0100	1:150 @A3



B99 Vehicle (Realistic min radius) (2004)
 Overall Length 5200mm
 Overall Width 1940mm
 Overall Body Height 272mm
 Min Body Ground Clearance 1878mm
 Track Width 159mm
 Lock-to-lock time 1840mm
 Curb-to-Curb Turning Radius 4.00s
 6250mm

5200mm
 1940mm
 272mm
 1878mm
 159mm
 1840mm
 4.00s
 6250mm



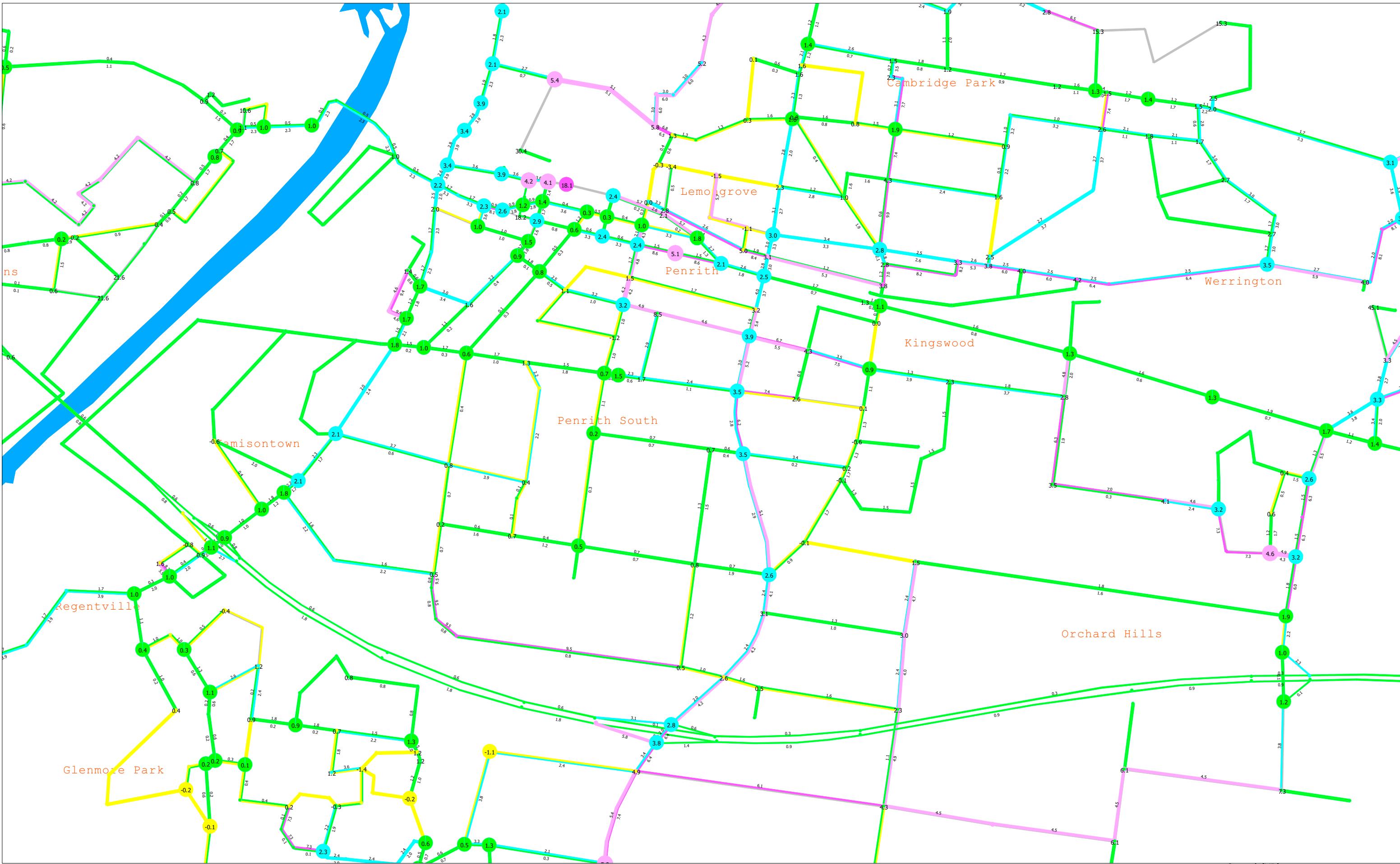
B85 Vehicle (Realistic min radius) (2004)
 Overall Length 4910mm
 Overall Width 1670mm
 Overall Body Height 1421mm
 Min Body Ground Clearance 159mm
 Track Width 1770mm
 Lock-to-lock time 1770mm
 Curb-to-Curb Turning Radius 4.00s
 5750mm

4910mm
 1670mm
 1421mm
 159mm
 1770mm
 4.00s
 5750mm

Appendix E

Strategic Traffic Model (Traffic Growth Per Year 2016-2026)

ROAD TRAFFIC GROWTH (%YR, 2HRSPK) LINKS & INTERSECTIONS

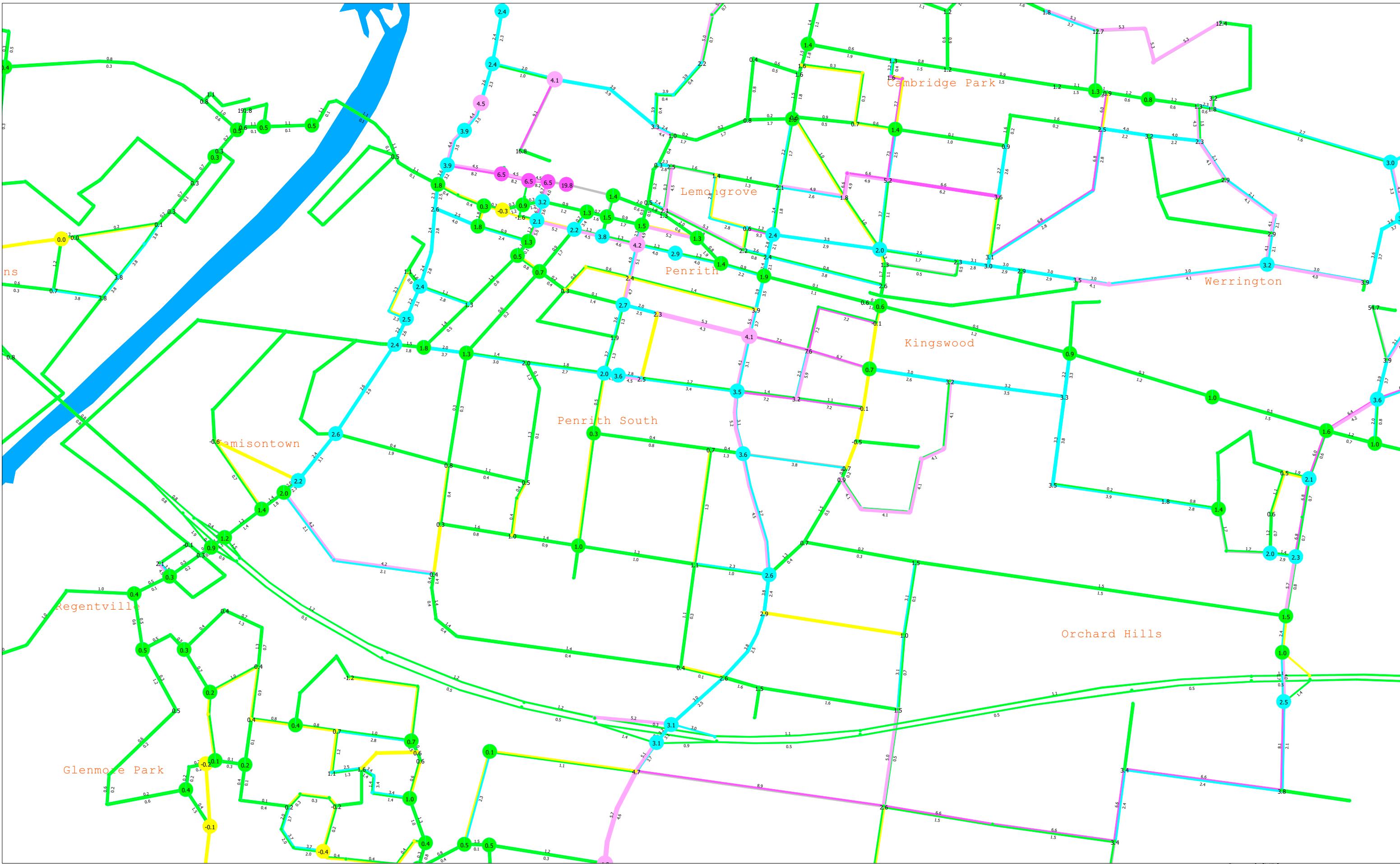


2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL

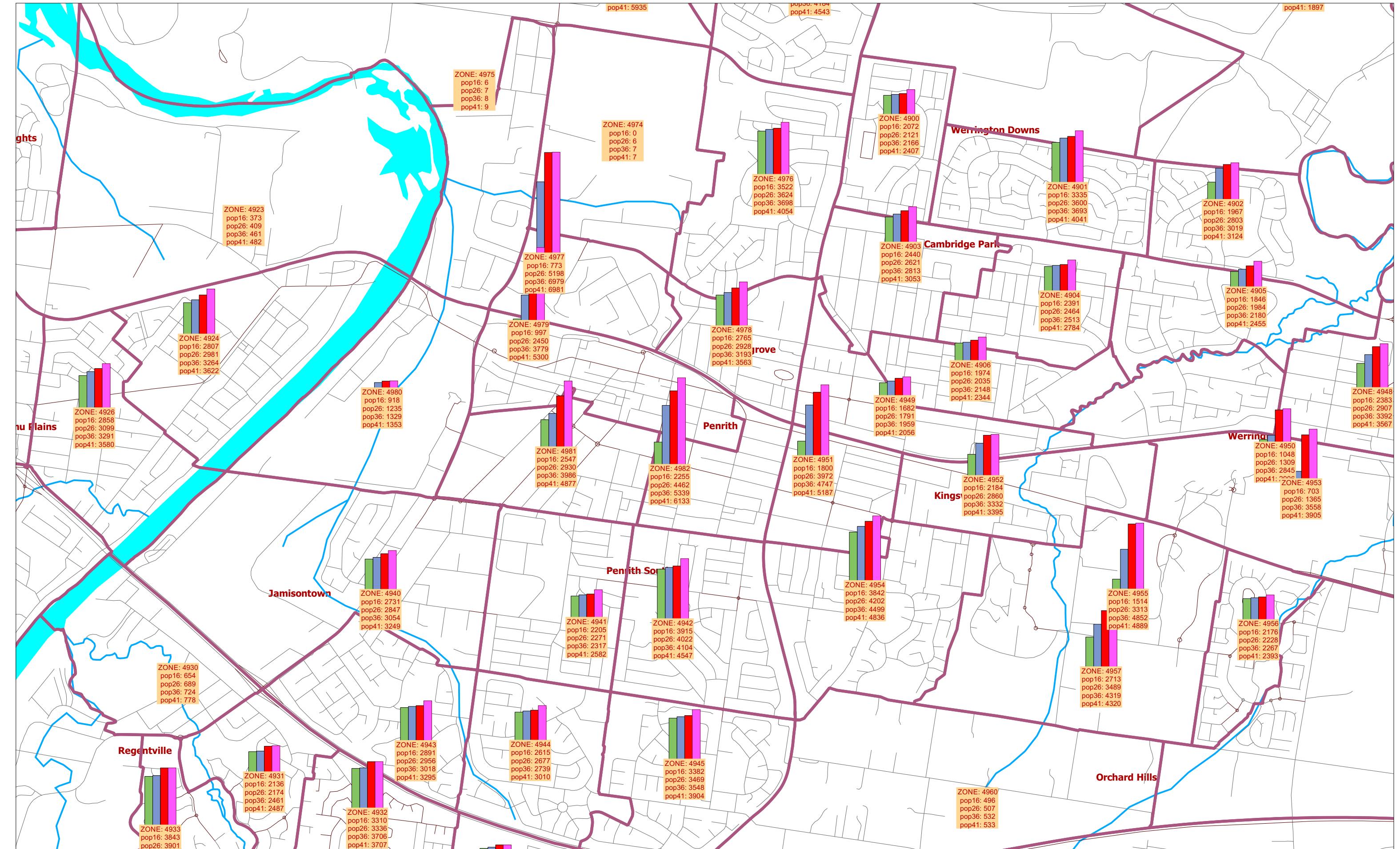
Scenario 2026: 2026 SYDTRAFFICFORECASTMODEL TZ11LU16V151STMV362-7-9AM(mf34)

2020-03-16 15:20

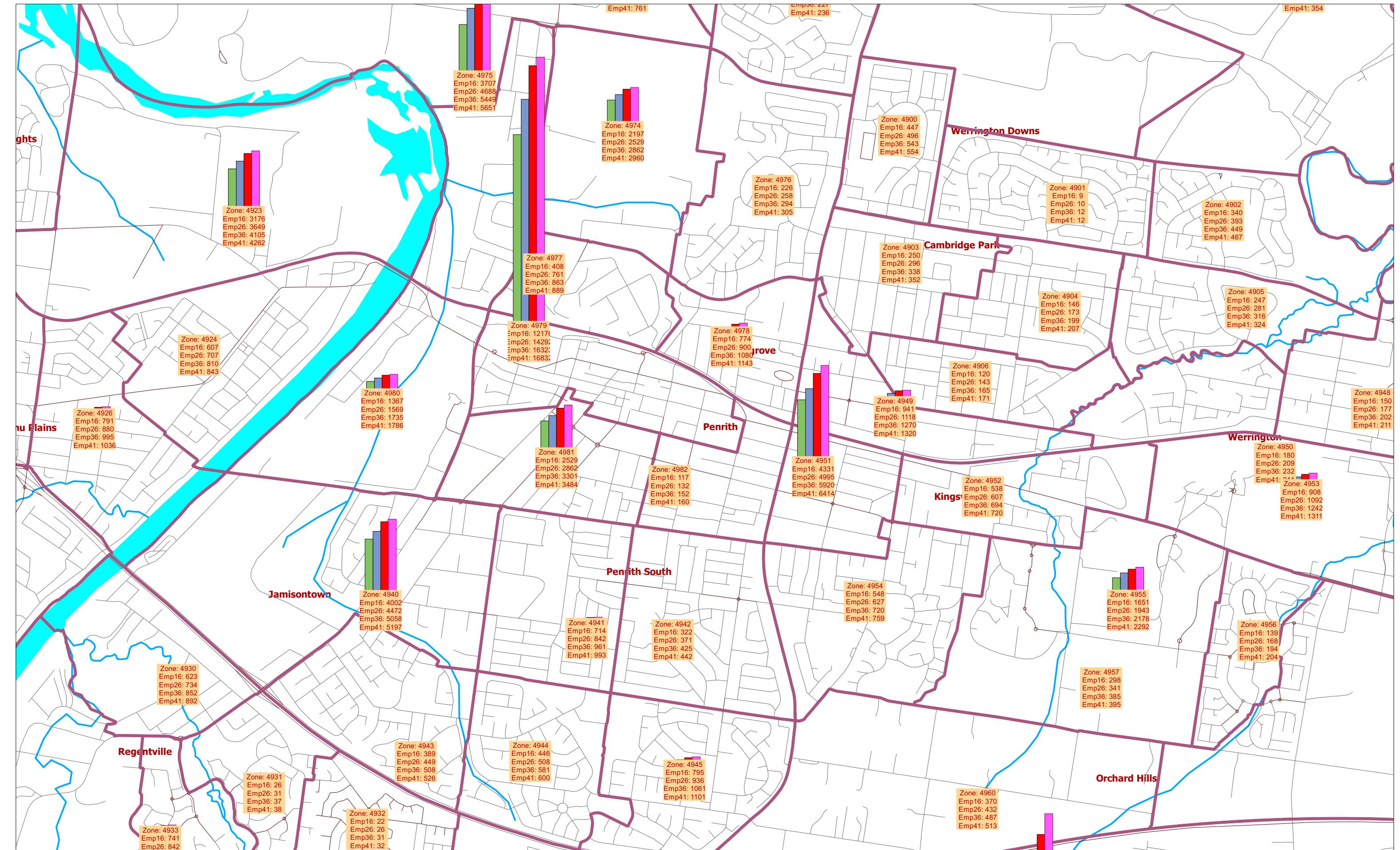
ROAD TRAFFIC GROWTH (%YR, 2HRSPK) LINKS & INTERSECTIONS



LU_HHs&EMPs_ZONAL_DATA



LU_HHs&EMPs_ZONAL_DATA



2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL

Scenario 2026: 2026 SYDTRAFFICFORECASTMODEL TZ11LU16V151STMV362-4-6PM(mf54)

2020-03-16 15:27 (Family)

The Transport Planning Partnership
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St Leonards NSW 2065

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St Leonards NSW 1590

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