Concept Plan - University of Technology Sydney (UTS) Broadway
Traffic Report

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UTS Sydney

Halcrow MWT

UTS Sydney

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Contents Amendment Record

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1	Final Report	09/03/09	DB	BM	BM
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Contents

1 Introduction

This report has been prepared on behalf of the University of Technology, Sydney and presents the findings of a traffic assessment of the UTS Concept Plan proposal.

A Preliminary Assessment Report for the development of the campus was reviewed by the Department of Planning in September 2008. The Department confirmed that the proposal was subject to Part 3A of the Environmental Assessment Act

Following a preliminary assessment of the proposal, Director General's requirements were issued for the preparation of an environmental assessment report to support the ultimate concept plan. The Director General's requirements included submissions on traffic, transport and parking matters associated with the redevelopment of the estate from key stakeholders, including the NSW Roads and Traffic Authority (RTA) and the Ministry of Transport (MoT). Copies of the submissions from the RTA and the MoT are provided in **Appendix A** of this report.

The Director General's requirements relating to Traffic, Transport and Car Parking are summarised below:

Road Closure

- *"Confirmation of relevant land owner consent.*
- *Justification of the change to vehicular access to Jones Street.*
- *Legally binding agreement for the future maintenance of Jones Street."*

[Note: The concept application does not seek to close Jones Street so this requirement is not applicable]

Traffic and Transport
"Traffic Study in accordance with the Roads and Traffic Authority's Guide to Traffic Generating Developments, with particular regard to:

- *Existing road capacity, expected impacts on local and regional roads and any upgrade requirements;*
- *Internal road layout and access arrangements;*
- *Pedestrian and bicycle linkages; and*
- *Access for emergency vehicles.*

Transport Management and Accessibility Plan (TMAP) for the entire site, in accordance with the Ministry of Transport Interim TMAP Guidelines, also including:

- *Staging / Sequencing Plan;*
- *Construction Traffic Management Plan; and*
- *Voluntary Planning Agreement addressing MoT's requirements.*
- *Proposed number of car parking spaces and compliance with relevant parking codes.*

Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need for funding of or upgrading road improvement works is required.

Modelling and assessment of the performance of key intersections including the forecast traffic volumes from the Frasers Broadway site (formally Carlton United Breweries)

Investigation of the provision of signalised mid block pedestrian crossings in strategic locations, in particular in Broadway."

A separate Transport Management and Accessibility Plan (TMAP) report[1] has been prepared and should be read in conjunction with this report.

This traffic report has been prepared on behalf of UTS Sydney and examines traffic implications in accordance with the methodology set out in the NSW Roads and Traffic Authority's "Guide to Traffic Generating Developments". The purpose of this report is to review the proposed development and provide comments and additional information to respond to traffic and parking and access matters raised in the Director General's Requirements or individual submissions by key stakeholders.

The remainder of this report is set out below:

- Chapter 2 describes the background development, road network conditions and public transport services, and discusses future road network proposals which may impact on traffic conditions in and around the site;
- Chapter 3 describes the development proposal;
- Chapter 4 presents an analysis of potential increased traffic loads and their associated impacts and discusses off-street car parking requirements; and
- Chapter 5 presents the conclusions and recommendations arising from the study.

Finally it is noted that while the University is in favour of closing Jones Street at Broadway to improve pedestrian amenity within the campus, such a closure does not comprise an element of the Concept Plan and consent for the closure is not sought in this application. Instead the University will leave the closure in abeyance and pursue it at some time in the future as a separate exercise when such is considered to be appropriate.

Thus the part of the Director General's Requirements relating to the closure of Jones Street are not relevant to the assessment in this report.

[1] UTS Concept Plan TMAP Report – Halcrow MWT January 2009

2 Background Situation

2.1 *Site Location and Land Use*

The University of Technology Sydney City Campus includes two precincts, the Broadway Precinct and Haymarket Precinct, and comprises a number of buildings within the lands bounded by Quay Street in the east, Hay Street / Ultimo Road / Thomas Street in the north, Wattle Street in the west and Broadway in the south.

The proposed UTS Concept Plan is for the redevelopment of land holdings within the 'Broadway Precinct'. These lands consist of the area made up of a building on the east side of Harris Street between Harris Street and the Ultimo Pedestrian Network, and buildings between Harris Street, Thomas Street, Jones Street and Broadway and, between Jones Street, Thomas Street, Wattle Street and Broadway. The lands to which this apply and roads in the vicinity of the precinct are shown in **Figure 1**.

2.2 *Road Network*

Broadway, which runs along the southern boundary of the Broadway precinct, is a wide, heavily trafficked road which forms the easterly continuation of Parramatta Road. Most intersections are controlled by traffic signals. There are kerbside bus lanes in each direction.

Harris Street runs north – south along the eastern edge of the Broadway campus. From Thomas Street to Broadway, the street has four or five lanes wide running one-way southbound. The university provides a pedestrian overbridge between Building 1 Tower block and the Building 6 block adjacent to the Australian Broadcasting Corporation building. (See **Appendix B** for building locations)

Wattle Street runs northbound past the site and forms the western boundary of the Broadway Precinct. It consists of three travel lanes and parallel parking lanes on either side of the street north of Thomas Street. The intersection of Wattle Street and Thomas Street is priority controlled.

Thomas Street is a local street connecting Wattle Street in the west and Harris Street in the east. It forms the northern boundary of the Broadway Precinct and consists of a single travel lane in each direction and time restricted parallel parking on both sides of the street for the majority of its length. The street provides access to the Building 10 car park and the Building 1 staff / service vehicle car park.

Jones Street is a local street connecting Thomas Street in the north and Broadway in the south. The Jones Street and Broadway intersection is controlled by traffic signals. These signals include a right turn provision for buses into Jones Street from Broadway. Immediately north of Broadway the street consists of two lanes southbound and one travel lane northbound. The street provides access to the open air car park south of Building 10.

Ultimo Road is a local collector road connecting Harris Street with Haymarket and China Town. It generally consists of a single lane in each direction with some parallel parking permitted adjacent to and opposite the UTS library.

2.3 Consultation with the RTA

As stated in Section 1, the preparation of the Director General requirements gave consideration to a separate submission from the RTA. **Appendix C** of this report provides comments on each request for additional information / issue raised in the RTA and other stakeholder submissions.

The RTA submission included a request to undertake traffic counts and intersection operation assessment of the following intersections:

1. Broadway and Wattle Street
2. Wattle Street and Thomas Street
3. Wattle Street and Mary Ann Street
4. Wattle Street and Kelly Street
5. Wattle Street and Macarthur Street
6. Harris Street and Macarthur Street
7. Harris Street and Ultimo Road
8. Harris Street and Mary Ann Street
9. Harris Street and Thomas Street
10. Harris Street and Broadway
11. Regent Street and Lee Street

Halcrow MWT met with representatives of the RTA on Monday 8 December 2008 to seek confirmation on the scope of the traffic analysis.

Having regard to the fact that no additional car parking is proposed and that traffic generation increases would be low, the RTA agreed that the scope of the intersection counts and modelling assessment could be reduced to just include intersections between Regent Street in the south and Mary Anne Street in the north. These intersections include:

1. Broadway and Wattle Street
2. Wattle Street and Thomas Street
3. Wattle Street and Mary Ann Street
4. Harris Street and Ultimo Road
5. Harris Street and Mary Ann Street
6. Harris Street and Thomas Street
7. Harris Street and Broadway
8. Regent Street and Lee Street

Prior to the meeting counts were undertaken at all intersections listed in the original RTA submission. For completeness the existing traffic flows at all intersections are listed below in Section 2.4 of this report. However operational assessment was confined to the reduced list above.

2.4 Existing Traffic Conditions

2.4.1 Peak Period Traffic Volumes

Intersection traffic counts were undertaken during the morning and evening periods on Wednesday 19 November 2008 at the following locations:

1. Broadway and Wattle Street
2. Wattle Street and Thomas Street
3. Wattle Street and Mary Ann Street
4. Wattle Street and Kelly Street
5. Wattle Street and Macarthur Street
6. Harris Street and Macarthur Street
7. Harris Street and Ultimo Road
8. Harris Street and Mary Ann Street
9. Harris Street and Thomas Street
10. Harris Street and Broadway
11. Regent Street and Lee Street

The peak hour traffic flows are shown in **Figure 2** and are also summarised in Table 1.

Table 1 - Existing Two Way Traffic Flows (veh/hr)

Location	Morning Peak	Evening Peak
Broadway, west of Wattle Street	3,999	4,384
Broadway, west of Harris Street	3,011	3,547
George Street, east of Harris Street	2,801	3,093
Abercrombie Street, south of Broadway	1,688	1,839
Regent Street, south of Broadway	1,197	1,556
Regent Street, south of Lee Street	2,627	2,930
Lee Street, east of Regent Street	1,490	1,460
Harris Street, north of Broadway	1,665	2,388
Harris Street, north of Thomas Street	1,828	2,545
Harris Street, north of Mary Ann Street	1,895	2,599
Wattle Street, north of Broadway	2,236	2,259
Wattle Street, north of Thomas Street	2,247	2,243
Wattle Street, north of Mary Ann Street	2,041	2,123
Wattle Street, north of Macarthur Street	2,030	2,215
Thomas Street, west of Harris Street	266	291
Thomas Street, east of Wattle Street	184	256
Mary Ann Street, west of Harris Street	144	268
Mary Ann Street, east of Wattle Street	153	142
Macarthur Street, east of Wattle Street	129	141
Kelly Street, west of Wattle Street	175	215

The survey results indicate:

- On Broadway between Wattle Street and Harris Street, the two-way peak hour volumes ranged from 3,000 vehicles per hour (vph) to 4,400 vph.
- On Harris Street between Broadway and Mary Ann Street, the two-way peak hour volumes ranged from 1,600 vph to 2,600 vph.
- On Wattle Street between Broadway and Macarthur Street, the two-way peak hour volumes ranged from 2,000 vph to 2,300 vph.
- On Thomas Street, the two-way peak hour volumes are in the order of 180 vph to 300 vph.
- On Mary Ann Street, the two-way peak hour volumes are in the order of 140 vph to 270 vph.

2.4.2 *Intersection Operation*

The intersections in the vicinity of the subject site were analysed using the SIDRA intersection analysis program. SIDRA calculates the average delay that vehicles encounter and the level of service. The SIDRA outputs can be compared to the performance criteria set out in Table 2 to determine Levels of Service for the intersection being analysed. The Level of Service is a graded indicator of the ease with which a driver can pass through an intersection under the traffic loads being experienced at the time.

Table 2 - Level of Service Criteria

Level of Service	Average Delay per Vehicle (secs/veh)	Signals & Roundabouts	Give Way & Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & Spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode
F	> 70	Extra capacity required	Extreme delay, traffic signals or other major treatment required

Adapted from RTA Guide to Traffic Generating Developments, 2002.

For roundabouts and priority intersections, the reported average delay is for the individual movement with the highest average delay per vehicle. At signalised intersections, the reported average delay is over all movements.

The intersection analysis was undertaken using the SIDRA Intersection analysis program. The results of the existing intersection performances are presented in Table 3.

Table 3 - Existing Intersection Operating Conditions

Intersection	Control Type	Average Delay (sec/veh)		Level of Service	
		AM Peak	PM Peak	AM Peak	PM Peak
Broadway-Harris St	Signals	36	42	C	C
Broadway-Wattle St	Signals	26	31	B	C
Regent St-Lee St	Signals	30	31	C	C
Harris St-Thomas St	Signals	12	12	A	A
Harris St – Ultimo Rd	Signals	18	20	B	B
Harris St-Mary Ann St	Signals	14	19	A	B
Harris St – Macarthur St	Signals	7	8	A	A
Wattle St-Thomas St	Priority	26	33	B	C
Wattle St-Mary Ann St	Priority	7	7	A	A
Wattle St-Kelly St	Signals	14	15	A	B
Wattle St-Macarthur St	Priority	>120	>120	F	F

NOTE: Avg Delay is over all movements at signals, and for the worst movement at priority controlled intersections. Level of Service A provides good intersection operation, level of service F indicates intersection is operating over capacity while level of service D is the minimum desirable long term peak period operating conditions.

From Table 3, it can be seen that all intersections except for Wattle Street-Macarthur Street intersection currently operate at a satisfactory Level of Service (LoS) C, or better during both peak periods.

As the Wattle Street-Macarthur Street intersection is a sign controlled intersection, its level of service is determined from the delay to the worst movement. The analysis indicated that the critical movements are the cross movements from Macarthur Street over Wattle Street as these movements would experience long delay and queuing.

However, in reality, traffic arriving from the signalised intersection at Kelly Street, which is located approximately 100m downstream from Macarthur Street, would approach Macarthur Street intersection in groups. Hence vehicles from Macarthur Street actually receive more gaps in the Wattle Street traffic stream such that delays to Macarthur Street are not as high as the analysis indicates.

2.5 Comparison of Frasers Broadway Intersection Analysis

The traffic report[2] for the redevelopment of the Frasers Broadway site (formally known as the Carlton and United Brewery site) included an operational assessment of PM peak traffic conditions at intersections along Broadway. This operational assessment is presented in Table 4.

[2] Carlton and United Brewery Site Stage 1 Masterplan Traffic Report - Masson Wilson Twiney October 2006

Table 4 – Frasers Broadway Traffic Report Intersection Performance

Location	Control	Existing PM Peak	
		Avg. Delay (secs)	LOS
Broadway / Harris Street	Signals	45	D
Broadway / Abercrombie Street	Signals	19	B

From Table 4 it can be seen that the intersection operating conditions along Broadway have not changed to any great extent since the traffic report for the redevelopment of the Frasers Broadway site.

2.6 Existing Parking Provision

Figure 3 shows the location and access points of each off street car parking area including the associated parking provision. The service vehicle parking areas and their parking provision are shown in **Figure 4**. These are summarised below.

2.6.1 Public / Staff Parking

The following locations include off street parking for both public and staff vehicles:

- Open air gravel car park with access from Jones Street and a parking provision for 101 cars for the general public and / or staff.
- Building 10 basement car park which includes 180 spaces for staff / public vehicles
- Building 1 main tower basement car park includes 27 spaces for staff.
- Building 6 basement car park includes 135 spaces for staff.

Currently six (6) accessible parking spaces are provided outside the main tower with driveway access from Broadway.

2.6.2 Service Vehicle Parking

The precinct includes a number of loading bays and service vehicle parking areas in basement parking areas. These include:

- Loading dock in Turner Lane off Harris Street adjacent to the main tower cafeteria. This can accommodate two medium rigid trucks (8.8m long) concurrently.

- 31 service vehicle parking bays on Basement Level 1 of the tower subsurface car park. Parking spaces can accommodate cars, utes, vans and small rigid trucks. The car park also houses the UTS Toyota Coaster 22 seat bus.
- Three courier vehicle spaces adjacent to the driveway ramp from Thomas Street to tower basement parking area.
- 12 service vehicle parking spaces beneath Building 10.
- 4 spaces beneath Building 6 for vans / couriers.

Both the Building 1 tower car park and the service vehicle parking area under Building 10 have a 3.5m height clearance.

The existing parking areas are summarised in Table 5 below:

Table 5 - Existing Parking Capacity

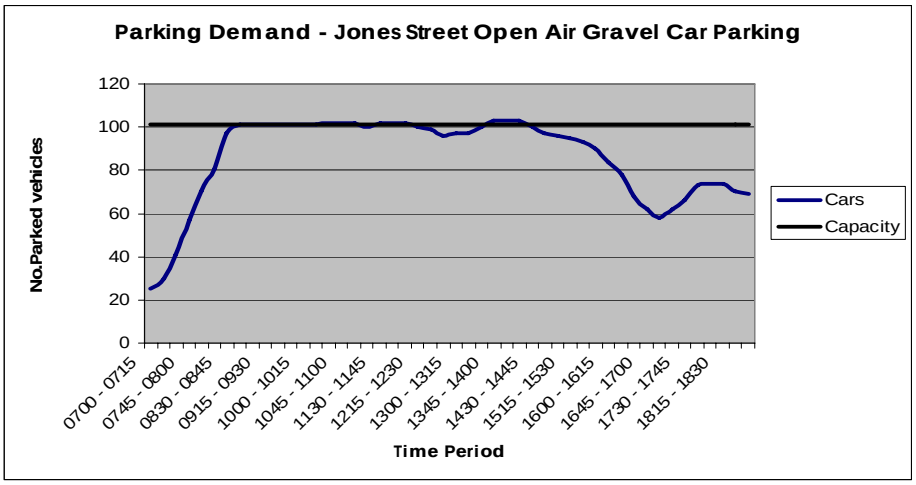
Location	No. Staff Spaces	No. General Vehicle Spaces	No Service Spaces
Building 10		180	0
Jones St Gravel Car Park		100	0
Building 1 Tower	27	33	33
Building 1 Tower courier parking	0	3	3
Building 1 Tower Cafeteria Loading Dock	0	2	2
Building 6		135	4
Total		**453**	**42**

2.6.3 *Parking Demand*

Surveys of off street parking areas under the care and control of the UTS Broadway precinct were undertaken on a weekday between the hours of 7:00am – 7:00pm. This included the separate recording of numbers of general vehicles and service vehicles.

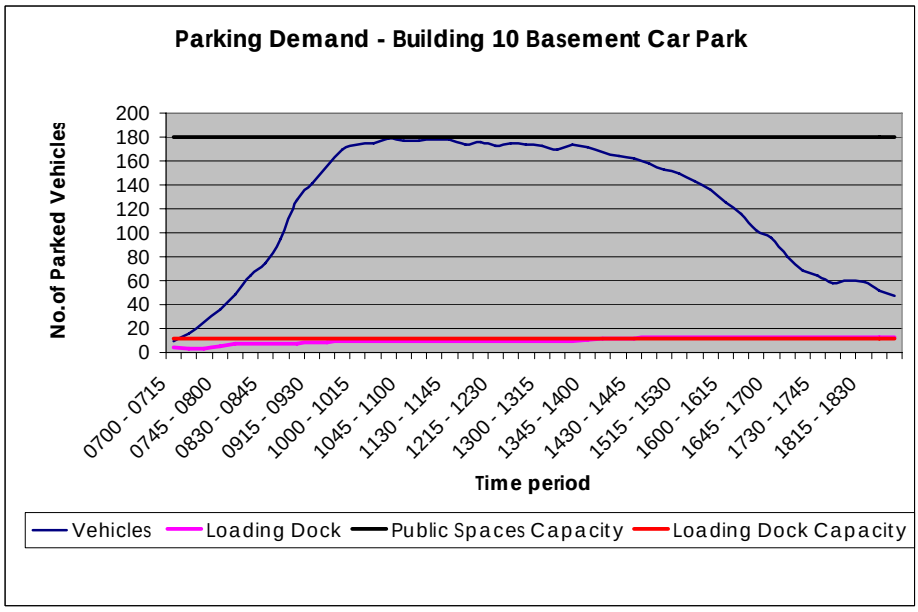
The recorded usage of the Jones Street open air gravel car park and the two basement parking areas under the Building 1 and Building 10 are shown in Charts 1 to 3 below.

Chart 1- Jones Street Gravel Car Park Parking Demand



From Chart 1 it can be seen that the existing open air gravel car park operates at capacity during most times of a typical working day with some spare capacity after 4:00pm. The current car park allows all day parking for a $13 per day.

Chart 2- Building 10 Basement Car Park Parking Demand



From Chart 2 it can be seen that the existing staff / public parking area operates at capacity between the hours of 9:30am – 3:00pm. The service parking bays are well utilised throughout most of the day.

The car park includes pass access for staff and paid access for students and visitors. The current car park rate is a maximum of $18 per day.

Chart 3- Building 1 Tower Basement Car Park Parking Demand

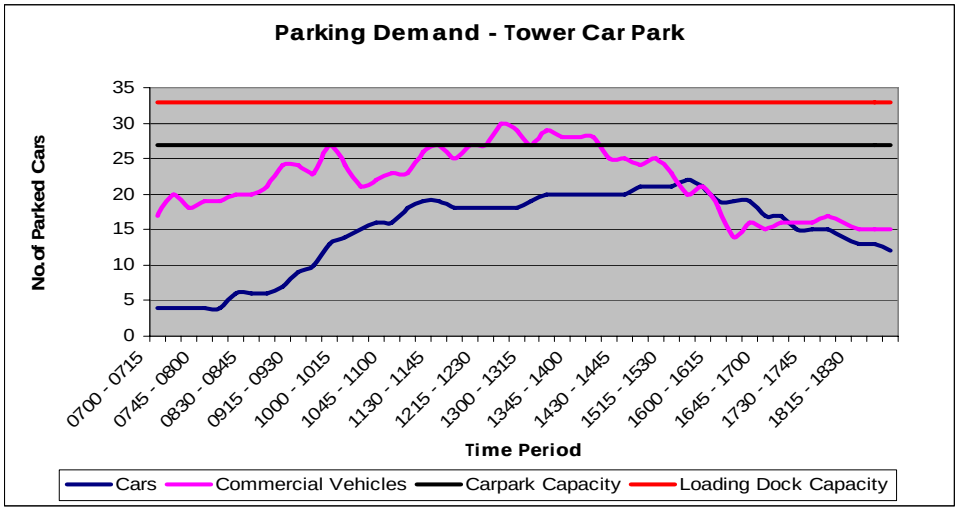


Chart 3 indicates that the staff car park beneath the Building 1 tower currently operates with limited spare capacity at peak times. This may be attributed to the allocation of parking spaces and does not reflect spare capacity for which there is no demand. The service vehicle parking area is also well utilised.

2.6.4 *Car Park Traffic Generation*

The surveyed peak hour traffic generation of car parks of the Broadway campus as a whole is shown in Table 6 below:

Table 6 - Existing Broadway Campus Peak Hour Traffic Generation

Peak Period	Inbound (veh/hr)	Outbound (veh/hr)	Total (veh/hr)
AM Peak	137	24	161
PM Peak	65	133	198

From Table 6 it can be seen that compared with the traffic volumes on the surrounding road network, the overall peak hour traffic generation of the car parks is relatively small.

2.7 Public Transport Network

2.7.1 *Bus Operations*

Broadway provides the main east-west bus spine through the area with 24hour bus lanes installed on both sides across the frontage of the site.

Two bus stops are located on Broadway near the University. The first has a single bus shelter outside the main tower (Building 1) entrance. The second is an unsheltered bus stop between Jones Street and Wattle Street.

A bus stop for westbound buses in Broadway is located directly opposite the main entrance to the University. This bus stop has a single bus shelter. Buses on Broadway provide direct service to the Sydney CBD, Eastern Suburbs and the Inner West.

The site is within convenient walking distance of Central Railway Station and Railway Square. In combination these provide a very high degree of public transport accessibility with the provision of:

- Suburban and country trains
- A wide range of bus services
- Light rail linkage to the inner west
- Taxi rank
- Long distance tourist coaches.

It is a short walk to:

- Lee St for direct buses to the Northern Beaches and some eastern services
- Central Station for rail services throughout Sydney, intercity, country and interstate services, plus Light Rail
- Eddy Avenue for express bus services to UNSW and eastern suburbs services.

Hourly buses during the weekday morning peak hour (8am-9am) are:

Bus Stops	Inbound	Outbound	Total
Broadway	116	71	187
Broadway at Howard St*	11	n.a.	11
Cleveland Street	2	2	4
Total	**129**	**73**	**202**

* Peak hour limited stops services set down and pickup at this bus stop. Table does not include school specials.

This service provision is very high by any standard. On average an eastbound bus stops every 30 seconds at the UTS Tower (Building 1) en route to Central Railway, with most going further into town. Heading out of town, in the westbound direction, there is more than one bus a minute.

Even outside of the morning commuter peak, bus frequencies are high. The following tables summarise the number of buses per hour by direction for selected time periods.

Weekday 11am to 12 noon

Bus Stops	Inbound	Outbound	Total
Broadway	59	58	117
Cleveland Street	2	2	4
Total	**61**	**60**	**121**

Weekday 5pm – 6pm

Bus Stops	Inbound	Outbound	Total
Broadway	64	99	163
Cleveland St	3	3	6
Total	**67**	**102**	**169**

There is a bus every two minutes in each direction at the site on a Saturday morning between 7am and 8am.

3 The Proposed Development

The Concept Plan involves the demolition, construction and extension of certain buildings on the Broadway Precinct to enable UTS to provide an additional 84,750 m² of gross floor area of education, social and sporting facilities, including student housing. The proposal will also enhance existing open space and improve pedestrian, bicycle and vehicular access into the Campus. The project will deliver facilities for up to 15,000 EFTSL (equivalent full time student load) on the campus by 2015, up from 12,200 in 2008.

Concept approval is sought for the following at the UTS Broadway Precinct, as illustrated in **Appendix D**:

- Demolition of existing Building 11 (81 Broadway), Building 12 (113 Broadway) and Building 13 (115 Broadway).
- Building 1 – extension to podium of existing building to a height * of 22.47 metres to provide an additional 4,050 m² of gross floor area for educational and cultural uses.
- Building 2 – extension to, and refurbishment of, existing building to a height of 24.24 metres to provide an additional 6,750 m² of gross floor area for educational uses.
- Building 3 – modifications to existing building to provide café or retail uses on Level 1.
- Building 4 – modifications to existing building to provide café, retail uses or public facilities on Level 1.
- Building 6 –
    - extension and modifications to Levels 1-7 of the existing building to provide approximately 5,950m² of gross floor area for educational,
    - retail or café uses; construction of a new 69.20 metre high extension to provide approximately 19,300 m² of gross floor area for student accommodation;

    - new pedestrian link between Harris Street and the Ultimo Pedestrian Network through Building 6.
- Building 10 – modifications to existing building to provide vehicular access into the new Broadway Building at basement level, and pedestrian access at ground and upper levels.
- Broadway Building – construction of a new 44.47 metre high building to provide 34,650 m² of educational, and café or retail uses plus basement car parking for approximately 160 relocated spaces.
- Thomas Street Building – construction of new 27.10 metre high building to provide 10,000 m² of gross floor area for educational, cultural and café or retail uses.
- Alumni Green –
    - landscaping;
    - below ground book storage vault (2,250 m² of gross floor area);
    - below ground multi-purpose sports hall (1,800 m² of gross floor area).
- Public domain improvements to Broadway and Thomas, Harris, Wattle and Jones Streets

3.1 Access and Parking

The development does not propose any increase in on site parking provision. The existing open air gravel car park off Thomas Street would be reconstructed as a basement car park beneath the proposed 'Broadway' building. Access to this car park would be via the existing driveway access from Thomas Street through Building 10.

Works on Building 2 will result in the loss of some staff parking spaces within the basement car park beneath Building 1. However the service vehicle provision would be retained. Displaced parking spaces will be accommodated in the new Broadway building.

Works on Building 6 will result in the loss of some staff parking within the basement car park beneath Building 6. Displaced parking spaces will be accommodated in the new Broadway building.

The existing service dock which is accessed from Harris Street via Turner Lane beneath the pedestrian overbridge, would be removed and the servicing would be relocated to the main service vehicle car park beneath Building 1 accessed from Thomas Street.

As noted in Chapter 1, the closure of Jones Street is not proposed as part of this application. The closure of Jones Street would be subject to a separate application. Bicycle parking facilities would be provided as part of the redevelopment of the campus.

4 Future Traffic Conditions

4.1 *Traffic Generation*

The expansion of the Broadway Campus will allow the increase of student population from 12,200 equivalent full time students to 15,000 by the year 2015. This represents a 23% increase in the number of EFT students on site.

The TMAP report[3] for the concept plan indicates the following travel mode share of existing students:

Table 7 - Existing Student Travel Mode Share

Car Driver	Car Passenger	Rail	Bus	Walk / Cycle	Other	Total
5%	2%	52%	23.5%	17%	0.5%	100%

From Table 7 it can be seen that the car driver / passenger mode share is very low and that the vast majority of students travel by public transport and that this aspect is dealt with in detail in the TMAP.

Whilst the development does not propose any additional on site parking, there is the potential that the increase of 2,800 EFT students would result in an increase in traffic generation of the campus. This additional traffic generation would be mainly attributed to drop off / pick up trips. For the proposed increase in EFT students, a total of 7% car mode share (5% car driver + 2% car passenger) would equate to some 196 additional trips.

Not all of these additional trips would occur during peak periods as the additional students would also include part time students who have say only one class a day or arrive in the evening following work. In addition, these additional vehicle trips would be spread throughout the surrounding network.

[3] UTS Concept Plan Transport Management and Accessibility Plan report – HalcrowMWT January 2009

4.2 Trip Distribution

4.2.1 *Broadway Campus*

As stated above, the expected increase in traffic generation of the redeveloped Broadway Campus would be mainly attributed to drop off and pick up vehicle movements.

The site inspection revealed that the majority of drop off and pick ups occurred in Jones Street and Thomas Street.

It has been assumed that 100% of the potential increase in traffic would arrive during the morning peak and 85% would depart in the PM peak. This is in line with the assumptions of the TMAP report on the way students currently travel to and from the Broadway campus throughout the day.

4.3 Frasers Broadway

The additional traffic generated and the adopted trip distribution of the Frasers Broadway development report[4] has been added to the road network surrounding the Broadway Campus.

The future traffic flows on the surrounding road network resulting from combining the traffic generation of both developments is shown in **Figure 5**.

4.4 Future Intersection Performance

The effects of the additional traffic on the operation of surrounding intersections were assessed using the SIDRA Intersection analysis program. The resulting intersection performance is presented in Table 8.

[4] Carlton and United Brewery Site - Stage 1 Masterplan Transport Report (October 2006), *Masson Wilson Twiney*

Table 8 - Future Intersection Performance

Intersection	Control	Morning Peak				Evening Peak			
		Existing		Future		Existing		Future	
		Avg Delay	LoS	Avg Delay	LoS	Avg Delay	LoS	Avg Delay	LoS
Broadway-Harris St	Signals	36	C	39	C	42	C	45	D
Broadway-Wattle St	Signals	26	B	29	C	31	C	31	C
Regent St-Lee St	Signals	30	C	31	C	31	C	31	C
Harris St-Thomas St	Signals	12	A	20	B	12	A	19	B
Harris St – Ultimo Rd	Signals	18	B	23	B	20	B	21	B
Harris St-Mary Ann St	Signals	14	A	15	B	19	B	19	B
Harris St – Macarthur St	Signals	7	A	7	A	8	A	8	A
Wattle St-Thomas St	Priority	26	B	54	D	33	C	>120	F
Wattle St-Mary Ann St	Priority	7	A	7	A	7	A	7	A
Wattle St-Kelly St	Signals	14	A	14	A	15	B	15	B
Wattle St-Macarthur St	Priority	>120	F	>120	F	>120	F	>120	F

From Table 8, it can be seen that future intersection operating conditions would be similar to existing conditions except for Wattle Street-Thomas Street intersection. The critical movement at Wattle Street-Thomas Street intersection is the right turn from Thomas Street. In reality, traffic arriving from the signalised intersection at Abercrombie Street, which is located approximately 100m downstream from Thomas Street, would approach the intersection in groups. Therefore vehicles from Thomas Street would receive more gaps in the Wattle Street traffic stream such that delays to Thomas Street are not as high as the analysis indicates.

Hence, the traffic impacts of the Broadway Precinct combined with the traffic impacts of the Frasers Broadway development Precinct are not expected to have a major impact on the surrounding road network.

The overall traffic impacts of the proposal are considered satisfactory.

4.5 Parking Provision

The development seeks to support Council and State Government objectives by providing expanded teaching facilities close to existing high frequency public transport services with little or no increase in on site parking provision. The proposal builds upon the already high use of transit by both staff and students when travelling to and from the campus.

The development proposes the relocation of the existing open air car park in Jones Street to basement beneath the new 'Broadway' building. Any new car park structure on site would need to comply with the Australian Standard for Off Street Parking Facilities – AS2890.1.

5 Conclusions

This report examines the potential traffic impacts of the UTS Concept Plan for the redevelopment of the Broadway campus. This report also includes additional information and analysis as requested in the Director General's requirements. Detailed responses to issues raised by each key stakeholder are provided in **Appendix C** of this report.

The findings of the study are presented below:

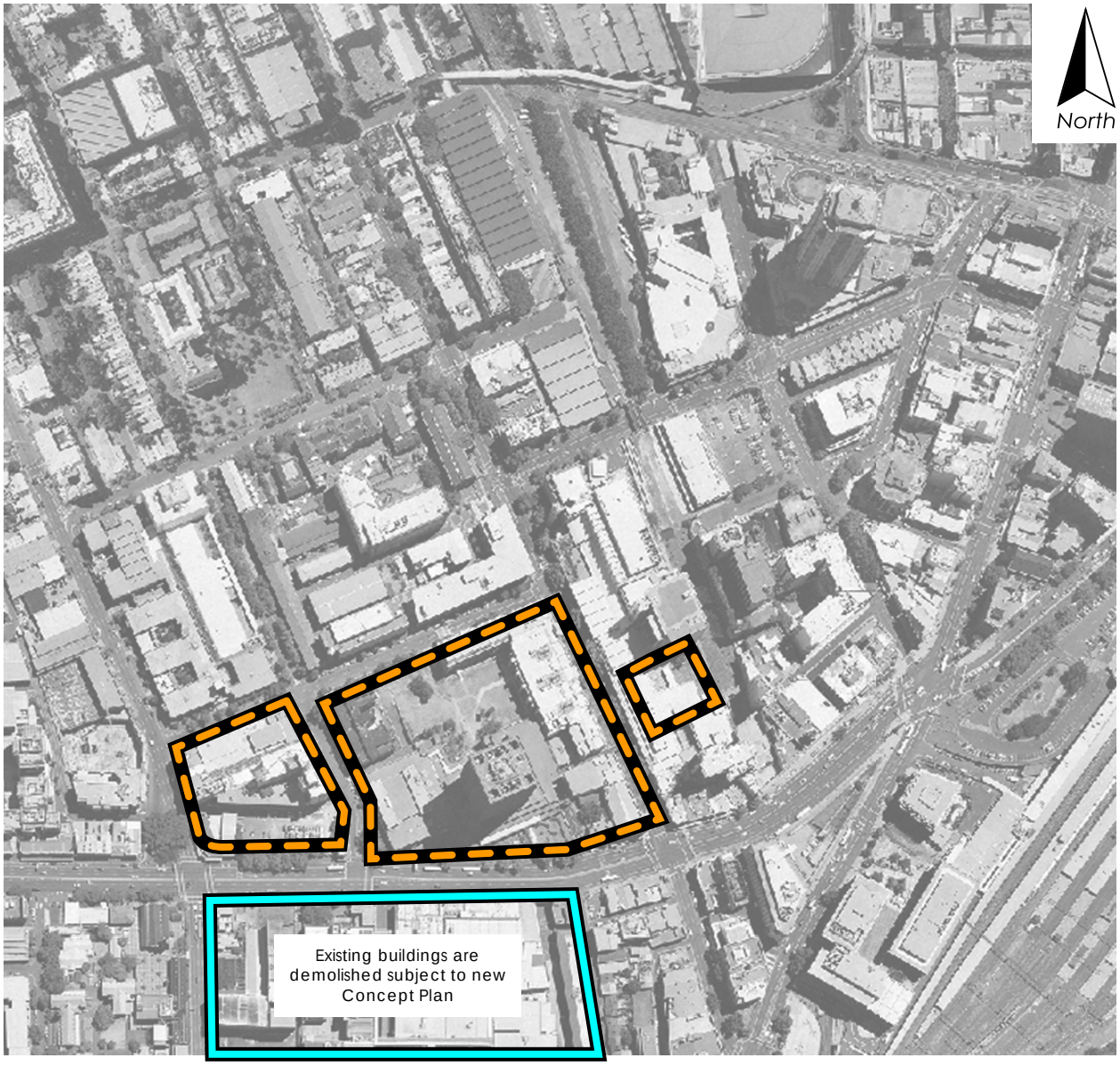
- The development proposes expanded teaching facilities to accommodate an increase of 2,800 equivalent full time students on site.
- The site is located at the epicentre of public transport provision in the Sydney CBD and staff and students are well served by both rail and bus operations.
- The increase in student population has the potential to generate some 140 vehicle trips. These trips would spread over a typical day.
- Intersections surrounding the site would continue to operate similar to existing conditions.
- The traffic impacts of the proposal are considered minimal and would not impact significantly on the surrounding road network.
- To limit the traffic generated by the development, no additional on site parking provision is proposed.
- The design of any reconfigured parking areas should comply with the Australian Standard for Off Street Parking Facilities – AS2890.1.

Overall the potential traffic of the proposed development is considered to be satisfactory.

Appendix B Plan of Building Locations

UTS CITY CAMPUS PRECINCT

UTS TRAFFIC REPORT



Halcrow MWT

Figure 1

Filename: 073588di37.ai

Date: 22 April 2009

EXISTING PEAK HOUR INTERSECTION FLOWS

UTS TRAFFIC REPORT

Halcrow MWT

Figure 2

Filename: 073588di38.ai

Date: 6 March 2009

EXISTING OFF STREET PARKING FACILITIES

UTS TRAFFIC REPORT

Key

- Jones Street 'gravel' Carpark
  100 staff/public places
- Building 10 Basement Carpark
  155 staff/public spaces
- Building 1 Main Tower Carpark
  27 staff spaces
- Building 6 Basment Carpark
  135 staff spaces

Halcrow MWT

Figure 3

Filename: 073588di39.ai

Date: 6 March 2009

EXISTING LOADING DOCK LOCATIONS

UTS TRAFFIC REPORT

Key

	2	Utility Vehicles/Vans
	0	MRV
	33	Utility Vehicles/Vans/SRV
	0	MRV
	3	Utility Vehicles/Vans/SRV
	1	MRV
	0	Utility Vehicles/Vans/SRV
	2	MR
	4	Utility Vehicles/Vans/SRV
	0	MRV

Halcrow MWT

Figure 4

Filename: 073588di40.ai

Date: 6 March 2009

POST DEVELOPMENT PEAK HOUR INTERSECTION FLOWS (INCL. FRASERS BROADWAY TRAFFIC)

Halcrow MWT

Figure 5

Filename: 073588di42.ai

Date: 6 March 2009

Appendix A Stakeholder Submissions

NSW GOVERNMENT
Department of Planning

Contact: Carmel.O'Connor
Phone: 9228 6575
Fax: 9228 6570
Email: carmel.o'connor@planning.nsw.gov.au

Our ref: S08/01136

Mr Ross Milbourne
Vice Chancellor
The University of Technology Sydney
City Campus
Po Box 123
BROADWAY NSW 2007

Dear Mr Millbourne,

Director-General's Environmental Assessment Requirements
UNIVERSITY OF TECHNOLOGY BROADWAY CAMPUS

I refer to your proposed Concept Plan for the University of Technology Sydney (UTS) Broadway Campus and your request for Director-General's Environmental Assessment Requirements for the preparation of an Environmental Assessment to support the Concept Plan.

On 4 September 2008, the Minister formed the opinion that under Clause 6 of the Major Project SEPP that your proposal was a Major Project to which Part 3A of the Environmental Planning and Assessment Act applies. On the same day the Minister also authorised your request to submit a Concept Plan for the proposal.

With regards to the Concept Plan the Director-General's Environmental Assessment Requirements are attached. The Requirements were developed from information provided within your preliminary environmental assessment and with regard to consultation by the Department with key stakeholders.

Section 75F(3) of the Act permits subsequent modification of the Director-General's Requirements and may be invoked to address unidentified environmental impacts. If these powers are used, you will be formally notified of changes to the Requirements.

Once you have lodged the Environmental Assessment, the Department, in consultation with other agencies where relevant and applicable, will undertake a "test of adequacy" of the submitted documentation. Following that review, if deemed adequate, the Environmental Assessment will be publicly exhibited by the Department for a minimum period of 30 days.

To assist you in the preparation of the Environmental Assessment, I have enclosed responses received from City of Sydney Council, the Ministry of Transport and the Roads and Traffic Authority.

You should keep the contact officer for this project up to date with the preparation of the Environmental Assessment and, where relevant, any emerging issues. The contact officer, Carmel O'Connor, is available during business hours on 9228 6575 or email at Carmel.O'Connor@planning.nsw.gov.au.

Yours sincerely,

Jason Perica
Executive Director
Strategic Sites and Urban Renewals

11/9/08

23-33 Bridge Street SYDNEY NSW 2000 GPO Box 39 SYDNEY NSW 2001
Phone 02 9228 6111 Fax 02 9228 6155 Website planning.nsw.gov.au

Director-General's Requirements

Section 75F of the *Environmental Planning and Assessment Act 1979*

Major Project No.	MP 08_0116 (Concept Plan)
Project Description	**Concept Plan – University of Technology Sydney (UTS) Broadway** The proponent is seeking concept plan approval for a redevelopment of the site. The main elements comprise educational uses and faculty and student accomodation.
Site	**UTS Broadway campus** - Thomas St, Wattle St, Broadway and Harris Street.
Proponent	University of Technology Sydney
Date of Issue	*11-09-08* *(If the environmental assessment is not exhibited within 2 years after this date, the applicant must consult further with the Director-General in relation to the preparation of the environmental assessment.)*
General Requirements	The Environmental Assessment (EA) must include (1) An executive summary; (2) Detailed description of the project including the: (a) strategic justification for the project; (b) description of the site including cadastral and title details; (c) various precincts and staging (including infrastructure staging); and (d) alternatives considered. (3) Consideration of the following with any variations to be justified: (a) all relevant State Environmental Planning Policies, (b) City of Sydney LEP 2005 and relevant DCP's; (c) Metropolitan Strategy 'City of Cities' document; (d) Urban Transport Statement; (e) Sydney City Subregional Strategy; and (f) The State Plan. (4) Draft Statement of Commitments, outlining commitments to public benefits including State and local infrastructure provision or contributions, environmental management, mitigation and monitoring measures and clear indication of responsibilities; (5) Signed statement from the author of the EA confirming that the information is neither false nor misleading; and (6) Report from a quantity surveyor identifying the capital investment value of the Concept Plan.
Key Assessment Requirements	**1. Ownership and Title** • Land title and ownership details for all parcels of land to form part of the development site. **2. Site Analysis** • Site and context analysis plan that identifies the relevant natural and built environmental features within and adjoining the site. • Survey Plan including site boundaries, levels, buildings to be retained and easements. • Plan showing how the proposal will integrate with future development on the surrounding properties. **3. Land Use** • Identify proposed precincts, stages, timing, uses to be contained in each precinct, road and pedestrian networks. • Table listing different land uses, FSR, development yield, site coverage for each use and total GFA for the development. **4. Urban Design and Built Form** • Indicative plans, elevations and sections showing height, bulk, scale of the proposed

built forms in relation to existing and proposed site levels, buildings to be retained and the surrounding locality.

- 3D modelling of the proposed masterplan in the context of the proposed the future CUB development as approved and as proposed to be modified.
- Demonstration of the type, height bulk, scale and design quality controls for future development, including landscaping.
- Photomontages and artists impressions of key elements of the proposal including the proposed Alumni Green and street frontages.

Public Domain and Streetscape

- Indicative plans/sections of the proposed public domain showing the street network, linkages to adjoining sites, permeable spaces, car parking, solar access, landscape treatments and high quality public domain with active spaces/uses.
- Sections showing relationship of buildings to the public domain, including any weather protection on major pedestrian routes and location of outdoor dining.
- Pedestrian circulation diagram showing main pedestrian routes within the site, connections to adjacent uses and how level changes will be accommodated.
- Active frontages diagram showing location of active frontages within the site, with particular reference to the proposed Alumni Green, Broadway, Thomas Street, Jones Street and the Ultimo Pedestrian network during both day and night.

5. Road Closure

- Confirmation of relevant land owner consent.
- Justification of the change to vehicular access to Jones Street.
- Legally binding agreement for the future maintenance of Jones Street.

6. Amenity

- Shadow diagrams showing impact of proposed buildings within the development site and on adjoining land, with particular regard to the proposed Alumni Green .
- Address potential overlooking impacts from the proposed development to adjoining residential development.
- View analysis of significant views and vistas that would be impacted on by the proposal.

7. Traffic and Transport

- Traffic Study in accordance with the Roads and Traffic Authority's *Guide Traffic Generating Developments,* with particular regard to:
  - Existing road capacity, expected impacts on local and regional roads and any upgrade requirements;
  - Internal road layout and access arrangements;
  - Pedestrian and bicycle linkages; and
  - Access for emergency vehicles.
- Transport Management and Accessibility Plan (TMAP) for the entire site, in accordance with the Ministry of Transport's *Interim TMAP Guidelines*, also including:
  - Staging/ Sequencing Plan;
  - Construction Management Plan; and
  - Voluntary Planning Agreement addressing MoT's requirements.
- Proposed number of car parking spaces and compliance with the relevant parking codes.
- Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need for funding of or upgarding road improvement works if required.
- Modelling and assessment of the performance of key intersections including the forecast traffic volumes from the Frazers Broadway site (formerly Carlton United

	Breweries). • Investigation of the provision of signalised mid-block pedestrian crossings in strategic locations, in particular in Broadway. **8. Heritage** • Justification of the demolition of any locally or nationally listed heritage items • Heritage Impact Statement (HIS) assessing impacts of the proposed development on the existing campus layout and buildings and heritage items within the site and the vicincity of the site. • Archaeological assessment of the site, including archaelogy and interpretation strategies. • Details of any Aboriginal cultural heritage significance or items. **9. Landscape** • Landscape concept plan indicating any trees to be retained and proposed landscaping treatments. **10. Ecologically Sustainable Development** • Demonstrate how the development will satisfy ESD principles, including BASIX, water sensitive urban design measures, energy efficiency, recycling and waste disposal. • Consideration of 'tapping into' the ESD initiatives on the CUB site. **11. Geotechnical and Contamination** • Geotechnical report detailing matters such as the suitability of the site for its proposed uses, slope stability, erosion hazard, earthworks and retention methods and likely excavation/ construction methodology to meet Railcorp requirements. • Measures to be undertaken in accordance with SEPP 55 to address contamination issues. **12. Utilities and Infrastructure** • Utility and infrastructure servicing, demonstrating development can be adequately serviced for water supply, wastewater, stormwater, electricity, gas and communications. • Demonstrate appropriate provision of social infrastructure and services to supported expected population increase. • Potential impacts on rail infrastructure. **13. Drainage, Stormwater and Groundwater Management** • Identify drainage, stormwater and groundwater management issues. **14. Developer Contributions** • Scope and justification of developer contributions between the proponent and the State (via relevant agencies including Roads and Traffic Authority and Ministry of Transport), based on the demand for services generated by the development and Department of Planning guidelines.
Consultation Requirements	Written evidence shall be submitted to demonstrate that an appropriate level of consultation has been undertaken with the following relevant parties during the preparation of the Environmental Assessment having regard to previous consultation. *a) Agencies and other authorities:* • Council of the City of Sydney; • NSW Ministry of Transport; • NSW Roads and Traffic Authority;

	• Railcorp; • NSW Heritage Council; • NSW Department of Education and Training; and • All relevant utility providers. Document all community consultation undertaken to date or discuss the proposed strategy for undertaking community consultation. This should include any contingencies for addressing any issues arising from the community consultation and an effective communications strategy. The consultation process and the issues raised should be described in the Environmental Assessment.
Landowner's Consent	Landowner's consent (for each land parcel) is to be provided within the EA in accordance with clause 8F of the Environmental Planning & Assessment Regulation 2000.
Deemed refusal period	60 days
Documents to be submitted	Eight hard copies of the EA with plans to be to scale and A3 in size. Eight copies of the EA and plans on CD-ROM (pdf format)

RDC 08M1094

The Director
Urban Assessments
Department of Planning
GPO Box 39
Sydney NSW 2001

Attention: Carmel O'Connor

UNIVERSITY OF TECHNOLOGY SYDNEY BROADWAY CAMPUS - CONCEPT PLAN

Dear Sir/Madam,

I refer to your letter of 18 July 2008 (Ref: SO 08/01136) requesting the Roads and Traffic Authority (RTA) to provide details of key issues and assessment requirements regarding the abovementioned development for inclusion in the Director General's Environmental Assessment (EA) requirements.

The RTA would like the following issues to be included in the transport and traffic impact assessment of the proposed development:

1. It is noted that the Metropolitan Strategy has designated City of Sydney as a Global City and a major focal point for world class business, tourism, cultural, health, education and entertainment activities. It is important that the redevelopment of the University of Technology Sydney Broadway Campus takes this into consideration, and contributes to the achievement of transport objectives contained in this and other high-level NSW Government strategies.

   These strategies include the NSW State Plan, Urban Transport Statement and the Sydney City Subregional Strategy. These policies share the aims of increasing the use of walking, cycling and public transport; appropriately co-locating new development with existing and improved transport services; and improving the efficiency of the road network.

   By addressing both the supply of transport services and measures to manage demand for car use the EA report should demonstrate how users of the proposed development at the University of Technology Sydney Broadway Campus will be able to make travel choices that support the achievement of relevant State Plan targets.

2. Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need for funding of upgrading or road improvement works (if required).

27-31 Argyle Street
Parramatta NSW 2150
PO Box 973 Parramatta CBD NSW 2124
DX 28555 Parramatta
T 13 17 82
www.rta.nsw.gov.au

The key intersections to be examined / modelled include:

Broadway and Wattle Street
Wattle Street and Thomas Street
Wattle Street and Mary Ann Street
Wattle Street and Kelly Street
Wattle Street and Macarthur Street
Harris Street and Macarthur Street
Harris Street and Ultimo Road
Harris Street and Mary Ann Street
Harris Street and Thomas Street
Harris Street and Broadway
Regent Street and Lee Street

The modelling of the above intersections is to include the forecast traffic volumes from the Frasers Broadway site (formerly Carlton United Breweries) in the assessment of the performance of the intersections.

3. Details of the proposed accesses and parking provisions associated with the proposed development, including compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle widths, etc).

4. Proposed number of car parking spaces and compliance with the appropriate parking codes.

5. Details of service vehicle movements (including vehicle type and likely arrival and departure times).

6. The RTA requires the EA report to assess the implications of the proposed development for non-car travel modes (including public transport use, walking and cycling); the potential for implementing a location-specific sustainable travel plan (eg 'Travelsmart' or other travel behaviour change initiative); and the provision of facilities to increase the non-car mode share for travel to and from the site. This will entail an assessment of the accessibility of the development site by public transport.

7. To ensure that the above requirements are fully addressed, the RTA requests that a Transport Management and Accessibility Plan (TMAP) be undertaken for the University of Technology Sydney Broadway Campus site to properly ascertain the cumulative regional traffic impacts associated with development. The TMAP process provides an opportunity to identify a package of traffic and transport infrastructure measures required to support future development. Regional and local intersection and road improvements, vehicular access options for adjoining sites, public transport needs, the timing and cost of infrastructure works and the identification of funding responsibilities associated with the development should be identified.

8. The RTA will require in due course the provision of a traffic management plan for all demolition / construction activities, detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures.

Further enquiries on this matter can be directed to Garry Kennedy on phone 8849 2029 or facsimile (02) 8849 2918.

Yours sincerely

James Hall
Acting Senior Land Use Planner
Transport Planning, Sydney Region
20 August 2008

MINISTRY OF TRANSPORT

Level 19, 227 Elizabeth Street Sydney 2000
GPO Box 1620 Sydney 2001
Telephone 9268 2800 Facsimile 9268 2900
Internet www.transport.nsw.gov.au
ABN 25 765 807 817

20 AUG 2008

Mr Michael File
Director
Strategic Assessments
NSW Department of Planning
GPO Box 1620
SYDNEY NSW 2001

Attn: Ms Carmel O'Conner

Dear Mr File,

UNIVERSITY OF TECHNOLOGY SYDNEY, BROADWAY CAMPUS – DIRECTOR GENERAL'S REQUIREMENTS (DGRs)

I refer to your letter dated 18 July 2008 regarding the draft Concept Plan for the expansion of the University of Technology's Broadway campus. The Ministry appreciates this opportunity to provide input to the Director General's requirements for this concept plan.

The Ministry has reviewed the preliminary environmental assessment, which accompanies the proposal. The Ministry requests that the DGRs require the proponent to prepare a detailed transport study which addresses the following key matters:

1. The objectives and priorities of key State policies including the State Plan, Urban Transport Statement, Metropolitan Strategy and draft Sydney City Subregional Strategy;
2. Justification for any changes to vehicle access in Jones Street. The existing 501 bus service (Town Hall to West Ryde via Railway Square, Pyrmont and Victoria) utilises Jones Street to gain access to Harris Street in a northerly direction. You are advised that the Ministry intends to retain this service and no other acceptable alternative routes have been identified;
3. The preparation a car parking strategy, which minimises provision and considers a range of management initiatives, including:
   - The use of 'car share' schemes for corporate fleets;

- Appropriately priced parking, which discourages all day usage; and
- Potential assistance for employees to access work by public transport through salary packaging options and other incentives.

4. A range of applicable travel demand management initiatives, which can assist employees and visitors access the site by public transport together with walking and cycling. Measures may include:
   - The preparation of a Travel Access Guide (TAG). Information regarding TAG's are available from the Roads and Traffic Authority on their website www.rta.nsw.gov.au;
   - The provision of secure bike storage and amenities; and
   - The introduction of flexible working/study arrangements, which can enable staff and students to avoid congested morning and afternoon peak periods.
5. The potential impact of the vehicles trips generated by the subject site on the local road network with particular regard to impacts for adjacent key intersections;
6. Compliance with minimum standards for pedestrian and cycle access. The publication entitled Planning Guidelines for Walking and Cycling (NSW Government, 2004) is a useful toolkit that can help identify necessary walking and cycling infrastructure; and
7. Measures to ensure that the frontages of the subject site allow safe pedestrian and cycle access during the entire demolition and construction period.

The Ministry would also appreciate continued close consultation on the preparation of any planning agreement which has potential to secure funding for local and regional public transport including priority bus measures and roadside infrastructure.

If you would like to discuss this further, please contact Ben Colmer, Student Transport Planner, on 9268 2228 or email ben.colmer@transport.nsw.gov.au.

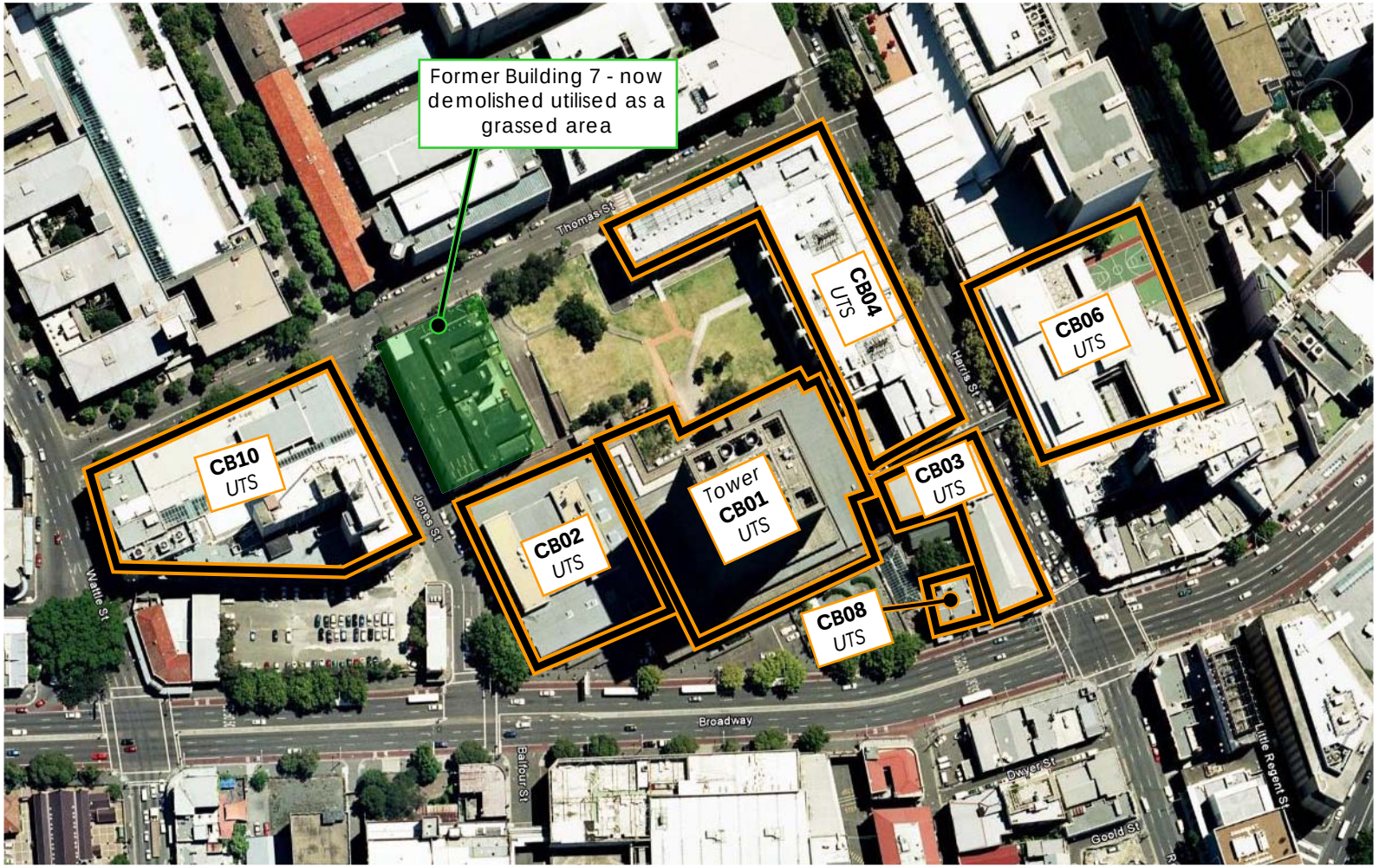
Yours sincerely

Juliet Grant
A/Director, Transport Planning
20/8/08

DG08/03474

PLAN OF BUILDING LOCATIONS

UTS TRAFFIC REPORT



Halcrow MWT

Appendix B

The UTS City Campus is well served by both rail and bus. Accordingly there is a very high use of transit by both staff and students. To limit private vehicle usage and to promote the use of non private vehicle modes, the concept plan proposal does not include any additional on site parking.

The TMAP contains items which could be included in a future Voluntary Planning Agreement. These are:

- Increased shelter along Broadway
- New bus shelters
- Amalgamation of bus stops
- Bus Shelters in Jones Street
- Reconstruction of footpath along Broadway
- Removal of street furniture to remove pedestrian barriers
- Preparation of a Travel Access Guide for new students and staff

2. *"Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need for funding of upgrading or road improvement works (if required).*

   The key intersections to be examined/modelled include:

   - *Broadway and Wattle Street*
   - *Wattle Street and Thomas Street*
   - *Wattle Street and Mary Ann Street*
   - *Wattle Street and Kelly Street*
   - *Wattle Street and Macarthur Street*
   - *Harris Street and Macarthur Street*
   - *Harris Street and Ultimo Road*
   - *Harris Street and Mary Ann Street*
   - *Harris Street and Thomas Street*
   - *Harris Street and Broadway*
   - *Regent Street and Lee Street*

The modelling of the above intersection is to include the forecast traffic volumes from the Frasers Broadway site (formerly Carlton United Breweries) in the assessment of the performance of the intersections."

As stated in Section 2.3 of this report, the number of intersections which require analysis was reduced following consultation with the RTA. The agreed revised list of intersections to be analysed is summarised below.

1. Broadway and Wattle Street
2. Wattle Street and Thomas Street
3. Wattle Street and Mary Ann Street
4. Harris Street and Ultimo Road
5. Harris Street and Mary Ann Street
6. Harris Street and Thomas Street
7. Harris Street and Broadway
8. Regent Street and Lee Street

Results of analysis of the existing intersection operation conditions of these intersections are provided in Section 2.4 of this report. It is noted that the traffic impacts of the Frasers Broadway development, adjacent to UTS was previously assess by the RTA and were found to be acceptable.

Future operating conditions which include the traffic impacts of both the UTS Broadway and Frasers Broadway developments are provided in Section 4.3 of this report. The assessment found the future traffic conditions would be similar to existing conditions and therefore are considered satisfactory.

3. *"Details of the proposed accesses and parking provisions associated with the proposed development, including compliance with the requirements of the relevant Australian Standards (i.e.: turn paths, sight distance requirements, aisle widths, etc)."*

As stated in Section 3 of this report, the development does not propose any increase in on site parking provision. The proposed 'Broadway' building fronting Broadway will accommodate parking to be transferred from the existing open air car park off Thomas Street to basement. Access to this new basement car park would be via Thomas Street and through the existing car park beneath building 10. All other existing parking areas and access arrangements will remain unchanged.

It is expected that compliance with the Australian Standard for any redeveloped parking area would be a condition of consent when a Project Application was submitted.

4. *"Proposed number of car parking spaces and compliance with the appropriate parking codes.*

To limit the traffic impacts of the proposal and to promote non private vehicle use, the concept plan proposes no increase in on site parking provision. It is noted this is in line with recommendations of the Green Building Council of Australia Green Star Manual and the recommendation by the Ministry of Transport in their response as part of the Director General requirements.

5. *"Details of service vehicle movements (including vehicles type and likely arrival and departure times)."*

The daily profiles of service vehicles are presented in Section 2.6.3 of this report. The proposed expansion of the city precinct is not expected to change this to any great extent.

6. *"The RTA requires the EA report to assess the implications of the proposed development for non-car travel modes (including public transport use, walking and cycling); the potential for implementing a location-specific sustainable travel plan (e.g. 'Travelsmart' or other travel behaviour change initiative); and the provision of facilities to increase the non-car mode share for travel to and from the site. This will entail an assessment of the accessibility of the development site of public transport."*

The site exhibits high levels of transit use which will be further enhanced with the increased development.

The expected increase in public transport use and the implications on existing transit services is covered in the Transport Management and Accessibility Plan report[5] for the concept plan.

[5] Transport Management and Accessibility Plan report – HalcrowMWT January 2009

7. *"To ensure that the above requirements are fully addresses, the RTA requests that a Transport Management and Accessibility Plan (TMAP) be undertaken for the University of Technology Sydney Broadway Campus site to properly ascertain the cumulative regional traffic impacts associated with development. The TMAP process provides an opportunity to identify a package of traffic and transport infrastructure measures required to support future development. Regional and local intersection and road improvements, vehicular access options for adjoining sites, public transport needs, the timing and cost of infrastructure works and the identification of funding responsibilities associated with the development should be identified."*

This report has been completed and includes comments / recommendations on the potential implications for existing transit services.

8. *"The RTA will require in due course the provision of a traffic management plan for all demolition/construction activities, detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures."*

The requirement for a Construction Traffic Management Plan for any new building proposed should form a condition of consent for that particular site.

C.2 Ministry of Transport Submission

1. *"The objectives and priorities of key State policies including and State Plan, Urban Transport Statement, Metropolitan Strategy and draft Sydney City Subregional Strategy"*

The proposed Concept Plan represents a development which is in line with current planning policies and is one which seeks to reduce the impacts of generated traffic. The development includes increased provision of teaching facilities close to existing high frequency public transport services combined with a constrained on site parking provision to further promote transit use.

2. *"Justification for any changes to vehicle access in Jones Street. The existing 501 bus service (Town Hall to West Ryde via Railway Square, Pyrmont and Victoria) utilises Jones Street to gain access to Harris Street ain a northerly direction. You are advised that the Ministry intends to retain this service and no other acceptable alternative routes have been identified"*

The Concept Plan does not propose the closure of Jones Street.

3. *"The preparation a car parking strategy, which minimises provision and considers a range of management initiatives, including:*
   - *The use of 'car share' schemes for corporate fleets;*
   - *Appropriately priced parking, which discourages all day usage; and*
   - *Potential assistance for employees to access work by public transport through salary packaging options and other incentives."*

The principle control tools for parking demand management and the traffic generated by a development are the constraint of site parking provision and implementation of suitable pricing structures. The existing car parks are well managed by the University and those which can be accessed by the public require payment to park. The University provides parking passes to only a selected few senior executive staff or those who require access to a vehicle to undertake their work.

The development does not propose any increase in parking. The current pricing acts as a deterrent to only a small proportion of students and in any event these students would compete with visitors to the campus and the public. The overall parking provision in the context of public parking availability in the Sydney CBD is considered immaterial. It is expected the university would continue to monitor pricing to deter student usage without diverting visitors to surrounding public car parks because parking prices are set too high.

4. *"A range of applicable travel demand management initiatives, which can assist employees and visitors access and the site by public transport together with walking and cycling. Measures may include:*
   - *The preparation of a Travel Access Guide (TAG). Information regarding TAG's are available from the Roads and Traffic Authority on their website www.rta.nsw.gov.au"*
   - *The provision of secure bike storage and amenities; and*
   - *The introduction of flexible working/ study arrangements, which can enable staff and students to avoid congested morning and afternoon peak periods."*

It is recommended the development of a Travel Access Guide (TAG) be imposed as a condition of consent. The TMAP report includes a significant proportion of the information which would be used to develop this guide. This guide could be developed as a separate exercise prior to the submission of future development or project applications.

5. *"The potential impact of the vehicles trips generated by the subject site on the local road network with particular regard to impacts for adjacent key intersections"*

As stated in Section 4.1 of this report, because of high levels of transit access, minimal on site parking provision, the increase of 2,800 EFTSL students is expected to generate only an additional 140 daily vehicle trips.

The potential additional traffic generated by the student increase is minimal and would have negligible impact on the surrounding road network.

6. *"Compliance with minimum standards for pedestrian and cycle access. The publication entitled Planning Guidelines for Walking and Cycling (NSW Government, 2004) is a useful toolkit that can help identify necessary walking and cycling infrastructure."*

The development would provide bicycle parking for any new development or expansion of an existing building in accordance with Sydney City Council's DCP.

The relocation of the library from the Haymarket precinct to the main City Precinct will enable the majority of students to access this high pedestrian generator without the need to walk between the precincts or across any existing roads.

Pedestrian amenity will be improved along Broadway as shelter (awnings) would be provided as part of the Broadway building development and the expansion of Building 1.

7. *"Measures to ensure that the frontages of the subject site allow safe pedestrian and cycle access during the entire demolition and construction period."*

The preparation of a pedestrian management plan for demolition / construction at this stage of the planning is considered inappropriate and should form a condition of consent as part of the future development of the site.

Appendix C Responses to Stakeholder Submissions

The Director General's requirements for the concept application included a number of written submissions from key stakeholders including the NSW Roads and Traffic Authority and the Ministry of Transport.

A response to each request for additional information or issue raised by authorities stakeholders who made written submissions regarding the original plan has been generally addressed in either this traffic report or the TMAP report.

For ease of reference, the following provides comments on each request for additional information / issue raised in the submissions. Copies of the submissions are provided in **Appendix A** of this report.

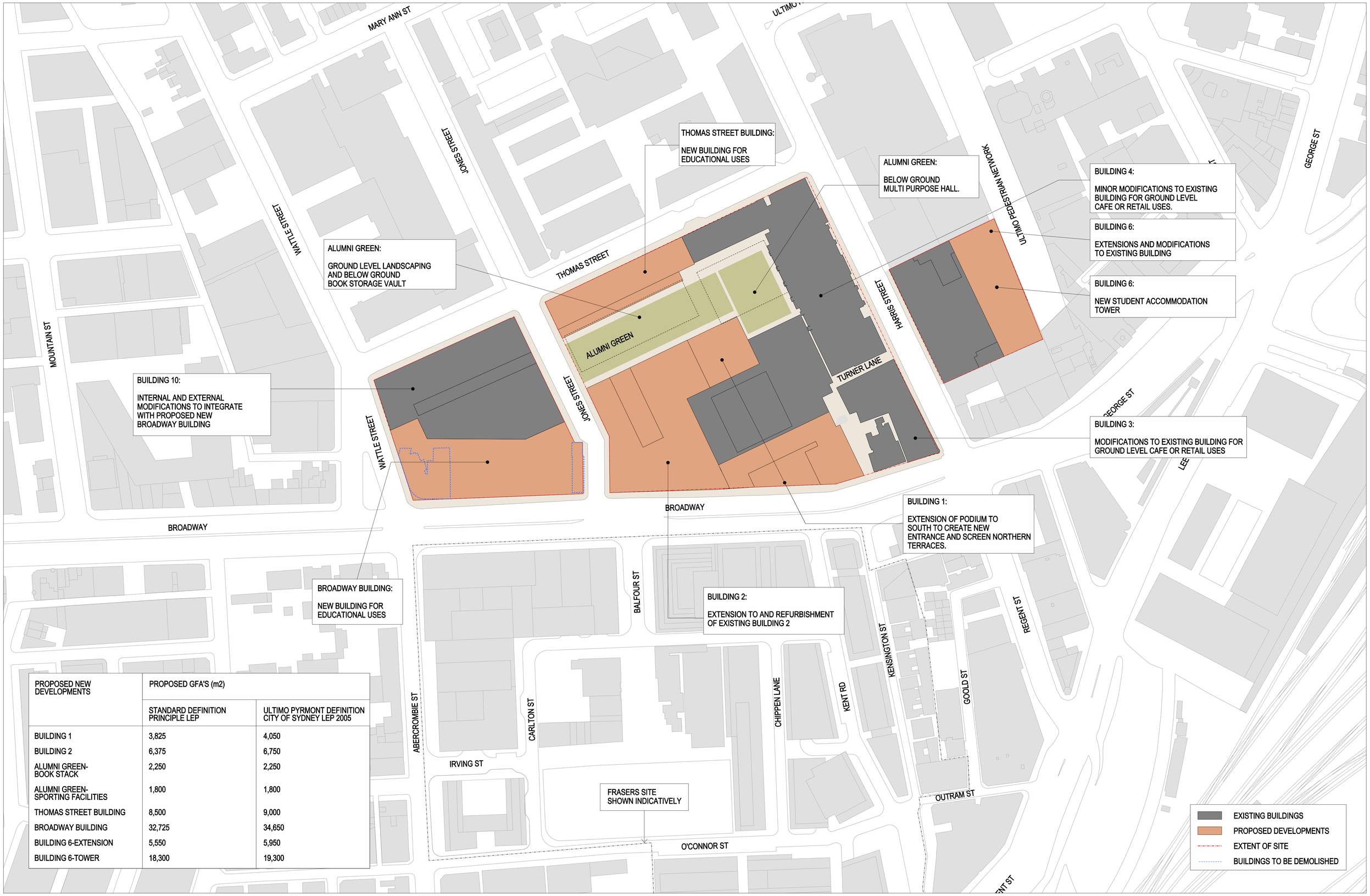
C.1 NSW Roads and Traffic Authority Submission

1. *"It is noted that the Metropolitan Strategy has designated City of Sydney as a Global City and a major focal point for world class business, tourism, cultural, health, education and entertainment activities. It is important that the redevelopment of the University of Technology Sydney Broadway Campus takes this into consideration, and contributed to the achievement of transport objectives contained in this and other high-level NSW Government strategies.*

These strategies include the NSW State Plan, Urban Transport Statement and the Sydney City Subregional Strategy. These policies share the aims of increasing the use of walking, cycling and public transport; appropriately co-locating new development with existing and improved transport services; and improving the efficiency of the road network.

By addressing both the supply of transport services and measures to manage demand for car use the EA report should demonstrate how users of the proposed development at the University of Technology Sydney Broadway Campus will be able to make travel choices that support the achievement of relevant State Plan targets."

Appendix D UTS Concept Plan



PROPOSED NEW DEVELOPMENTS	PROPOSED GFA'S (m2)	
	STANDARD DEFINITION PRINCIPLE LEP	ULTIMO PYRMONT DEFINITION CITY OF SYDNEY LEP 2005
BUILDING 1	3,825	4,050
BUILDING 2	6,375	6,750
ALUMNI GREEN-BOOK STACK	2,250	2,250
ALUMNI GREEN-SPORTING FACILITIES	1,800	1,800
THOMAS STREET BUILDING	8,500	9,000
BROADWAY BUILDING	32,725	34,650
BUILDING 6-EXTENSION	5,550	5,950
BUILDING 6-TOWER	18,300	19,300

24/03/2009

BVN BlighVollerNieldArchitecture

CLIENT: UNIVERSITY OF TECHNOLOGY SYDNEY

PROJECT: UTS BROADWAY CONCEPT PLAN

TRUE NORTH

PROJECT NORTH

GRAPHIC SCALE: 0 20000 50000

SCALE: 1:2000 at A3

DRAWING: CAMPUS PLAN - PROPOSED

DRAWING NO: 3A-CP-02