

Traffic Impact and Parking Assessment

UNSW Canberra Campus

Prepared for UNSW / 6 December 2024

231606

Contents

1.0	Introc	duction4			
2.0	Existi	ng Conditions			
	2.1	Site Location4			
	2.2	Site Access			
	2.3	Surrounding Roads			
	2.4	Surrounding Intersection7			
		2.4.1 Coranderrk Street and Constitution Avenue			
		2.4.2 Coranderrk Street and Parkes Way			
		2.4.3 ANZAC Parade and Parkes Way9			
		2.4.4 ANZAC Parade and Constitution Avenue10			
	2.5	Existing Intersection Traffic Observations11			
		2.5.1 Existing Exit Driveways14			
		2.5.2 Constitution Avenue and Coranderrk Street14			
		2.5.3 Parkes Way and Coranderrk Street15			
		2.5.4 ANZAC Parade and Parkes Way15			
		2.5.5 ANZAC Parade and Constitution Avenue16			
	2.6	Existing Parking16			
	2.7	Public Transport17			
	2.8	Pedestrian and Cycle Network17			
3.0	Propo	osed Conditions			
	3.1	Site Access			
		3.1.1 Service Vehicles			
		3.1.2 Evo Energy Access			
	3.2	Proposed Parking Facilities19			
	3.3	Public Transport			
	3.4	Pedestrian and Cycle Network19			
4.0	Parki	ng Assessment19			
	4.1	Vehicle Parking Requirements19			
		4.1.1 Disabled Parking19			
	4.2	Parking Compliance			
	4.3	Parking Impact			

		4.3.1 Assessment of Parking Demands	21
		4.3.2 Assessment of the Campus Masterplan Requirements	21
5.0	Traffic	c Assessment	22
	5.1	Existing Generation	22
	5.2	Proposed Generation	23
	5.3	Intersection Modelling	23
		5.3.1 Parkes Way and Coranderrk Street	24
		5.3.2 Coranderrk Street and Constitution Avenue	24
		5.3.3 Parkes Way and ANZAC Parade	24
		5.3.4 ANZAC Parade and Constitution Avenue	25
		5.3.5 Constitution Avenue and Access Lane	25
		5.3.6 Parkes Way and Access Lane	25
	5.4	Traffic Impact	26
6.0	Sumn	nary of Findings	27
7.0	Concl	usion	28
Apper	ndix A		29
Apper	ndix B		30
Appe	ndix C		31

Revision Register

Rev	Date	Prepared By	Approved By	Remarks
А	14/12/2023	RoCo	СР	For Works Approval
В	20/12/2023	RoCo	СР	For Works Approval
С	06/02/2024	RoCo	СР	For Work Approval
D	21/02/2024	RoCo	СР	For Works Approval
Е	7/05/2024	RoCo	СР	For Works Approval
F	17/05/2024	RoCo	СР	For Works Approval
G	26/06/2024	RoCo	СР	For Works Approval
Н	06/12/2024	RoCo	СР	For Works Approval

1.0 Introduction

The University of New South Wales (UNSW) proposes to redevelop the existing carpark on Block 12 Section 3 Parkes and part of the existing Canberra Institute of Technology Campus on Block 12 Section 33 Reid, into the UNSW Canberra Campus, providing research and tertiary education facilities within the heart of Canberra. The campus is proposed to be delivered across multiple stages over an extended development period, with the first stage anticipated to complete construction in 2026.

TTW, on behalf of the University of New South Wales (UNSW), has undertaken an assessment on the impacts to parking and traffic for Stage 1 of the proposed development of the campus, sited on the 32632m² Block 12 Section 3 Parkes. This report assesses the likely impacts of the development on the surrounding road network and parking precinct facilities.

A master plan report was undertaken in September 2022 by Quantum Traffic, detailing the proposed extent of the new campus. The Quantum Traffic report has been reviewed by TTW in the context of the specific ACT requirements, with updates provided as required.

2.0 Existing Conditions

2.1 Site Location

The existing site on Block 12 Section 3 Parkes is bounded on three sides by major roads, Constitution Avenue to the northeast, Parkes Way to the southwest, and Coranderrk Street to the northwest. To the southeast the site is bounded by a residential development on Block 15 Section 3 Parkes called the Griffin. In the eastern corner of the site, off Constitution Avenue, an existing roadway, with an access easement in favour of Block 15 provides access to the existing carpark on the site and Block 15 to the southeast. Refer to Figure 1 for site locality plan.



Figure 1: Site Locality Plan (Site image from Nearmap Friday September 29 2023)

2.2 Site Access

The site is currently accessed in three locations, two accesses off Constitution Avenue and one access off Parkes Way. Both accesses on Constitution Avenue are left-in left-out only, with vehicles unable to cross the median of the Constitution Avenue carriageway. The western most access onto Constitution Avenue is a TCCS HDR type driveway, with a raised pedestrian threshold, indicating pedestrian priority with none of the expect markings for a raised pedestrian crossing. The eastern most access on Constitution Avenue is an access road style intersection, providing access to the site and the Griffin site through an access easement. A raised pedestrian and cyclist crossing provides pedestrian right of way to vulnerable road users at conflict points within the verge prior to the block boundary.

The Parkes Way access provides access and egress to the site directly onto the southbound traffic on Parkes Way through an Access Road B style intersection.

2.3 Surrounding Roads

There are four main roads surrounding the development, Constitution Avenue, Coranderrk Street, Parkes Way and ANZAC Parade. These roads are categorised in Table 1.

Road Name	Road Hierarchy Designation	Speed Limit	Description
Parkes Way	Arterial Road	80 km/h	 Parkes Way links the Glenloch Interchange in the West to Morshead Drive in the East. Dual carriageway with two lanes travelling in both directions adjacent to the site, with three lanes in sections further west.
Coranderrk Street	Arterial Road	60 km/h	 Connects Parkes Way in the south to Northbourne Avenue in the north. Dual carriageway with minimum two lanes in both directions, with central island.
Constitution Avenue	Arterial Road	40 km/h	 Connects Vernon Circle in the northwest to Northcott Drive in the southeast. Dual carriageway in front of the site, with single general traffic lane and single bus lane in both directions. Wide verge with shared pedestrian and cycle path provided.
ANZAC Parade	Arterial Road	60km/h	 Connects Parkes Way in the south to Limestone Avenue and Fairbairn Avenue in the North. Dual carriageway with three lanes in both directions, with a large central median.

2.4 Surrounding Intersection

There are four main intersections of note adjacent to the site, the intersection of Constitution Avenue and Coranderrk Street, the intersection of Coranderrk Street and Parkes Way, the intersection of ANZAC Parade and Parkes Way, and the intersection of ANZAC Parade and Constitution Avenue. These intersections are described in the following sections.

2.4.1 Coranderrk Street and Constitution Avenue

The intersection of Coranderrk Street and Constitution Avenue is a signalised intersection providing traffic movements and pedestrian crossings in four directions.

Dedicated left and right turn lanes are provided on all approaches, with left turn lanes on Constitution Avenue also providing straight through movements for buses into the opposite bus lane. Single straight through lanes are provided on the Constitution Avenue approaches, with dual straight through lanes provided on the Coranderrk Street approaches.

Pedestrian signals are provided on legs of the intersection.



Figure 2: Coranderrk Street and Constitution Avenue Intersection

2.4.2 Coranderrk Street and Parkes Way

The intersection of the Parkes Way and Coranderrk Street is a three-legged roundabout with intermittent signals which activate during peak traffic hours to improve eastbound traffic movements. Parkes Way westbound has two straight through lanes bypassing the roundabout, with all traffic turning right out of Coranderrk Street needing to merge into the outside lane on the Parkes Way westbound carriageway.



Figure 3: Coranderrk Street and Parkes Way Intersection

2.4.3 ANZAC Parade and Parkes Way

The intersection of ANZAC Parade and Parkes Way is a three-legged roundabout. Parkes Way Westbound has a single lane bypassing circulation roadway, allowing for only a single lane turning right from ANZAC Parade north.



Figure 4: ANZAC Parade and Parkes Way Intersection

2.4.4 ANZAC Parade and Constitution Avenue

The intersection of ANZAC Parade and Constitution Avenue is a signalised intersection providing traffic movements and pedestrian crossings in four directions. Dedicated turning lanes are only provided on Constitution Avenue, with all turning lanes on ANZAC Parade allowing for straight through movements as well.

The inside lane on Constitution Avenue to the east of the intersection becomes a bus lane within 100m of the intersection, requiring vehicles to merge on within 100m of the intersection.



Figure 5: ANZAC Parade and Constitution Avenue Intersection

2.5 Existing Intersection Traffic Observations

Traffic observations recorded in the following sections were conducted during both morning and evening weekday peak periods on December 4th and 5th 2023 for Parkes Way and Coranderrk Street and Coranderrk Street and Constitution Avenue intersections and on Tuesday the 11th June 2024 for ANZAC Parade and Constitution, and ANZAC Parade and Parkes Way intersections. Figure 6 to Figure 8 highlights the critical movements through the intersections that were observed during the observation periods are detailed in the following sections.



Figure 6: Coranderrk Street AM Peak Traffic Observations



Figure 7: Coranderrk Street PM Peak Traffic Observations



Figure 8: ANZAC Parade AM Peak Traffic Observations



Figure 9: ANZAC Parade PM Peak Traffic Observations

2.5.1 Existing Exit Driveways

The western driveway exit had a relatively consistent flow of traffic throughout the traffic observation. During times where the adjacent pedestrian crossing was active, queues of no more than 4 cars were overserved at the driveway. The queuing of vehicles exiting the site was caused by cars on Constitution Avenue queuing at the pedestrian crossing extending past and blocking off the exit driveway. After the queued cars on Constitution Avenue had cleared the pedestrian crossing, all the queued cars in the western exit driveway were able to leave with minimal delay.

2.5.2 Constitution Avenue and Coranderrk Street

AM Peak - 07:45-09:00

Traffic during the morning peak was observed to clear the intersection during every cycle of lights.

Minor queueing issues were observed from vehicles in the left-hand lane heading north on Coranderrk Street or trying to turn left from Coranderrk Street westbound down Constitution Avenue, with up to three vehicles queueing into the Parkes Way intersection, blocking vehicles travelling east along Parkes Way. This generally cleared once the southern leg of the Constitution Avenue signalised intersection phased green.

PM Peak - 16:30-17:45

The traffic through this intersection in the peak evening period was dominated by the overflow from Parkes Way and Coranderrk intersection, with queues on Coranderrk Street southbound at the Parkes way intersection backing up through the Constitution Avenue intersection. The backlog of vehicles from Parkes Way then caused further queues along Coranderrk Street north of the intersection, which at its peak extended several hundred meters back up Coranderrk Street to Boolee Street. Queues also formed along Constitution Avenue eastbound, with cars trying to turn right onto Coranderrk Street southbound unable to clear the intersection due to the queue from the Parkes Way intersection. All other movements at the intersection appeared to clear with no issues.

2.5.3 Parkes Way and Coranderrk Street

AM Peak - 07:45-09:00

Traffic turning right off Parkes Way to Coranderrk St generally came in waves, in part due to the recently installed traffic lights at the roundabout controlling this turn. Traffic on Parkes Way heading westbound was a smooth run with no congestions between 7:45-8:45. The opposite side of Parkes Way heading northbound was more congested in waves due to the oncoming traffic from turning off from Parkes Way roundabout to Coranderrk St and the traffic from Coranderrk St heading northbound causing vehicles to queue up at the roundabout. This was in part due to vehicles queuing from the Constitution Avenue intersection into the Parkes Way intersection.

PM Peak - 16:30-17:45

Traffic turning right off Parkes Way to Coranderrk St generally came in waves, in part due to the recently installed traffic lights at the roundabout controlling this turn. Traffic turning left off Parkes Way onto Coranderrk St was generally unrestricted due to having a dedicated turning lane, with only minimal queuing when stopped by traffic already on the roundabout.

Traffic turning right onto Parkes Way had significant trouble merging during peak PM hours. The cause of this being the significant volume of westbound traffic along Parkes way and cars merging off Coranderrk Street needing to exit onto Commonwealth Avenue. It was observed multiple times where cars were queued along the merging lane causing vehicles on Parkes Way to stop to let them in. This would then cause traffic to back up further along Parkes Way.

Traffic turning out of Coranderrk Street experienced long queues, all the way back to the Constitution Avenue intersection, due to limited opportunities to turn out on Parkes way in either direction due to the constant stream of vehicles travelling east on Parkes Way.

Slightly before 5:30pm, queuing from the Parkes Way and ANZAC Parade intersection backed all the way up to the Parkes Way and Coranderrk Street intersection. This slowed the traffic through the intersection significantly and reduced the number of vehicles passing through eastbound along Parkes Way, while allowing vehicles turning right out of Coranderrk Street greater opportunities to turn due to gaps left in the traffic queue through the roundabout.

2.5.4 ANZAC Parade and Parkes Way

AM Peak - 08:00-09:00

Traffic on Parkes Way was constant throughout the observation period, with traffic eastbound on Parkes Way needing to stop to allow vehicles turning off Parkes way westbound north onto ANZAC Parade. This caused vehicles to queue on the western approach to the intersection up to approximately 300m in the worst case. Sufficient gaps were observed in the traffic at there was never a large period where vehicles were at a standstill.

The majority of vehicles travelling west on Parkes Way to turn right at the following intersection generally occupied the right-hand lane, keeping the number of vehicles changing lanes between the ANZAC Parade and Coranderrk intersections low. Queueing on the eastern side of the intersection appeared to be driven by the volume of vehicles turning right onto Parkes Way from ANZAC Parade.

PM Peak - 17:00-18:00

Traffic on Parkes Way in the evening peak was observed queuing in both directions, with worst case scenarios noting that queueing from the from the intersection can reach the Coranderrk Street to the west and the Kings Avenue intersection to the east.

Vehicles exiting from the roundabout into the westbound left-hand lane were observed not achieving design speed on the exit due to slow vehicle movement in the left-hand lane. This is anticipated to be due to the low storage capacity of the turning lanes at the Kings Avenue intersection.

2.5.5 ANZAC Parade and Constitution Avenue

AM Peak - 08:00-09:00

Traffic in all directions generally cleared the intersection within one cycle except for the southbound traffic on ANZAC Parade, which could .

Vehicles turning left onto Constitution Avenue eastbound from ANZAC Parade were often prevented from turning on green due to vehicle traveling straight through in the same lane not having a green light at the same time, reducing the efficiency of the left turn.

Traffic queuing at the Parkes Way intersection often queued back to the Constitution Avenue intersection, but generally cleared before the next cycle allowed more cars through the Constitution Avenue intersection.

PM Peak - 17:00-18:00

Vehicles turning left onto Constitution Avenue eastbound from ANZAC Parade were often prevented from turning on green due to vehicle traveling straight through in the same lane not having a green light at the same time, reducing the efficiency of the left turn.

Traffic queuing at the Parkes Way intersection often queued back to the Constitution Avenue intersection, but generally cleared before the next cycle allowed more cars through the Constitution Avenue intersection.

2.6 Existing Parking

The existing site provides approximately 650 unmarked, pay parking spaces on the edge of the City Centre, providing all day parking for commuters working in the southern section of the City Centre. Further to this, a total of 301 compliant marked parking spaces are provided within the Reid site, with a further 14 unmarked parking spaces available within the carpark.

Existing carparking was observed from February 2022 to September 2023 using Nearmap aerial imagery to determine existing parking occupancy on the site. Parking count dates and numbers are recorded in Appendix C.

During the observation window, the carpark was used for construction storage and parking for the construction of the Griffin site to the east of the site. For parking assessment purposes, the periods where the carpark was used for construction vehicle parking have been excluded from the parking assessment. It was noted that even with the increased occupancy, there was still unutilised parking spaces with the carpark.

The maximum number of vehicles observed within the carpark was on 21st June 2023 utilising Nearmap, with 335 vehicles parked within the carpark. The average number of vehicles observed over the observation window was 275 vehicles.

For assessment purposes a conservative upper limit of 350 parking spaces is considered.

2.7 Public Transport

Access to public transport for the site is provided through bus stops on either side of Constitution Avenue directly in front of the site. These bus stops are serviced by four bus routes, the 56, 59, 182 and R3. These routes link the site to the City Centre bus interchange, the airport, inner south suburbs and the Woden town centre, with buses arriving every 15 minutes. The local public transport routes are shown in Figure 10.



Figure 10: Surrounding Public Transport Network

2.8 Pedestrian and Cycle Network

Access to the public pedestrian and cycle networks are provided on Constitution Avenue, with a major shared thoroughfare provided in the Constitution Avenue near verge.

3.0 Proposed Conditions

The development proposes to provide two buildings with a shared basement providing a mix of uses to the University, including research spaces as well as formal and informal learning spaces. The UNSW Campus masterplan Section 2.7 notes a population of 662 students are expected on completion of the Stage 1 of the precinct. The Quantum Traffic Strategic Transport Assessment Report provides a population of 52 staff are expected to be accommodated in Stage 1 of the campus.

Construction traffic and contractor parking arrangements will be provided by the nominated contractor once appointed and prior to commencement onsite. This section refers only to the final site conditions.

3.1 Site Access

Vehicular access to the UNSW Canberra campus is proposed through an access lane, connecting between Parkes Way and Constitution Avenue, through the existing access at the eastern end of the site. This access lane will also provide access to the Griffin Development and the existing gravel carpark, with their respective existing driveways being retained. Refer to Appendix A for proposed site plans.

The access from Parkes Way will be entry only for eastbound traffic on Parkes way, with a 150m slip lane to provide sufficient deceleration prior to traffic entering the site. Access off an arterial roadway has been provided at the direction of the National Capital Authority (NCA).

The second vehicular connection to Constitution Avenue, located nominally 200m from the intersection of Constitution Avenue and Coranderrk Street was initially proposed to be relocated further east to provide a secondary access to the large existing gravel car park and minimise any potential queuing issues. Consultation with the NCA resulted in TTW being directed to remove the secondary vehicle connection point and that only the eastern most vehicular connection to Constitution Avenue shared with the Griffin Apartments would be permitted.

As such, all access for the University, the on-grade gravel carpark and the Griffin are proposed off the access lane at the eastern end of the site.

3.1.1 Service Vehicles

Service vehicles, including waste collection vehicles, for the site are proposed to enter and exit along the access lane, prior to turning into the University site, with two-way access provided along the entire width of the vehicle travel path, allowing service vehicles to pass each other at any point on the internal roadway.

Turn around for all services vehicles is provided through reversing movements into the loading dock, allowing all service vehicles to enter and exit the site in a forward direction.

3.1.2 Evo Energy Access

Evo Energy will require access to the substation within the building to maintain and replace the substation in the rare event of failure.

Regular maintenance will be undertaken by Evo Energy using a B99 vehicle, which will be provided access to the site through an Evo Energy specific access gate off the existing carpark. Parking adjacent to the substation is provided for to ensure the loading dock can be adequately serviced during day-to-day operations.

Access to replace the substation will be able to be arranged in advance of the works needing to occur, as power supply to the University will be interrupted during the changeover. As such a temporary traffic management plan would be put in place to ensure that the required access to the substation is provided, without being impacted by other operations within the University.

3.2 **Proposed Parking Facilities**

The new works proposed on the site consist of a 98-space basement carpark, providing parking for staff and tenants. The existing carpark on the eastern half of the block is proposed to remain as an unmarked carpark. Parking numbers within this car park have been calculated using 2.5m wide parking spaces in accordance with Australian Standard 2890 Parking Facilities Part 1: Off-street Car Parking (AS2890.1:2004), allowing for 404 spaces.

Based on the above numbers, a total of 503 parking spaces are provided across the Parkes site.

Provisions have been included within the basement to allow for all parking spaces to allow for electric vehicle (EV) charging in the future.

3.3 Public Transport

No changes to the public transport network are proposed as part of the development.

3.4 Pedestrian and Cycle Network

The development does not propose to change the existing pedestrian and cycle network but proposes to provide a high level of connectivity from the site to the existing network.

4.0 Parking Assessment

4.1 Vehicle Parking Requirements

Vehicle parking requirements for the development are noted in three user groups, public parking, staff parking and student parking.

From the observation of the existing conditions, as noted in Section 2.6, a total of 350 parking spaces is believed to be required for public parking daily.

The Strategic Transport Assessment Report for the masterplan, undertaken by Quantum Traffic, notes that a review of staff mode share for inner urban university campuses in Melbourne, Sydney and Canberra puts the number of staff travelling to and from work by car between 35% - 45%. Noting that there is a culture in Canberra of heavy car usage, as well as a developing public transport network, the upper limit of 45% of staff parking has been taken for this assessment.

A total of 662 students are anticipated to attend the University within this stage of works. No onsite accommodation is proposed in Stage 1 of the campus. It is anticipated that student transport mode will be approximately 40% by car, with high parking costs and proximity to public transport making driving to university uneconomical for most students. Further to this, it is anticipated that only 60% of the student body will be on campus at any given time due to class scheduling. From this a rate of 24% of students will be anticipated to park onsite at any given time. This has been taken as 25% for this analysis to allow for flexibility in parking numbers.

Total parking for the each of the user groups has been outlined in Table 2.

Table 2: Development Parking Requirements

User Group	Number of Users	Parking Rate	Number of Spaces
Public Parking	350	1 per User	350
Staff Parking	52 Staff	0.45 spaces per staff member	24
Student Parking	662 Students	0.25 spaces per student	166
		Total	540

4.1.1 Disabled Parking

Disabled parking within the new basement carpark has been assessed against the previous Territory Plan Parking and Vehicle Access General Code, with 3% of all spaces within the basement required for people with disabilities. The development provides five disabled spaces, which is 4% of all spaces within the basement, satisfying this requirement.

The existing public parking does not currently have accessible spaces, with the surface of the carpark not suitable for accessible parking. As there are no changes to the carpark, no additional accessible parking is proposed.

4.2 Parking Compliance

Parking within the basement has been assessed to be User Class 3 in accordance with AS2890.1:2004, with parking bays of 5.4m depth and 2.6m wide and aisle widths of 5.8m.

Parking spaces, parking aisle, access roadways and ramps within the basement have all deemed to be in accordance with AS2890.1:2004.

Access through the site has been designed in accordance with Australian Standard 2890 Part 2: Off-street Commercial Vehicle Facilities (AS2890.2:2018), including the loading dock, which provides parking for one heavy rigid vehicle and one medium rigid vehicle in accordance with AS2890.2:2018.

4.3 Parking Impact

The parking impact for the development has been considered in three phases, remediation, main works construction and post completion of works. An initial loss in parking volume will occur during the two construction stages, with final parking numbers being considered once the works are complete.

All parking spaces within the public car park on Parkes site have been determined using 2.5m wide parking spaces in accordance with AS2890.1:2004.

During the remediation works phase of development, a portion of the existing carpark will be closed to facilitate the remediation works of the site. This will result in the car park capacity reduced to 359 parking spaces during the construction remediation phase.

During the main works construction phase, once remediation works have been completed, more of the carpark will be available, with the construction compound reducing in size. This will result in the car park capacity reduced to 387 parking spaces during the main works construction phase.

Once the construction works are completed, public parking within the Parkes site will provide 405 parking spaces.

To provide more parking within the site, two options for parking within the carpark were considered, existing scenario, and parking with the removal of trees within the carpark. The number of parking spaces provided for each stage of parking per each option is provided in Table 3.

Table 3: Parkes Carpark On-grade Parking Options

Stage	Parking Spaces with Trees	Parking Space without Trees
Early Works phase	361	468
Main Works phase	387	497
Post-Construction	405	522

Assessment of the parking on the site has been broken into two parts, assessment of the parking demands of the site and assessment against the Campus Masterplan agreed with the NCA.

4.3.1 Assessment of Parking Demands.

The assessment of parking demands only assesses the proposed demands of the site as determined through standard engineering practice, as noted in Section 2.6 and only assess the Parkes site of the University Campus.

A total of 350 public parking spaces are required during both construction phases to accommodate the current maximum parking demand.

During early works construction 361 parking spaces can be provided on the Parkes site, satisfying the existing 350 vehicle parking demand. A further 107 parking spaces could be provided onsite with the removal of the existing trees.

During the main works phase of construction, 405 parking spaces can be provided within the public carpark. Sufficient parking is maintained for the current parking demand of the Parkes carpark, with extra spaces to cater for construction parking. An additional 110 parking space could be provided with the removal of the existing trees.

With a 190 parking spaces required by the university, a maximum parking demand of 350 public parking spaces on the Parkes site, a total of 540 parking spaces are required to meet the parking demand of the site. Post construction, 98 parking spaces are provided within the Stage 1 UNSW building basement, 405 public parking spaces are provided on the on-grade gravel carpark, achieving a total of 503 parking spaces within the Parkes site. The provision of 503 parking spaces is a 37-space deficit for what is required within the Parkes site post construction.

Parking demands within the site are summarised below in Table 4.

Stage	Parking Requirement	Parking Spaces with Trees	Difference with Requirements	Parking Spaces without Trees	Difference with Requirements
Early Works	350	361	+11	468	+118
Main Works	350	387	+37	515	+165
Post- Construction	540	503	-37	615	+75

Table 4: Parking Demands vs Parking Provided

Based on the existing parking demands of the site, there will be sufficient parking within the site during both construction stages, with further carparking available to cater for construction parking.

The proposed parking for the completed Stage 1 works falls seven parking spaces short within the Parkes Site. It is noted that the CIT carparks opposite the site on Constitution Avenue will be able to make up the shortfall.

4.3.2 Assessment of the Campus Masterplan Requirements

The assessment of the parking requirements against the Masterplan only takes into consideration the number of parking spaces imposed on the campus within the Masterplan and does not take into consideration the actual parking demand of the site.

The NCA Detailed Conditions of Planning for the site note that the development needs to provide 750 publicly available parking spaces across both the Parkes and Reid sites during all stages of the development.

A total of 315 parking spaces are currently provided within the existing CIT Reid carparks. Of the 315 car spaces 14 are unmarked parking spaces within the carpark. These parking spaces will remain consistent across all stages of the construction works and are included in the total number of parking spaces provided. Once the CIT has been decanted in 2025, further parking spaces around the existing buildings will become available.

During early works, a total of 676 parking spaces would be available to the public, 315 on the Reid site and 361 on the Parkes site. This results in a deficit of 74 parking spaces when compared against the Masterplan. If the option for removal of trees within the Parkes site is adopted, 783 parking spaces can be provided across both sites, providing an 33-space excess against the masterplan requirements.

Main works construction would provide 702 parking spaces across both the Reid site (315 spaces) and the Parkes site (387 spaces). This results in a deficit of 48 parking spaces when compared against the masterplan. If the option for the removal of trees within the Parkes site is adopted, 812 parking spaces can be provided, achieving an 62-parking space surplus.

Post construction, the Masterplan requires a total of 889 parking spaces be provided across both sites. Taking into consideration the 503 parking spaces on the Parkes campus and the 315 parking spaces on the Reid campus, 818 parking spaces are provided on the site post-construction. The Stage 1 development has a 71-space deficit against the Masterplan. If the option for the removal of the trees within the Parkes Site is adopted, 930 parking spaces can be provided, achieving a 41-space surplus against the masterplan.

Parking against the Masterplan for each stage is summarised in Table 5.

Stage	Masterplan Parking Requirement	Parking Spaces with Trees	Difference with Requirements	Parking Spaces without Trees	Difference with Requirements
Early Works	750	674	-76	781	+11
Main Works	750	702	-48	812	+62
Post- Construction	889	818	-71	930	+41

Table 5: Masterplan Parking Requirements vs Provided Campus Parking

Based on the above, the site is not able to meet the minimum parking requirements nominated in the Masterplan during the construction phases of the development. The removal of trees would allow for the 750 parking spaces required under the Masterplan to be achieved under both construction phases.

Final parking provisions of the development are short by 71 spaces. To accommodate this shortfall, the CIT Reid site, which is expected to be vacant by June 2025, can be reconfigured to provide the necessary carparking, with the existing buildings able to be removed to provide more publicly available parking.

It is noted that the 750 publicly available car parking spaces required under the NCA Detailed Conditions of Planning is in excess of the current number of publicly available parking spaces within in the site and is 400 spaces in surplus of the number of vehicles expected to use the carpark on a daily basis. Further to this, providing an increased number of parking spaces so close to the City Centre runs counter to the ACT Governments policy of promoting alternative forms of travel to personal vehicle use.

5.0 Traffic Assessment

5.1 Existing Generation

Existing generation for the site has been based on the observed maximum existing utilisation of 335 vehicles. Noting this, assuming 60% of the cars parked within the carpark are required to enter or exit during peak times, this would equal 201 trips. This generation rate is supported by onsite observation, with approximately 60% of vehicles leaving the carpark during observations of evening peak times. The maximum utilisation of the carpark of 650 parking spaces would produce up to 390 vehicle movements during peak.

The Griffin development contains 254 residential units, providing 1524 vehicle trips per day, with 152 vehicle trips anticipated in peak hour. Noting the residential nature of the development, 80% of trips are expected to depart the development in the morning peak, with 80% returning in the evening peak. As such 122 trips are expected to leave in the AM peak with 30 trips arriving, and vice versa in the evening peak.

Onsite observation of traffic entering and exiting off Parkes Way through the existing turn from the gravel carpark onto Parkes way noted a low volume of vehicles.

5.2 **Proposed Generation**

The proposed vehicle generation for the site has been based on the total number of parking spaces anticipated to be required for the site. A conservative generation of 80% of the proposed parking spaces arriving or leaving at the same time has been assumed for the development. Based on the 190 parking spaces utilised by the university population, up to 152 traffic movements during peak hour are expected.

Noting that the number of vehicles parking in the public carpark remains unchanged, the total number of vehicle trips to and from the site will increase by 152 trips. This is roughly a 34% increase in the number of trips on Constitution Avenue westbound when compared to the maximum anticipated trip generation of the existing gravel car park.

It is noted that no change in the Griffin trip generation is anticipated as part of the development, but the number of trips using the entry off Parkes Way is expected to increase due to the formalisation of the turn off Parkes Way.

5.3 Intersection Modelling

A network modelling all four major intersections adjacent to the site, as well as the intersections for the access road running through the site, was undertaken in SIDRA Intersection 9.1, to determine the Level of Service (LoS) of the intersections in accordance with Austroads Guide to Traffic Management Part 2, and outlined in Figure 11 from Table 4.2 in Transport for NSW's Guide to Traffic Generating development.

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

Table 4.2				
Level of service	criteria f	or intersect	ions	

Figure 11: Table 4.2 from Transport for NSW Guide to Traffic Generating Developments

Three different scenarios were modelled, existing 2023 scenario, 2026 predevelopment scenario and post development scenario. The existing scenario was used to calibrate the model and ensure that the results of the model output were reflective of the onsite observations. The 2026 model was modelled with a traffic increase factor of 2% per year to capture the ongoing growth of the Territory and the number of vehicles on the road and establish the intersection capacity at the time the development will be complete. The post-development includes the 2026 baseline traffic as well as the anticipated traffic generated by the development.

Assessment of the modelling is undertaken in Section 5.4 in accordance with Table 4.2 of RTA's Guide to Traffic Generating Developments (GTGD).

5.3.1 Parkes Way and Coranderrk Street

AM

The existing AM peak traffic for Parkes Way and Coranderrk Street intersection operates at a Level of Service (LoS) E, with the average delay through the intersection of 61.6 seconds. The left turn from Coranderrk Street onto Parkes Way and the straight through on Parkes Way eastbound are LoS F, with all other movements achieving a minimum LoS D.

The 2026 modelling shows that the LoS of the Parkes Way and Coranderrk Street during the peak morning traffic will increase to LoS D, with average delays through the intersection of 47.6 seconds. The straight through on Parkes Way eastbound is still LoS F, with the right turn from Parkes Way onto Coranderrk Street only achieving a LoS E. All other movements in the intersection achieve a minimum LoS of C.

The LoS D for the intersection is continued in the Post Development Scenario, with the average delays through the intersection of 42.6 seconds. Straight through on Parkes Way eastbound maintains a LoS F, with all other movements achieving a minimum LoS D.

ΡM

The existing peak PM traffic for the Parkes Way and Coranderrk Street intersection operates at a LoS E, with both lanes on Coranderrk Street at LoS F due to vehicles unable to turn right out of Coranderrk Street, with delays through the intersection of up to 7 minutes through the intersection.

The 2026 model shows the Parkes Way and Coranderrk Street intersection operating at a LoS F, with the Coranderrk Steet approach having a LoS F in both lanes turning onto Parkes Way. This is continued through the post development model.

5.3.2 Coranderrk Street and Constitution Avenue

AM

The existing AM peak traffic through the Coranderrk Street and Constitution Avenue intersection achieves a LoS D, with an average delay through the intersection of 45.9 seconds. The right turn from Coranderrk Street northbound onto Constitution Avenue is at LoS F, with all other lanes between LoS C and LoS E.

This only gets worse in the 2026 scenario, with queues into the Parkes Way intersection and turning lanes from Coranderrk Street onto Constitution Avenue changing to a LoS F. There is no notable change between the 2026 scenario and the post development scenario.

ΡM

Modelling of the existing PM peak scenario for Coranderrk Street and Constitution Avenue show the intersection operating at LoS F. Straight through on Coranderrk Street southbound, turns from Constitution Avenue in both directions onto Coranderrk South bound and the right turn from Coranderrk Street northbound onto Constitution Avenue are all LoS F.

The LoS in the 2023 base case is continued through the both the 2026 and post development scenarios.

5.3.3 Parkes Way and ANZAC Parade

AM

Modelling of the intersection for Parkes Way and ANZAC Parade for the AM peak under the 2023 base case notes the intersection operating at a LoS F, with an average delay of 104.8 seconds through the intersection. This is noted as being solely due to westbound traffic on Parkes Way achieving LoS F in both lanes.

This is maintained through both the 2026 and post development cases with average delays of 113.6 and 94.8 seconds respectively.

РМ

Modelling for the evening peak 2023 base case for the Parkes Way and ANZAC Parade intersection shows the intersection performing at a LoS F, with the inside lane of Pakes Way eastbound and the outside lane of Parkes Way westbound both performing at LoS F.

This is continued through the 2026 peak PM traffic condition.

The post development traffic conditions the evening pea through Parkes Way and ANZAC Parade intersection increases to a LoS E, with the average delay at the intersection reducing from 119.4 seconds in the 2026 case to 64.7 seconds in the post development scenario.

5.3.4 ANZAC Parade and Constitution Avenue

AM

Constitution Avenue and ANZAC Parade intersection in the peak morning period was determined to be operating at LoS E, with an average delay of 68.1 seconds. The lefthand lane in the southbound direction on ANZAC Parade operates at a LoS F during the peak times, with both other southbound lanes, the westbound right turn from Constitution Avenue to ANZAC Parade, and the eastbound left turn from Constitution Avenue onto ANZAC Parade all being LoS E.

In the 2026 scenario the intersections operating level of service drops to a LoS F, with the southbound through lane on ANZAC Parade changing to the LoS F. Average delays through the intersection increase to 81.3 seconds.

There is no level of service change in the Post Development scenario, with the average delay through the intersection increasing slightly to 85.6 seconds.

ΡM

The ANZAC Parade and Constitution Avenue intersection in the 2023 base case operates at a Los D, with all lanes operating at a LoS D or E and an average delay through the intersection of 52.2 seconds.

The peak PM case in the 2026 scenario retains the same level of service for the intersection, with one lane LoS decreasing to a LoS E rather than D in the 2023 case. Due to this the straight through movement on Constitution Avenue westbound now operates at a LoS F rather than LoS E in the 2023 case. The average delay through the intersection in the 2026 case is 55.3 seconds

The LoS in all lanes and for each movement is the same as the 2026 growth case, with a negligible increase in the average delay through the intersection to 55.8 seconds.

5.3.5 Constitution Avenue and Access Lane

AM

Modelling for all three scenarios note that all lanes and movements between Constitution Avenue and the site Access Lane operate at a LoS A, with the only change in delay on the exit from the Access Lane onto Constitution Avenue.

ΡM

Modelling for all three scenarios note that all lanes and movements between Constitution Avenue and the site Access Lane operate at a LoS A, with the only change in delay on the exit from the Access Lane onto Constitution Avenue.

5.3.6 Parkes Way and Access Lane

AM

The formalised access off Parkes Way onto the internal Access Lane will operate at a LoS A. Flows through the intersection point are impacted by the downstream intersections.

ΡM

The formalised access off Parkes Way onto the internal Access Lane will operate at a LoS A. Flows through the intersection point are impacted by the downstream intersections.

5.4 Traffic Impact

The Parkes Way and Coranderrk Street intersection currently operates effectively, during the peak morning traffic, with both modelling and onsite inspection supporting this, although the proximity of the intersection to the Coranderrk Street and Constitution Avenue causes minor queueing into the roundabout. During peak evening times, the intersection does not operate at a reasonable level of service, with queues from the intersection queueing back across the Constitution Avenue intersection. This is not anticipated to change up to the 2026, as supported through the SIDRA modelling. From the modelling it is also anticipated that the extra peak traffic generated by the development will not significantly impact the operation of the intersection, noting that there are already significant issues with the intersection which results in vehicles rat-running through the suburban roads in Reid to the north of Constitution Avenue.

As noted from onsite observation, the Constitution Avenue and Coranderrk Street intersection has existing issues, with the morning peak traffic turning left from Coranderrk Street onto Constitution Avenue westbound queueing across the Parkes Way eastbound lanes and the peak PM traffic southbound becoming gridlocked due to the existing issues at the Parkes Way intersection. The future 2026 scenarios modelled are expected to make this issue worse due to an increased volume of vehicles on the roads. The volume of traffic from the development is expected to be less than 5% of the total traffic heading south on Coranderrk Street during peak time, making a minimal contribution to the operation of the intersection.

Traffic flow through the intersection of ANZAC Parade and Parkes Way has significant issues in the existing case, with significant queueing on the western side of the intersection along Parkes Way in both the morning and evening, and significant queuing on the eastern side in the evening. This is supported by the onsite observation, with observations onsite further noting that the intersection is further impacted by vehicles queueing to east of the intersection from the intersection with Kings Avenue in both directions in the evenings. The future increase in traffic will only make this worse, with the proposed development having a positive impact on the intersection by removing a small portion of turning traffic from Parkes Way by formalising the Access Lane into the site and incentivising the existing residents of the Griffin development to turn off Parkes Way sooner.

The intersection of Constitution Avenue and ANZAC Parade has significant delays to southbound traffic on ANZAC Parade. This was supported by onsite observation, with vehicles often having to wait multiple cycles to get through the lights. This is not impacted by the post development scenario, with the proposed development making little impact to no impact on the level of service of the intersection.

Existing queueing observed on Constitution Avenue was due to developments not providing compliant queueing distance within the site prior to a vehicle control point. Noting that the development does not have a control point on the access road, there is anticipated to be minimal queueing on Constitution Avenue due to the development, with the only potential source of queuing the use of the pedestrian crossing on the Access Lane, which under the Post development modelling would be minimal. As such no impact to the existing public bus lanes is anticipated from the development.

Further to the above, noting that most trips to and from the university will be by students, it is not anticipated that the peak travel times for the university will be the same as the surrounding developments. Students are anticipated to arrive periodically throughout the day depending on when they have classes. Noting this, the anticipated peak traffic volume from the university is likely to be lower than that noted in the calculations. Given this and the low volume of traffic generated by the university during peak time, the development is not anticipated to have a significant impact on surrounding road network.

6.0 Summary of Findings

The findings from the onsite observations and traffic modelling undertaken by TTW, has been summarised below:

- The utilisation of the carpark on the existing site is low compared to available parking, with a maximum anticipated parking requirement of 350 spaces outside of special events.
- There is significant queuing of vehicles through the Constitution Avenue and Coranderrk Street, and the Parkes Way and Coranderrk Street intersections during peak traffic periods.
- The Constitution Avenue and Coranderrk Street, and the Parkes Way and Coranderrk Street intersections currently do not have sufficient capacity as a network to cater for existing traffic volumes.
- There is appropriate pedestrian and cyclist amenity provided for the site, with no impact to the surrounding pedestrian and cycle network.
- A total of 540 spaces are required on site or within 400m of Stage 1 of the University to support the University's parking needs and the existing parking demand of the site.
- 98 car spaces are provided in basement carpark.
- Up to 442 vehicles are anticipated to utilise publicly available parking, including university overflow parking.
- Total of 405 parking spaces will be available for public use on the Parkes site.
- 720 publicly available parking spaces are provided across both Reid and Parkes sites, which is greater than the existing publicly available parking.
- Peak traffic from the existing carpark is anticipated at 390 vehicles per hour (vph), with occupancybased traffic calculations anticipated at 201 vph.
- Peak proposed traffic generated by carpark and university is anticipated at 353 vph.
- The addition of 152 university generated vehicles to the occupancy-based traffic numbers on Constitution Avenue during peak AM and PM periods has a negligible impact on performance of Constitution Avenue and Coranderrk Street, Parkes Way and Coranderrk Street, ANZAC Parade and Constitution Avenue, and AZAC Parade and Constitution Avenue intersections.

7.0 Conclusion

The development proposes to provide sufficient parking for both the current carpark usage and that required by the university through the form of basement carpark and retaining a significant number of the existing on grade carpark currently situated on the site.

The existing performance of Parkes Way and Coranderrk Street, Constitution Avenue and Coranderrk Street, ANZAC Parade and Parkes Way, and ANZAC Parade and Constitution Avenue intersections have been assessed and are not adequate to facilitate current and future pre-development traffic volumes (up to 2026).

Due to the spread nature of university student schedules, the traffic from the university arriving at and leaving the university is expected to be spread over several hours rather than as a single peak like much of the surrounding developments. This coupled with the low volume of traffic and high level of mode share anticipated from the university, the development is not anticipated to have a major impact on the surrounding road network.

Noting the low anticipated impacts to the surrounding road network and parking facilities, Stage 1 of the University of New South Wales Canberra Campus on Block 12 Section 3 Parkes is recommended for works approval.

Prepared by TTW (ACT) PTY LTD

Ross Costello Senior Engineer Authorised By TTW (ACT) PTY LTD

Christie Player Associate Director

P:\2023\2316\231606\Reports\TTW\Traffic Report\231606-TTW-00-RP-TR-[H]-Traffic Impact and Parking Assessment\231606-TTW-00-RP-TR-[H]-Traffic Impact and Parking Assessment Report.docx

Appendix A

Civil Plans

Appendix B

SIDRA Outputs

Appendix C

Parkes Site Existing Parking Demand Counts