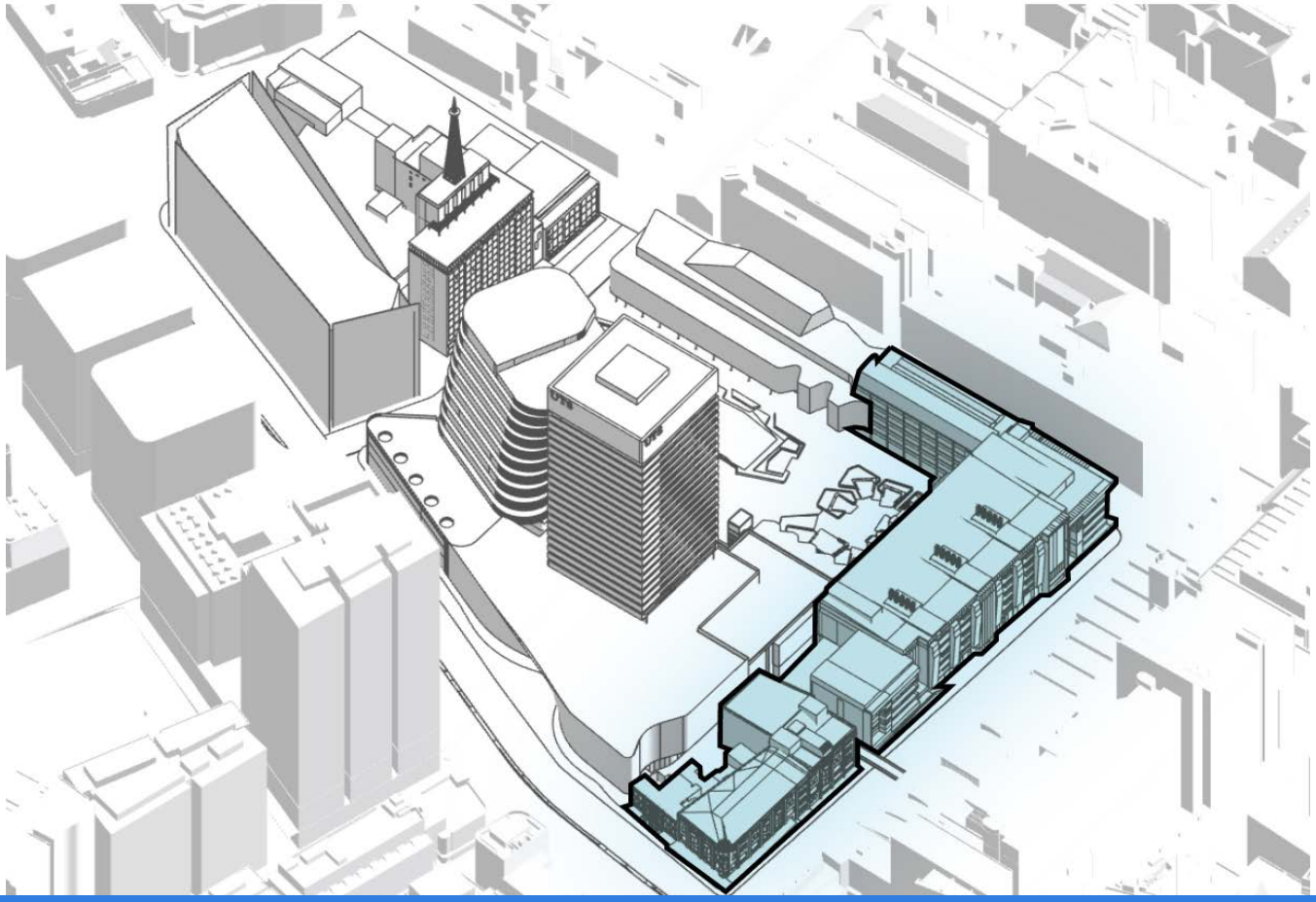

UTS Bon Marche and Science Precinct Projects

Traffic and Transport Impact Assessment

Prepared for:

University of Technology, Sydney

31 August 2018

The Transport Planning Partnership

E: info@ttpp.net.au

UTS Bon Marche and Science Precinct Projects

Traffic and Transport Impact Assessment

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Final	31/08/18	Aston Lei Oasika Faiz	Ken Hollyoak	Ken Hollyoak	

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APPENDICES

1 Executive Summary

The Transport Planning Partnership (TTPP) was commissioned by University of Technology, Sydney to prepare a traffic and transport assessment for the redevelopment of the UTS Bon Marche and Science Precinct (subject site). The assessment is part of a Section 75W modification application relating to the University of Technology Sydney (UTS) City Campus Broadway Concept Plan, which was approved in December 2009 (MP08_0116).

The S75W modification seeks to accommodate a rise in student and staff population that has exceeded the forecasts of the original UTS City Campus Broadway Concept Plan. Latest student and staff loading estimations indicate that the City Campus population is approximately 60 per cent greater than expected for the original concept plan.

Proposed Development Opportunities

As part of the assessment detailed in this report, TTPP has investigated potential opportunities to improve the pedestrian connectivity and accessibility of the UTS City Campus and address issues relating to parking, traffic and pedestrian movements. On this basis, the following opportunities have been assessed:

- Formal set-down/pick up parking restrictions on Thomas Street to address existing issues relating to drivers stopping on the carriageway to drop-off passengers to UTS
- New basement staff car park accommodating potentially up to 150 spaces, with access via the existing driveway located on Thomas Street.
- Reaccommodate Turner Lane loading activities to the Building 1 loading dock and remove Turner Lane.
- Widening of the pedestrian crossing at the Harris Street approach of the Harris Street, Broadway, George Street and Regent Street intersection to address existing concerns relating to pedestrian overflowing off the crossing.
- A new mid-block pedestrian crossing along Harris Street between Thomas Street and Broadway to accommodate existing informal pedestrian crossing activity and anticipated future growth in pedestrian volumes. As discussed in Section 3.6.2, up to 792 pedestrians per hour are crossing informally midblock along Harris Street.
- Widening of the footpath on Harris Street along the frontage of the UTS site to improve the pedestrian accessibility and amenity of the area. Implementation of this opportunity would however involve narrowing Harris Street and thereby losing one lane of traffic. Harris Street on approach to Broadway currently includes five lanes of traffic including one shared left turn and through lane, two through only lanes, one shared right turn and through lane and one right only lane.

TTPP have assessed the above opportunities and their impact to the road network and on-site and on-street parking in Section 5 and Section 6.

Assessment of Development Opportunities

The key findings of TTPP's assessment are as follows:

- A formal set-down/ pick-up area along Thomas Street would require the conversion of two to four existing ticketed kerbside parking spaces to 5-min parking restrictions.
- The new car park would generate up to 41 vehicle movements per hour and 36 vehicle movements per peak hour in the morning and evening peak periods respectively. This would have a negligible impact on the surrounding road network which sees over 2,000 vehicles per hour during the peak periods.
- Turner Lane generates a loading demand of four vehicles per day. The existing Building 1 loading dock is at 50 per cent occupancy and would be capable of accommodating the displaced Turner Lane loading demand. In addition, the Building 2 redevelopment (currently under construction) will include an expansion to the existing loading dock of around five loading bays, enabling the additional loading demand generated by the Building 2 development to be accommodated by these spaces.
- SIDRA modelling indicates:
  - Widening of the existing signalised crossing at the Harris Street approach to Broadway could be implemented with minor impacts to the signal operation of Harris Street, Broadway, Regent Street and George Street.
  - Widening of the Harris Street footpath and associated narrowing of the carriageway would notably impact queue lengths and delays along Harris Street and Ultimo Road. However, acceptable operation of the road network could be maintained with dynamic reallocation of green time to the Harris Street approach from the Broadway and George Street approaches. This is would be achieved within the minimum and maximum variable times provided at the existing intersection.
  - Provision of a signalised mid-block crossing could be provided with minimal impacts noting that the pedestrian crossing phase would run during the red signal on the Harris Street approach to Broadway.

  Of particular note is the existing high volumes of pedestrian traffic in the vicinity of the site, in particular along Broadway. Fruin Analysis of the footpath along Broadway indicates theoretically that there is available capacity along Broadway, with a LoS B (recommended level of service for a footpath) along the Harris Street footpath and LoS C (acceptable but with movement becoming "increasingly uncomfortable"[1]) along the Broadway footpath. Visual inspection of the site indicates that these footpaths are congested and this will be due to pedestrians stopping at intersections where they have to congregate therefore affecting pedestrian flow. In particular, at the corner of the Broadway and Harris Street, where several conflicting pedestrian movements converge in one area creating difficulty in movement. Notably, pedestrians commonly overflow outside of the extents of the footpath and crossings. With a proposed increase to UTS

[1] *See Figure 3.13*

and general growth in the CBD, these volumes are anticipated to increase, opportunities to improve pedestrian footpath and crossing capacity are key in securing an acceptable level of pedestrian amenity and safety around and within the UTS City Campus.

2 Introduction

This report supports a Section 75W modification application submitted to the Minister for Planning pursuant to the Environmental Planning and Assessment Act 1979 (EP&A Act) and more specifically, Schedule 2 of the Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017.

The Application relates to the Concept Plan Approval for the University of Technology Sydney (UTS) City Campus Broadway Precinct, which was approved in December 2009 (MP08_0116).

More specifically the modification application relates to the Bon Marche and Science Precinct (Buildings, 3, 4, 9 and 18) and includes establishing new building envelopes with corresponding height and Gross Floor Area (GFA).

The Transport Planning Partnership (TTPP) has prepared this report on behalf of UTS Sydney to accompany the Section 75W modification application to assess the traffic and transport implications of the modification.

2.1 Overview of Proposed Modification

The s75W Application seeks the following key modifications to the approved Concept Plan:

- Conceptual demolition of existing Building 4, and rear section of Building 3,
- Conceptual modification to heritage items, Building 3, Building 9, and Building 18;
- Creation of a new building envelope for Building 4, Building 3 (part) and Building 9 (cantilevering over only), resulting in a maximum height of RL 86.55, an increase of approximately 45m above existing Building 4 and approximately 50m above existing Building 3;
- Corresponding increase in GFA for Building 4 and Building 3, comprising an additional increase of up to 36,500m^2;
- Consequential amendments to the Urban Design Quality Controls/Principles to guide the future development of the Bon Marche and Science Precinct; and
- Indicative landscape and public domain concept for the precinct.

The proposed new envelope for the Bon Marche and Science Precinct will accommodate a future building that will have an effective maximum height of 16/17 storeys above Harris Street and six (6) storeys above Thomas Street (i.e. excluding basement levels and plant). The resulting total GFA for the Bon Marche and Science Precinct (new building envelope and existing buildings) is some 65,000m^2 .

No physical works are proposed as part of this s75W modification application, with detailed application(s) to follow any approval granted.

2.2 Background

2.2.1 Evolution of UTS

UTS was formed in 1988 from the former NSW Institute of Technology, and was restructured in 1990 with the merger of the Kuring-gai College of Advanced Education, the School of Design, and the Institute of Technical and Adult Teacher Education to form the current UTS. This change in profile, combined with the University's predominantly CBD location in Sydney, created a new identity. During its early evolution, student numbers increased at UTS without any significant increase in student facilities.

UTS recognised the need to upgrade the City Campus back in 2000, and undertook a number of visioning and master planning projects culminating in the City Campus Masterplan 2020 (BVN, 2008) which provided a framework for refurbishments and new building works across the campus (comprising the Broadway Precinct and other sites in the Sydney CBD) in order to provide improved facilities and to accommodate future expected student and staff growth.

On 23 December 2009 a critical step in realising UTS's vision and identity for the Broadway Precinct was realised, with approval of the UTS City Campus Broadway Precinct Concept Plan (BPCP).

Since approval of the Concept Plan in 2009 UTS has secured the necessary detailed planning approvals and delivered a number of state of the art and iconic learning, research and social facilities across the Broadway Precinct, including (refer to Figure 2.1):

- Faculty of Engineering and IT Building, designed by Denton Corker Marshall Architects.
- Multi-Purpose Sports Hall, designed by PTW Architects.
- Alumni Green, designed by ASPECT Studios Landscape Architects.
- Faculty of Science and Graduate School of Health Building, designed by Durbach Block Jaggers in association with BVN Architecture.
- Library Retrieval System, designed by Hassell Architects.
- Great Hall and Balcony Room Upgrade, Designed by DRAW Architects in association with Kann Finch Architects.
- Student Housing Building, designed by nettletontribe architects.

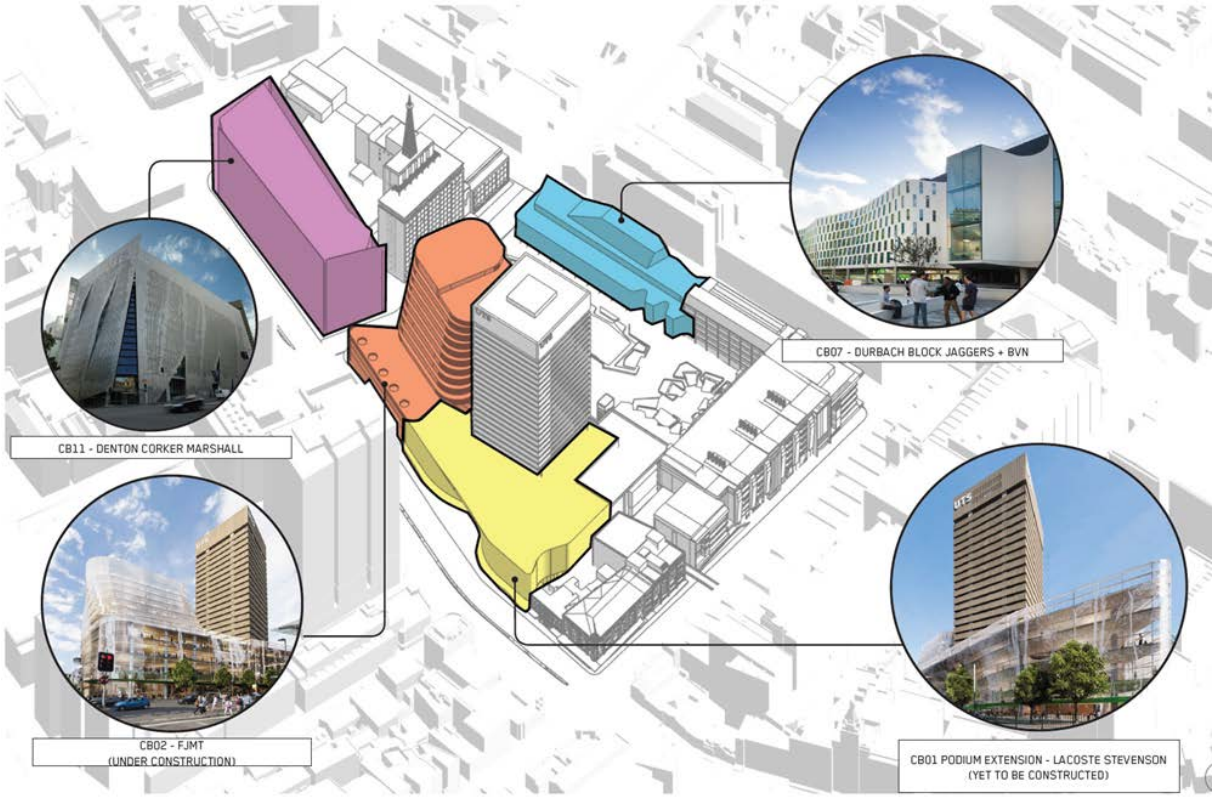
The UTS Central Project (designed by fjmt in collaboration with Lacoste + Stevenson in association with Darryl Jackson Robin Dyke Architects) represents the latest project being delivered by UTS to meet the needs of staff and students. The first phase of the UTS Central Project, which required a modification to the Concept Plan (MOD 5), is expected to be completed in 2019. The second phase of this project will include an extension to the podium of Building 1 addressing Broadway.

UTS currently has less than 2% of space across campus unallocated which is insufficient to accommodate forecast continued growth in student and staff numbers in the future. The educational facilities within the existing Bon Marche Building 3 are outdated and inadequate to meet the needs of contemporary teaching and learning environments.

The existing Science buildings (Building 4) are nearing the end of their lifecycle, which together with the continued growing demands from students locally and abroad and growth in both Science and Design, Architecture and Building (DAB) faculties presents an opportunity for UTS to progress with plans to support additional and much needed teaching and research space.

UTS plays an important role in the success of Sydney and NSW, with the Greater Sydney Commission's recently released Sydney Regional and District plans acknowledging this importance and identifying the need to protect and support the growth of education activity within the Harbour CBD Innovation Corridor.

Figure 2.1: Key UTS Projects Approved/delivered Under the Concept Plan



Source: BVN

2.2.2 Evolution of Concept Plan

The UTS City Campus Broadway Precinct Concept Plan (BPCP, as illustrated in Figure 2.2) was approved by the then Minister for Planning on 23 December 2009 (MP08_0116). The Concept Plan initially included:

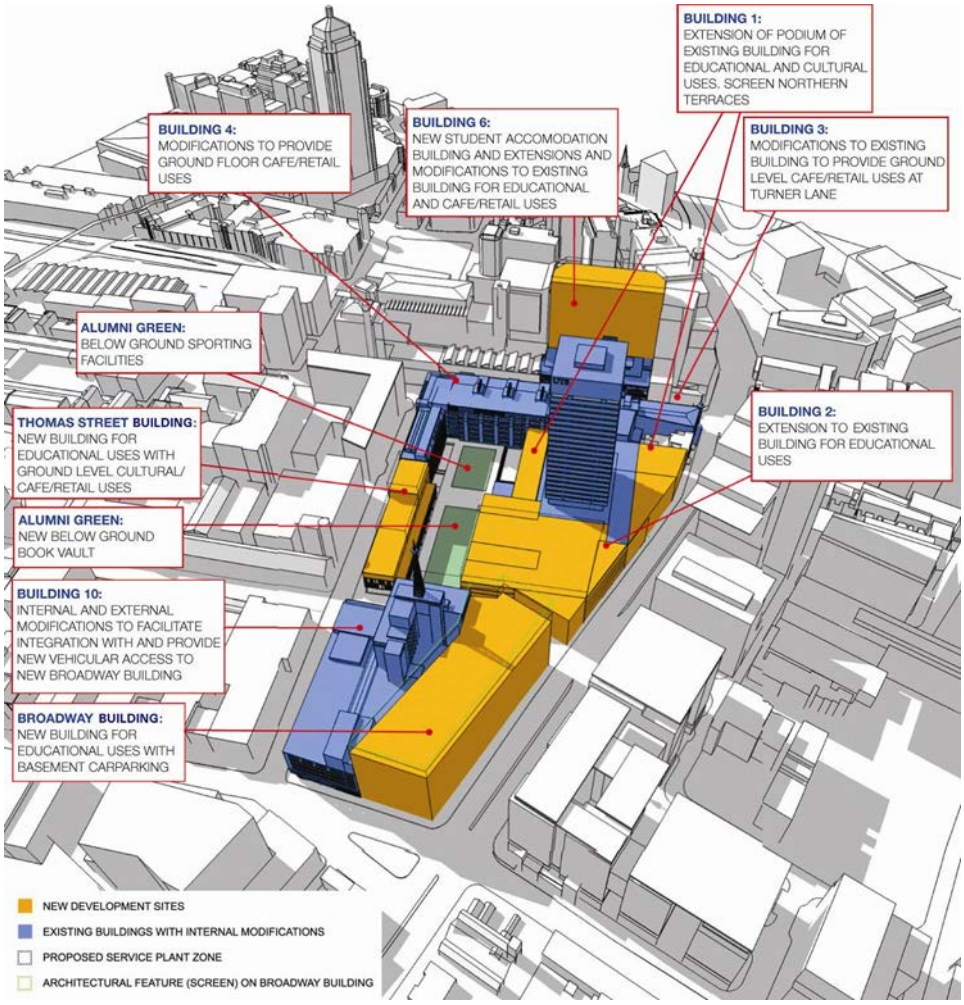
- New Broadway Building and Thomas Street Building with a combined gross floor area (GFA) of 44,650m2;
- Expansion of Buildings 1 and 2 with a combined additional GFA of 10,800m2;
- Expansion of Building 6 for the provisions of student housing with an additional 25,250m2 GFA;
- Modifications to Buildings 3, 4 and 10;
- Modifications to Alumni Green with a new Multi-Purpose Sports Hall and book vault beneath; and
- Public domain improvements to Broadway and Thomas, Harris, Wattle and Jones Streets.

The Minister also granted Project Approval for the following works:

- Construction of a new underground Multi-Purpose Sports Hall; and
- Demolition of Buildings 11, 12 and 13.

The Concept Plan did not set new maximum heights and GFA for the Bon Marche and Science Precinct as demand for growth or redevelopment of these buildings was not identified at the time. The Concept Plan (2009) was informed by UTS's Growth Plan at the time to 2020, which had not foreseen that additional floor area and significant modifications and upgrades to existing buildings was required in the Bon Marche and Science Precinct. The 2009 Concept Plan also did not take into account the lifecycle status of Building 4, which was recently investigated and reported to be nearing end of life in 2026.

Figure 2.2: 3D Model of Originally Approved Concept Plan (Source: BVN, DCM AND JBA)



Source: BVN and DCM

Since the Concept Plan was approved, five (5) subsequent modifications have been approved.

Modification No 1

Modification No 1 (MP 08_0116 Mod 1), approved in March 2011, sought to include bulk excavation works for the Broadway Building as part of the Project Approval works granted under the Concept Plan approval (enabling these works to be undertaken ahead of the Project Application for the building).

Modification No 2

Modification No 2 (MP 08_0116 Mod 2), approved in March 2011, related to an administration amendment to Concept Plan condition B2.

Modification No 3

Modification No 3 (MP 08_0116 Mod 3), approved in July 2011, sought to include the excavation, construction and operation of the Library Retrieval System (LRS) and Storage Building together with bulk excavation works for the Thomas Street Building as part of the Project Approval works granted under the Concept Plan approval (enabling these works to be undertaken without any further environmental assessment).

The modification also included a revised breakdown of GFA across the UTS Broadway site, with the Environmental Assessment submitted in support of the S75W identifying an increased GFA for the Thomas Street building of 12,150 square metres (corresponding with a decreased GFA for the Broadway Building of 34,650 square metres).

Modification No 4

Modification No 4 (MP 08_0116 Mod 4), approved in March 2012, related to an administration amendment to Concept Plan condition E3 (approved truck route plan for excavation of Thomas Street building and the library retrieval system).

Modification No 5

Modification No 5 (MP 08_0116 MOD 5) was approved by the then Minister for Planning in March 2016 and facilitated an expanded Building 2 envelope (maximum RL of 79.5) and corresponding increase in GFA for a new Building 2 and the Building 1 podium extension (resulting in a total maximum of 60,357sqm). [Alexis/Chris to check this is correct]

The modification provided the planning framework for the UTS Central project currently under construction.

Modification No 6

This report has been prepared in support of proposed Modification No 6 (MP 08_0116 Mod 6) to the Concept Plan.

2.3 SEARs

Secretary's Environmental Assessment Requirements (SEARs) were issued by the Department of Planning and Environment (DP&E) on 1 February 2018. Specifically, this report responds to the SEARs requirements listed in Table 2.1.

Table 2.1: SEARs Requirements

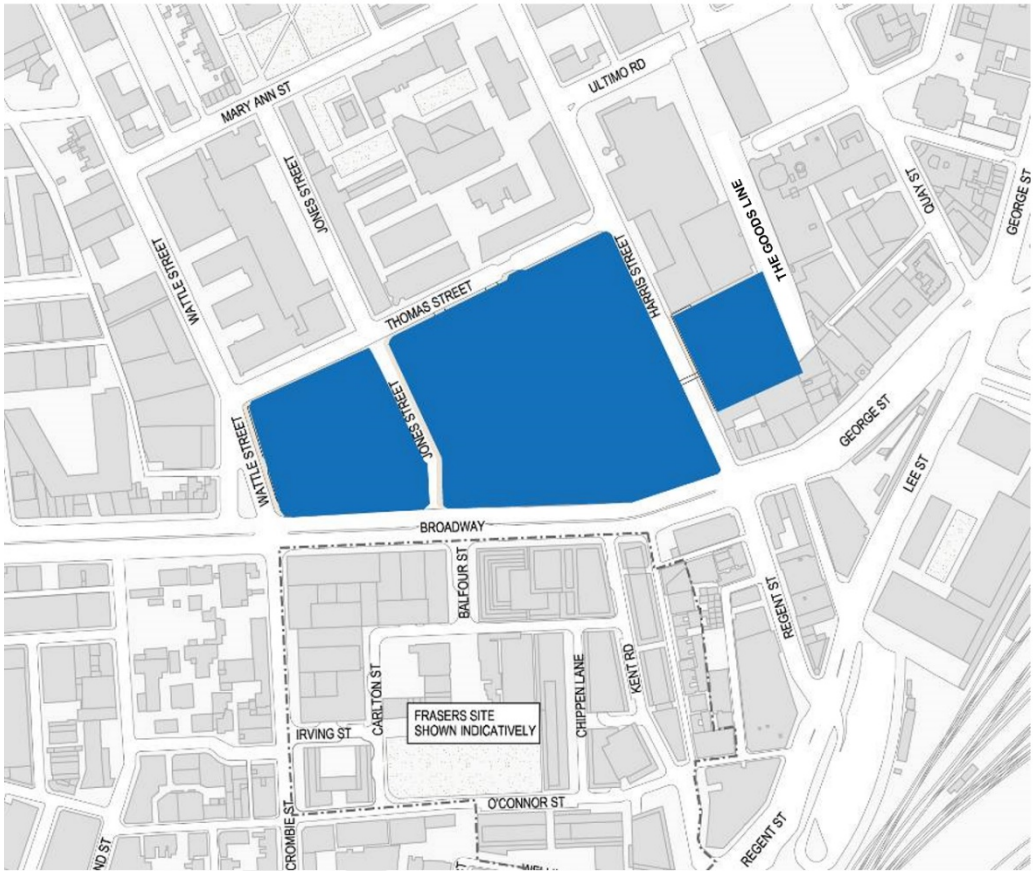
Requirement	Report Section	Comment
Modelling of the traffic impacts associated with the proposed modifications to the concept plan, including an estimate of the total daily and peak hour vehicle trips generated by the proposal	Section 5	
An assessment of the current and future performance of key intersections providing access to the site under the approved and proposed scenarios, and identify any additional upgrades required as a consequence of the proposal	Section 5.2	
An assessment of the impacts of all modifications to the approved road network and infrastructure, and use of the Austroads Guidelines to identify appropriate mitigation measures	Section 5	
Detailed plans of the proposed layout of the internal road network and on-site parking in accordance with the relevant Australian Standards	Section 4.3 Section 4.4 Section 6	The proposed layout and parking arrangements are in concept level at this stage. Assessment of Australian Standard compliance would be addressed in the Stage 2 DA.
An assessment of traffic and transport impacts during construction and demonstration of mitigation of impacts	Section 5.7	
An assessment of the adequacy of public transport services to meet the likely future demand of the proposed development	Section 5.4	

2.4 The Site

The Broadway Precinct of the UTS City Campus is located on the southern edge of the Sydney Central Business District (CBD). The UTS City Campus is located entirely within the Sydney Local Government Area.

The Campus has frontages to Broadway, Thomas, Wattle and Harris Streets, and the Goods Line [change text in diagram as no longer known as the UPN] and is less than 700 metres from Central Railway Station. Jones Street runs through the Precinct. The area covered by the Concept Plan (MP 08_0116) is shown in Figure 2.3.

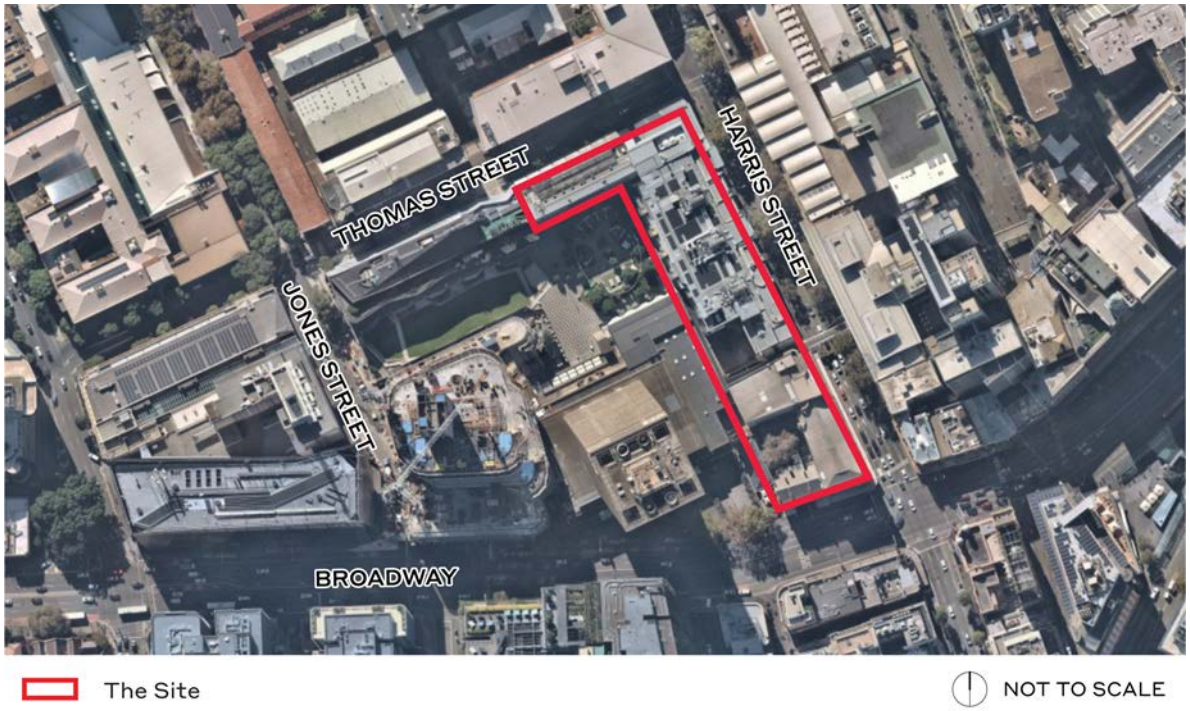
Figure 2.3: Site Context



Source: BVN

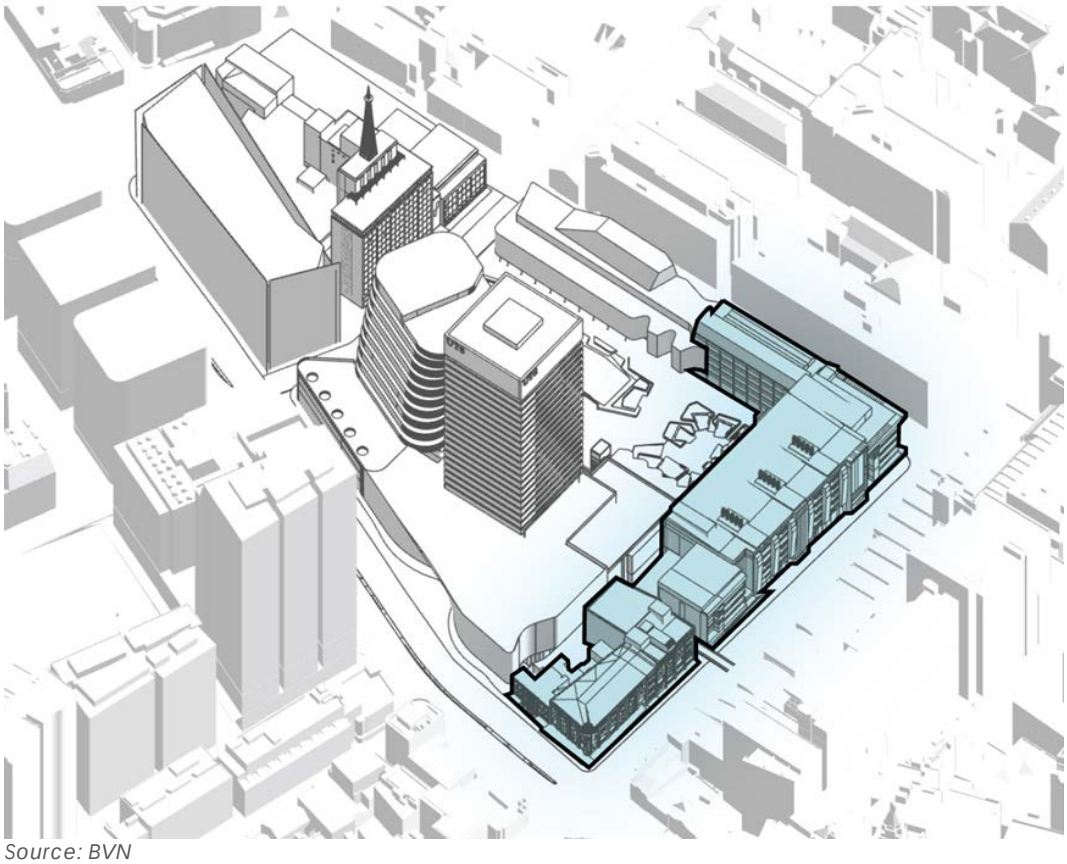
More specifically, the Bon Marche and Science Precinct is located within the eastern part of the Broadway campus between Thomas Street and Broadway with frontage to Harris Street. It incorporates Buildings 3, 4, 9 and 18. Buildings 3, 9 and 18 are identified as heritage items under the Sydney Local Environmental Plan 2012 (SLEP 2012). Refer to Figure 2.4 and Figure 2.5 for the location of the Bon Marche and Science Precinct.

Figure 2.4: Aerial Image of Bon Marche and Science Precinct outlined in red) - May 2018



Source: Nearmap

Figure 2.5: 3D Perspective of the Existing Bon Marche and Science Project



Source: BVN

2.5 Relevant Transport Studies

2.5.1 UTS Broadway Traffic Report

The UTS Broadway Precinct – UTS Central Transport Impact Assessment was undertaken by GTA Consultants in April 2016. This addressed the transport and traffic concerns issued in the Secretary's Environmental Assessment Requirements (SEARs) for the project which was deemed as a Stage Significant Development under the *State Environmental Planning Policy (Stage and Regional Development) 2011*. The works involved the redevelopment of Building 2 and extension of the Building 1 podium to accommodate the increase in the projected student population in 2020.

The report indicated that the proposed land uses in Building 2 would contribute low trip generation rates. In addition to this, no parking was to be provided in the proposed redevelopment of Building 2 which was consistent with the approved UTS City Campus Plan which supports limited to no parking provision. Furthermore, 2011 Journey to Work data showed a high percentage of public transport usage in the travel zone containing UTS in which there was an increase of 6% in the mode share for public transport since the 2006 census, and a corresponding reduction in car usage.

Ultimately, the proposed development was found to be satisfactory from a traffic, transport and parking perspective.

A Green Travel Plan (GTP) was prepared by GTA Consultants in July 2016 to encourage sustainable transport in relation to the targets and objects set out in *Sustainable Sydney 2030* through the reduction in private vehicle travel.

2.5.2 Transport Management and Accessibility Plan (TMAP) Report

The Transport Management and Accessibility Plan report was completed by Halcrow MWT in October 2009 to address the Department of Planning's Director General's Key Assessment Requirement in relation to the proposed UTS City Campus Broadway Concept Plan. The report developed a TMAP for the site based on UTS's operation and transport situation at the time. In addition to this, analysis of the strategic context found that there was a very high transit mode share by existing students and staff due to the site's close proximity to Central Station and substantial number of bus services with limited level of on-site parking provision. The TMAP also noted that the patronage is "modest in the context of the current system" and well below the population and expected future growth of the surrounding area.

2.5.3 UTS Sustainable Transport Plan 2016-2017

The UTS Sustainable Transport Plan 2016-2017 supports the strategic context of UTS's Sustainability Policy and Sustainability Strategy 2016-2017 with the aim of reducing car usage as a transport mode for journeys to/from UTS.

The plan indicated a commitment to improving cycling facilities to attract students and staff to cycle to the site and pedestrianisation of Jones Street to encourage people to walk to UTS. These features are in-line with City of Sydney's Broadway Link which aims to increase pedestrian amenity and cyclist safety in the Darlington, Chippendale and Ultimo areas through the provision of parks, green spaces and car-free boulevards.

2.5.4 UTS City Campus Masterplan Cyclists Facility Strategy

As part of the UTS City Campus Masterplan 2020, UTS developed a bicycle parking strategy for staff and students. The 'Cyclist Facility Strategy' was prepared by Halcrow in September 2011.

The strategy determined the future bicycle parking requirements of the Campus based on Council parking rates as stipulated in the Development Control Plan and the future on-site population of the Campus.

Surveys of the existing Campus population were carried out and indicated that approximately 40 per cent of the Campus EFTSL was on-site at any one time. It was assumed that staff population on site would also be equivalent to 40% and would be consistent for students and staff in future years.

The results of study determined that 1,008 bicycle parking spaces would be required for the whole City Campus which includes 890 spaces for students and 118 spaces for staff.

3 Existing Conditions

3.1 Road Network

3.1.1 Thomas Street

Thomas Street is a local road and in the vicinity of the site is aligned in an east-west direction. It is a 12.8m wide, two-way road configured with one lane in each direction, set within a 20m wide road reserve (approx.). Kerbside parking is permitted on both sides of Thomas Street subject to time restrictions. The speed limit of Thomas Street is 40km/h.

3.1.2 Jones Street

Jones Street is a local road and in the vicinity of the site aligned in a north-south direction. It is a no through road with its connection to Broadway closed. It is a 12.8m wide, two-way road configured with one lane in each direction, set within a 21m wide road reserve (approx.). Typically, kerbside parking is permitted on both sides of Jones Street subject to time restrictions, however, currently Jones Street is closed to the public and is being used as a Works Zone for the construction of UTS Building 2. As part of the construction works, Jones Street has been temporarily given restricted vehicular access from Broadway for construction vehicles outside of the road network peak periods.

3.1.3 Harris Street

Harris Street is a classified State Road (MR170) and in the vicinity of the site is aligned in a north-south direction. It is configured as two-way north of Thomas Street and one-way southbound south of Thomas Street with five lanes of traffic. Near the site, kerbside parking is not permitted with No Stopping restrictions and clearway restrictions from 6:00am-10:00 and 3:00pm-7:00pm Monday to Friday. The speed limit is posted as 50km/h.

3.1.4 Wattle Street

Wattle Street is a classified State Road (MR594) and in the vicinity of the site is aligned in a north-south direction. It is a one-way northbound road configured with a four-lane, 14m wide carriageway, set within a 24m wide road reserve (approx.). North of Thomas Street, kerbside parking is permitted on both sides of Wattle Street, subject to clearway and time restrictions. Wattle Street carries approximately 24,100 vehicles per day[2]. The speed limit is posted as 50km/h.

[2] *Based on Roads and Maritime Services (RMS) 2009 Annual Average Daily Traffic Data (AADT)*

3.1.5 Broadway

Broadway is a State Road (HW5) in the vicinity of the site and is aligned in an east-west direction. It is a two-way road configured with four lanes in each direction (including one bus lane in each direction) and functions as one of the main routes for traffic into and out of the Sydney CBD. Broadway carries approximately 36,000 vehicles per day[3].

3.2 Public Transport

The site is well serviced by high frequency public transport with Central Station Transport Interchange, a key transport hub in Sydney located 500m east of the site.

3.2.1 Bus Network

The subject site is located in close proximity to several key bus corridors including Broadway along the southern boundary of Building 1 and 2. Central Transport Interchange features five main bus hubs at Railway Square (200m east of the site), George Street, Eddy Avenue and Chalmers Street which serve destinations across the Sydney Metropolitan Area including Sydney's south, eastern suburbs, inner-west, northern beaches and north-west.

The nearest bus stop to the site is located immediately in front of Building 1 on Broadway. This stop is served by 18 services within the Sydney Buses network and is a major inbound stop in the area. Corresponding outbound bus services from UTS is available from Railway Square, which is approximately 200m to the east of Building 1.

The Sydney bus network continues to grow with the number of available bus services and routes gradually increasing as the demand for public transport grows. Since the approved UTS Concept Plan in 2009, a number of new bus routes and services have been introduced and existing bus routes have been amended. This includes the introduction of several Metrobus services including the M30 between Mosman and Sydenham which serves the UTS site.

A comparison on bus frequencies reported in the 2009 Concept Plan and current bus frequencies of bus stop on Broadway, nearest to the UTS site, is summarised in Table 3.1.

Table 3.1: Bus Frequency Comparison of Bus Stops on Broadway

Period	Inbound	Outbound	Total
AM Peak (8:00am-9:00am)			
2008 Broadway	116	71	187
2018 Broadway	130	78	208

[3] *TCS 416 Traffic Count Data 02 August 2018*

PM Peak (5:00pm-6:00pm)			
2008 Broadway	64	99	163
2018 Broadway	71	101	172

Source: 2008 information from Halcrow (2009), 2018 information from www.transportnsw.info, accessed August 2018

3.2.2 Rail Network

Central Railway Station Central serves as the key rail hub in Sydney for CityRail services to destinations across the Sydney Metropolitan Area, the Illawarra, Blue Mountains and Central Coast. Central Station is also the hub for interstate rail services in Sydney. Central Station is also the main terminus for the Central to Lilyfield Light Rail Network.

Since the approved Concept Plan in 2009, the rail network has expanded with the South West rail link recently opened for service, and the North West Rail Link is currently under construction. The expansions provide a wider reach for public transport availability in wider Sydney.

Table 3.2 summarises the frequency of rail services to and from Central Station.

Table 3.2: Frequency of Rail Services

	AM Peak		PM Peak	
Rail Line	To City	From City	To City	From City
T1 North Shore Line	19	20	20	16
T1 Northern Line	9	6	6	7
T1 Western Line	25	21	8	23
T2 Inner West and Leppington Line	18	16	10	16
T3 Bankstown Line	14	10	6	12
T4 Eastern Suburbs & Illawarra Line	18	18	16	18
T8 Airport & South Line	14	8	9	14
Blue Mountains Line	4	1	2	4
Central Coast & Newcastle Line	8	2	2	7
South Coast Line	4	1	3	4
Southern Highlands Line	4	1	1	2

Source: www.transportnsw.info, accessed August 2018

3.2.3 Future Public Transport Network

Access to the Sydney CBD will be enhanced through future public transport systems including the Sydney Metro and Sydney Light Rail. These are expected to increase capacity for patrons accessing the Sydney CBD as well as improve travel times as a result of increased services during peak periods. Central Station which is currently highly-utilised by people accessing UTS, will enjoy access to such services.

3.2.3.1 Sydney Metro

The New South Wales (NSW) Government is implementing Sydney's Rail Future, a plan to transform and modernise Sydney's rail network so that it can grow with the city's population and meet the needs of customers in the future (Transport for NSW, 2012). Sydney Metro is a new standalone rail network identified in Sydney's Rail Future.

Sydney Metro is Australia's biggest public transport project, consisting of Sydney Metro Northwest (Stage 1), which is scheduled for completion in 2019 and Sydney Metro City & Southwest (Stage 2), which is scheduled for completion in 2024.

Sydney Metro West is expected to be operational in the late 2020s.

Stage 2 of Sydney Metro includes the construction and operation of a new metro rail line from Chatswood, under Sydney Harbour through Sydney's CBD to Sydenham and on to Bankstown through the conversion of the existing line to metro standards.

The proposed Sydney Metro network map is shown in Figure 3.1.

Figure 3.1: Sydney Metro Network Map

Source: Sydneymetro.info, accessed August 2018

The project also involves the delivery of eight new metro stations, including at Central. Once completed, Sydney Metro will have the ultimate capacity for 30 trains an hour (one every two minutes) through the CBD in each direction - a level of service never seen before in Sydney.

3.2.3.2 CBD and South East Light Rail

The CBD and South East Light Rail will function as a new light rail network featuring 19 stops between Circular Quay, Kingsford and Randwick via Central Station on a 12km route.

Key features of the new light rail route include reliable and high-capacity services available every four minutes during peak periods and additional services between Central and the Moore Park and Alison Road stops during special events.

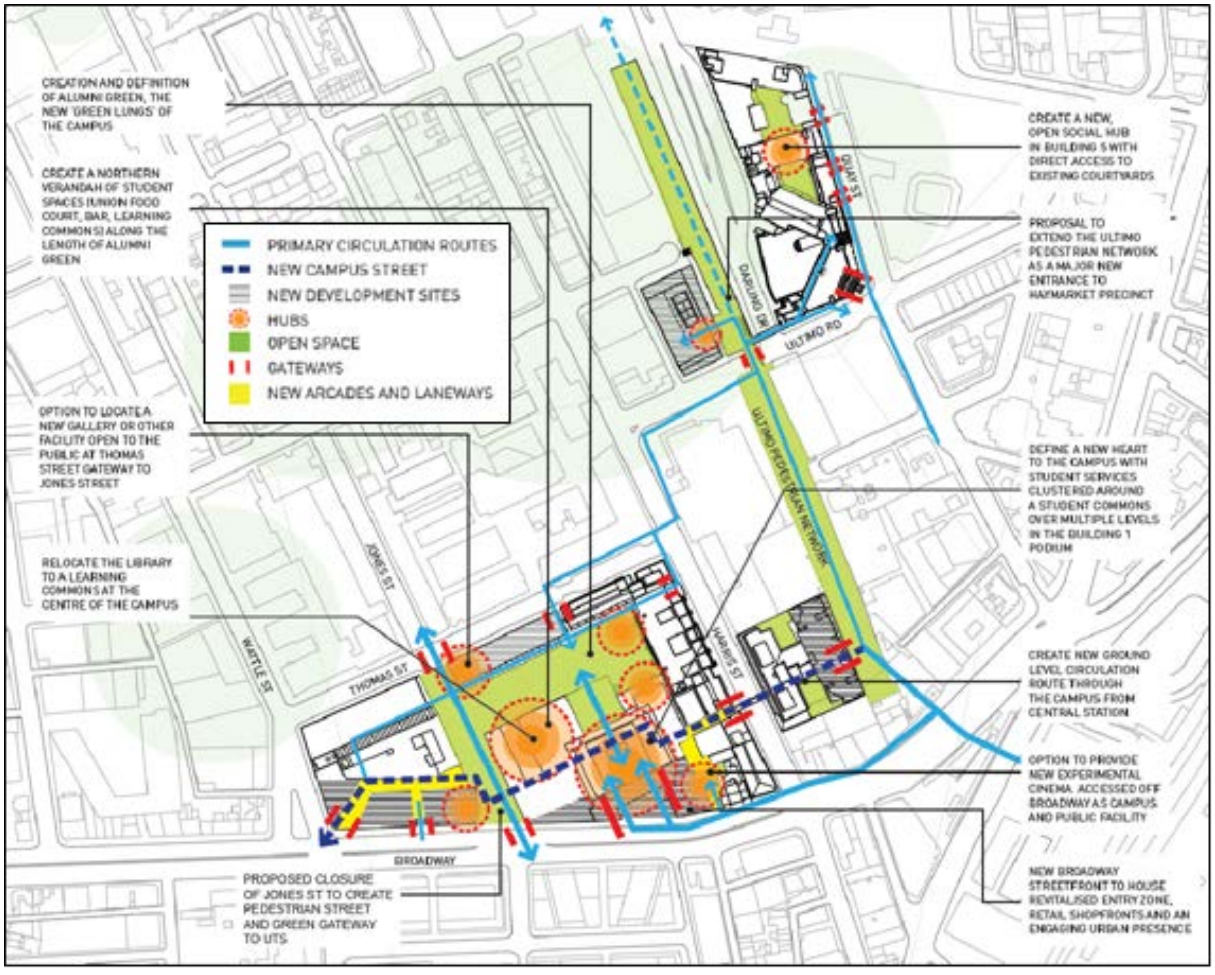
3.3 Pedestrian Infrastructure

The pedestrian network surrounding the site is well established with pedestrian paths located on both sides of the surrounding roads.

Safe crossing points in vicinity of the site include the following pedestrian crossings:

- two pedestrian crossings at the frontage of Building 2 of the Chippendale Way/ Broadway intersection,
- all legs of the George Street/ Harris Street/ Regent Street intersection.
- Within the Campus, UTS has proposed and implemented several pedestrian links as part of the original City Campus Masterplan to enable the connection of key hubs across its City Campus. The Masterplan included the plan to close Jones Street to vehicular traffic from Broadway, which has been implemented. The pedestrian network that was proposed as part of the original City Campus Masterplan is shown in Figure 3.2.

Figure 3.2: UTS Campus Hubs and Pedestrian Network



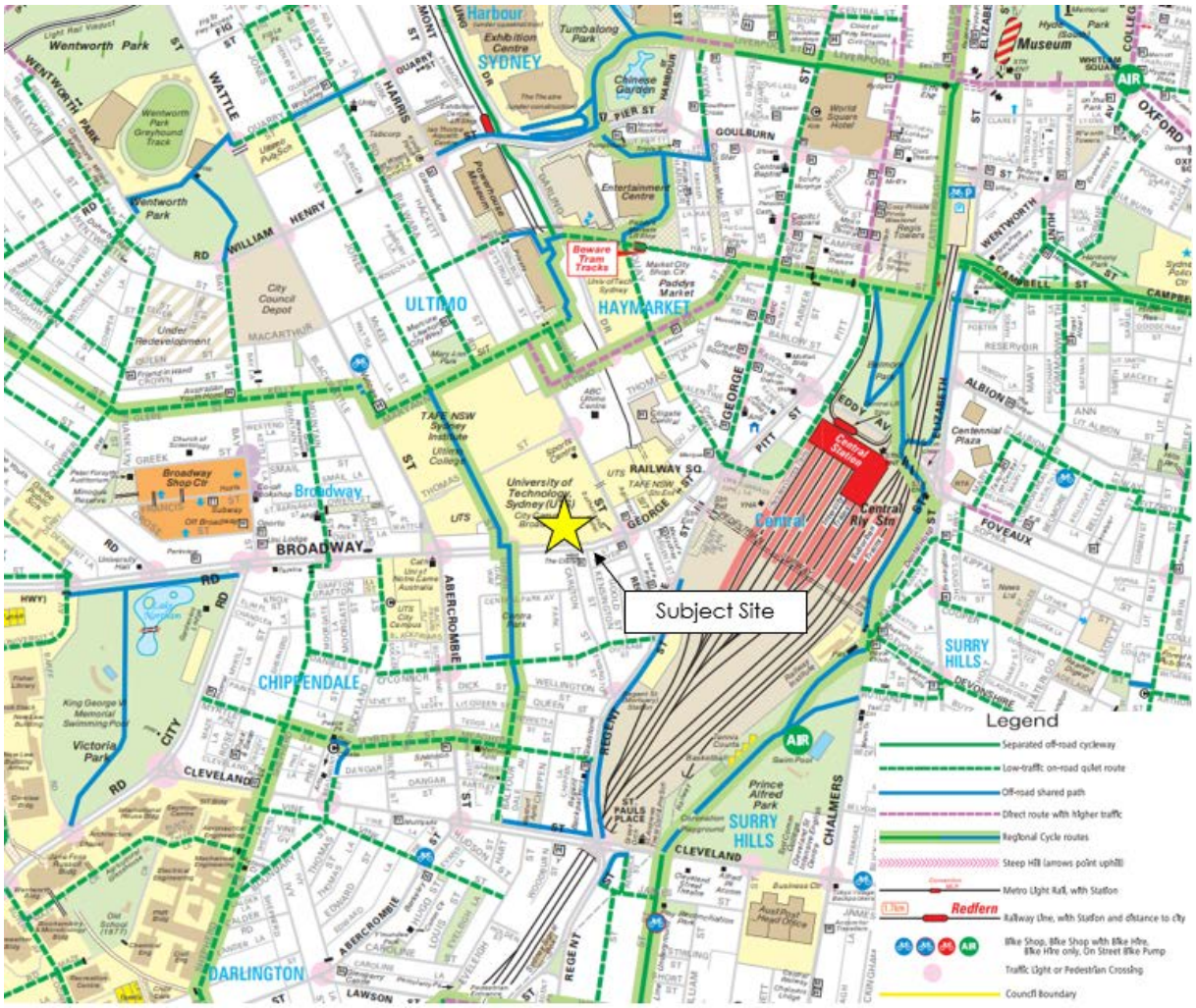
Source: UTS City Campus Masterplan, 2008

3.4 Cycle Infrastructure

The site is located within close proximity to both on and off-road cycling facilities as indicated in an extract from the City of Sydney's cycle network map shown in Figure 2.4. The nearest dedicated cycle facility surrounding the site is the 4m wide shared path along Jones Street between Thomas Street and Mary Ann Street, which is identified as a part of a 'Regional

Cycle Route' as defined in Transport for NSW's *Sydney's Cycling Future*. Jones Street is also part of the newly completed CoS initiative, the Broadway Link, which provides walkers and cyclists a safe corridor between Darlington and Ultimo.

Figure 3.3: Cycle Network



Source: Sydney Cycleways, accessed August 2018

Bicycle parking facilities are provided throughout the UTS City Campus with the nearest facilities to the site located at:

- Building 10 car park (entrance located at the corner of Thomas Street and Jones Street)
- Multi-Purpose Sports Hall.

The Building 10 car park currently accommodates 288 bicycle parking spaces, 260 lockers, 14 toilets and 28 male and female showers. These bicycle parking spaces are an initiative of the original Concept Plan to provide staged increases in bicycle parking provision at UTS.

Figure 3.4: Building 10 Bicycle Parking

Source: GTA Consultants, 2017

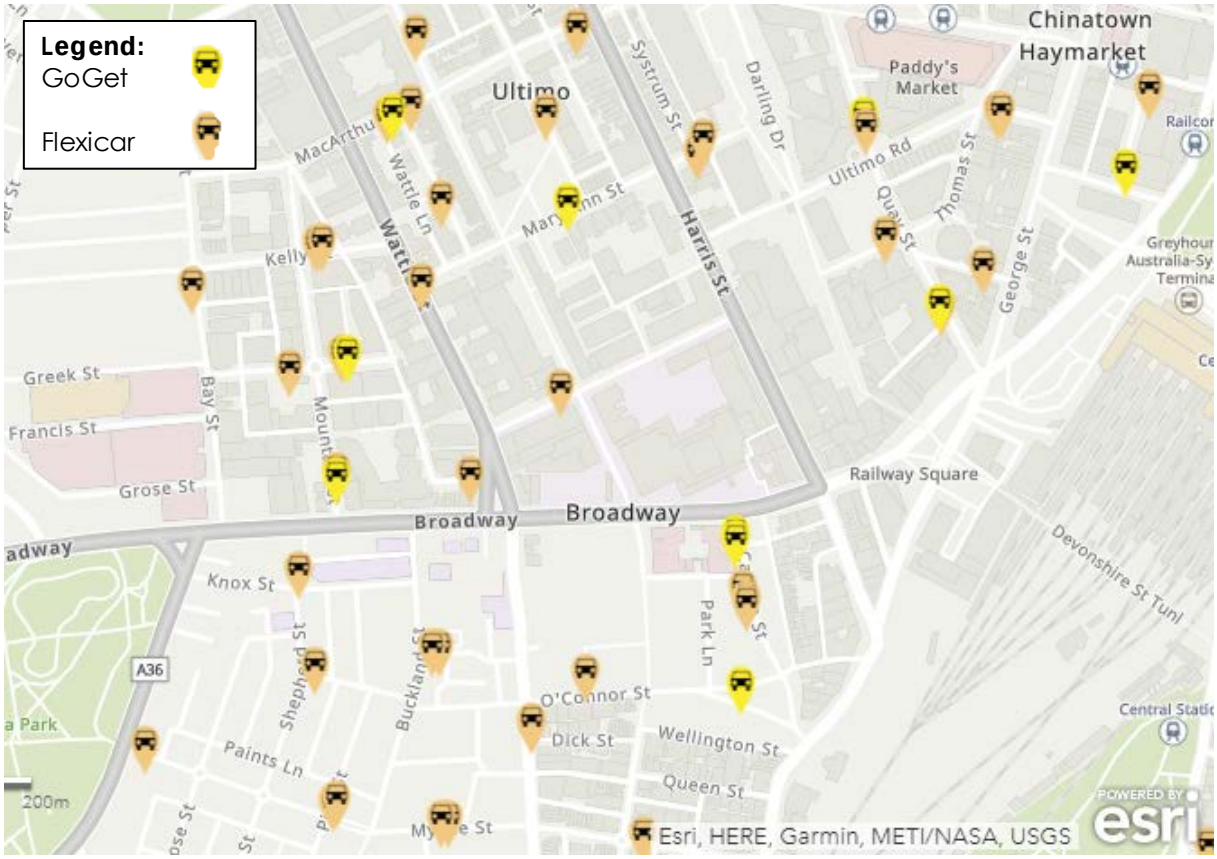
3.5 Car Sharing Pods

Car sharing is a flexible, cost effective alternative to car ownership and is a convenient and reliable way for residents to use a car when they need one. GoGet and Flexicar are car share companies operated in Australia with a number of vehicles positioned within the area.

Car share is a concept by which members join a car ownership club, choose a rate plan and pay an annual fee. The fees cover fuel, insurance, maintenance, and cleaning. The vehicles are mostly sedans, but also include SUVs, station wagons and vans. Each vehicle has a home location, referred to as a "pod", either in a parking lot or on a street, typically in a highly-populated urban neighbourhood. Members reserve a car by web, telephone and use a key card to access the vehicle.

The locations of car sharing pods in the vicinity of the site are shown in Figure 3.5.

Figure 3.5: Car Sharing Pods



Source: City of Sydney, accessed August 2018

3.6 Traffic Surveys

3.6.1 Vehicle Volumes

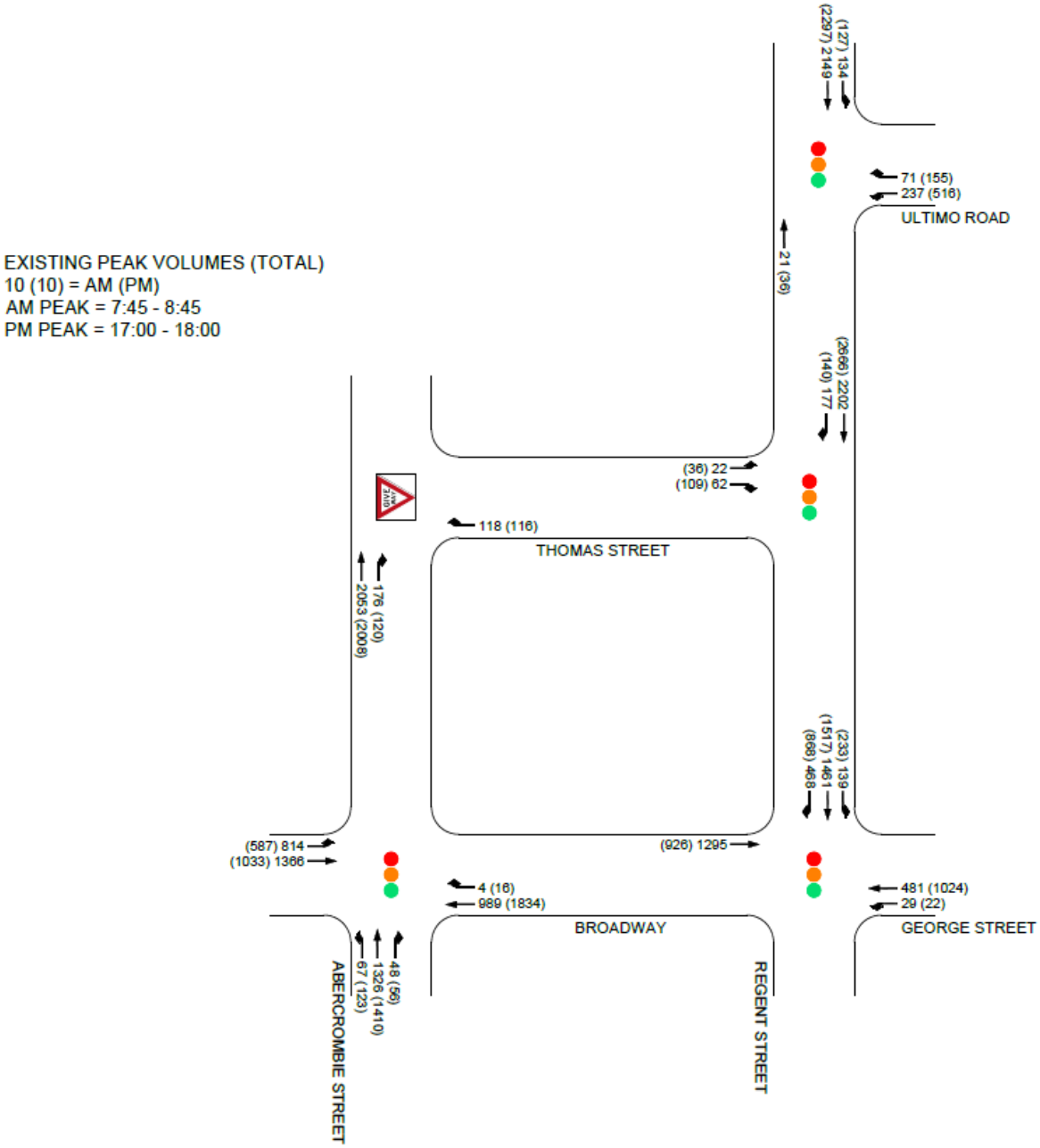
Intersections are typically the critical locations in the road network, due to the need for opposing movements to occupy the same space. To quantify existing intersection conditions, a program of peak period intersection turning movement surveys were commissioned by TTPP at the intersections of:

- Harris Street-Ultimo Road,
- Harris Street-Thomas Street,
- George Street-Broadway-Harris Street-Regent Street,
- Wattle Street-Broadway-Abercrombie Street, and
- Wattle Street-Thomas Street.

The surveys were conducted between 7:00am and 10:00am, and between 3:30pm and 6:30pm on Thursday 2 August 2018. The network peak hours have been revealed to be 7:45am to 8:45am and 5:00pm to 6:00pm.

The turning movement volumes for the AM and PM peak periods are shown in Figure 3.6 with detailed results presented in Appendix A.

Figure 3.6: Existing Traffic Volumes



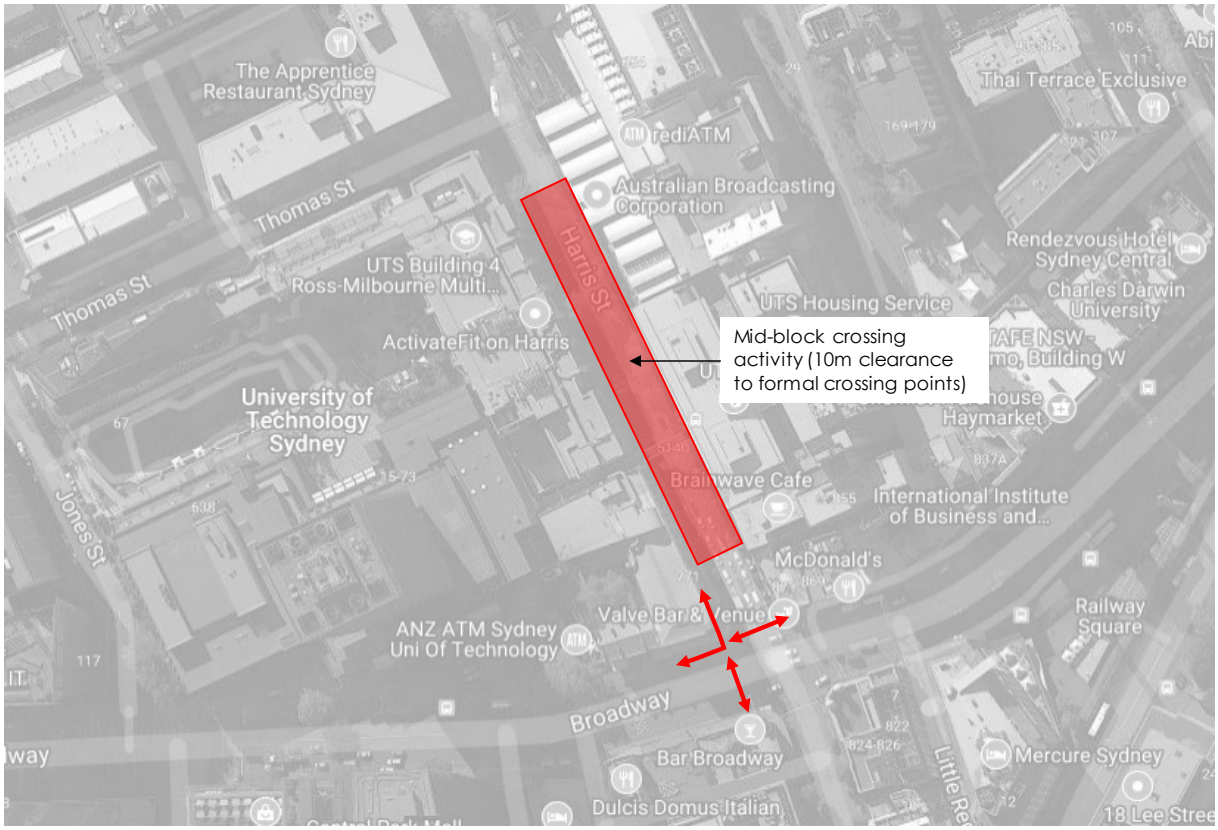
3.6.2 Pedestrian Volumes

Pedestrian movement counts were conducted between 7:00am and 5:00pm on Thursday 2 August 2018 at the following key locations to identify existing pedestrian volumes in the vicinity of the subject site:

- Informal mid-block crossing movements across Harris Street, between Thomas Street and Broadway.
- Signalised crossing at the northern leg of the Harris Street/ Broadway/ George Street/ Regent Street intersection.
- Signalised crossing at the western leg of the Harris Street/ Broadway/ George Street/ Regent Street intersection signalised crossing.
- Pedestrian movements around the north-western corner of Broadway and Harris Street (not crossing at the adjoining roads).

The movements included in the pedestrian survey is shown in Figure 3.7.

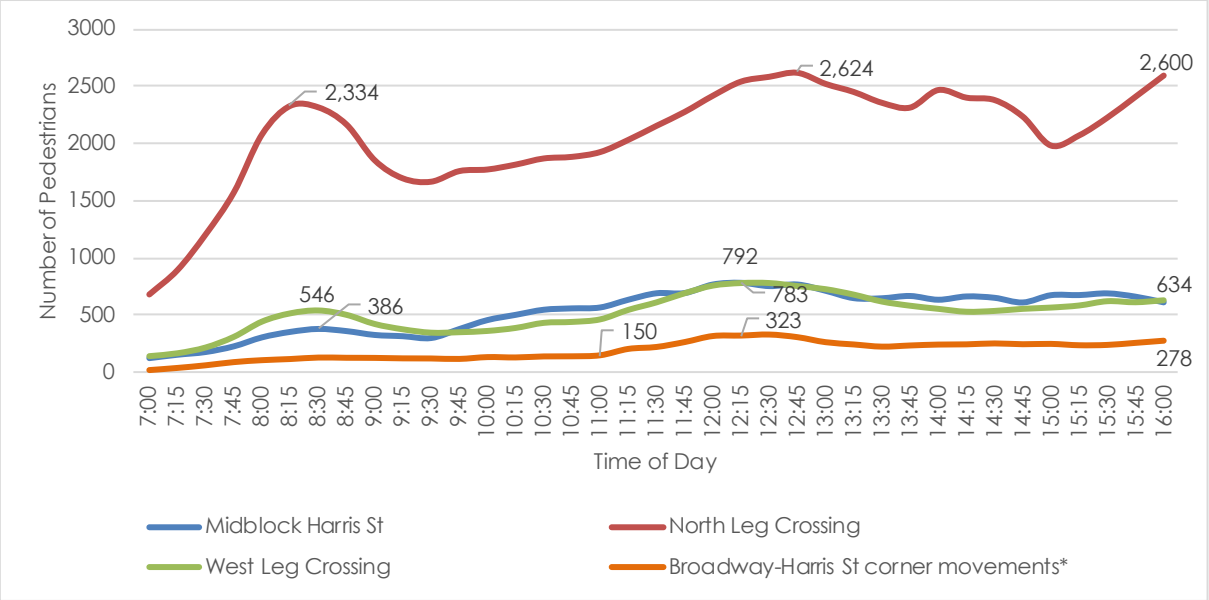
Figure 3.7: Pedestrian Survey Location



Basemap source: Google Maps Australia

The daily profile of surveyed pedestrian flows is summarised in Figure 3.8 with detailed results presented in Appendix A.

Figure 3.8: Existing Pedestrian Flows



The peak pedestrian volumes (pedestrians per hour) for each movement are as follows:

- Midblock Harris St AM: 643, PM: 792
- North Leg Crossing AM: 2,334, PM: 2,624
- West Leg Crossing AM: 551, PM: 783
- Broadway-Harris St corner AM: 206, PM: 332

Figure 3.8 indicates the pedestrian volumes are very high along Broadway at Harris Street. This suggests that the majority of people accessing UTS do so from the east, with the Central Station and Railway Parade interchanges being the major attraction.

3.7 On-street Parking Survey

A parking survey was conducted between 7:00am and 4:00pm Thursday 2 August 2018 to identify the inventory and capacity of on-street car parking spaces in the vicinity of the site. The survey was undertaken at the following locations:

- Mary Ann Street between Wattle Street and Harris Street,
- Harris Street between Mary Ann Street and Thomas Street,
- Thomas Street,
- Wattle Street between Mary Ann Street and Broadway, and
- Regent Street.

The on-street parking capacity during the survey period is shown in Figure 3.9.

Figure 3.9: On-street Car Parking Capacity (Excluding Regent Street)

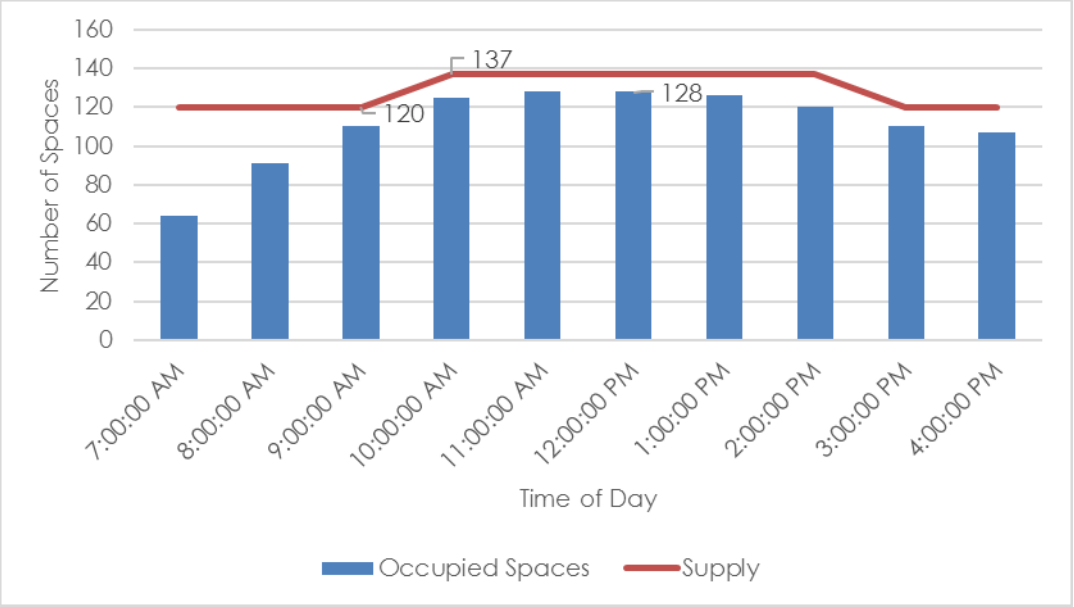


Figure 3.9 indicates 137 car parking spaces are available at the surveyed locations. This is reduced to 120 spaces during clearways between 6:00am to 10:00am and 3:00pm to 7:00pm Monday to Friday on the west side of Wattle Street.

The peak parking demand occupied between 11:00am and 1:00pm with 128 spaces of the spaces occupied. During this period, nine car parking spaces remained vacant.

The on-street parking capacity for Regent Street during the survey period is shown in Figure 3.6.

Figure 3.10: On-Street Parking Capacity (Regent Street Only)

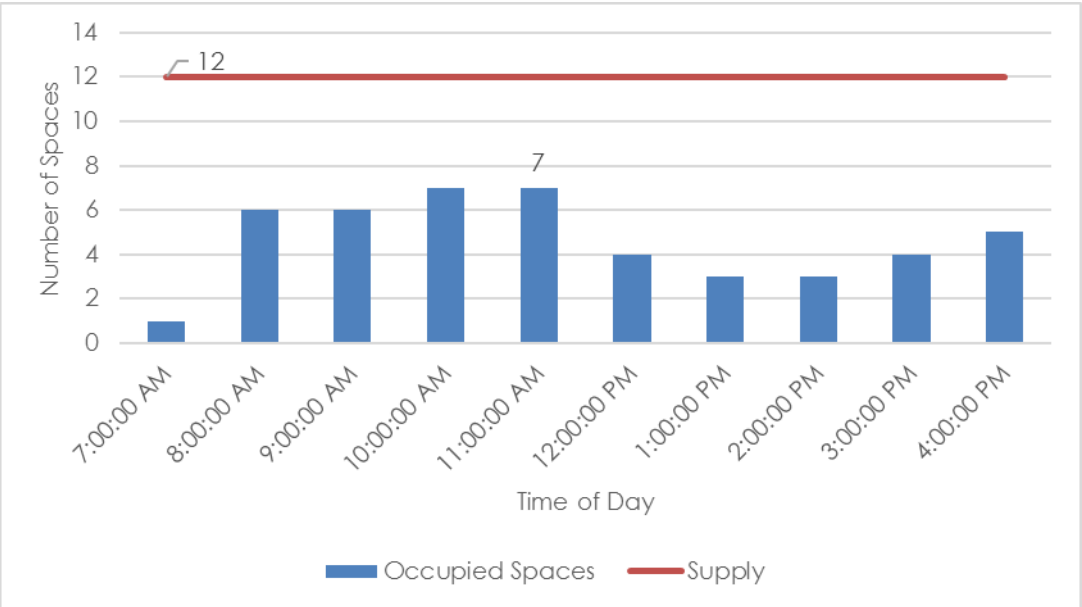


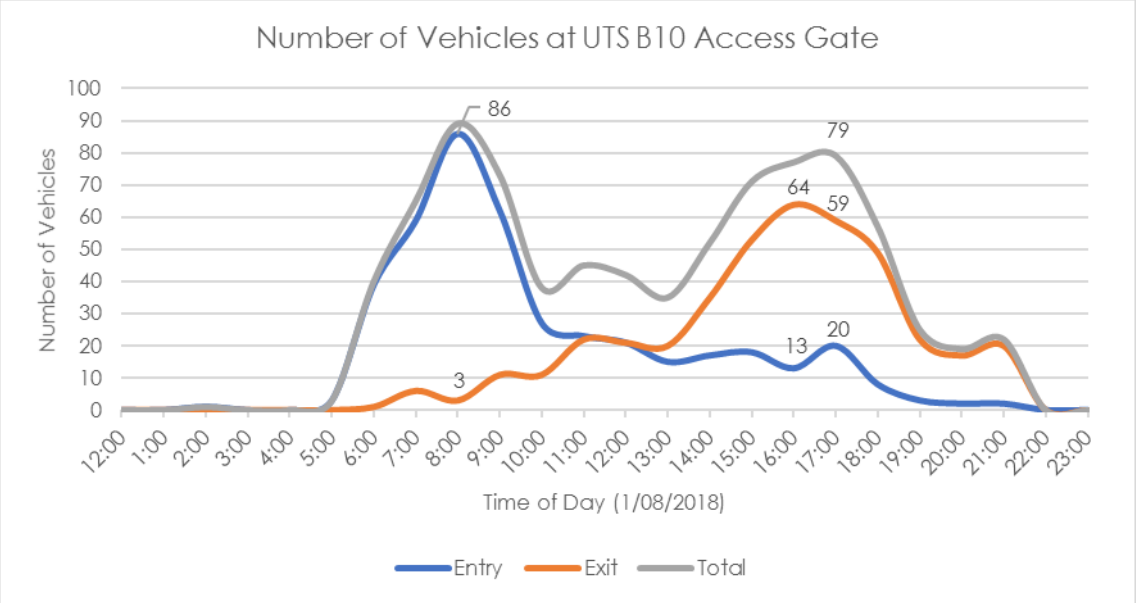
Figure 3.10 indicates 12 car parking spaces are available at the surveyed location. This parking area includes 'no parking coaches excepted' between 3:00pm-7:00pm Monday-Friday and loading zones between 7:00am-3:00pm Monday-Friday and 7:00am-10:00am Saturday.

3.7.1 UTS Building 10 Car Park Boom Gate Data

Boom gate data from Wednesday 1 August 2018 was obtained to determine the number of entry and exit movements to the existing Building 10 car park to give a profile of cars arriving at the campus.

The boom gate data is summarised in Figure 3.11.

Figure 3.11: UTS Building 10 Car Park Access Volumes



The data indicates a peak volume of 89 vehicles entering and exiting the car park between 8:00am and 9:00am and 79 vehicles per hour between 5:00pm and 6:00pm. The peak volumes occur during the road network peak period.

3.7.2 Loading Dock Surveys

To review the existing loading demand of the existing site, loading dock surveys were undertaken at two locations between the hours of 7:00am and 5:00pm:

- The Building 1 (B1), Level 2 basement loading dock accessed from Thomas Street. The B1 loading dock contains some 23 marked bays and two informal loading areas. The B1 loading is a general loading area used by a number of services within the main campus.

- Turner Lane loading area accessed from Harris Street. Turner Lane includes three formal loading bays and room for one informal parking space. It generally services the food court located in Level 3 of B1.

A summary of the cumulative loading demand of B1 loading dock is shown in Figure 3.12.

Figure 3.12: B1 Loading Dock Demand

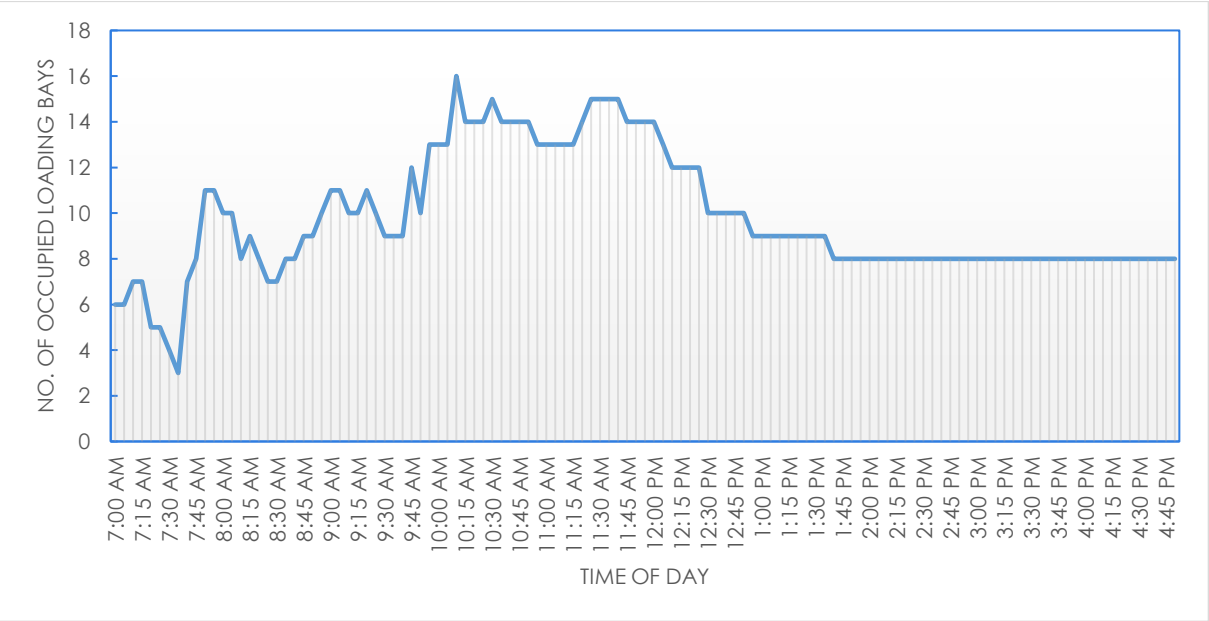


Figure 3.12 indicates the B1 loading dock has a peak demand of 16 vehicles at any one time however, only for a five-minute period at 10:10am. Otherwise, there is a peak demand of around 15 vehicles and an average demand of around 10 vehicles.

Approximately 20 per cent of the above parking activity is generated by construction contractors undertaking temporary works in Building 1.

Based on the above, during the peak occupancy the loading dock is approximately 50 per cent. However, it should be noted that typically, the B1 loading dock is also used by Building 2 which has been demolished for redevelopment and is currently under construction.

Turner Lane is recorded to have relatively low usage with five vehicles accessing the laneway over the span of the survey period and containing a peak demand of two vehicles which occurred over a five-minute period. However, it is noted that one retail tenancy in Building 3, fronting Harris Street (previously a café) is currently vacant and was anticipated to have undertaken loading from Turner Lane.

3.8 Existing Intersection Operation

The operating characteristics of the surveyed intersections have been assessed using SIDRA INTERSECTION 8, an analysis program which determines characteristics of intersection

operating conditions including the degree of saturation, average delays, and levels of service. The degree of saturation, or x-value, is the ratio of the arrival rate of vehicles to the capacity. The average delay, expressed in seconds per vehicle, is measured over all movements at signalised intersections, and over the movement with the highest average delay at roundabout and priority intersections. Average vehicle delay is the commonly used measure of intersection performance defined by RMS. Table 2.3 shows the criteria adopted by RMS for assessing the level of service.

Table 3.3: Intersection Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
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	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
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 3.4 presents a summary of the existing peak hour operating characteristics of the surveyed intersections with detailed SIDRA outputs contained in Appendix B.

Table 3.4: Existing Intersection Operation

Intersection	Approach	AM Peak			PM Peak		
		Average Delay	LoS	95th Percentile Queue	Average Delay	LoS	95th Percentile Queue
Harris St-Ultimo Rd	North	1	A	34	8	A	158
	East	53	D	48	49	D	114
	South	11	A	8	19	B	16
	Overall	**7**	**A**	**48**	**17**	**B**	**158**
Harris St-Thomas St	North	1	A	17	3	A	87
	West	52	D	36	50	D	58
	Overall	**3**	**A**	**36**	**5**	**A**	**87**
Broadway-George St-Harris St-Regent St	North	32	C	183	28	B	212
	East	20	B	39	25	B	75
	West	21	B	90	28	B	82
	Overall	**26**	**B**	**183**	**28**	**B**	**212**
Broadway-Wattle St-Abercrombie St	East	13	A	68	19	B	222
	West	31	C	424	31	C	222
	South	41	C	146	36	C	149

	Overall	30	C	424	28	B	222
Wattle St-Thomas St	East	52	D	31	37	C	23
	South	5	A	0	5	A	0

Based on Table 3.4, it is evident that the intersections currently operate satisfactorily with acceptable delays, notwithstanding notable queueing on some approaches in particular during the afternoon peak period. A review of the Harris Street intersections indicate that queues are long in the afternoon peak period along Harris Street, but minimal delays are experienced with Harris Street traffic given priority in the road network. Ultimately the side streets to Harris Street experience notably delays with Thomas Street and Ultimo Road both nearing capacity with a LoS D.

3.9 Footpath Capacity Assessment

An assessment of footpath capacity and performance has been undertaken along Harris Street and Broadway fronting the site.

3.9.1 Assessment Methodology

In order to determine whether capacity is available for existing pedestrian demands while maintaining safety and convenience for pedestrians in the vicinity of the proposed development, TPPP has undertaken the footpath capacity assessment through Fruin Theory[4] to obtain the level of service (LOS) of the area and evaluation of the pedestrian capacity. This approach is utilised in the '*Transit Capacity and Quality of Service Manual – 2nd Edition – part 7*[5]'.

Assessment of pedestrian LOS involves determining the pedestrian flow rate which is measured in pedestrians per metre per minute and represents the number of pedestrians that pass a point in a specific timeframe. Although there is no guideline for the specific minimum criteria to which footpaths are designed against, LOS C is generally satisfactory for footpaths in popular pedestrian areas.

The criteria of assessment in Fruin Theory however has been updated based on the latest guidance as determined by 'Transport for London'. Figure 3.13 and Table 3.5 provide a quantitative representation for assessing the footpath capacity level of service and the associated level of service criteria respectively.

[4] *Fruin, John J. 1987 Pedestrian Planning and Design – Revised Edition*
[5] *Transportation Research Board 2003 Transit Capacity and Quality of Service Manual – 2nd Edition – Part 7*

Figure 3.13: Footpath Capacity Criteria

Source: TFL, 2010 as reproduced in Pantzar. M, 2012, Pedestrian Level of Service and Trip Generation, University of Melbourne, Australia.

Table 3.5: Footpath Capacity Criteria

Level of Service (LoS)	Flow rate (ped/min/m)	
	From	To
A	0	8
B	9	17
C	18	26
D	27	35
E	36	36+

Source: Transport for London

Based on the footpath capacity criteria portrayed in Table 3.5, the Harris Street and Broadway footpaths at the north-west corner of the intersection of Harris Street, Broadway and George Street has been undertaken. The results are summarised in Table 3.6.

Table 3.6: Existing Footpath Capacity

Site	Harris Street	Broadway path
Peak pedestrians/ 15min	376	767
Peak 15min period	13:00-13:15	14:45-15:00
Pedestrians /min	25	51
Footpath Width*	2	3
Effective Footpath Width*	1.5	2.5
Pedestrians/minute/metre	17	20
LOS	B	C

**Footpath widths are an approximation determined using aerial photography. Effective width is the available space between physical obstructions on the footway*

Table 3.6 indicates that the footpaths at the north-west corner of Harris Street and Broadway are currently operating between a LOS B and LOS C during peak pedestrian volume activity.

This indicates that the footpaths have available capacity though pedestrians would experience some conflict from opposing movements. In addition, visual inspection of the site indicates that these footpaths are congested due to pedestrians stopping at intersections where they have to congregate therefore affecting pedestrian flow. Noting that the Harris Street-Broadway corner includes a number of conflicting movements due to pedestrians travelling in various directions from the intersection crossings, the actual capacity of the footpath is anticipated to be lower than is calculated above. Indeed, site observations indicate pedestrian congestion at the corner of Broadway and Harris Street.

3.10 Travel Mode Share

2016 census data shows the existing Journey to Work patterns of people working in the areas in and around the UTS Campus. Destination Zone 113341158 contains the Broadway precinct of the UTS Campus and also the TAFE located adjacent to UTS as shown in Figure 2.7. The travel mode split of the Destination Zone 113341158 is summarised in Table 3.7.

Figure 3.14: Destination Zone 113341158

Source: Australian Bureau of Statistics, accessed August 2018

Table 3.7: Journey to Work Comparison

Mode	2011 Mode Share	2016 Mode Share
Vehicle Driver	23%	15%
Vehicle Passenger	3%	2%
Train	42%	50%
Bus	18%	18%
Walked	8%	9%

Other[6]	4%	6%
Mode not stated	2%	1%
Total	100%	100%

Data Source: 2011 data from GTA Consultants 'UTS Broadway Precinct-UTS Central Transport Impact Assessment, 2016 data from Australian Bureau of Statistics, accessed August 2018

The data presented in Table 3.7 relates to employees working in the Destination Zone 113341158. Due to the nature of the data (i.e. journey to work data from the census), it is unlikely to include the travel behaviour of students.

UTS had previously conducted travel behaviour surveys of their staff and students. This data was presented in the UTS' Sustainable Transport Plan 2016-2017.

The data presented in the travel plan provides separated modal split for staff and students at UTS and is summarised in Table 3.8.

Table 3.8: UTS Student and Staff Mode Share

Mode	Staff	Students
Car	19%	7%
Train	43%	52%
Bus	2%	23.5%
Walk	10%	11%
Cycle	6%	6%
Other	1%	0.5%
Total	100%	100%

Source: UTS Sustainable Transport Plan 2016-2017

The modal share split for staff as presented in the travel plan is comparable with the Census data in Table 2.3, where 17% of people drive or are vehicle passengers, 50% catch a train, 18% catch a bus, compared to 19% of drivers, 43% of train and 22% of bus users.

The modal share for students suggests that there is a far greater percentage of students travelling by non-car modes of transport with only 7% driving to the university, 52% catching a train, and 24% catching a bus.

[6] *Includes ferry, taxi, truck, motorbike/scooter/ bicycle, did not go to work modes*

4 Development Proposal

4.1 Concept Development

The proposed redevelopment of the Bon Marche and Science Precinct aims to improve the pedestrian connectivity and accessibility of the UTS City Campus and address issues relating to parking, traffic and pedestrian movements.

On this basis, the following opportunities are being considered for the redevelopment:

- Formal set-down/pick up parking restrictions on Thomas Street to address existing issues relating to drivers stopping on the carriageway to drop-off passengers to UTS
- New basement staff car park with access via the existing driveway located on Thomas Street.
- Reaccommodate Turner Lane loading activities to the Building 1 loading dock and remove Turner Lane.
- Widening of the pedestrian crossing at the Harris Street approach of the Harris Street, Broadway, George Street and Regent Street intersection to address existing concerns relating to pedestrian overflowing off the crossing.
- A new mid-block pedestrian crossing along Harris Street between Thomas Street and Broadway to accommodate existing informal pedestrian crossing activity and anticipated future growth in pedestrian volumes. As discussed in Section 3.6.1, up to 323 pedestrians per hour are crossing informally along Harris Street.
- Widening of the footpath on Harris Street along the frontage of the UTS site to improve the pedestrian accessibility and amenity of the area. Implementation of this opportunity would however involve narrowing Harris Street and thereby losing one lane of traffic. Harris Street on approach to Broadway currently includes five lanes of traffic including one shared left turn and through lane, two through only lanes, one shared right turn and through lane and one right only lane.

TTPP have assessed the above opportunities and their impact to the road network and on-site and on-street parking in Section 5 and Section 6.

4.2 Campus Population

The original Concept Plan had planned facilities and services to accommodate an expectant student load of 15,000 EFTSL (Equivalent Full Time Student Load) at the UTS City Campus by 2015.

However, student growth has well exceeded this figure and modifications to the concept plan to date have looked to accommodate this growth. As of 2017, the student load at the City Campus has been noted as 36,422 EFTSL including 25,467 EFTSL at the Broadway

Campus, which is approximately 60 per cent greater than expected for the original concept plan.

On this basis, UTS are currently developing projections on population growth and have estimated a student load of 32,358 EFTSL at Broadway by the 2028. The indicative student loading projects are summarised in Table 4.1.

Table 4.1: Campus Population Projections (under development)

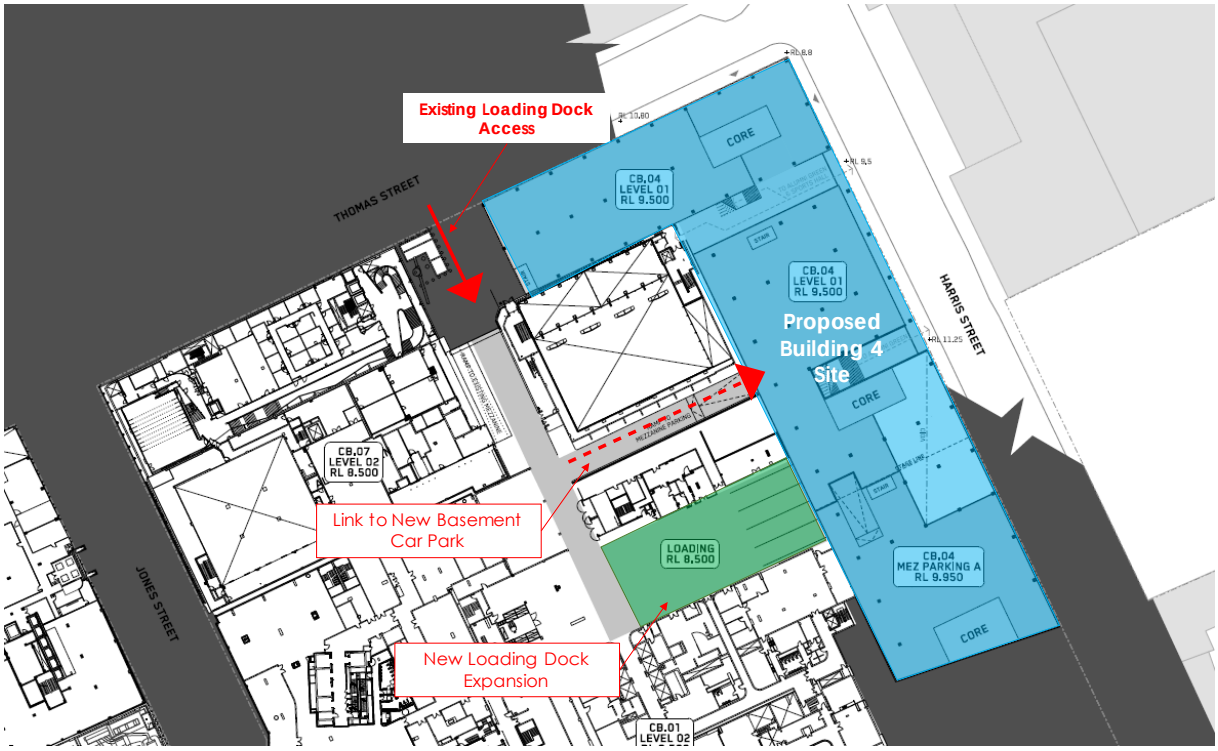
Year	Broadway	Haymarket	Total
2017	25,467	10,955	36,422
2020	30,505	9,648	40,153
2028	32,358	10,033	42,391

The anticipated growth in student population and subsequent increase to staff numbers necessitates and justifies the proposed increase to the site's floor area, provide more parking for staff and improving pedestrian connections and amenity around and within the site.

4.3 Proposed Vehicle Access and Parking

The development proposes to provide a new basement car park containing up to 150 car spaces. Access to the car park would be via the existing driveway on Thomas Street which currently provides access to the B1 loading dock and existing 50 space staff car park in the basement. A new vehicular link will be created from the existing basement loading dock to the proposed car park under Building 4 (the development site). An indicative layout of the proposal is shown in Figure 4.1.

Figure 4.1: Car Park Access



Basemap source: BVN

4.4 Loading Arrangements

As part of the proposal a portion of the B1 loading dock will be reconfigured. While the proposed layout is indicative, it is anticipated that eight small loading bays would be converted to four larger bays and would seek to accommodate existing loading activities from B1, Building 2 which is currently under construction and Turner Lane as well as loading activity from the development site i.e. redeveloped Bon Marche and Science precinct.

It is understood that currently waste collection and deliveries to the Building 1 Student Bar, Level 3 food court, the Loft bar and Building 3 are made via Turner Lane. Survey data indicates that Turner Lane generates around four vehicles per day.

With an occupancy of 50 per cent of the existing loading dock, Turner Lane loading demand is anticipated to be easily accommodated within the B1 loading dock. However, it should be noted that the typical loading demand generated by Building 2 before its demolition or the loading demand is not accounted for in the survey data for the Building 1 loading dock. In addition, the loading requirements of the currently vacant retail tenancy on Harris Street is not accounted for on Turner Lane.

Notwithstanding this, the small café is not anticipated to generate a substantial demand for loading through the week. Building 2, while it has been demolished, the student and staff population for the UTS Campus has not reduced, therefore it is gathered that the loading

requirements for the UTS Campus have not been likely to have reduced to any great extent as a result of the redevelopment of Building 2.

In addition, the future Building 2 redevelopment includes a small expansion of the B1 loading dock to the west which will add an additional five loading bays. This would likely accommodate the loading requirements of the new Building 2 food court. However, this is understood to replace the existing Level 3 food court in Building 1 which is serviced from Turner Lane and therefore a portion of the existing Turner Lane loading demand is already approved to be accommodated within the Building 1 loading dock.

The remaining servicing demand as generated by the Loft Bar, Student Bar, Building 3 and the currently vacant retail tenancy is anticipated to increase the demand marginally.

Based on the above, the Building 1 loading dock is believed to be appropriate to accommodate the loading requirements of the future site.

5 Traffic and Transport Assessment

5.1 Traffic Generation

The proposed development includes the provision of a new basement car park containing up to 150 car spaces for use by staff members of UTS. To determine the vehicle generating potential of the proposed car park, boom gate data from the existing car park located at UTS Building 10 has been obtained.

The existing Building 10 car park contains 328 car parking spaces. Boom gate data indicates the car park generates a peak generation of 89 trips per hour (86 in/ 3 out) and 79 trips per hour (20 in/ 59 out) in the morning and afternoon peak periods respectively. On this basis, the car park generates the following trip generation rates:

- Morning peak: 0.27 trips per space, and
- Afternoon peak: 0.24 trips per space.

The proposed development car park is anticipated to generate a similar level of traffic to Building 10. Based on the above rates, it is anticipated that up to a 150-space car park would generate up to 41 trips per hour in the morning peak and 36 trips per hour in the afternoon peak.

The estimated traffic to be generated by the proposed development is minor resulting in approximately one to two vehicles per minute on adjacent roads which currently carry over 2,000 vehicles per hour. On this basis, the proposed development traffic is anticipated to have a negligible impact on the road network. Notwithstanding this, SIDRA modelling has been undertaken with consideration for the additional 36 to 41 trips per hour, which has been distributed into the road network based on existing traffic flow distributions.

5.2 Traffic Impact

SIDRA modelling has been undertaken to not only assess the impact of the proposed development traffic but also to assess the proposed changes to the road network to improve pedestrian amenity as discussed in Section 4. The modelled scenarios involve an assessment of each proposed pedestrian amenity improvement and an assessment of the combined impact of all proposed changes. The assessment focuses on the critical afternoon peak period. The modelled scenarios are as follows.

- **Post Development**

  Existing conditions plus development traffic.

- **Post Development plus Harris Street Lane Reduction to accommodate wider footpath**

  Post development conditions plus the proposed narrowing of Harris Street to accommodate a wider pedestrian footpath along the UTS frontage.

- **Post Development plus Midblock Pedestrian Crossing**

  Post development conditions plus a new mid-block signalised pedestrian crossing along Harris Street between Thomas Street and Broadway.

- **Post Development plus Widened Intersection Crossing**

  Post development conditions plus widening of the pedestrian crossing on Harris Street at its intersection with Broadway which would subsequently result in setting back the stop line

- **Post Development plus All Pedestrian Amenity Improvements**

  Post development conditions plus all of the above alterations to the road network including narrowing of Harris Street, midblock pedestrian crossing on Harris Street, and widening of the intersection crossing.

The SIDRA modelling results are presented in the following with detailed SIDRA outputs contained in Appendix B.

5.2.1 Post Development

Table 5.1 presents a summary of post development operating conditions of the studied intersections with the addition of 36 vehicle trips per hour.

Table 5.1: Post Development Intersection Operation

Intersection	PM Peak		
	Average Delay	LoS	95th Percentile Queue
Harris St-Ultimo Rd	22	B	204
Harris St-Thomas St	6	A	93
Broadway-George St-Harris St-Regent St	28	B	215
Broadway-Wattle St-Abercrombie St	28	B	228
Wattle St-Thomas St	43	D	29

Based on the above, the addition of development traffic on to the road network would have a negligible impact on the road network with delays and queues generally consistent with those of the existing scenario as presented in Table 3.4. The notable exception includes the Thomas Street approach to Wattle Street which would increase in delay by six seconds, reducing the approach from a LoS C to a LoS D. However, the remaining road network is noted to continue as per existing.

5.2.2 Post Development + Harris Street Narrowing

The proposal to widen the Harris Street footpath along UTS would require the narrowing of Harris Street and subsequent reduction in the number of traffic lanes from five to four lanes between Thomas Street and Broadway. The proposal results in a reduction in the capacity of

Harris Street, with the afternoon peak period being notably impacted which currently experiences long queues under existing conditions.

Inevitably, the loss of a lane would increase delays and queuing along Harris Street.

However, SIDRA modelling indicates that acceptable levels of intersection performance could be maintained by the dynamic reallocation of green time to the Harris Street approach from the Broadway and George Street approaches, which would be achieved within the minimum and maximum variable times provided at the existing intersection.

Table 5.2 presents results of the post development scenario with Harris Street narrowed to four lanes by the removal of one through-only lane.

Table 5.2: Post Development + Road Narrowing

Intersection	Proposed PM Peak		
	Average Delay	LoS	95th Percentile Queue
Harris St-Ultimo Rd	20	B	207
Harris St-Thomas St	4	A	69
Broadway-George St-Harris St-Regent St	31	C	256
Broadway-Wattle St-Abercrombie St	28	B	227
Wattle St-Thomas St	43	D	29

A comparison with Table 3.4 (Existing Conditions) and Table 5.1(Post Development) indicates that the proposed road configuration would continue to operate acceptably with minor increases to delay and queueing.

A sensitivity analysis has been undertaken of the model to assess the impact of removing kerbside parking along Regent Street, south of Broadway. Notably in the existing scenario, Harris Street includes five lanes (including four lanes permitting the through movement) however the shared left turn and through lane is very underutilised by through traffic due the presence of kerbside parking downstream. Therefore, in the existing scenario, there are effectively three lanes of through traffic. A sensitivity test indicates that the removal of parking along Regent Street would act to increase capacity on the left-turn/through lane on the Harris Street approach, with the impact of removing a through lane being relatively minor. The results indicate that the intersection and road network would continue to operate similar to existing conditions with the removal of a through traffic lane, if the capacity of Regent Street is increases through the removal of parking. However, noting that the kerbside parking on Regent Street includes a combination of special parking restrictions including coach parking, loading zones and mail zones with no clear ways, the removal of this parking may be a concern to the adjoining properties that utilise it.

5.2.3 Development + Midblock Pedestrian Crossing

The network model has been updated with a signalised midblock pedestrian crossing along Harris Street located half way between Thomas Street and Broadway. The pedestrian phase has been allowed to run once every cycle. It is envisaged that the pedestrian crossing phase would be able to run during the red signal period of Harris Street at Broadway and it would therefore have minimal impact to the timing of Harris Street intersections.

The results of the model are presented in Table 5.3.

Table 5.3: Post Development + Pedestrian Crossing

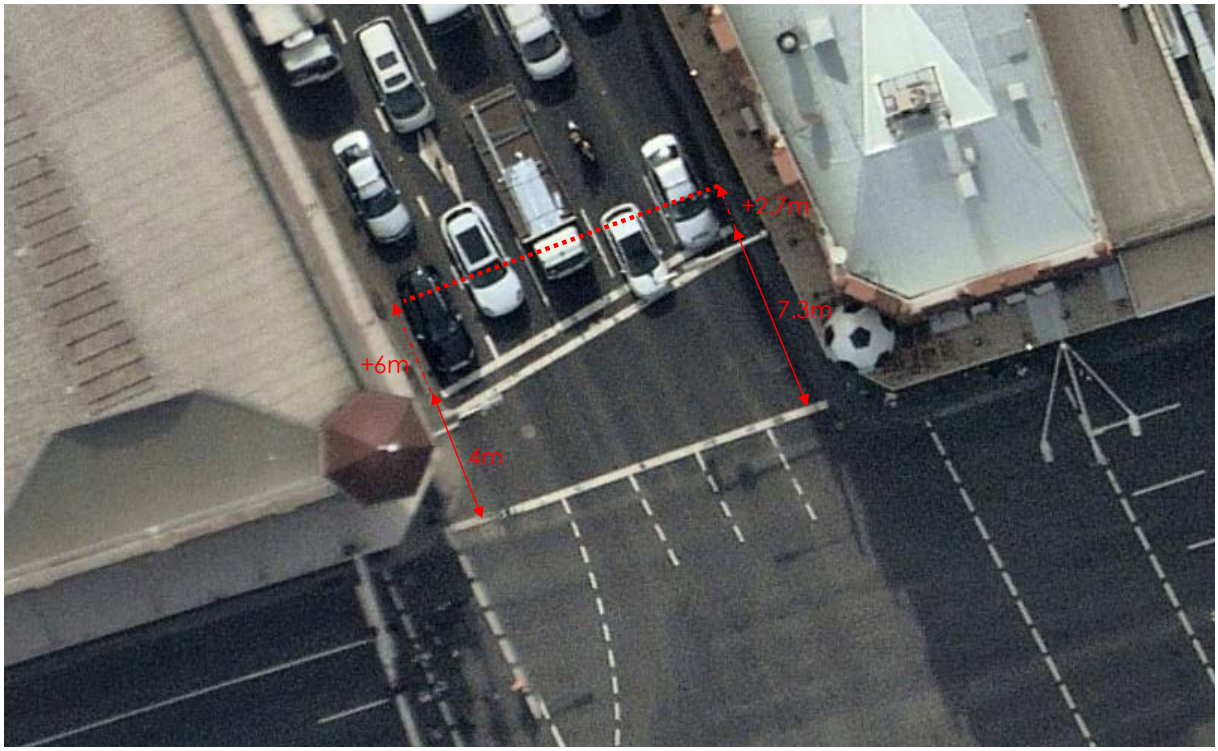
Intersection	PM Peak		
	Average Delay	LoS	95th Percentile Queue
Harris St-Ultimo Rd	15	B	128
Harris St-Thomas St	5	A	64
Midblock Crossing	**1**	**A**	**23**
Broadway-George St-Harris St-Regent St	28	B	139
Broadway-Wattle St-Abercrombie St	28	B	227
Wattle St-Thomas St	43	D	29

A comparison with Table 3.4 (Existing Conditions) and Table 5.1(Post Development) indicates that the proposed road configuration would continue to operate acceptably. It is noted that on some approaches, queueing appears to have improved in this post development scenario. The new road network layout with the proposed crossing alters the SIDRA network calculation which in turn improves the queues along Harris Street and Ultimo Road.

5.2.4 Development + Widened Crossing at Harris Street

For the purposes of this assessment, it has been assumed that the existing intersection crossing would be widened to be 10-metre in width. Currently it is seven metres at the eastern end and four metres at its western end as shown in Figure 5.1.

Figure 5.1: Harris Street Approach Crossing



A proposed widening of the crossing on the Harris Street approach of the Harris Street and Broadway intersection would result in vehicles needing to travel an additional three to six metres to cross the intersection. It is estimated that this would equate to an approximate vehicle delay of some 0.5-1 second per signal cycle based on a vehicle travel speed of 25km/h or 7m/s.

SIDRA modelling of this delay indicates that the resulting intersection would require one second signal timing to be shifted from the Broadway and George Street approaches to the Harris Street approach. This is anticipated to have a negligible impact to the road network as indicated by the SIDRA results in Table 5.4.

Table 5.4: Post Development + Widened Crossing at Harris St

Intersection	PM Peak		
	Average Delay	LoS	95th Percentile Queue
Harris St-Ultimo Rd	22	B	204
Harris St-Thomas St	6	A	93
Broadway-George St-Harris St-Regent St	28	B	215
Broadway-Wattle St-Abercrombie St	28	B	227
Wattle St-Thomas St	43	D	29

A comparison with Table 3.4 (Existing Conditions) and Table 5.1(Post Development) indicates that the proposed road configuration would continue to operate acceptably with minor increases to delay and queueing.

5.2.5 Development + All Pedestrian Amenity Improvements

A combination of all the above changes indicate that there would be a significant increase to queueing and delays. However, SIDRA modelling indicates that acceptable levels of intersection performance could be maintained by the dynamic reallocation of green time to the Harris Street approach from the Broadway and George Street approaches, which would be achieved within the minimum and maximum variable times provided at the existing intersection. The change in phase times would be the same as the Post Development plus Road Narrowing scenario which includes a shift of some 13 seconds.

The results of the SIDRA model are summarised in Table 5.5.

Table 5.5: Post Development + All Amenity Improvements

Intersection	PM Peak		
	Average Delay	LoS	95th Percentile Queue
Harris St-Ultimo Rd	15	B	119
Harris St-Thomas St	56	D	69
Midblock Crossing	**5**	**A**	**45**
Broadway-George St-Harris St-Regent St	30	C	139
Broadway-Wattle St-Abercrombie St	28	B	227
Wattle St-Thomas St	43	D	29

5.3 Service Vehicles Generation

The proposed development is expected to generate relatively low volume of service vehicle movements. While the precinct will include a significantly larger floor area than the existing building on the development site, loading and delivery activities are not anticipated to increase significantly from the existing situation as it is to be maintained as a primarily educational facility.

The B1 loading dock generates a peak of some 30 two-way trips per hour in the morning peak hour and services many uses including mail room deliveries, construction contractor parking, general staff parking and shuttle buses.

The proposed development site would comparatively generate a far lower increase in service vehicle traffic.

However, it is proposed that a Loading Dock Management Plan be provided to manage the loading dock. This is common at a number of city centre sites to ensure that loading operation can be managed throughout the day so as not to result in concurrent loading which in turn could lead to operational issues.

5.4 Public Transport Capacity

5.4.1 Non-Car Trip Generation

An estimate of the number of non-car trips has been calculated based on available mode share data of students.

As per Table 4.1, the Broadway campus population is expected increase by some 6,891 EFTSL between 2017 and 2028. The portion of this volume to be accommodated within the development site (Bon Marche and Science precinct) cannot be accurately established at this stage.

As such, the entire Broadway campus trip generation characteristics have been calculated based on the student travel mode share survey results summarised in Table 3.8. Noting that no future parking is proposed for students in the Campus concept plan, and the limited availability of public parking in the surrounding area, no additional vehicle generation is anticipated from student travel.

On this basis the existing travel mode share has been modified to account for a zero per cent of car travel, and the future non-car mode trip generation has been estimated as is detailed in Table 5.6.

Table 5.6: Non-Car Trip Generation

Mode	Current Student Mode Share	Modified Student Mode Share	Future Additional Trips
Car	7%	0%	0
Train	52%	56%	3,859
Bus	23.5%	25%	1,723
Cycle	6%	7%	482
Walk	11%	12%	827
Other	0.5%	0%	0
Total	**100%**	**100%**	**6,891**

Table 5.6 indicates that the development would generate around 3,859 train, 1,723 bus and 1,309 cycling or walking trips.

The proposed Broadway Campus trip generation would however be distributed over the week with student timetables varying considerably. However, for the purposes of the following assessment it is assumed that the additional trip generation would be generated over a day therefore 3,859 train and 1,723 bus trips per day.

5.4.2 Future Public Transport Capacity

Sydney is undergoing significant upgrades to its public transport capacity with the CBD and South East Light (CSELR) and Sydney Metro both under construction with CSELR expected to be complete by 2019 and Sydney Metro by 2024.

It is understood that the Sydney metro would increase rail capacity for an additional 100,000 customers per hour or more[7] across the Sydney CBD rail lines. The CSELR is anticipated to carry a capacity of up to 13,500 passengers per hour.

The proposed improvement to light rail and heavy rail capacity would additionally relieve capacity of bus services with some customer demand anticipated to displace on to the future rail services.

On this basis, the future trip generation of the Broadway Campus with a total of 5,582 train and bus trips per day would equate to less than five per cent of the CSELR capacity and less than one per cent of the Sydney Metro capacity.

5.5 Pedestrian Traffic Implications

5.5.1 Pedestrian Crash History

Historical crash data has been sourced from Roads and Maritime for the five-year period to 31 December 2017. The crash data indicates that in the five-year period, there were a total of nine crashes on Harris Street and a total of 23 crashes occurring within 50m of the intersection on Broadway, George Street and Regent Street.

5.5.1.1 Harris Street

The crash data indicates that in the five-year period, there were a total of nine crashes on Harris Street, between Thomas Street and Broadway. Of these nine crashes, four crashes involved pedestrian with no fatalities recorded.

[7] *Sydney Metro Chatswood to Sydenham EIS*

Table 5.7: Harris Street Crash Data

Year	Non-Pedestrian Crashes			Pedestrian Crashes			All Crashes
	Fatality	Injury	Non-casualty	Fatality	Injury	Non-casualty	
2013	0	1	1	0	0	0	2
2014	0	0	0	0	1	0	1
2015	0	1	0	0	0	0	1
2016	0	0	0	0	3	0	3
2017	0	2	0	0	0	0	2
Total	**0**	**4**	**1**	**0**	**4**	**0**	**9**

Analysis of the crash data indicates that approximately two of the crashes involving pedestrians is attributed to a pedestrian being hit by a vehicle travelling on the far side lane and one crash is attributed to a pedestrian being hit by a vehicle on the near side lane. The other pedestrian crash is related to a vehicle colliding with a pedestrian walking along the footpath while the vehicle entered the driveway.

While no fatalities have resulted, the above data presents a risk especially as pedestrian volumes are anticipated to grow in the surrounding areas from the development of UTS and also from general growth and development in the surrounding areas. As noted in Section 3.6.2, Harris Street currently includes up to 792 pedestrians per hour crossing midblock informally along Harris Street. In the road network peak hours, there is an informal crossing volume of up to 233 and 620 pedestrians per hour in the morning and afternoon peak periods respectively.

The pedestrian volume data indicates a heavy demand for crossing midblock on Harris Street, and justifies investigation into the feasibility of providing a midblock crossing at this location. Notably, the Roads and Maritime Services warrants for a 'signalised midblock marked foot crossing' is met, which requires over 250 persons per hour crossing the road for four separate one-hour periods of an average day.

5.5.1.2 Broadway, George Street and Regent Street

The crash data indicates that in the five-year period, there were a total of 23 crashes occurring within 50m of the intersection on Broadway, George Street and Regent Street. Of these 23 crashes, 12 crashes involved pedestrian with no fatalities recorded.

Table 5.8: Broadway/ George Street/ Regent Street Crash Data[8]

	Non-Pedestrian Crashes			Pedestrian Crashes			All Crashes
Year	Fatality	Injury	Non-casualty	Fatality	Injury	Non-casualty	
2013	0	4	0	0	1	0	5
2014	0	1	1	0	4	0	6
2015	0	2	1	0	2	0	5
2016	0	2	0	0	2	0	4
2017	0	0	0	0	3	0	3
Total	0	9	2	0	12	0	23

Analysis of the crash data indicates that six of the crashes involving pedestrians is attributed to a pedestrian being hit by a vehicle travelling on the far side lane and three crashes are related to a pedestrian being hit by a vehicle travelling on the nearest lane. The data indicates that there is notable number of crashes at this intersection, but it does not appear to be concentrated at one location but is spread across all corners of the intersection.

5.5.2 Effects of Additional Pedestrian Trips

As indicated in Section 5.4.1, the city campus population is anticipated to grow by an additional 6,891 EFTSL. It anticipated that a majority of these trips would be pedestrian trips to and from transport modes, in particular from the Central Station interchange from the east.

Noting that up to 2,600 pedestrians per hour walk to and from the east via the Harris Street intersection, the additional trips would likely increase congestion on this approach.

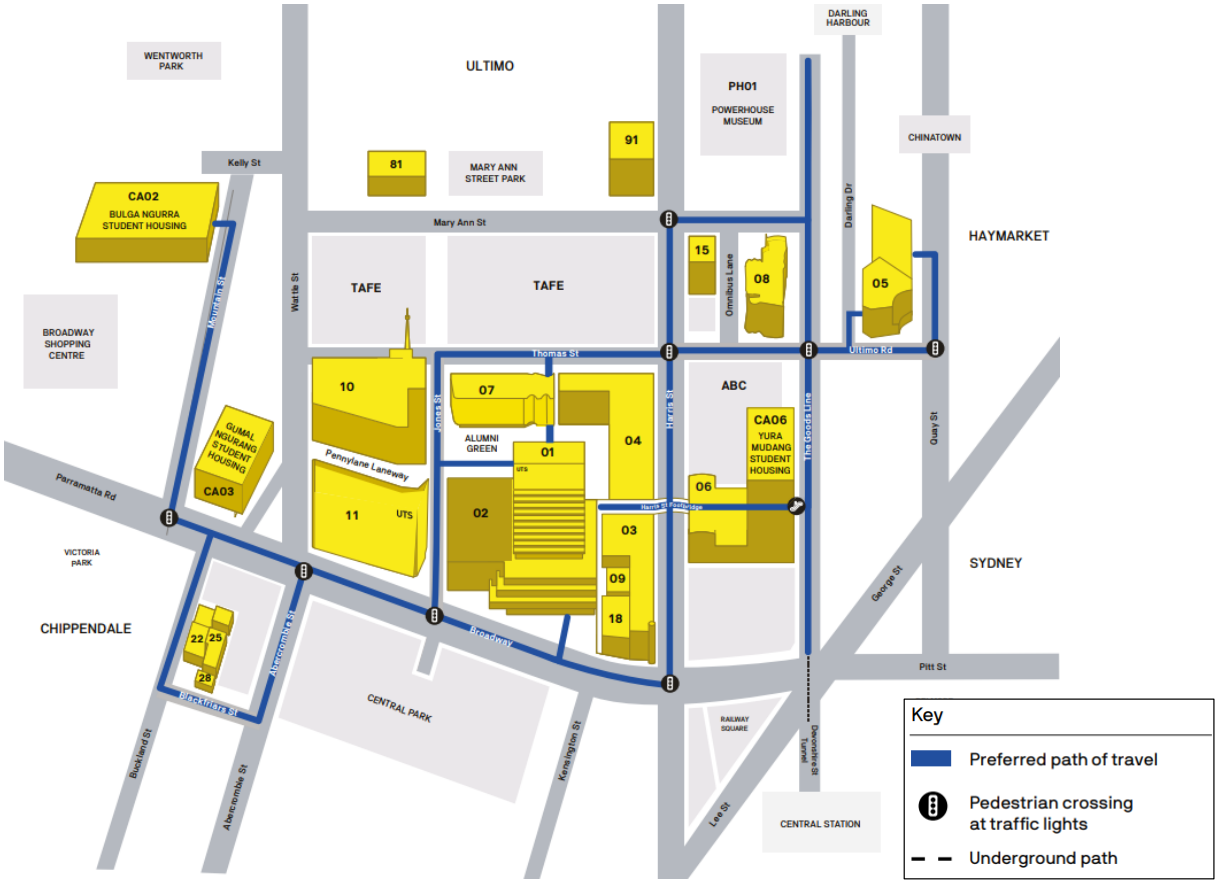
It is noted that there are alternative routes to travel to the UTS city Campus without using the Harris Street intersection including the pedestrian bridge over Harris Street via the Ultimo Pedestrian walkway. However, the route via the Harris Street intersection is clearly the most popular route. On this basis, opportunities to improve the capacity of this crossing and to potentially encourage pedestrians to use other routes should be considered.

The detailed design of the Bon Marche and Science precinct will therefore look to improving the pedestrian connectivity and accessibility to and around the UTS City Campus.

The existing pedestrian connections to the UTS City Campus is shown in Figure 5.2.

[8] Does not include crashes along Harris Street

Figure 5.2: Existing Pedestrian Connections



Source: https://www.uts.edu.au/partners-and-community/initiatives/city-campus-master-plan/campus-development-news/2018-news/get, accessed 28/08/2018

5.6 Green Travel Plan

As required by City of Sydney's general requirements for development consent, a green travel plan is to be prepared to promote sustainable travel. A green travel plan applicable to students, staff and visitors travelling to site would be prepared for the detailed DA and implemented upon occupation of the precinct. The key objective of this green travel plan would be to:

- Identify the existing travel behaviour and mode share of the Campus
- Identify initiatives to encourage sustainable transport modes
- Identify a methodology to monitor the implementation of the green travel following occupation of the precinct
- Set targets to measure the success of initiatives implemented in the green travel plan.

5.7 Construction Traffic Management Plan

A Construction Traffic Management Plan (CTMP) is to be prepared and submitted to City of Sydney for approval. The CTMP will provide further details on the construction activities and

their impacts. At this preliminary stage the construction details are unknown. However, the CTMP should address the following key items:

- Works Zone location – notably for the other UTS building sites, a Works Zone has been required on-road. Consideration would need to be given if a Works Zone would be required on Thomas Street and/or Harris Street. Similar to other UTS development sites, if access is required to an arterial road i.e. Harris Street, it is envisaged that time restrictions would be applied to enable operation of any Works Zones outside of traffic peak periods only.
- Construction vehicle size, access and swept path analysis.
- A pedestrian and cyclist access management plan noting the heavy volumes of pedestrians in the area.
- Cumulative impacts from other Construction activities occurring in the surrounding areas.

6 Parking Assessment

6.1 Car Parking Requirement

The parking requirement for an educational facility is stipulated in the City of Sydney Council's Sydney Local Environmental Plan 2012 (LEP). The LEP requires parking for education facilities to be provided at a maximum parking provision rate of one space per 200m^2.

Therefore, the proposed development with a total maximum floor area of some 65,000m^2 has a maximum permissible parking requirement of 325 spaces.

The proposed parking provision of 150 spaces for staff is therefore compliant with Council's maximum permissible requirements.

The proposal does not include any parking for students. This consistent with the principles of the approved Concept Plan, which focuses on sustainable transport modes for students. The site is able to take advantage of its location with its proximity to existing transport hubs including Central Railway Station and the Railway Parade bus interchange and to future public transport infrastructure promotes a sustainable travel culture. On this basis, the aim to provide zero parking for students is appropriate.

6.2 Proposed Set-down/Pick up Parking

Currently there is a notable demand for set-down and pick-up activity along Thomas Street. There is a high demand for on-street parking along Thomas Street and therefore limited kerbside parking space is available, drivers tend to stop in the traffic lanes thereby blocking through traffic along Thomas Street.

The behaviour identifies a need to accommodate this activity more formally. On this basis, as part of the proposed development, UTS is considering a proposal to convert around two to four on-street car parking spaces to 5-min parking restrictions for set-down/pick-up activity. The proposal would require displacement of two on-street parking spaces with two-hour ticketed time restrictions along Thomas Street fronting the development site.

Parking demand surveys of the local nearby on-street parking indicates a high parking demand of 93 per cent occupancy but it does reveal nine spaces are vacant even during the busiest times even during the peak parking demand period. On this basis, the displacement of two parking spaces could be accommodated within the existing on-street parking supply.

6.3 Bicycle Parking Requirement

The UTS City Campus Bicycle Parking Strategy submitted to the Department of Planning and Environment in 2014, has indicated a proposed bicycle parking requirement of 1,008 spaces over the City Campus, based on Council's DCP rate of 1 space per 10 students and staff.

UTS has been gradually increasing the bicycle parking supply on Campus based on regular monitoring of bike parking demand on Campus. With a proposed increase to the Campus population, UTS is revising its Bike Parking Strategy for the entire Campus. Historical monitoring of the Campus bike parking will enable accurate understanding of the bicycle parking demand of students and staff on Campus based on population.

On this basis, the bicycle parking requirement for the Bon Marche and Science precinct will not be addressed in this report with a Campus wide strategy to be prepared and submitted as part of the detailed DA.

7 Summary and Conclusions

The development proposal seeks approval to for the construction of the Bon Marche and Science Precinct within the existing UTS Broadway Precinct. The main works involved with the proposal include the full and partial demolition of existing buildings (Building 4 and rear section of Building 3) and the creation of a new building envelope for Building 4 and Building 3. The key elements of the proposal are as follows:

- The proposed development includes establishing new building envelopes with corresponding height and Gross Floor Area (GFA) to the Bon Marche and Science Precinct (Buildings, 3, 4, 9 and 18).
- All other buildings within the campus shall be maintained.
- It is proposed to provide for up to 150 car parking spaces for staff, within a future potential new basement carpark to serve the proposed development. This is in accordance with the maximum permissible parking requirement stipulated by City of Sydney Council's Sydney Local Environmental Plan 2012 (LEP).
- Parking for students is not proposed and is consistent with the principles of the approved Concept Plan, which focuses on sustainable transport modes for students.
- Future transport capacity is anticipated to cater for the increase in public transport demand associated with the increase in student intake. Notably, the Sydney Metro and future improvements to light rail and heavy rail facilities shall provide additional rail capacity and relieve demands on existing bus services with some customer demand anticipated to displace on to the future rail services.
- Vehicle access to the proposed basement car park shall be via the existing access from Thomas Street. A new vehicular link will be provided from the existing B1 loading dock access to the car park located in the basement of the new Building 4.
- The proposed development is expected to generate an additional 41 vehicle movements per hour and 36 vehicle movements per peak hour in the morning and evening peak periods respectively. SIDRA modelling analysis of post development conditions indicates the additional trips associated with the development would have negligible impact on the road network. The exception is the Thomas Street approach to Wattle Street which would increase in delay by six seconds, reducing the approach from a LoS C to a LoS D. However, Wattle Street and the remaining road network is not anticipated to be impacted.
- Several opportunities are being investigated with an aim to improve the pedestrian amenity and connectivity of the local area. These opportunities include
  - widening of the Harris Street footpath and associated narrowing of Harris Street carriageway (loss of one traffic lane)
  - provision of a midblock crossing along Harris Street between Thomas Street and Broadway

- widening of the pedestrian crossing at the Harris Street approach to Broadway.

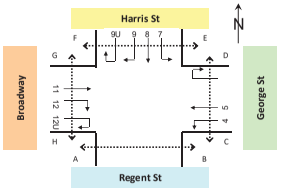
- SIDRA modelling of the above opportunities indicate that the above modifications are feasible noting that some dynamic reallocation of green time to the Harris Street approach from the Broadway and George Street approaches would be required. However this is would be achieved within the minimum and maximum variable times provided at the existing intersection.

Appendix A

Traffic surveys

Job No. : N4396
Client : TTPP
Suburb : UTS Survey
Location : 1. George St / Broadway / Harris St / Regent St

Day/Date : Thu, 2nd August 2018
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



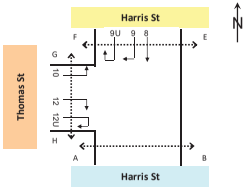
MATRIX Traffic and Transport Data

Approach	Regent St																George St															
Direction	Direction 1 (Left Turn)				Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)				Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
7:00 to 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2	2	24	367	15	56	438	0	0	0	0	0	0	0	0
7:15 to 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2	1	23	388	15	56	459	0	0	0	0	0	0	0	0
7:30 to 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	2	1	26	399	17	60	476	0	0	0	0	0	0	0	0
7:45 to 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	2	1	29	393	18	70	481	0	0	0	0	0	0	0	0
8:00 to 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	2	0	27	378	19	73	470	0	0	0	0	0	0	0	0
8:15 to 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	3	0	27	380	17	88	485	0	0	0	0	0	0	0	0
8:30 to 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	3	0	26	409	14	94	517	0	0	0	0	0	0	0	0
8:45 to 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	2	0	21	419	16	97	532	0	0	0	0	0	0	0	0
9:00 to 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	3	0	26	454	18	102	574	0	0	0	0	0	0	0	0
AM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**68**	**7**	**2**	**77**	**1,199**	**52**	**231**	**1,482**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
15:30 to 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	0	2	39	813	14	89	916	0	0	0	0	0	0	0	0
15:45 to 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	0	1	39	817	13	95	925	0	0	0	0	0	0	0	0
16:00 to 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	1	30	817	14	100	931	0	0	0	0	0	0	0	0
16:15 to 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	1	3	33	859	14	107	980	0	0	0	0	0	0	0	0
16:30 to 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	1	2	26	853	16	115	984	0	0	0	0	0	0	0	0
16:45 to 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	1	3	23	859	16	120	995	0	0	0	0	0	0	0	0
17:00 to 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	1	3	22	876	16	132	1,024	0	0	0	0	0	0	0	0
17:15 to 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	1	22	825	17	133	975	0	0	0	0	0	0	0	0
17:30 to 18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0	1	28	836	13	128	977	0	0	0	0	0	0	0	0
PM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**87**	**1**	**5**	**93**	**2,502**	**43**	**332**	**2,877**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Approach	Harris St																Broadway												Crossing Pedestrians								
Direction	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12 (Right Turn)				Direction 12U (U Turn)												
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	A	B	C	D	E	F	G	H	Total
7:00 to 8:00	93	11	7	111	1,386	69	12	1,467	388	20	1	409	0	0	0	0	0	0	0	0	1,063	49	103	1,215	0	0	0	0	0	0	0	0	196	190	72	177	142	526	114	40	1,457
7:15 to 8:15	105	6	5	116	1,400	64	12	1,476	396	24	2	422	0	0	0	0	0	0	0	0	1,122	48	121	1,291	0	0	0	0	0	0	0	0	247	227	84	250	180	703	238	72	2,001
7:30 to 8:30	110	7	9	126	1,364	56	15	1,435	412	23	4	439	0	0	0	0	0	0	0	0	1,186	48	139	1,373	0	0	0	0	0	0	0	0	369	270	104	338	265	931	306	95	2,678
7:45 to 8:45	121	6	12	139	1,384	60	17	1,461	443	22	3	468	0	0	0	0	0	0	0	0	1,114	46	135	1,295	0	0	0	0	0	0	0	0	447	276	118	438	311	1,249	366	120	3,325
8:00 to 9:00	122	6	12	140	1,396	52	19	1,467	459	22	4	485	0	0	0	0	0	0	0	0	989	40	145	1,174	0	0	0	0	0	0	0	0	532	294	150	497	367	1,728	435	133	4,136
8:15 to 9:15	129	9	13	151	1,344	61	16	1,421	473	21	3	497	0	0	0	0	0	0	0	0	964	39	139	1,142	0	0	0	0	0	0	0	0	579	300	140	516	394	1,962	395	110	4,396
8:30 to 9:30	144	11	13	168	1,295	67	13	1,375	494	20	1	515	0	0	0	0	0	0	0	0	932	39	139	1,110	0	0	0	0	0	0	0	0	544	280	141	525	371	1,970	365	104	4,300
8:45 to 9:45	146	13	10	169	1,222	60	10	1,292	512	21	1	534	0	0	0	0	0	0	0	0	926	32	123	1,081	0	0	0	0	0	0	0	0	543	290	141	495	378	1,829	344	94	4,114
9:00 to 10:00	154	14	12	180	1,189	70	5	1,264	528	27	0	555	0	0	0	0	0	0	0	0	956	40	105	1,101	0	0	0	0	0	0	0	0	563	306	129	465	407	1,462	304	105	3,741
AM Totals	**369**	**31**	**31**	**431**	**3,971**	**191**	**36**	**4,198**	**1,375**	**69**	**5**	**1,449**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,008**	**129**	**353**	**3,490**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,291**	**790**	**351**	**1,139**	**916**	**3,716**	**853**	**278**	**9,334**
15:30 to 16:30	150	5	8	163	1,460	47	14	1,521	699	15	6	720	0	0	0	0	0	0	0	0	742	7	76	825	0	0	0	0	0	0	0	0	340	663	328	495	1,489	870	249	359	4,793
15:45 to 16:45	137	5	9	151	1,557	48	15	1,620	700	17	4	721	0	0	0	0	0	0	0	0	757	8	87	852	0	0	0	0	0	0	0	0	348	709	343	495	1,545	934	235	373	4,982
16:00 to 17:00	131	4	7	142	1,559	49	17	1,625	710	17	3	730	0	0	0	0	0	0	0	0	749	9	89	847	0	0	0	0	0	0	0	0	347	706	318	515	1,609	998	214	405	5,112
16:15 to 17:15	150	3	6	159	1,553	34	16	1,603	707	12	4	723	0	0	0	0	0	0	0	0	764	8	90	862	0	0	0	0	0	0	0	0	361	713	383	494	1,713	1,033	225	437	5,359
16:30 to 17:30	178	2	8	188	1,564	34	13	1,611	780	12	5	797	0	0	0	0	0	0	0	0	753	6	92	851	0	0	0	0	0	0	0	0	372	677	425	461	1,697	1,084	242	450	5,408
16:45 to 17:45	197	3	6	206	1,518	23	15	1,556	810	10	9	829	0	0	0	0	0	0	0	0	775	3	83	861	0	0	0	0	0	0	0	0	331	566	446	394	1,704	1,154	246	472	5,313
17:00 to 18:00	222	3	8	233	1,488	14	15	1,517	855	5	8	868	0	0	0	0	0	0	0	0	843	6	77	926	0	0	0	0	0	0	0	0	327	528	468	338	1,825	1,375	272	500	5,633
17:15 to 18:15	214	3	8	225	1,498	12	17	1,527	862	5	7	874	0	0	0	0	0	0	0	0	810	9	70	889	0	0	0	0	0	0	0	0	290	458	434	342	1,639	1,358	286	489	5,296
17:30 to 18:30	210	2	7	219	1,437	12	22	1,471	860	5	6	871	0	0	0	0	0	0	0	0	836	12	67	915	0	0	0	0	0	0	0	0	266	395	408	331	1,537	1,263	267	468	4,935
PM Totals	**538**	**9**	**23**	**570**	**4,461**	**93**	**49**	**4,603**	**2,339**	**32**	**17**	**2,388**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,331**	**25**	**235**	**2,591**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**978**	**1,735**	**1,161**	**1,287**	**4,723**	**3,217**	**758**	**1,277**	**15,136**

Job No. : N4396
Client : TTPP
Suburb : UTS Survey
Location : 2. Harris St / Thomas St

Day/Date : Thu, 2nd August 2018
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



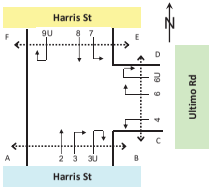
MATRIX Traffic and Transport Data

Approach	Harris St															
Direction	Direction 1 (left Turn)				Direction 2 (Through)					Direction 3U (U Turn)						
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total		Cars	Trucks	Buses	Total			
7:00 to 8:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
7:15 to 8:15	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
7:30 to 8:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
7:45 to 8:45	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
8:00 to 9:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
8:15 to 9:15	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
8:30 to 9:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
8:45 to 9:45	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
9:00 to 10:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
AM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**			
15:30 to 16:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
15:45 to 16:45	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
16:00 to 17:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
16:15 to 17:15	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
16:30 to 17:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
16:45 to 17:45	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
17:00 to 18:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
17:15 to 18:15	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
17:30 to 18:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**			
PM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**			

Approach	Harris St												Thomas St												Crossing Pedestrians								
Direction	Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 12 (Right Turn)				Direction 12U (U Turn)												
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	A	B		E	F	G	H	Total
7:00 to 8:00	1,985	90	18	**2,093**	112	16	0	**128**	0	0	0	**0**	9	2	2	**13**	42	9	3	**54**	0	0	0	**0**	24	24		26	35	122	8	**239**
7:15 to 8:15	2,042	83	19	**2,144**	134	15	0	**149**	0	0	0	**0**	10	1	3	**14**	41	10	3	**54**	0	0	0	**0**	32	32		28	51	152	14	**309**
7:30 to 8:30	2,058	77	25	**2,160**	150	9	0	**159**	0	0	0	**0**	14	2	3	**19**	49	8	2	**59**	0	0	0	**0**	48	36		38	66	212	15	**415**
7:45 to 8:45	2,093	79	30	**2,202**	173	4	0	**177**	0	0	0	**0**	16	2	4	**22**	53	8	1	**62**	0	0	0	**0**	78	35		41	82	266	29	**531**
8:00 to 9:00	2,081	74	34	**2,189**	183	2	0	**185**	0	0	0	**0**	17	1	4	**22**	70	5	1	**76**	0	0	0	**0**	116	52		73	126	314	35	**716**
8:15 to 9:15	2,036	85	29	**2,150**	183	1	0	**184**	0	0	0	**0**	30	1	5	**36**	83	5	1	**89**	0	0	0	**0**	129	50		75	125	345	44	**768**
8:30 to 9:30	1,994	91	26	**2,111**	185	2	0	**187**	0	0	0	**0**	32	1	5	**38**	87	8	1	**96**	0	0	0	**0**	135	58		76	137	340	52	**798**
8:45 to 9:45	1,961	89	22	**2,072**	182	4	0	**186**	0	0	0	**0**	34	1	5	**40**	88	7	1	**96**	0	0	0	**0**	124	60		84	144	293	46	**751**
9:00 to 10:00	1,943	109	15	**2,067**	201	6	0	**207**	0	0	0	**0**	34	2	6	**42**	81	7	1	**89**	0	0	0	**0**	105	52		59	107	238	55	**616**
AM Totals	**6,009**	**273**	**67**	**6,349**	**496**	**24**	**0**	**520**	**0**	**0**	**0**	**0**	**60**	**5**	**12**	**77**	**193**	**21**	**5**	**219**	**0**	**0**	**0**	**0**	**245**	**128**		**158**	**268**	**674**	**98**	**1,571**
15:30 to 16:30	2,334	69	29	**2,432**	108	4	0	**112**	0	0	0	**0**	20	0	5	**25**	96	1	1	**98**	0	0	0	**0**	170	314		264	151	109	137	**1,145**
15:45 to 16:45	2,429	74	28	**2,531**	113	5	0	**118**	0	0	0	**0**	20	0	7	**27**	97	3	1	**101**	0	0	0	**0**	175	277		231	142	112	162	**1,099**
16:00 to 17:00	2,447	69	29	**2,545**	120	3	0	**123**	0	0	0	**0**	18	0	7	**25**	103	4	1	**108**	0	0	0	**0**	174	273		238	119	112	170	**1,086**
16:15 to 17:15	2,487	49	26	**2,562**	118	3	0	**121**	0	0	0	**0**	22	1	9	**32**	106	4	2	**112**	0	0	0	**0**	172	256		238	118	102	166	**1,052**
16:30 to 17:30	2,558	46	24	**2,628**	123	2	0	**125**	0	0	0	**0**	26	1	10	**37**	117	3	2	**122**	0	0	0	**0**	190	271		230	118	113	159	**1,081**
16:45 to 17:45	2,554	33	28	**2,615**	133	3	0	**136**	0	0	0	**0**	23	1	10	**34**	113	1	2	**116**	0	0	0	**0**	191	286		222	124	112	145	**1,080**
17:00 to 18:00	2,616	21	29	**2,666**	136	4	0	**140**	0	0	0	**0**	25	1	10	**36**	107	0	2	**109**	0	0	0	**0**	241	266		201	154	108	146	**1,116**
17:15 to 18:15	2,636	15	30	**2,681**	134	3	0	**137**	0	0	0	**0**	25	0	8	**33**	111	1	1	**113**	0	0	0	**0**	245	263		170	162	115	150	**1,105**
17:30 to 18:30	2,595	18	34	**2,647**	113	3	0	**116**	0	0	0	**0**	20	0	8	**28**	104	1	1	**106**	0	0	0	**0**	211	194		147	160	95	136	**943**
PM Totals	**7,487**	**133**	**87**	**7,707**	**344**	**9**	**0**	**353**	**0**	**0**	**0**	**0**	**66**	**1**	**23**	**90**	**317**	**5**	**4**	**326**	**0**	**0**	**0**	**0**	**571**	**779**		**641**	**429**	**317**	**432**	**3,169**

Job No. : N4396
Client : TTPP
Suburb : UTS Survey
Location : 3. Harris St / Ultimo Rd

Day/Date : Thu, 2nd August 2018
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



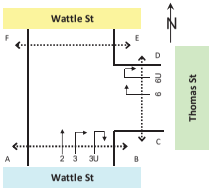
MATRIX Traffic and Transport Data

Approach	Harris St												Ultimo Rd											
Direction	Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
7:00 to 8:00	10	2	2	**14**	0	0	0	**0**	0	0	0	**0**	161	17	1	**179**	52	4	1	**57**	0	0	0	**0**
7:15 to 8:15	11	1	3	**15**	0	0	0	**0**	0	0	0	**0**	176	12	5	**193**	55	5	2	**62**	0	0	0	**0**
7:30 to 8:30	13	2	3	**18**	0	0	0	**0**	0	0	0	**0**	198	11	4	**213**	65	5	2	**72**	0	0	0	**0**
7:45 to 8:45	15	2	4	**21**	0	0	0	**0**	0	0	0	**0**	224	9	4	**237**	64	5	2	**71**	0	0	0	**0**
8:00 to 9:00	17	1	4	**22**	0	0	0	**0**	0	0	0	**0**	243	11	7	**261**	67	3	2	**72**	0	0	0	**0**
8:15 to 9:15	30	1	5	**36**	0	0	0	**0**	0	0	0	**0**	262	17	3	**282**	75	3	2	**80**	0	0	0	**0**
8:30 to 9:30	32	1	5	**38**	0	0	0	**0**	0	0	0	**0**	276	20	4	**300**	81	3	2	**86**	0	0	0	**0**
8:45 to 9:45	35	1	5	**41**	0	0	0	**0**	0	0	0	**0**	284	22	5	**311**	91	3	2	**96**	0	0	0	**0**
9:00 to 10:00	35	2	6	**43**	0	0	0	**0**	0	0	0	**0**	298	24	3	**325**	102	4	3	**109**	0	0	0	**0**
AM Totals	**62**	**5**	**12**	**79**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**702**	**52**	**11**	**765**	**221**	**11**	**6**	**238**	**0**	**0**	**0**	**0**
15:30 to 16:30	18	3	2	**23**	0	0	0	**0**	0	0	0	**0**	475	15	5	**495**	161	2	1	**164**	0	0	0	**0**
15:45 to 16:45	19	2	5	**26**	0	0	0	**0**	0	0	0	**0**	471	17	5	**493**	164	2	1	**167**	0	0	0	**0**
16:00 to 17:00	15	1	6	**22**	0	0	0	**0**	0	0	0	**0**	487	18	4	**509**	180	2	1	**183**	0	0	0	**0**
16:15 to 17:15	18	2	8	**28**	0	0	0	**0**	0	0	0	**0**	473	14	5	**492**	176	1	1	**178**	0	0	0	**0**
16:30 to 17:30	23	2	9	**34**	0	0	0	**0**	0	0	0	**0**	500	11	5	**516**	175	0	0	**175**	0	0	0	**0**
16:45 to 17:45	21	3	8	**32**	0	0	0	**0**	0	0	0	**0**	507	10	4	**521**	169	1	0	**170**	0	0	0	**0**
17:00 to 18:00	25	3	8	**36**	0	0	0	**0**	0	0	0	**0**	504	8	4	**516**	153	2	0	**155**	0	0	0	**0**
17:15 to 18:15	25	2	6	**33**	0	0	0	**0**	0	0	0	**0**	548	6	3	**557**	155	2	1	**158**	0	0	0	**0**
17:30 to 18:30	21	2	6	**29**	0	0	0	**0**	0	0	0	**0**	550	6	3	**559**	153	2	2	**157**	0	0	0	**0**
PM Totals	**62**	**7**	**17**	**86**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,525**	**32**	**13**	**1,570**	**489**	**4**	**3**	**496**	**0**	**0**	**0**	**0**

Approach	Harris St												Crossing Pedestrians						
Direction	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9U (U Turn)										
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	A	B	C	D	E	F	Total
7:00 to 8:00	99	6	1	**106**	1,879	88	17	**1,984**	0	0	0	**0**	105	23	23	37	29	28	**245**
7:15 to 8:15	96	6	1	**103**	1,944	87	14	**2,045**	0	0	0	**0**	140	22	37	65	51	44	**359**
7:30 to 8:30	121	3	1	**125**	2,013	74	21	**2,108**	0	0	0	**0**	180	29	44	80	65	69	**467**
7:45 to 8:45	130	3	1	**134**	2,052	71	26	**2,149**	0	0	0	**0**	240	32	56	97	65	92	**582**
8:00 to 9:00	158	5	2	**165**	2,043	65	28	**2,136**	0	0	0	**0**	336	29	57	108	72	118	**720**
8:15 to 9:15	188	5	2	**195**	1,998	67	26	**2,091**	0	0	0	**0**	371	32	54	100	73	137	**767**
8:30 to 9:30	177	6	2	**185**	1,935	73	22	**2,030**	0	0	0	**0**	388	35	63	86	64	145	**781**
8:45 to 9:45	185	8	1	**194**	1,893	72	17	**1,982**	0	0	0	**0**	349	34	77	90	68	145	**763**
9:00 to 10:00	196	8	1	**205**	1,879	89	11	**1,979**	0	0	0	**0**	246	50	105	98	75	140	**714**
AM Totals	**453**	**19**	**4**	**476**	**5,801**	**242**	**56**	**6,099**	**0**	**0**	**0**	**0**	**687**	**102**	**185**	**243**	**176**	**286**	**1,679**
15:30 to 16:30	147	1	1	**149**	1,974	57	22	**2,053**	0	0	0	**0**	70	197	103	81	82	106	**639**
15:45 to 16:45	141	2	0	**143**	2,079	61	21	**2,161**	0	0	0	**0**	85	215	100	95	98	123	**716**
16:00 to 17:00	151	2	0	**153**	2,099	52	24	**2,175**	0	0	0	**0**	94	223	107	94	109	139	**766**
16:15 to 17:15	137	1	0	**138**	2,155	40	20	**2,215**	0	0	0	**0**	105	254	111	110	111	149	**840**
16:30 to 17:30	124	1	0	**125**	2,206	38	19	**2,263**	0	0	0	**0**	109	239	113	128	112	147	**848**
16:45 to 17:45	140	0	0	**140**	2,195	26	24	**2,245**	0	0	0	**0**	109	233	111	141	104	137	**835**
17:00 to 18:00	127	0	0	**127**	2,255	18	24	**2,297**	0	0	0	**0**	110	212	107	143	100	122	**794**
17:15 to 18:15	138	0	0	**138**	2,240	14	26	**2,280**	0	0	0	**0**	99	158	108	140	91	104	**700**
17:30 to 18:30	147	0	0	**147**	2,177	15	30	**2,222**	0	0	0	**0**	87	138	104	130	67	85	**611**
PM Totals	**418**	**2**	**1**	**421**	**6,357**	**110**	**71**	**6,538**	**0**	**0**	**0**	**0**	**266**	**574**	**320**	**339**	**261**	**338**	**2,098**

Job No. : N4396
Client : TTPP
Suburb : UTS Survey
Location : 4. Wattle St / Thomas St

Day/Date : Thu, 2nd August 2018
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



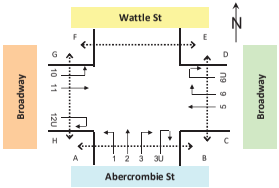
MATRIX Traffic and Transport Data

Approach	Wattle St												Thomas St											
Direction		Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)					Direction 6 (Right Turn)				Direction 6U (U Turn)			
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
7:00 to 8:00		1,989	94	16	**2,099**	117	10	4	**131**	0	0	0	**0**	0	0	0	**0**		59	10	0	**69**	0	0	0	**0**
7:15 to 8:15		1,986	96	15	**2,097**	133	8	4	**145**	0	0	0	**0**	0	0	0	**0**		74	11	0	**85**	0	0	0	**0**
7:30 to 8:30		1,978	82	10	**2,070**	153	8	3	**164**	0	0	0	**0**	0	0	0	**0**		95	8	0	**103**	0	0	0	**0**
7:45 to 8:45		1,975	73	5	**2,053**	162	9	5	**176**	0	0	0	**0**	0	0	0	**0**		113	5	0	**118**	0	0	0	**0**
8:00 to 9:00		1,966	66	4	**2,036**	169	6	5	**180**	0	0	0	**0**	0	0	0	**0**		124	6	0	**130**	0	0	0	**0**
8:15 to 9:15		1,933	59	4	**1,996**	176	7	6	**189**	1	0	0	**1**	0	0	0	**0**		130	6	0	**136**	0	0	0	**0**
8:30 to 9:30		1,927	71	7	**2,005**	178	8	7	**193**	1	0	0	**1**	0	0	0	**0**		121	6	0	**127**	0	0	0	**0**
8:45 to 9:45		1,819	83	10	**1,912**	162	14	4	**180**	1	0	0	**1**	0	0	0	**0**		128	7	0	**135**	0	0	0	**0**
9:00 to 10:00		1,699	107	10	**1,816**	139	16	3	**158**	1	0	0	**1**	0	0	0	**0**		138	7	0	**145**	0	0	0	**0**
AM Totals		**5,654**	**267**	**30**	**5,951**	**425**	**32**	**12**	**469**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**		**321**	**23**	**0**	**344**	**0**	**0**	**0**	**0**
15:30 to 16:30		1,836	43	5	**1,884**	107	2	6	**115**	2	0	0	**2**	0	0	0	**0**		107	3	0	**110**	0	0	0	**0**
15:45 to 16:45		1,882	39	10	**1,931**	109	2	8	**119**	1	0	0	**1**	0	0	0	**0**		109	4	0	**113**	0	0	0	**0**
16:00 to 17:00		1,956	33	9	**1,998**	93	2	10	**105**	1	0	0	**1**	0	0	0	**0**		115	3	0	**118**	0	0	0	**0**
16:15 to 17:15		1,976	33	10	**2,019**	98	2	12	**112**	1	0	0	**1**	0	0	0	**0**		104	2	0	**106**	0	0	0	**0**
16:30 to 17:30		2,007	29	10	**2,046**	101	1	13	**115**	1	0	0	**1**	0	0	0	**0**		108	2	0	**110**	0	0	0	**0**
16:45 to 17:45		2,032	24	5	**2,061**	103	0	10	**113**	1	0	0	**1**	0	0	0	**0**		108	3	0	**111**	0	0	0	**0**
17:00 to 18:00		1,981	19	8	**2,008**	110	0	10	**120**	1	0	0	**1**	0	0	0	**0**		112	4	0	**116**	0	0	0	**0**
17:15 to 18:15		1,971	18	6	**1,995**	113	0	9	**122**	1	0	0	**1**	0	0	0	**0**		118	3	0	**121**	0	0	0	**0**
17:30 to 18:30		1,883	19	6	**1,908**	103	0	7	**110**	0	0	0	**0**	0	0	0	**0**		106	3	0	**109**	0	0	0	**0**
PM Totals		**5,726**	**91**	**21**	**5,838**	**311**	**3**	**26**	**340**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**		**321**	**8**	**0**	**329**	**0**	**0**	**0**	**0**

Approach	Wattle St												Crossing Pedestrians						
Direction	Direction 7 (left Turn)				Direction 8 (Through)					Direction 9U (U Turn)									
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total		Cars	Trucks	Buses	Total		A	B	C	D	E	F	Total
7:00 to 8:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		9	13	25	20	20	6	**93**
7:15 to 8:15	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		9	11	24	33	21	7	**105**
7:30 to 8:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		9	14	35	40	23	7	**128**
7:45 to 8:45	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		6	17	43	61	36	8	**171**
8:00 to 9:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		7	17	51	71	54	8	**208**
8:15 to 9:15	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		8	21	63	67	67	11	**237**
8:30 to 9:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		7	18	64	66	71	15	**241**
8:45 to 9:45	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		10	12	75	53	69	22	**241**
9:00 to 10:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		9	13	76	68	57	29	**252**
AM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**		**25**	**43**	**152**	**159**	**131**	**43**	**553**
15:30 to 16:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		9	4	81	58	79	63	**294**
15:45 to 16:45	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		10	4	79	66	79	65	**303**
16:00 to 17:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		15	8	81	67	84	65	**320**
16:15 to 17:15	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		23	12	87	65	81	64	**332**
16:30 to 17:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		21	13	114	60	70	56	**334**
16:45 to 17:45	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		33	22	124	61	64	53	**357**
17:00 to 18:00	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		35	21	118	54	60	63	**351**
17:15 to 18:15	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		29	21	111	52	58	76	**347**
17:30 to 18:30	0	0	0	**0**	0	0	0	**0**		0	0	0	**0**		32	23	87	41	59	84	**326**
PM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**		**62**	**40**	**282**	**159**	**208**	**203**	**954**

Job No. : N4396
Client : TTPP
Suburb : UTS Survey
Location : 5. Wattle St / Broadway / Abercrombie St

Day/Date : Thu, 2nd August 2018
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary

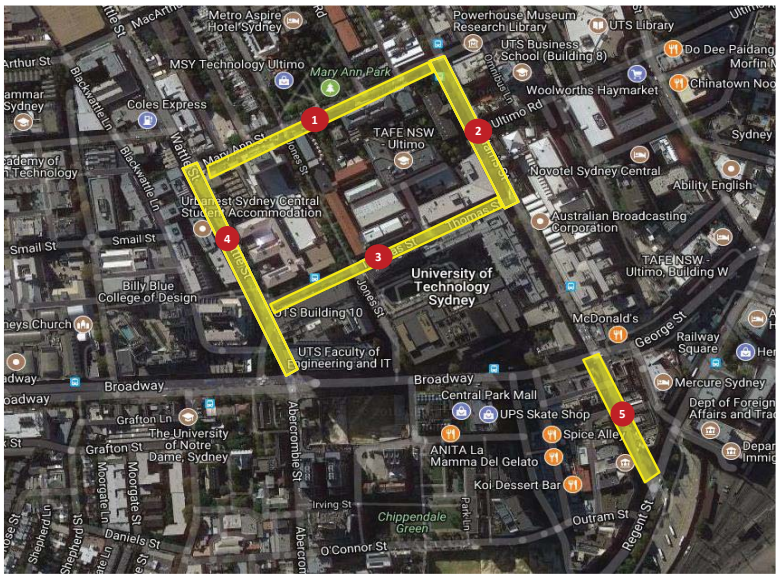


MATRIX Traffic and Transport Data

Approach	Abercrombie St																Broadway															
Direction	Direction 1 (Left Turn)				Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)				Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
7:00 to 8:00	41	6	0	**47**	1,235	56	14	**1,305**	17	5	0	**22**	0	0	0	**0**	0	0	0	**0**	723	31	57	**811**	0	0	4	**4**	0	0	0	**0**
7:15 to 8:15	42	6	0	**48**	1,263	71	14	**1,348**	23	5	0	**28**	0	0	0	**0**	0	0	0	**0**	767	36	64	**867**	0	0	3	**3**	0	0	0	**0**
7:30 to 8:30	52	5	0	**57**	1,281	62	8	**1,351**	31	7	0	**38**	0	0	0	**0**	0	0	0	**0**	805	38	70	**913**	0	0	3	**3**	0	0	0	**0**
7:45 to 8:45	62	5	0	**67**	1,269	52	5	**1,326**	41	7	0	**48**	0	0	0	**0**	0	0	0	**0**	872	40	77	**989**	0	0	4	**4**	0	0	0	**0**
8:00 to 9:00	62	2	0	**64**	1,285	48	3	**1,336**	48	4	0	**52**	0	0	0	**0**	0	0	0	**0**	920	44	85	**1,049**	0	0	4	**4**	0	0	0	**0**
8:15 to 9:15	72	1	0	**73**	1,260	36	4	**1,300**	51	5	0	**56**	0	0	0	**0**	0	0	0	**0**	933	42	93	**1,068**	0	0	5	**5**	0	0	0	**0**
8:30 to 9:30	72	0	0	**72**	1,241	47	8	**1,296**	62	3	1	**66**	0	0	0	**0**	0	0	0	**0**	958	31	92	**1,081**	0	0	5	**5**	0	0	0	**0**
8:45 to 9:45	79	4	0	**83**	1,154	59	10	**1,223**	57	2	1	**60**	0	0	0	**0**	0	0	0	**0**	998	37	99	**1,134**	0	0	5	**5**	0	0	0	**0**
9:00 to 10:00	91	4	0	**95**	1,095	76	11	**1,182**	61	3	1	**65**	0	0	0	**0**	0	0	0	**0**	976	42	95	**1,113**	1	0	6	**7**	0	0	0	**0**
AM Totals	**194**	**12**	**0**	**206**	**3,615**	**180**	**28**	**3,823**	**126**	**12**	**1**	**139**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,619**	**117**	**237**	**2,973**	**1**	**0**	**14**	**15**	**0**	**0**	**0**	**0**
15:30 to 16:30	76	2	0	**78**	1,239	36	2	**1,277**	49	2	0	**51**	0	0	0	**0**	0	0	0	**0**	1,442	29	90	**1,561**	4	0	4	**8**	0	0	0	**0**
15:45 to 16:45	72	2	0	**74**	1,283	36	4	**1,323**	49	3	0	**52**	0	0	0	**0**	0	0	0	**0**	1,485	29	94	**1,608**	3	0	6	**9**	0	0	0	**0**
16:00 to 17:00	80	2	0	**82**	1,309	29	5	**1,343**	35	3	0	**38**	0	0	0	**0**	0	0	0	**0**	1,538	32	99	**1,669**	4	0	8	**12**	0	0	0	**0**
16:15 to 17:15	83	5	0	**88**	1,378	30	5	**1,413**	40	2	0	**42**	0	0	0	**0**	0	0	0	**0**	1,539	26	101	**1,666**	4	0	10	**14**	0	0	0	**0**
16:30 to 17:30	86	3	0	**89**	1,406	24	5	**1,435**	39	1	0	**40**	0	0	0	**0**	0	0	0	**0**	1,643	26	112	**1,781**	3	0	13	**16**	0	0	0	**0**
16:45 to 17:45	108	3	0	**111**	1,429	18	2	**1,449**	41	0	1	**42**	0	0	0	**0**	0	0	0	**0**	1,667	25	120	**1,812**	3	0	12	**15**	0	0	0	**0**
17:00 to 18:00	120	3	0	**123**	1,391	16	3	**1,410**	55	0	1	**56**	0	0	0	**0**	0	0	0	**0**	1,680	22	132	**1,834**	3	0	13	**16**	0	0	0	**0**
17:15 to 18:15	134	1	0	**135**	1,397	14	2	**1,413**	55	0	1	**56**	0	0	0	**0**	0	0	0	**0**	1,674	24	139	**1,837**	5	0	11	**16**	0	0	0	**0**
17:30 to 18:30	140	1	0	**141**	1,343	13	3	**1,359**	58	0	1	**59**	0	0	0	**0**	0	0	0	**0**	1,668	20	129	**1,817**	6	0	9	**15**	0	0	0	**0**
PM Totals	**302**	**6**	**0**	**308**	**3,988**	**73**	**10**	**4,071**	**146**	**3**	**1**	**150**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,753**	**75**	**331**	**5,159**	**13**	**0**	**26**	**39**	**0**	**0**	**0**	**0**

Approach	Wattle St																Broadway																Crossing Pedestrians								
Direction	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12 (Right Turn)				Direction 12U (U Turn)											
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	A	B	C	D	E	F	G	H	Total
7:00 to 8:00	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	793	48	3	**844**	1,130	55	107	**1,292**	0	0	0	**0**	0	0	0	**0**	85	99	10	26	95	108	35	35	**493**
7:15 to 8:15	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	780	33	3	**816**	1,187	51	123	**1,361**	0	0	0	**0**	0	0	0	**0**	136	110	12	43	156	175	52	38	**722**
7:30 to 8:30	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	773	30	2	**805**	1,199	52	136	**1,387**	0	0	0	**0**	0	0	0	**0**	214	127	15	65	228	257	100	45	**1,051**
7:45 to 8:45	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	782	31	1	**814**	1,179	49	138	**1,366**	0	0	0	**0**	0	0	0	**0**	281	158	16	80	282	359	134	55	**1,365**
8:00 to 9:00	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	783	27	1	**811**	1,132	42	143	**1,317**	0	0	0	**0**	0	0	0	**0**	312	167	21	99	337	432	158	56	**1,582**
8:15 to 9:15	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	783	32	1	**816**	1,072	43	140	**1,255**	0	0	0	**0**	0	0	0	**0**	334	170	21	95	347	441	160	61	**1,629**
8:30 to 9:30	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	797	33	1	**831**	1,011	42	137	**1,190**	0	0	0	**0**	0	0	0	**0**	316	167	25	92	342	430	131	67	**1,570**
8:45 to 9:45	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	762	31	1	**794**	997	43	117	**1,157**	0	0	0	**0**	0	0	0	**0**	292	138	26	83	332	373	105	64	**1,413**
9:00 to 10:00	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	673	36	1	**710**	950	56	104	**1,110**	0	0	0	**0**	0	0	0	**0**	284	129	33	81	318	314	88	61	**1,308**
AM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,249**	**111**	**5**	**2,365**	**3,212**	**153**	**354**	**3,719**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**681**	**395**	**64**	**206**	**750**	**854**	**281**	**152**	**3,383**
15:30 to 16:30	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	575	12	4	**591**	802	10	79	**891**	0	0	0	**0**	0	0	0	**0**	259	326	85	70	586	581	94	117	**2,118**
15:45 to 16:45	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	580	9	6	**595**	836	10	90	**936**	0	0	0	**0**	0	0	0	**0**	265	375	88	71	563	603	102	123	**2,190**
16:00 to 17:00	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	581	7	5	**593**	870	10	92	**972**	0	0	0	**0**	0	0	0	**0**	293	406	84	72	603	656	87	136	**2,337**
16:15 to 17:15	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	565	8	5	**578**	839	9	91	**939**	0	0	0	**0**	0	0	0	**0**	316	397	96	85	672	696	98	157	**2,517**
16:30 to 17:30	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	587	8	3	**598**	895	7	93	**995**	0	0	0	**0**	0	0	0	**0**	339	396	84	76	691	727	110	159	**2,582**
16:45 to 17:45	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	573	7	1	**581**	898	6	83	**987**	0	0	0	**0**	0	0	0	**0**	355	384	95	83	740	784	121	203	**2,765**
17:00 to 18:00	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	580	5	2	**587**	947	10	76	**1,033**	0	0	0	**0**	0	0	0	**0**	328	395	104	87	775	792	127	229	**2,837**
17:15 to 18:15	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	542	5	1	**548**	925	14	67	**1,006**	0	0	0	**0**	0	0	0	**0**	306	394	95	77	720	776	138	234	**2,740**
17:30 to 18:30	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	518	7	1	**526**	934	14	63	**1,011**	0	0	0	**0**	0	0	0	**0**	293	367	98	74	728	746	123	217	**2,646**
PM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,680**	**27**	**8**	**1,715**	**2,631**	**31**	**235**	**2,897**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**891**	**1,089**	**267**	**220**	**2,005**	**2,054**	**327**	**493**	**7,346**

Client	TTPP
Date	Thu, 2nd August 2018
Description	UTS Parking Survey



[Location]
1. Mary ann St
2. Harris St
3. Thomas St
4. Wattle St
5. Regent St

Client	TTPP
Location	1. Mary ann St
Date	Thu, 2nd August 2018
Description	UTS Parking Survey

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Mary ann St_North Side													
Wattle St													
	No Stopping												
	Loading Zone	7am-6pm (Mon-Fri) & 7am-10am (Sat)											
	1P Ticket	6pm-9pm (Mon-Fri) & 10am-9pm (Sat-Sun) Public holidays permit holders excepted area 20	3	0	0	0	1	1	2	2	2	1	0
	No Stopping												
Wattle Ln													
	No Stopping												
	1P Ticket	10am-9pm Permit holders excepted area 20	2	1	2	2	2	2	2	2	2	2	2
	No Stopping												
Mckee St													
	No Stopping												
	1P Ticket	10am-9pm Permit holders excepted area 20	5	4	5	5	3	4	5	5	5	5	5
	No Parking							2 Bikes	2 Bikes	2 Bikes	2 Bikes	2 Bikes	2 Bikes
	P	Motorbikes only	11	11	11	11	11	11	11	11	11	11	11
	1P Ticket	10am-9pm Permit holders excepted area 20	11	9	10	11	11	11	10	10	10	9	9
	No Parking	Authorised car share vehicles excepted zone H24/7	1	1	1	1	1	1	1	1	1	1	1
	No Stopping												
Bulwara Rd													
	No Stopping												
	1P Ticket	10am-9pm Permit holders excepted area 20	5	4	4	4	4	5	5	5	5	5	5
	No Stopping												
Hackett St													
	No Stopping												
Harris St													
	Total		**38**	**30**	**33**	**34**	**33**	**35**	**36**	**36**	**36**	**34**	**33**
	% Capacity			79%	87%	89%	87%	92%	95%	95%	95%	89%	87%

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Mary ann St_South Side													
Harris St													
	No Stopping												
	No Parking												
	2P Ticket	8am-7pm permit holders excepted area 20 60' angle parking rear to kerb vehicles under 6m only	13	8	10	12	13	13	13	12	13	12	12
	No Parking												
	2P Ticket	8am-7pm permit holders excepted area 20 60' angle parking rear to kerb vehicles under 6m only	15	6	12	15	15	15	15	15	15	15	15
	No Parking												
	P	Disable only	2	0	0	1	2	2	2	2	2	2	2
	No Parking												
	2P Ticket	8am-7pm permit holders excepted area 20 60' angle parking rear to kerb vehicles under 6m only	22	5	17	22	22	22	21	20	20	21	20
	No Parking	Authorised car share vehicles excepted Zone GG	1	1	1	1	1	1	1	1	1	1	1
Wattle St													
	Total		**53**	**20**	**40**	**51**	**53**	**53**	**52**	**50**	**51**	**51**	**50**
	% Capacity			38%	75%	96%	100%	100%	98%	94%	96%	96%	94%

Client	TTPP
Location	2. Harris St
Date	Thu, 2nd August 2018
Description	UTS Parking Survey

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Harris St_East Side													
Mary ann St													
	No Stopping & Clearway	CW - 6am-10am, 3pm-7pm (Mon-Fri)											
Ultimo Rd													
	No Stopping												
	No Parking & Clearway	CW - 6am-10am, 3pm-7pm (Mon-Fri)											
	No Stopping & Clearway	CW - 6am-10am, 3pm-7pm (Mon-Fri)											
Opposite of Harris St													
	Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	% Capacity			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Harris St_West Side													
Thomas St													
	No Stopping												
	Mail Zone		1	0	0	0	0	0	0	0	0	0	0
	No Stopping												
	Bus Zone & Clearway	CW - 3pm-7pm (Mon-Fri)											
	No Stopping												
Mary ann St													
	Total		**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	% Capacity			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Client	TTPP
Location	3. Thomas St
Date	Thu, 2nd August 2018
Description	UTS Parking Survey

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Thomas St_North Side													
Wattle St													
	No Stopping												
	Bus Zone												
	2P Ticket	8am-7pm	3	3	3	3	3	3	3	3	3	3	3
	No Parking	Authorised car share vehicles excepted Zone GG	1	1	1	1	1	1	1	1	1	1	1
	No Parking												
Jones St													
	No Parking												
	2P Ticket	8am-7pm	7	7	7	7	7	7	7	7	7	7	7
	1/4P & 2P Ticket	8am-7pm (Mon-Fri) 8am-7pm (Sun&Public holidays)	2	1	1	2	2	2	2	2	2	2	2
	No Parking												
	No Stopping												
	2P Ticket	8am-7pm	5	2	2	2	3	5	5	5	5	4	4
	No Parking												
	Loading Zone & 2P Ticket	8am-7pm (Mon-Fri) 8am-7pm (Sun&Public holidays)	2	1	1	1	2	2	2	2	2	1	1
	No Stopping												
Harris St													
	Total		**20**	**15**	**15**	**16**	**18**	**20**	**20**	**20**	**20**	**18**	**18**
	% Capacity			75%	75%	80%	90%	100%	100%	100%	100%	90%	90%

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Thomas St_ South Side													
Harris St													
	No Stopping												
	Loading Zone	8am-7pm (Mon-Fri)	2	0	1	2	2	1	2	2	1	1	0
	2P Ticket	8am-7pm	5	4	4	5	5	5	5	5	5	5	5
	No Stopping												
	No Parking												
	No Parking	7am-10pm (Mon-Fri) Motorbikes excepted	95	44	65	80	93	95	95	95	91	84	86
Jones St													
	No Stopping												
	2P Ticket		9	5	7	9	7	7	7	7	7	8	8
	No Stopping												
Wattle St													
	Total		**111**	**53**	**77**	**96**	**107**	**108**	**109**	**109**	**104**	**98**	**99**
	% Capacity			48%	69%	86%	96%	97%	98%	98%	94%	88%	89%

Client	TTPP
Location	4. Wattle St
Date	Thu, 2nd August 2018
Description	UTS Parking Survey

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Wattle St_East Side													
Mary ann St													
	No Stopping												
	2P Ticket	8am-7pm	4	1	2	4	4	3	3	4	4	4	4
	No Stopping & No Parking	NS - 6am-10am / 3pm-8pm (Mon-Fri)											
	No Stopping												
Thomas St													
	No Stopping												
Broadway													
	Total		**4**	**1**	**2**	**4**	**4**	**3**	**3**	**4**	**4**	**4**	**4**
	% Capacity			**25%**	**50%**	**100%**	**100%**	**75%**	**75%**	**100%**	**100%**	**100%**	**100%**

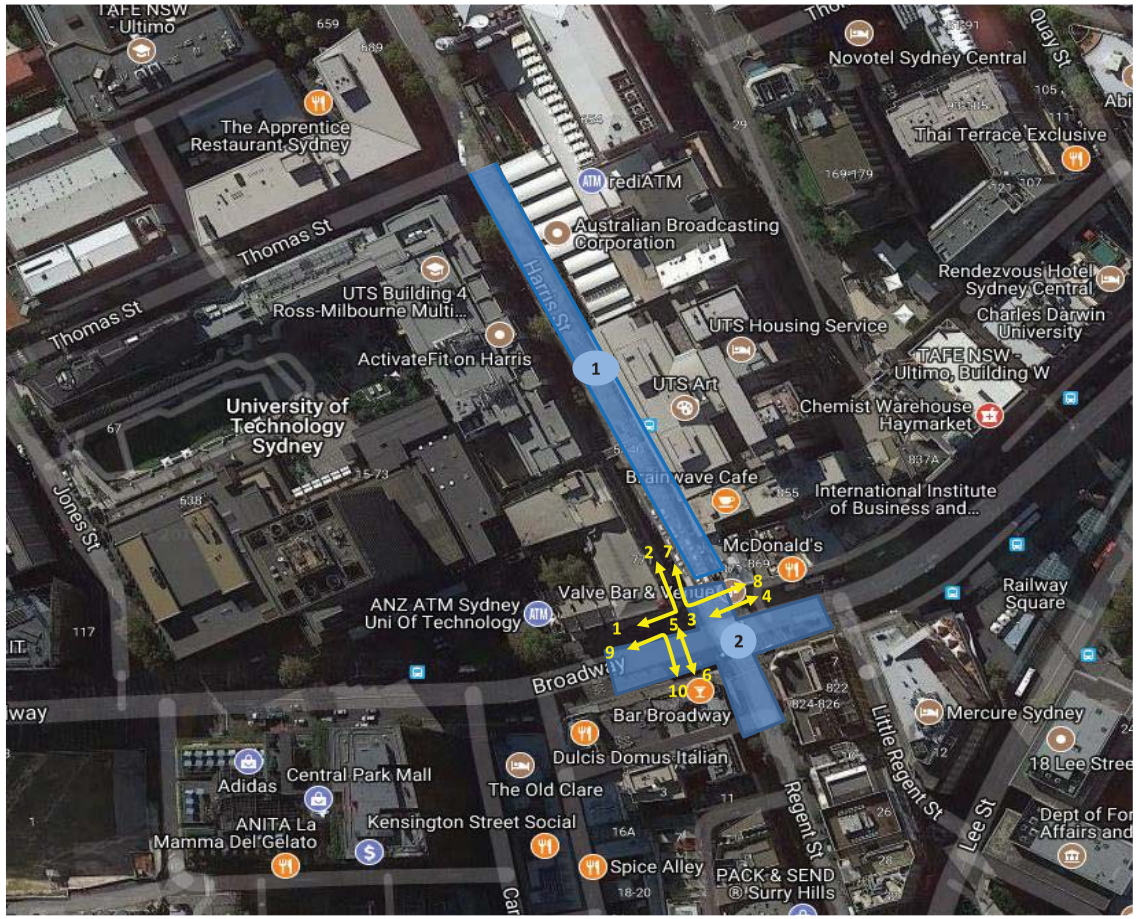
Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Wattle St_West Side													
Broadway													
	No Stopping												
Wattle Pl													
	No Stopping												
	No Parking & Clearway	CW - 6am-10am / 3pm-7pm (Mon-Fri)											
	1P & Clearway	1P - 10am-3pm (Mon-Fri) CW - 6am-10am / 3pm-7pm (Mon-Fri)	17	0	0	0	14	15	14	13	7	0	0
House No.43													
	Total		**17**	**0**	**0**	**0**	**14**	**15**	**14**	**13**	**7**	**0**	**0**
	% Capacity			**0%**	**0%**	**0%**	**82%**	**88%**	**82%**	**76%**	**41%**	**0%**	**0%**

Client	TTPP
Location	5. Regent St
Date	Thu, 2nd August 2018
Description	UTS Parking Survey

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Regent St_East Side													
George St													
	No Stopping												
	Mail Zone		1	0	0	0	0	0	0	0	0	0	0
	No Parking & Loading Zone & 4P Ticket	3pm-7pm (Mon-Fri) Coaches excepted 7am-3pm (Mon-Fri) & 7am-10am(Sat) 7pm-10pm (Mon-Fri) & 10am-10pm (Sat) & 8am-10pm (Sun&Public holiday)	2	1	2	2	2	2	2	2	1	0	0
	No Parking							1					
	No Parking & Loading Zone & 4P Ticket	3pm-7pm (Mon-Fri) Coaches excepted 7am-3pm (Mon-Fri) & 7am-10am(Sat) 7pm-10pm (Mon-Fri) & 10am-10pm (Sat) & 8am-10pm (Sun&Public holiday)	5	0	3	4	5	2	1	1	1	2	2
	No Parking	3pm-7pm (Mon-Fri) Coaches excepted	5	0	1	0	0	2	1	0	1	2	3
	No Stopping												
Lee St													
	Total		**13**	**1**	**6**	**6**	**7**	**7**	**4**	**3**	**3**	**4**	**5**
	% Capacity			**8%**	**46%**	**46%**	**54%**	**54%**	**31%**	**23%**	**23%**	**31%**	**38%**

Side of the Street	Parking Restriction	Time Restrictions	Available Spaces	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
Regent St_West Side													
Regent St													
	No Stopping												
	Work Zone & No Stopping	WZ - 10am-3pm (Mon-Fri) & 8am-1pm (Sat)	3	0	0	0	0	0	0	0	0	0	0
	No Stopping												
Goold St													
	No Stopping												
George St													
	Total		**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	% Capacity			**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**

Client	TTPP
Location	Harris St & Broadway
Date	Thu, 2nd August 2018
Survey Time	07:00-17:00 (10hrs)
Description	UTS Ped Survey



N

Location

1. Harris St, between Thomas St and Broadway
2. Harris St / Broadway

Pedestrians Direction

Client	TTPP
Location	1. Harris St, between Thomas St and Broadway
Date	Thu, 2nd August 2018
Survey Time	07:00-17:00 (10hrs)
Description	UTS Ped Survey

MATRIX Traffic and Transport Data

[15mins interval]

1. Harris St, between Thomas St and Broadway			
Time Periods	Eastbound	Westbound	Total
7:00 to 7:15	4	7	**11**
7:15 to 7:30	11	16	**27**
7:30 to 7:45	11	21	**32**
7:45 to 8:00	16	43	**59**
8:00 to 8:15	16	25	**41**
8:15 to 8:30	22	29	**51**
8:30 to 8:45	30	52	**82**
8:45 to 9:00	43	95	**138**
9:00 to 9:15	32	57	**89**
9:15 to 9:30	34	43	**77**
9:30 to 9:45	23	40	**63**
9:45 to 10:00	53	51	**104**
10:00 to 10:15	42	36	**78**
10:15 to 10:30	35	26	**61**
10:30 to 10:45	69	73	**142**
10:45 to 11:00	85	98	**183**
11:00 to 11:15	50	74	**124**
11:15 to 11:30	74	32	**106**
11:30 to 11:45	87	67	**154**
11:45 to 12:00	109	82	**191**
12:00 to 12:15	111	81	**192**
12:15 to 12:30	90	73	**163**
12:30 to 12:45	97	59	**156**
12:45 to 13:00	143	123	**266**
13:00 to 13:15	135	72	**207**
13:15 to 13:30	86	48	**134**
13:30 to 13:45	115	55	**170**
13:45 to 14:00	129	82	**211**
14:00 to 14:15	89	53	**142**
14:15 to 14:30	80	53	**133**
14:30 to 14:45	113	77	**190**
14:45 to 15:00	94	84	**178**
15:00 to 15:15	110	61	**171**
15:15 to 15:30	87	34	**121**
15:30 to 15:45	118	31	**149**
15:45 to 16:00	168	74	**242**
16:00 to 16:15	114	58	**172**
16:15 to 16:30	96	40	**136**
16:30 to 16:45	80	40	**120**
16:45 to 17:00	131	61	**192**
Totals	**3,032**	**2,226**	**5,258**

[Hourly Summary]

1. Harris St, between Thomas St and Broadway			
Time Periods	Eastbound	Westbound	Total
7:00 to 8:00	42	87	**129**
7:15 to 8:15	54	105	**159**
7:30 to 8:30	65	118	**183**
7:45 to 8:45	84	149	**233**
8:00 to 9:00	111	201	**312**
8:15 to 9:15	127	233	**360**
8:30 to 9:30	139	247	**386**
8:45 to 9:45	132	235	**367**
9:00 to 10:00	142	191	**333**
9:15 to 10:15	152	170	**322**
9:30 to 10:30	153	153	**306**
9:45 to 10:45	199	186	**385**
10:00 to 11:00	231	233	**464**
10:15 to 11:15	239	271	**510**
10:30 to 11:30	278	277	**555**
10:45 to 11:45	296	271	**567**
11:00 to 12:00	320	255	**575**
11:15 to 12:15	381	262	**643**
11:30 to 12:30	397	303	**700**
11:45 to 12:45	407	295	**702**
12:00 to 13:00	441	336	**777**
12:15 to 13:15	465	327	**792**
12:30 to 13:30	461	302	**763**
12:45 to 13:45	479	298	**777**
13:00 to 14:00	465	257	**722**
13:15 to 14:15	419	238	**657**
13:30 to 14:30	413	243	**656**
13:45 to 14:45	411	265	**676**
14:00 to 15:00	376	267	**643**
14:15 to 15:15	397	275	**672**
14:30 to 15:30	404	256	**660**
14:45 to 15:45	409	210	**619**
15:00 to 16:00	483	200	**683**
15:15 to 16:15	487	197	**684**
15:30 to 16:30	496	203	**699**
15:45 to 16:45	458	212	**670**
16:00 to 17:00	421	199	**620**
Totals	**3,032**	**2,226**	**5,258**

[Peak Hour Summary]

	1. Harris St, between Thomas St and Broadway			
	Time Periods	Eastbound	Westbound	Total
AM	11:00 to 12:00	320	255	**575**
PM	12:15 to 13:15	465	327	**792**

Client	TTPP
Location	2. Harris St / Broadway
Date	Thu, 2nd August 2018
Survey Time	07:00-17:00 (10hrs)
Description	UTS Ped Survey

MATRIX Traffic and Transport Data

[15mins interval]

2. Harris St / Broadway											
Time Periods	1	2	3	4	5	6	7	8	9	10	Total
7:00 to 7:15	2	0	48	33	8	4	11	0	6	9	**121**
7:15 to 7:30	0	0	56	29	12	9	14	0	6	0	**126**
7:30 to 7:45	0	5	122	32	18	6	45	2	17	3	**250**
7:45 to 8:00	3	10	188	37	28	2	59	4	16	7	**354**
8:00 to 8:15	10	11	184	67	21	6	52	3	20	5	**379**
8:15 to 8:30	2	21	236	103	35	15	68	5	25	2	**512**
8:30 to 8:45	13	20	362	81	61	30	122	4	37	8	**738**
8:45 to 9:00	6	24	483	85	100	14	225	4	63	8	**1,012**
9:00 to 9:15	5	26	326	86	53	6	136	8	48	16	**710**
9:15 to 9:30	8	28	241	79	56	19	71	8	20	7	**537**
9:30 to 9:45	12	19	273	87	42	13	55	3	32	11	**547**
9:45 to 10:00	10	19	266	120	49	29	90	8	24	4	**619**
10:00 to 10:15	12	15	260	98	30	24	35	4	17	6	**501**
10:15 to 10:30	28	7	247	92	21	31	19	12	20	1	**478**
10:30 to 10:45	17	10	290	150	24	44	36	35	12	22	**640**
10:45 to 11:00	29	16	289	148	41	28	33	28	29	19	**660**
11:00 to 11:15	14	10	252	157	29	31	23	8	25	18	**567**
11:15 to 11:30	22	22	174	208	33	34	26	16	23	27	**585**
11:30 to 11:45	14	14	254	226	33	52	28	17	19	6	**663**
11:45 to 12:00	33	21	227	234	41	76	52	27	18	4	**733**
12:00 to 12:15	44	36	238	249	49	106	31	29	27	3	**812**
12:15 to 12:30	37	24	225	280	69	92	28	14	14	7	**790**
12:30 to 12:45	23	48	324	252	83	96	43	28	8	2	**907**
12:45 to 13:00	38	69	309	282	84	86	62	29	34	1	**994**
13:00 to 13:15	30	54	267	300	79	109	65	39	10	9	**962**
13:15 to 13:30	41	29	242	273	87	73	45	29	17	5	**841**
13:30 to 13:45	26	22	301	310	56	71	44	27	28	8	**893**
13:45 to 14:00	28	35	253	279	73	80	29	24	15	10	**826**
14:00 to 14:15	38	26	220	318	58	78	29	33	21	3	**824**
14:15 to 14:30	25	26	192	272	50	56	13	17	14	2	**667**
14:30 to 14:45	28	30	261	298	43	60	45	36	22	2	**825**
14:45 to 15:00	42	29	242	430	52	75	31	36	19	5	**961**
15:00 to 15:15	41	25	246	287	35	80	26	51	15	5	**734**
15:15 to 15:30	30	29	175	298	37	64	12	29	15	13	**661**
15:30 to 15:45	22	29	211	284	43	86	22	51	12	4	**691**
15:45 to 16:00	31	43	206	279	53	76	33	45	22	11	**721**
16:00 to 16:15	32	22	198	368	34	77	21	35	24	18	**829**
16:15 to 16:30	36	26	215	354	45	85	19	41	16	20	**857**
16:30 to 16:45	38	31	250	345	29	87	25	58	12	8	**883**
16:45 to 17:00	37	56	241	338	48	109	29	63	17	5	**943**
Totals	**907**	**987**	**9,594**	**8,248**	**1,842**	**2,119**	**1,759**	**734**	**839**	**324**	**27,353**

[Peak Hour Summary]

	2. Harris St / Broadway										
	Time Periods	1	2	3	4	5	6	7	8	9	10	Total
AM	8:30 to 9:30	32	98	1,412	331	270	69	554	24	168	39	**2,997**
PM	12:30 to 13:30	132	200	1,142	1,107	333	364	215	125	69	17	**3,704**

[Hourly Summary]

2. Harris St / Broadway											
Time Periods	1	2	3	4	5	6	7	8	9	10	Total
7:00 to 8:00	5	15	414	131	66	21	129	6	45	19	**851**
7:15 to 8:15	13	26	550	165	79	23	170	9	59	15	**1,109**
7:30 to 8:30	15	47	730	239	102	29	224	14	78	17	**1,495**
7:45 to 8:45	28	62	970	288	145	53	301	16	98	22	**1,983**
8:00 to 9:00	31	76	1,265	336	217	65	467	16	145	23	**2,641**
8:15 to 9:15	26	91	1,407	355	249	65	551	21	173	34	**2,972**
8:30 to 9:30	32	98	1,412	331	270	69	554	24	168	39	**2,997**
8:45 to 9:45	31	97	1,323	337	251	52	487	23	163	42	**2,806**
9:00 to 10:00	35	92	1,106	372	200	67	352	27	124	38	**2,413**
9:15 to 10:15	42	81	1,040	384	177	85	251	23	93	28	**2,204**
9:30 to 10:30	62	60	1,046	397	142	97	199	27	93	22	**2,145**
9:45 to 10:45	67	51	1,063	460	124	128	180	59	73	33	**2,238**
10:00 to 11:00	86	48	1,086	488	116	127	123	79	78	48	**2,279**
10:15 to 11:15	88	43	1,078	547	115	134	111	83	86	60	**2,345**
10:30 to 11:30	82	58	1,005	663	127	137	118	87	89	86	**2,452**
10:45 to 11:45	79	62	969	739	136	145	110	69	96	70	**2,475**
11:00 to 12:00	83	67	907	825	136	193	129	68	85	55	**2,548**
11:15 to 12:15	113	93	893	917	156	268	137	89	87	40	**2,793**
11:30 to 12:30	128	95	944	989	192	326	139	87	78	20	**2,998**
11:45 to 12:45	137	129	1,014	1,015	242	370	154	98	67	16	**3,242**
12:00 to 13:00	142	177	1,096	1,063	285	380	164	100	83	13	**3,503**
12:15 to 13:15	128	195	1,125	1,114	315	383	198	110	66	19	**3,653**
12:30 to 13:30	132	200	1,142	1,107	333	364	215	125	69	17	**3,704**
12:45 to 13:45	135	174	1,119	1,165	306	339	216	124	89	23	**3,690**
13:00 to 14:00	125	140	1,063	1,162	295	333	183	119	70	32	**3,522**
13:15 to 14:15	133	112	1,016	1,180	274	302	147	113	81	26	**3,384**
13:30 to 14:30	117	109	966	1,179	237	285	115	101	78	23	**3,210**
13:45 to 14:45	119	117	926	1,167	224	274	116	110	72	17	**3,142**
14:00 to 15:00	133	111	915	1,318	203	269	118	122	76	12	**3,277**
14:15 to 15:15	136	110	941	1,287	180	271	89	89	70	14	**3,187**
14:30 to 15:30	141	113	924	1,313	167	279	76	72	71	25	**3,181**
14:45 to 15:45	135	112	874	1,299	167	305	31	36	61	27	**3,047**
15:00 to 16:00	124	126	838	1,148	168	306	0	0	64	33	**2,807**
15:15 to 16:15	115	123	790	1,229	167	303	21	35	73	46	**2,902**
15:30 to 16:30	121	120	830	1,285	175	324	40	76	74	53	**3,098**
15:45 to 16:45	137	122	869	1,346	161	325	65	134	74	57	**3,290**
16:00 to 17:00	143	135	904	1,405	156	358	94	197	69	51	**3,512**
Totals	**907**	**987**	**9,594**	**8,248**	**1,842**	**2,119**	**1,759**	**734**	**839**	**324**	**27,353**

Appendix B

SIDRA Outputs

MOVEMENT SUMMARY

Site: 101 [Broadway-George St-Harris St-Regent St Ex AM]

Network: N101 [Ex AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: George St														
4	L2	31	10.3	31	10.3	0.191	24.0	LOS B	3.4	39.3	0.65	0.56	0.65	24.1
5	T1	506	18.3	506	18.3	0.191	19.6	LOS B	4.6	33.4	0.64	0.53	0.64	19.0
Approach		537	17.8	537	17.8	0.191	19.8	LOS B	4.6	39.3	0.64	0.53	0.64	19.4
North: Harris St														
7	L2	146	12.9	146	12.9	0.330	40.1	LOS C	6.2	48.2	0.83	0.77	0.83	19.3
8	T1	1538	5.3	1538	5.3	0.764	26.1	LOS B	25.0	182.7	0.82	0.75	0.83	24.1
9	R2	493	5.3	493	5.3	0.764	46.4	LOS D	20.1	147.1	0.97	0.88	1.03	11.9
Approach		2177	5.8	2177	5.8	0.764	31.6	LOS C	25.0	182.7	0.86	0.78	0.88	20.7
West: Broadway														
11	T1	1363	14.0	1363	14.0	0.490	20.6	LOS B	12.5	90.2	0.60	0.61	0.60	30.3
Approach		1363	14.0	1363	14.0	0.490	20.6	LOS B	12.5	90.2	0.60	0.61	0.60	30.3
All Vehicles		4077	10.1	4077	10.1	0.764	26.4	LOS B	25.0	182.7	0.74	0.69	0.75	24.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	673	50.6	LOS E	2.0	2.0	0.97	0.97
P2	East Full Crossing	465	50.1	LOS E	1.4	1.4	0.96	0.96
P3	North Full Crossing	1259	51.9	LOS E	3.9	3.9	1.00	1.00
P4	West Full Crossing	512	50.2	LOS E	1.5	1.5	0.97	0.97
All Pedestrians		2908	51.0	LOS E			0.98	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Thomas St Ex AM]

Network: N101 [Ex AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthWest: Harris St -NW														
28	T1	2318	5.0	2318	5.0	0.612	0.6	LOS A	2.3	16.7	0.05	0.08	0.05	42.7
29	R2	186	2.3	186	2.3	0.612	4.9	LOS A	2.2	15.7	0.05	0.17	0.05	38.1
Approach		2504	4.7	2504	4.7	0.612	0.9	LOS A	2.3	16.7	0.05	0.09	0.05	42.3
SouthWest: Thomas St														
30	L2	23	27.3	23	27.3	0.401	52.0	LOS D	4.5	36.3	0.96	0.77	0.96	13.4
32	R2	65	14.5	65	14.5	0.401	52.3	LOS D	4.5	36.3	0.96	0.77	0.96	13.4
Approach		88	17.9	88	17.9	0.401	52.2	LOS D	4.5	36.3	0.96	0.77	0.96	13.4
All Vehicles		2593	5.2	2593	5.2	0.612	2.7	LOS A	4.5	36.3	0.09	0.11	0.09	33.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P8	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Ultimo Rd Ex AM]

Network: N101 [Ex AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Harris St - SE														
22	T1	22	28.6	22	28.6	0.017	10.5	LOS A	0.9	7.7	0.80	0.60	0.80	25.3
Approach		22	28.6	22	28.6	0.017	10.5	LOS A	0.9	7.7	0.80	0.60	0.80	25.3
NorthEast: Ultimo Rd														
24	L2	249	5.5	249	5.5	0.516	53.6	LOS D	6.5	47.5	0.98	0.79	0.98	7.1
26	R2	75	9.9	75	9.9	0.296	51.8	LOS D	3.7	28.1	0.94	0.76	0.94	10.1
Approach		324	6.5	324	6.5	0.516	53.2	LOS D	6.5	47.5	0.97	0.78	0.97	7.8
NorthWest: Harris St - NW														
27	L2	141	3.0	141	3.0	0.571	6.1	LOS A	4.7	33.8	0.12	0.20	0.12	40.5
28	T1	2262	4.5	2262	4.5	0.571	0.8	LOS A	4.7	33.8	0.07	0.09	0.07	42.9
Approach		2403	4.4	2403	4.4	0.571	1.1	LOS A	4.7	33.8	0.07	0.10	0.07	42.6
All Vehicles		2749	4.9	2749	4.9	0.571	7.4	LOS A	6.5	47.5	0.18	0.18	0.18	24.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6B	NorthEast Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Broadway-Wattle St-Abercrombie St Ex AM]

Network: N101 [Ex AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 124 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Abercrombie St														
1	L2	71	7.5	71	7.5	0.663	44.9	LOS D	20.0	145.9	0.93	0.81	0.93	27.2
2	T1	1396	4.3	1396	4.3	0.663	40.3	LOS C	20.0	145.9	0.93	0.81	0.93	13.0
3	R2	51	14.6	51	14.6	0.663	45.0	LOS D	19.9	146.4	0.93	0.81	0.93	12.9
Approach		1517	4.8	1517	4.8	0.663	40.7	LOS C	20.0	146.4	0.93	0.81	0.93	14.0
East: Broadway - E														
5	T1	1041	11.8	1041	11.8	0.295	12.8	LOS A	9.4	68.3	0.52	0.45	0.52	41.2
6	R2	4	100.0	4	100.0	0.031	28.2	LOS B	0.2	2.1	0.64	0.65	0.64	22.9
Approach		1045	12.2	1045	12.2	0.295	12.8	LOS A	9.4	68.3	0.52	0.45	0.52	41.1
West: Broadway - W														
10	L2	857	3.9	857	3.9	0.946	49.6	LOS D	58.6	424.0	0.99	1.03	1.18	21.8
11	T1	1438	13.7	1438	13.7	0.569	19.2	LOS B	16.1	126.1	0.60	0.54	0.60	33.0
Approach		2295	10.0	2295	10.0	0.946	30.6	LOS C	58.6	424.0	0.75	0.72	0.82	27.6
All Vehicles		4857	8.9	4857	8.9	0.946	29.9	LOS C	58.6	424.0	0.75	0.69	0.79	27.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	504	57.4	LOS E	1.7	1.7	0.97	0.97
P2	East Full Crossing	126	56.4	LOS E	0.4	0.4	0.96	0.96
P3	North Full Crossing	809	58.1	LOS E	2.8	2.8	0.98	0.98
P4	West Full Crossing	225	56.7	LOS E	0.8	0.8	0.96	0.96
P4B	West Slip/Bypass Lane Crossing	737	57.9	LOS E	2.5	2.5	0.98	0.98
All Pedestrians		2402	57.7	LOS E			0.98	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [Wattle St-Thomas Street Ex AM]

Network: N101 [Ex AM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wattle St - S														
2	T1	1108	5.3	1108	5.3	0.299	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3a	R1	1053	2.0	1053	2.0	0.539	3.3	LOS A	0.0	0.0	0.00	0.42	0.00	44.0
3	R2	185	8.0	185	8.0	0.135	4.6	LOS A	0.0	0.0	0.00	0.52	0.00	29.1
Approach		2346	4.0	2346	4.0	0.539	1.8	NA	0.0	0.0	0.00	0.23	0.00	46.2
East: Thomas St														
6b	R3	124	4.2	124	4.2	0.750	52.1	LOS D	4.2	30.8	0.95	1.32	1.94	19.8
Approach		124	4.2	124	4.2	0.750	52.1	LOS D	4.2	30.8	0.95	1.32	1.94	19.8
All Vehicles		2471	4.0	2471	4.0	0.750	4.4	NA	4.2	30.8	0.05	0.28	0.10	41.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Broadway-George St-Harris St-Regent St Ex PM]

Network: N101 [Ex PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: George St														
4	L2	23	18.2	23	18.2	0.350	27.9	LOS B	5.4	66.4	0.65	0.56	0.65	22.5
5	T1	1078	14.5	1078	14.5	0.437	24.7	LOS B	10.6	75.0	0.67	0.58	0.67	16.8
Approach		1101	14.5	1101	14.5	0.437	24.7	LOS B	10.6	75.0	0.67	0.58	0.67	16.9
North: Harris St														
7	L2	245	4.7	245	4.7	0.421	27.1	LOS B	8.2	59.7	0.66	0.74	0.66	23.7
8	T1	1597	1.9	1597	1.9	0.806	19.5	LOS B	29.8	212.3	0.77	0.72	0.79	27.8
9	R2	914	1.5	914	1.5	0.806	44.4	LOS D	25.2	177.4	0.98	0.91	1.06	12.2
Approach		2756	2.0	2756	2.0	0.806	28.4	LOS B	29.8	212.3	0.83	0.78	0.87	21.3
West: Broadway														
11	T1	975	9.0	975	9.0	0.410	27.8	LOS B	11.7	82.3	0.77	0.71	0.77	27.1
Approach		975	9.0	975	9.0	0.410	27.8	LOS B	11.7	82.3	0.77	0.71	0.77	27.1
All Vehicles		4832	6.3	4832	6.3	0.806	27.5	LOS B	29.8	212.3	0.78	0.72	0.80	22.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	900	51.1	LOS E	2.8	2.8	0.98	0.98
P2	East Full Crossing	848	51.0	LOS E	2.6	2.6	0.98	0.98
P3	North Full Crossing	3368	57.2	LOS E	11.6	11.6	1.10	1.10
P4	West Full Crossing	760	50.8	LOS E	2.3	2.3	0.98	0.98
All Pedestrians		5877	54.5	LOS E			1.05	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Thomas St Ex PM]

Network: N101 [Ex PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthWest: Harris St -NW														
28	T1	2806	1.9	2806	1.9	0.828	2.8	LOS A	12.2	87.1	0.22	0.23	0.23	31.6
29	R2	147	2.9	147	2.9	0.828	7.4	LOS A	11.0	78.7	0.22	0.28	0.24	28.6
Approach		2954	1.9	2954	1.9	0.828	3.0	LOS A	12.2	87.1	0.22	0.24	0.23	31.4
SouthWest: Thomas St														
30	L2	38	30.6	38	30.6	0.551	49.7	LOS D	7.7	58.1	0.96	0.80	0.96	13.8
32	R2	115	1.8	115	1.8	0.551	50.0	LOS D	7.7	58.1	0.96	0.80	0.96	13.8
Approach		153	9.0	153	9.0	0.551	49.9	LOS D	7.7	58.1	0.96	0.80	0.96	13.8
All Vehicles		3106	2.3	3106	2.3	0.828	5.3	LOS A	12.2	87.1	0.26	0.27	0.27	25.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P8	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Ultimo Rd Ex PM]

Network: N101 [Ex PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Harris St - SE														
22	T1	38	30.6	38	30.6	0.034	18.5	LOS B	1.8	15.6	0.93	0.72	0.93	34.6
Approach		38	30.6	38	30.6	0.034	18.5	LOS B	1.8	15.6	0.93	0.72	0.93	34.6
NorthEast: Ultimo Rd														
24	L2	543	2.3	543	2.3	0.803	51.8	LOS D	16.0	114.1	0.98	0.93	1.14	7.3
26	R2	163	1.3	163	1.3	0.338	41.5	LOS C	7.2	51.2	0.87	0.78	0.87	25.7
Approach		706	2.1	706	2.1	0.803	49.4	LOS D	16.0	114.1	0.95	0.90	1.08	12.8
NorthWest: Harris St - NW														
27	L2	134	0.0	134	0.0	0.812	14.7	LOS B	22.2	157.3	0.56	0.57	0.58	39.6
28	T1	2418	1.8	2418	1.8	0.812	8.0	LOS A	22.2	158.0	0.52	0.50	0.53	41.0
Approach		2552	1.7	2552	1.7	0.812	8.4	LOS A	22.2	158.0	0.52	0.50	0.53	40.9
All Vehicles		3296	2.1	3296	2.1	0.812	17.3	LOS B	22.2	158.0	0.62	0.59	0.65	32.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6B	NorthEast Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Broadway-Wattle St-Abercrombie St Ex PM]

Network: N101 [Ex PM]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 123 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Abercrombie St														
1	L2	129	2.4	129	2.4	0.628	40.3	LOS C	20.7	147.3	0.89	0.80	0.89	28.4
2	T1	1484	1.3	1484	1.3	0.628	35.7	LOS C	21.0	148.5	0.89	0.79	0.89	14.1
3	R2	59	1.8	59	1.8	0.628	40.3	LOS C	21.0	148.5	0.89	0.79	0.89	14.0
Approach		1673	1.4	1673	1.4	0.628	36.2	LOS C	21.0	148.5	0.89	0.79	0.89	15.9
East: Broadway - E														
5	T1	1931	8.4	1931	8.4	0.596	18.8	LOS B	24.4	172.9	0.70	0.63	0.70	38.0
6	R2	14	100.0	14	100.0	0.080	31.0	LOS C	0.5	7.1	0.69	0.69	0.69	21.7
Approach		1944	9.0	1944	9.0	0.596	18.9	LOS B	24.4	172.9	0.70	0.63	0.70	37.9
West: Broadway - W														
10	L2	618	1.2	618	1.2	0.766	36.8	LOS C	31.4	222.1	0.92	0.86	0.92	25.5
11	T1	1087	8.3	1087	8.3	0.477	27.4	LOS B	15.6	117.1	0.77	0.68	0.77	28.9
Approach		1705	5.7	1705	5.7	0.766	30.8	LOS C	31.4	222.1	0.83	0.74	0.83	27.5
All Vehicles		5322	5.6	5322	5.6	0.766	28.2	LOS B	31.4	222.1	0.80	0.71	0.80	29.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	761	57.5	LOS E	2.6	2.6	0.98	0.98
P2	East Full Crossing	201	56.1	LOS E	0.7	0.7	0.96	0.96
P3	North Full Crossing	1649	59.8	LOS E	5.9	5.9	1.02	1.02
P4	West Full Crossing	375	56.5	LOS E	1.3	1.3	0.97	0.97
P4B	West Slip/Bypass Lane Crossing	1579	59.6	LOS E	5.6	5.6	1.02	1.02
All Pedestrians		4565	58.9	LOS E			1.01	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [Wattle St-Thomas Street Ex PM]

Network: N101 [Ex PM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wattle St - S														
2	T1	1061	2.3	1061	2.3	0.280	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3a	R1	1053	0.4	1053	0.4	0.507	3.3	LOS A	0.0	0.0	0.00	0.42	0.00	44.0
3	R2	126	8.3	126	8.3	0.127	4.6	LOS A	0.0	0.0	0.00	0.49	0.00	30.3
Approach		2240	1.7	2240	1.7	0.507	1.8	NA	0.0	0.0	0.00	0.22	0.00	46.4
East: Thomas St														
6b	R3	122	3.4	122	3.4	0.629	36.5	LOS C	3.2	23.3	0.92	1.19	1.57	23.7
Approach		122	3.4	122	3.4	0.629	36.5	LOS C	3.2	23.3	0.92	1.19	1.57	23.7
All Vehicles		2362	1.8	2362	1.8	0.629	3.6	NA	3.2	23.3	0.05	0.27	0.08	42.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Broadway-George St-Harris St-Regent St Post Dev PM]

Network: N101 [Post Dev PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: George St														
4	L2	23	18.2	23	18.2	0.350	27.9	LOS B	5.4	66.4	0.65	0.56	0.65	22.5
5	T1	1078	14.5	1078	14.5	0.437	24.7	LOS B	10.6	75.0	0.67	0.58	0.67	16.8
Approach		1101	14.5	1101	14.5	0.437	24.7	LOS B	10.6	75.0	0.67	0.58	0.67	16.9
North: Harris St														
7	L2	246	4.7	246	4.7	0.423	27.4	LOS B	8.3	60.4	0.67	0.74	0.67	23.6
8	T1	1604	1.9	1604	1.9	0.810	19.7	LOS B	30.2	215.0	0.78	0.72	0.79	27.6
9	R2	917	1.5	917	1.5	0.810	44.6	LOS D	25.4	179.0	0.98	0.91	1.06	12.1
Approach		2767	2.0	2767	2.0	0.810	28.7	LOS C	30.2	215.0	0.83	0.79	0.87	21.2
West: Broadway														
11	T1	975	9.0	975	9.0	0.410	27.8	LOS B	11.7	82.3	0.77	0.71	0.77	27.1
Approach		975	9.0	975	9.0	0.410	27.8	LOS B	11.7	82.3	0.77	0.71	0.77	27.1
All Vehicles		4843	6.3	4843	6.3	0.810	27.6	LOS B	30.2	215.0	0.78	0.72	0.81	22.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	900	51.1	LOS E	2.8	2.8	0.98	0.98
P2	East Full Crossing	848	51.0	LOS E	2.6	2.6	0.98	0.98
P3	North Full Crossing	3368	57.2	LOS E	11.6	11.6	1.10	1.10
P4	West Full Crossing	760	50.8	LOS E	2.3	2.3	0.98	0.98
All Pedestrians		5877	54.5	LOS E			1.05	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Thomas St Post Dev PM]

Network: N101 [Post Dev PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthWest: Harris St -NW														
28	T1	2806	1.9	2806	1.9	0.839	3.4	LOS A	13.1	93.2	0.24	0.25	0.25	29.2
29	R2	166	2.5	166	2.5	0.839	8.5	LOS A	12.5	88.7	0.24	0.31	0.26	25.5
Approach		2973	1.9	2973	1.9	0.839	3.7	LOS A	13.1	93.2	0.24	0.26	0.25	29.0
SouthWest: Thomas St														
30	L2	43	26.8	43	26.8	0.612	50.2	LOS D	8.7	64.9	0.98	0.81	0.98	13.7
32	R2	126	1.7	126	1.7	0.612	50.6	LOS D	8.7	64.9	0.98	0.81	0.98	13.7
Approach		169	8.1	169	8.1	0.612	50.5	LOS D	8.7	64.9	0.98	0.81	0.98	13.7
All Vehicles		3142	2.2	3142	2.2	0.839	6.2	LOS A	13.1	93.2	0.28	0.29	0.29	23.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P8	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Ultimo Rd Post Dev PM]

Network: N101 [Post Dev PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Harris St - SE														
22	T1	38	30.6	38	30.6	0.034	17.0	LOS B	1.6	14.4	0.86	0.66	0.86	35.5
Approach		38	30.6	38	30.6	0.034	17.0	LOS B	1.6	14.4	0.86	0.66	0.86	35.5
NorthEast: Ultimo Rd														
24	L2	543	2.3	543	2.3	0.851	56.9	LOS E	16.3	116.1	0.99	0.99	1.25	19.9
26	R2	163	1.3	163	1.3	0.338	41.5	LOS C	7.2	51.2	0.87	0.78	0.87	31.8
Approach		706	2.1	706	2.1	0.851	53.3	LOS D	16.3	116.1	0.96	0.94	1.16	23.1
NorthWest: Harris St - NW														
27	L2	134	0.0	134	0.0	0.856	19.8	LOS B	27.7	196.6	0.63	0.67	0.70	40.7
28	T1	2437	1.8	2437	1.8	0.856	12.4	LOS A	28.6	203.6	0.59	0.60	0.64	37.4
Approach		2571	1.7	2571	1.7	0.856	12.8	LOS A	28.6	203.6	0.59	0.60	0.64	37.7
All Vehicles		3315	2.1	3315	2.1	0.856	21.5	LOS B	28.6	203.6	0.67	0.67	0.76	32.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6B	NorthEast Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Broadway-Wattle St-Abercrombie St Post Dev PM]

Network: N101 [Post Dev PM]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 123 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Abercrombie St														
1	L2	129	2.4	129	2.4	0.631	40.4	LOS C	20.9	148.4	0.89	0.80	0.89	28.4
2	T1	1494	1.3	1494	1.3	0.631	35.8	LOS C	21.1	149.6	0.89	0.79	0.89	14.1
3	R2	59	1.8	59	1.8	0.631	40.3	LOS C	21.1	149.6	0.89	0.79	0.89	14.0
Approach		1682	1.4	1682	1.4	0.631	36.3	LOS C	21.1	149.6	0.89	0.79	0.89	15.9
East: Broadway - E														
5	T1	1931	8.4	1931	8.4	0.596	18.8	LOS B	24.4	172.9	0.70	0.63	0.70	38.0
6	R2	14	100.0	14	100.0	0.080	31.0	LOS C	0.5	7.1	0.69	0.69	0.69	21.7
Approach		1944	9.0	1944	9.0	0.596	18.9	LOS B	24.4	172.9	0.70	0.63	0.70	37.9
West: Broadway - W														
10	L2	627	1.2	627	1.2	0.777	37.0	LOS C	32.2	227.3	0.93	0.87	0.93	25.4
11	T1	1087	8.3	1087	8.3	0.477	27.4	LOS B	15.6	117.1	0.77	0.68	0.77	28.9
Approach		1715	5.7	1715	5.7	0.777	30.9	LOS C	32.2	227.3	0.83	0.75	0.83	27.5
All Vehicles		5341	5.6	5341	5.6	0.777	28.2	LOS B	32.2	227.3	0.80	0.72	0.80	29.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	761	57.5	LOS E	2.6	2.6	0.98	0.98
P2	East Full Crossing	201	56.1	LOS E	0.7	0.7	0.96	0.96
P3	North Full Crossing	1649	59.8	LOS E	5.9	5.9	1.02	1.02
P4	West Full Crossing	375	56.5	LOS E	1.3	1.3	0.97	0.97
P4B	West Slip/Bypass Lane Crossing	1579	59.6	LOS E	5.6	5.6	1.02	1.02
All Pedestrians		4565	58.9	LOS E			1.01	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [Wattle St-Thomas Street Post Dev PM]

Network: N101 [Post Dev PM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wattle St - S														
2	T1	1061	2.3	1061	2.3	0.280	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3a	R1	1053	0.4	1053	0.4	0.516	3.3	LOS A	0.0	0.0	0.00	0.42	0.00	44.0
3	R2	145	7.2	145	7.2	0.129	4.6	LOS A	0.0	0.0	0.00	0.50	0.00	29.9
Approach		2259	1.7	2259	1.7	0.516	1.8	NA	0.0	0.0	0.00	0.23	0.00	46.3
East: Thomas St														
6b	R3	134	3.1	134	3.1	0.714	43.4	LOS D	4.0	29.0	0.94	1.28	1.83	21.8
Approach		134	3.1	134	3.1	0.714	43.4	LOS D	4.0	29.0	0.94	1.28	1.83	21.8
All Vehicles		2393	1.8	2393	1.8	0.714	4.1	NA	4.0	29.0	0.05	0.29	0.10	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Broadway-George St-Harris St-Regent St Post Dev PM +Widened Crossing]

Network: N101 [Post Dev PM +Widened Crossing]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: George St														
4	L2	23	18.2	23	18.2	0.359	28.9	LOS C	5.5	68.0	0.67	0.57	0.67	22.1
5	T1	1078	14.5	1078	14.5	0.447	25.6	LOS B	10.8	77.0	0.69	0.59	0.69	16.4
Approach		1101	14.5	1101	14.5	0.447	25.7	LOS B	10.8	77.0	0.69	0.59	0.69	16.5
North: Harris St														
7	L2	246	4.7	246	4.7	0.423	27.4	LOS B	8.3	60.4	0.67	0.74	0.67	23.6
8	T1	1604	1.9	1604	1.9	0.810	19.7	LOS B	30.2	215.0	0.78	0.72	0.79	27.6
9	R2	917	1.5	917	1.5	0.810	44.6	LOS D	25.4	179.0	0.98	0.91	1.06	12.1
Approach		2767	2.0	2767	2.0	0.810	28.7	LOS C	30.2	215.0	0.83	0.79	0.87	21.2
West: Broadway														
11	T1	975	9.0	975	9.0	0.420	28.6	LOS C	11.9	83.6	0.79	0.72	0.79	26.7
Approach		975	9.0	975	9.0	0.420	28.6	LOS C	11.9	83.6	0.79	0.72	0.79	26.7
All Vehicles		4843	6.3	4843	6.3	0.810	28.0	LOS B	30.2	215.0	0.79	0.73	0.81	21.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	900	51.1	LOS E	2.8	2.8	0.98	0.98
P2	East Full Crossing	848	51.0	LOS E	2.6	2.6	0.98	0.98
P3	North Full Crossing	3368	57.2	LOS E	11.6	11.6	1.10	1.10
P4	West Full Crossing	760	50.8	LOS E	2.3	2.3	0.98	0.98
All Pedestrians		5877	54.5	LOS E			1.05	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Thomas St Post Dev PM +Widened Crossing]

Network: N101 [Post Dev PM +Widened Crossing]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthWest: Harris St -NW														
28	T1	2806	1.9	2806	1.9	0.839	3.4	LOS A	13.1	93.2	0.24	0.25	0.25	29.2
29	R2	166	2.5	166	2.5	0.839	8.5	LOS A	12.5	88.7	0.24	0.31	0.26	25.5
Approach		2973	1.9	2973	1.9	0.839	3.7	LOS A	13.1	93.2	0.24	0.26	0.25	29.0
SouthWest: Thomas St														
30	L2	43	26.8	43	26.8	0.612	50.2	LOS D	8.7	64.9	0.98	0.81	0.98	13.7
32	R2	126	1.7	126	1.7	0.612	50.6	LOS D	8.7	64.9	0.98	0.81	0.98	13.7
Approach		169	8.1	169	8.1	0.612	50.5	LOS D	8.7	64.9	0.98	0.81	0.98	13.7
All Vehicles		3142	2.2	3142	2.2	0.839	6.2	LOS A	13.1	93.2	0.28	0.29	0.29	23.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P8	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Ultimo Rd Post Dev PM +Widened Crossing]

Network: N101 [Post Dev PM +Widened Crossing]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Harris St - SE														
22	T1	38	30.6	38	30.6	0.034	17.0	LOS B	1.6	14.4	0.86	0.66	0.86	35.5
Approach		38	30.6	38	30.6	0.034	17.0	LOS B	1.6	14.4	0.86	0.66	0.86	35.5
NorthEast: Ultimo Rd														
24	L2	543	2.3	543	2.3	0.851	56.9	LOS E	16.3	116.1	0.99	0.99	1.25	19.9
26	R2	163	1.3	163	1.3	0.338	41.5	LOS C	7.2	51.2	0.87	0.78	0.87	31.8
Approach		706	2.1	706	2.1	0.851	53.3	LOS D	16.3	116.1	0.96	0.94	1.16	23.1
NorthWest: Harris St - NW														
27	L2	134	0.0	134	0.0	0.856	19.8	LOS B	27.7	196.6	0.63	0.67	0.70	40.7
28	T1	2437	1.8	2437	1.8	0.856	12.4	LOS A	28.6	203.6	0.59	0.60	0.64	37.4
Approach		2571	1.7	2571	1.7	0.856	12.8	LOS A	28.6	203.6	0.59	0.60	0.64	37.7
All Vehicles		3315	2.1	3315	2.1	0.856	21.5	LOS B	28.6	203.6	0.67	0.67	0.76	32.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6B	NorthEast Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Broadway-Wattle St-Abercrombie St Post Dev PM +Widened Crossing]

Network: N101 [Post Dev PM +Widened Crossing]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 123 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Abercrombie St														
1	L2	129	2.4	129	2.4	0.631	40.4	LOS C	20.9	148.4	0.89	0.80	0.89	28.4
2	T1	1494	1.3	1494	1.3	0.631	35.8	LOS C	21.1	149.6	0.89	0.79	0.89	14.1
3	R2	59	1.8	59	1.8	0.631	40.3	LOS C	21.1	149.6	0.89	0.79	0.89	14.0
Approach		1682	1.4	1682	1.4	0.631	36.3	LOS C	21.1	149.6	0.89	0.79	0.89	15.9
East: Broadway - E														
5	T1	1931	8.4	1931	8.4	0.596	18.8	LOS B	24.4	172.9	0.70	0.63	0.70	38.0
6	R2	14	100.0	14	100.0	0.080	31.0	LOS C	0.5	7.1	0.69	0.69	0.69	21.7
Approach		1944	9.0	1944	9.0	0.596	18.9	LOS B	24.4	172.9	0.70	0.63	0.70	37.9
West: Broadway - W														
10	L2	627	1.2	627	1.2	0.777	37.0	LOS C	32.2	227.3	0.93	0.87	0.93	25.4
11	T1	1087	8.3	1087	8.3	0.477	27.4	LOS B	15.6	117.1	0.77	0.68	0.77	28.9
Approach		1715	5.7	1715	5.7	0.777	30.9	LOS C	32.2	227.3	0.83	0.75	0.83	27.5
All Vehicles		5341	5.6	5341	5.6	0.777	28.2	LOS B	32.2	227.3	0.80	0.72	0.80	29.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	761	57.5	LOS E	2.6	2.6	0.98	0.98
P2	East Full Crossing	201	56.1	LOS E	0.7	0.7	0.96	0.96
P3	North Full Crossing	1649	59.8	LOS E	5.9	5.9	1.02	1.02
P4	West Full Crossing	375	56.5	LOS E	1.3	1.3	0.97	0.97
P4B	West Slip/Bypass Lane Crossing	1579	59.6	LOS E	5.6	5.6	1.02	1.02
All Pedestrians		4565	58.9	LOS E			1.01	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [Wattle St-Thomas Street Post Dev PM +Widened Crossing]

Network: N101 [Post Dev PM +Widened Crossing]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wattle St - S														
2	T1	1061	2.3	1061	2.3	0.280	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3a	R1	1053	0.4	1053	0.4	0.516	3.3	LOS A	0.0	0.0	0.00	0.42	0.00	44.0
3	R2	145	7.2	145	7.2	0.129	4.6	LOS A	0.0	0.0	0.00	0.50	0.00	29.9
Approach		2259	1.7	2259	1.7	0.516	1.8	NA	0.0	0.0	0.00	0.23	0.00	46.3
East: Thomas St														
6b	R3	134	3.1	134	3.1	0.714	43.4	LOS D	4.0	29.0	0.94	1.28	1.83	21.8
Approach		134	3.1	134	3.1	0.714	43.4	LOS D	4.0	29.0	0.94	1.28	1.83	21.8
All Vehicles		2393	1.8	2393	1.8	0.714	4.1	NA	4.0	29.0	0.05	0.29	0.10	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Broadway-George St-Harris St-Regent St -Post Dev PM+Road Narrowing]

Network: N101 [Post Dev PM + Road Narrowing]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: George St														
4	L2	23	18.2	23	18.2	0.640	48.3	LOS D	8.0	98.8	0.93	0.80	0.96	16.2
5	T1	1078	14.5	1078	14.5	0.797	47.6	LOS D	16.6	117.8	0.98	0.90	1.07	10.8
Approach		1101	14.5	1101	14.5	0.797	47.6	LOS D	16.6	117.8	0.98	0.90	1.06	10.9
North: Harris St														
7	L2	248	4.7	248	4.7	0.279	20.7	LOS B	6.5	47.4	0.53	0.70	0.53	26.7
8	T1	1604	1.9	1604	1.9	0.782	7.8	LOS A	26.4	187.4	0.46	0.45	0.46	37.4
9	R2	915	1.5	915	1.5	0.782	38.3	LOS C	36.1	256.4	0.93	0.85	0.93	13.7
Approach		2767	2.0	2767	2.0	0.782	19.0	LOS B	36.1	256.4	0.62	0.60	0.62	26.2
West: Broadway														
11	T1	975	9.0	975	9.0	0.748	47.3	LOS D	15.8	111.1	0.99	0.88	1.05	20.9
Approach		975	9.0	975	9.0	0.748	47.3	LOS D	15.8	111.1	0.99	0.88	1.05	20.9
All Vehicles		4843	6.3	4843	6.3	0.797	31.2	LOS C	36.1	256.4	0.78	0.73	0.81	20.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	900	51.1	LOS E	2.8	2.8	0.98	0.98
P2	East Full Crossing	848	51.0	LOS E	2.6	2.6	0.98	0.98
P3	North Full Crossing	3368	57.2	LOS E	11.6	11.6	1.10	1.10
P4	West Full Crossing	760	50.8	LOS E	2.3	2.3	0.98	0.98
All Pedestrians		5877	54.5	LOS E			1.05	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Thomas St -Post Dev PM+Road Narrowing]

Network: N101 [Post Dev PM + Road Narrowing]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthWest: Harris St -NW														
28	T1	2806	1.9	2806	1.9	0.729	0.8	LOS A	3.8	26.8	0.08	0.10	0.08	41.9
29	R2	166	2.5	166	2.5	0.729	5.1	LOS A	3.5	24.7	0.08	0.16	0.08	38.5
Approach		2973	1.9	2973	1.9	0.729	1.0	LOS A	3.8	26.8	0.08	0.10	0.08	41.7
SouthWest: Thomas St														
30	L2	43	26.8	43	26.8	0.705	54.3	LOS D	9.2	68.7	1.00	0.86	1.09	13.0
32	R2	126	1.7	126	1.7	0.705	54.7	LOS D	9.2	68.7	1.00	0.86	1.09	13.0
Approach		169	8.1	169	8.1	0.705	54.6	LOS D	9.2	68.7	1.00	0.86	1.09	13.0
All Vehicles		3142	2.2	3142	2.2	0.729	3.9	LOS A	9.2	68.7	0.13	0.14	0.13	29.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P8	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Ultimo Rd -Post Dev PM+Road Narrowing]

Network: N101 [Post Dev PM + Road Narrowing]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Harris St - SE														
22	T1	38	30.6	38	30.6	0.034	11.2	LOS A	1.2	10.5	0.63	0.48	0.63	39.4
Approach		38	30.6	38	30.6	0.034	11.2	LOS A	1.2	10.5	0.63	0.48	0.63	39.4
NorthEast: Ultimo Rd														
24	L2	543	2.3	543	2.3	0.680	46.0	LOS D	13.4	95.7	0.95	0.84	0.97	8.1
26	R2	163	1.3	163	1.3	0.351	42.4	LOS C	7.3	51.9	0.88	0.78	0.88	25.4
Approach		706	2.1	706	2.1	0.680	45.2	LOS D	13.4	95.7	0.94	0.82	0.95	13.7
NorthWest: Harris St - NW														
27	L2	134	0.0	134	0.0	0.700	16.2	LOS B	26.2	185.7	0.64	0.62	0.64	38.6
28	T1	2437	1.8	2437	1.8	0.700	12.5	LOS A	29.1	207.2	0.68	0.63	0.68	37.3
Approach		2571	1.7	2571	1.7	0.700	12.7	LOS A	29.1	207.2	0.67	0.63	0.67	37.4
All Vehicles		3315	2.1	3315	2.1	0.700	19.6	LOS B	29.1	207.2	0.73	0.67	0.73	31.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6B	NorthEast Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Broadway-Wattle St-Abercrombie St -Post Dev PM+Road Narrowing]

Network: N101 [Post Dev PM + Road Narrowing]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 123 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Abercrombie St														
1	L2	129	2.4	129	2.4	0.631	40.4	LOS C	20.9	148.4	0.89	0.80	0.89	28.4
2	T1	1494	1.3	1494	1.3	0.631	35.8	LOS C	21.1	149.6	0.89	0.79	0.89	14.1
3	R2	59	1.8	59	1.8	0.631	40.3	LOS C	21.1	149.6	0.89	0.79	0.89	14.0
Approach		1682	1.4	1682	1.4	0.631	36.3	LOS C	21.1	149.6	0.89	0.79	0.89	15.9
East: Broadway - E														
5	T1	1931	8.4	1931	8.4	0.596	18.8	LOS B	24.4	172.9	0.70	0.63	0.70	38.0
6	R2	14	100.0	14	100.0	0.080	31.0	LOS C	0.5	7.1	0.69	0.69	0.69	21.7
Approach		1944	9.0	1944	9.0	0.596	18.9	LOS B	24.4	172.9	0.70	0.63	0.70	37.9
West: Broadway - W														
10	L2	627	1.2	627	1.2	0.777	37.0	LOS C	32.2	227.3	0.93	0.87	0.93	25.4
11	T1	1087	8.3	1087	8.3	0.477	27.4	LOS B	15.6	117.1	0.77	0.68	0.77	28.9
Approach		1715	5.7	1715	5.7	0.777	30.9	LOS C	32.2	227.3	0.83	0.75	0.83	27.5
All Vehicles		5341	5.6	5341	5.6	0.777	28.2	LOS B	32.2	227.3	0.80	0.72	0.80	29.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	761	57.5	LOS E	2.6	2.6	0.98	0.98
P2	East Full Crossing	201	56.1	LOS E	0.7	0.7	0.96	0.96
P3	North Full Crossing	1649	59.8	LOS E	5.9	5.9	1.02	1.02
P4	West Full Crossing	375	56.5	LOS E	1.3	1.3	0.97	0.97
P4B	West Slip/Bypass Lane Crossing	1579	59.6	LOS E	5.6	5.6	1.02	1.02
All Pedestrians		4565	58.9	LOS E			1.01	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [Wattle St-Thomas Street -Post Dev PM+Road Narrowing]

Network: N101 [Post Dev PM + Road Narrowing]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wattle St - S														
2	T1	1061	2.3	1061	2.3	0.280	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3a	R1	1053	0.4	1053	0.4	0.516	3.3	LOS A	0.0	0.0	0.00	0.42	0.00	44.0
3	R2	145	7.2	145	7.2	0.129	4.6	LOS A	0.0	0.0	0.00	0.50	0.00	29.9
Approach		2259	1.7	2259	1.7	0.516	1.8	NA	0.0	0.0	0.00	0.23	0.00	46.3
East: Thomas St														
6b	R3	134	3.1	134	3.1	0.714	43.4	LOS D	4.0	29.0	0.94	1.29	1.83	21.8
Approach		134	3.1	134	3.1	0.714	43.4	LOS D	4.0	29.0	0.94	1.29	1.83	21.8
All Vehicles		2393	1.8	2393	1.8	0.714	4.1	NA	4.0	29.0	0.05	0.29	0.10	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Broadway-George St-Harris St-Regent St -Post Dev PM +All Modifications]

Network: N101 [Post Dev PM + All Modifications]

+Mid-block crossing on Harris St
+Road Narrowing of Harris St
+Widened intersection crossing (addition of 1sec intergreen time)
Site Category: -
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: George St														
4	L2	23	18.2	23	18.2	0.640	48.3	LOS D	8.0	98.8	0.93	0.80	0.96	16.2
5	T1	1078	14.5	1078	14.5	0.797	47.6	LOS D	16.6	117.8	0.98	0.90	1.07	10.8
Approach		1101	14.5	1101	14.5	0.797	47.6	LOS D	16.6	117.8	0.98	0.90	1.06	10.9
North: Harris St														
7	L2	246	4.7	246	4.7	0.282	23.0	LOS B	8.5	62.0	0.69	0.75	0.69	21.9
8	T1	1604	1.9	1604	1.9	0.795	8.6	LOS A	19.6	138.7	0.51	0.49	0.51	33.0
9	R2	917	1.5	917	1.5	0.795	28.1	LOS B	19.6	138.7	0.86	0.84	0.87	10.7
Approach		2767	2.0	2767	2.0	0.795	16.3	LOS B	19.6	138.7	0.64	0.63	0.64	23.3
West: Broadway														
11	T1	975	9.0	975	9.0	0.748	47.3	LOS D	15.8	111.1	0.99	0.88	1.05	20.9
Approach		975	9.0	975	9.0	0.748	47.3	LOS D	15.8	111.1	0.99	0.88	1.05	20.9
All Vehicles		4843	6.3	4843	6.3	0.797	29.7	LOS C	19.6	138.7	0.79	0.74	0.82	18.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	900	51.1	LOS E	2.8	2.8	0.98	0.98
P2	East Full Crossing	848	51.0	LOS E	2.6	2.6	0.98	0.98
P3	North Full Crossing	3368	57.2	LOS E	11.6	11.6	1.10	1.10
P4	West Full Crossing	760	50.8	LOS E	2.3	2.3	0.98	0.98
All Pedestrians		5877	54.5	LOS E			1.05	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St Midblock Crossing -Post Dev PM +All Modifications]

Network: N101 [Post Dev PM + All Modifications]

+Mid-block crossing on Harris St
+Road Narrowing of Harris St
+Widened intersection crossing (addition of 1sec intergreen time)
Site Category: -
Pedestrian Crossing (Signals) - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthWest: Harris St - N														
8	T1	2933	1.9	2933	1.9	0.823	4.4	LOS A	6.4	45.4	0.11	0.14	0.15	34.0
Approach		2933	1.9	2933	1.9	0.823	4.4	LOS A	6.4	45.4	0.11	0.14	0.15	34.0
All Vehicles		2933	1.9	2933	1.9	0.823	4.4	LOS A	6.4	45.4	0.11	0.14	0.15	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	SouthEast Full Crossing	245	49.7	LOS E	0.7	0.7	0.96	0.96
All Pedestrians		245	49.7	LOS E			0.96	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Thomas St -Post Dev PM +All Modifications]

Network: N101 [Post Dev PM + All Modifications]

+Mid-block crossing on Harris St
+Road Narrowing of Harris St
+Widened intersection crossing (addition of 1sec intergreen time)
Site Category: -
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthWest: Harris St -NW														
28	T1	2806	1.9	2806	1.9	0.695	0.7	LOS A	3.3	23.3	0.07	0.09	0.07	42.4
29	R2	166	2.5	166	2.5	0.695	5.0	LOS A	3.3	23.2	0.07	0.15	0.07	39.1
Approach		2973	1.9	2973	1.9	0.695	0.9	LOS A	3.3	23.3	0.07	0.09	0.07	42.2
SouthWest: Thomas St														
30	L2	43	26.8	43	26.8	0.708	55.6	LOS D	9.2	69.0	1.00	0.86	1.09	12.8
32	R2	126	1.7	126	1.7	0.708	55.9	LOS D	9.2	69.0	1.00	0.86	1.09	12.8
Approach		169	8.1	169	8.1	0.708	55.9	LOS D	9.2	69.0	1.00	0.86	1.09	12.8
All Vehicles		3142	2.2	3142	2.2	0.708	3.9	LOS A	9.2	69.0	0.12	0.13	0.12	29.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P8	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Harris St-Ultimo Rd -Post Dev PM +All Modifications]

Network: N101 [Post Dev PM + All Modifications]

+Mid-block crossing on Harris St
+Road Narrowing of Harris St
+Widened intersection crossing (addition of 1sec intergreen time)
Site Category: -
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Harris St - SE														
22	T1	38	30.6	38	30.6	0.034	19.3	LOS B	1.9	16.6	0.99	0.76	0.99	34.2
Approach		38	30.6	38	30.6	0.034	19.3	LOS B	1.9	16.6	0.99	0.76	0.99	34.2
NorthEast: Ultimo Rd														
24	L2	543	2.3	543	2.3	0.680	46.0	LOS D	13.4	95.7	0.95	0.84	0.97	22.5
26	R2	163	1.3	163	1.3	0.351	42.4	LOS C	7.3	51.9	0.88	0.78	0.88	31.5
Approach		706	2.1	706	2.1	0.680	45.2	LOS D	13.4	95.7	0.94	0.82	0.95	25.2
NorthWest: Harris St - NW														
27	L2	134	0.0	134	0.0	0.700	11.2	LOS A	16.8	118.9	0.41	0.43	0.41	45.0
28	T1	2437	1.8	2437	1.8	0.700	5.8	LOS A	16.8	118.9	0.37	0.36	0.37	43.1
Approach		2571	1.7	2571	1.7	0.700	6.1	LOS A	16.8	118.9	0.37	0.36	0.37	43.3
All Vehicles		3315	2.1	3315	2.1	0.700	14.6	LOS B	16.8	118.9	0.50	0.46	0.50	36.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P6B	NorthEast Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Broadway-Wattle St-Abercrombie St PD -Post Dev PM +All Modifications]

Network: N101 [Post Dev PM + All Modifications]

+Mid-block crossing on Harris St
+Road Narrowing of Harris St
+Widened intersection crossing (addition of 1sec intergreen time)
Site Category: -
Signals - Fixed Time Isolated Cycle Time = 123 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Abercrombie St														
1	L2	129	2.4	129	2.4	0.631	40.4	LOS C	20.9	148.4	0.89	0.80	0.89	28.4
2	T1	1494	1.3	1494	1.3	0.631	35.8	LOS C	21.1	149.6	0.89	0.79	0.89	14.1
3	R2	59	1.8	59	1.8	0.631	40.3	LOS C	21.1	149.6	0.89	0.79	0.89	14.0
Approach		1682	1.4	1682	1.4	0.631	36.3	LOS C	21.1	149.6	0.89	0.79	0.89	15.9
East: Broadway - E														
5	T1	1931	8.4	1931	8.4	0.596	18.8	LOS B	24.4	172.9	0.70	0.63	0.70	38.0
6	R2	14	100.0	14	100.0	0.080	31.0	LOS C	0.5	7.1	0.69	0.69	0.69	21.7
Approach		1944	9.0	1944	9.0	0.596	18.9	LOS B	24.4	172.9	0.70	0.63	0.70	37.9
West: Broadway - W														
10	L2	627	1.2	627	1.2	0.777	37.0	LOS C	32.2	227.3	0.93	0.87	0.93	25.4
11	T1	1087	8.3	1087	8.3	0.477	27.4	LOS B	15.6	117.1	0.77	0.68	0.77	28.9
Approach		1715	5.7	1715	5.7	0.777	30.9	LOS C	32.2	227.3	0.83	0.75	0.83	27.5
All Vehicles		5341	5.6	5341	5.6	0.777	28.2	LOS B	32.2	227.3	0.80	0.72	0.80	29.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	761	57.5	LOS E	2.6	2.6	0.98	0.98
P2	East Full Crossing	201	56.1	LOS E	0.7	0.7	0.96	0.96
P3	North Full Crossing	1649	59.8	LOS E	5.9	5.9	1.02	1.02
P4	West Full Crossing	375	56.5	LOS E	1.3	1.3	0.97	0.97
P4B	West Slip/Bypass Lane Crossing	1579	59.6	LOS E	5.6	5.6	1.02	1.02
All Pedestrians		4565	58.9	LOS E			1.01	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [Wattle St-Thomas Street -Post Dev PM +All Modifications]

Network: N101 [Post Dev PM + All Modifications]

+Mid-block crossing on Harris St
+Road Narrowing of Harris St
+Widened intersection crossing (addition of 1sec intergreen time)
Site Category: -
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wattle St - S														
2	T1	1061	2.3	1061	2.3	0.280	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3a	R1	1053	0.4	1053	0.4	0.516	3.3	LOS A	0.0	0.0	0.00	0.42	0.00	44.0
3	R2	145	7.2	145	7.2	0.129	4.6	LOS A	0.0	0.0	0.00	0.50	0.00	29.9
Approach		2259	1.7	2259	1.7	0.516	1.8	NA	0.0	0.0	0.00	0.23	0.00	46.3
East: Thomas St														
6b	R3	134	3.1	134	3.1	0.714	43.4	LOS D	4.0	29.0	0.94	1.29	1.83	21.8
Approach		134	3.1	134	3.1	0.714	43.4	LOS D	4.0	29.0	0.94	1.29	1.83	21.8
All Vehicles		2393	1.8	2393	1.8	0.714	4.1	NA	4.0	29.0	0.05	0.29	0.10	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

The Transport Planning Partnership
Suite 402 Level 4, 22 Atchison Street
St Leonards NSW 2065

P.O. Box 237
St Leonards NSW 1590

02 8437 7800

info@ttpp.net.au

www.ttpp.net.au