
To: Mary Osman
From: Mark Pisani
Date: 9 February 2018
Subject: Application No: PLN17/0991
Description: Construction of a multi storey building associated with the Australian Catholic University and alteration to Road Access.
Site Address: 115 Victoria Parade, Fitzroy

I refer to the above Planning Application received on 30 January 2018 and the accompanying report prepared by Cardno in relation to the proposed development at 115 Victoria Parade, Fitzroy. Council's Engineering Services unit provides the following information:

CAR PARKING PROVISION

The development would be containing 244 on-site car parking spaces (reduced from 270 spaces). The site has excellent accessibility to public transport services, on-road bicycle infrastructure and is within walking distance of the Melbourne CBD.

The travel mode surveys previously conducted by Cardno at the ACU site revealed that some 19% of students travelled to the university by car (as a driver). For staff travel to and from the university, commuting as a driver accounted for 34%. The car parking demand for both students and staff would be less than the statutory rate for an education centre (at 0.4 spaces per student).

We consider the provision of 244 on-site spaces to be appropriate in the context of the development and the surrounding area.

TRAFFIC GENERATION

Trip Generation

Cardno has estimated the peak hour traffic volumes of the new car park to be 193 vehicle trips (183 inbound trips and 10 outbound trips) in the AM peak hour and 77 vehicle trips (4 inbound trips and 73 outbound trips) in the PM peak hour. The directional splits are derived from the previous surveys of the ACU's Young Street car park access conducted by Cardno in 2014 and 2015.

Intersection Analysis

The traffic impact of the intersection of Victoria Parade and Napier Street was assessed using the SIDRA program, which measures intersection performance. SIDRA modelling works well under free flowing traffic conditions and may have limitations, such as queuing of downstream traffic. The results of the intersection modelling suggest that the intersection has capacity to accommodate peak hour development traffic. Based on the analysis provided by Cardno, the intersection is expected to operate satisfactorily once the car park is operational.

DEVELOPMENT LAYOUT DESIGN
Layout Design Assessment

Item	Assessment
Access Arrangements	
Development Entrance – West Side of Napier Street	The width of the principal accessway on the west side of Napier Street is 7.925 metres and satisfies <i>Design standard 1 – Accessways</i> of Clause 52.06-9 and the Australian/New Zealand Standard AS/NZS 2890.1:2004.
Visibility	A sight triangle has not been superimposed on the drawing for the exit lane. According to Cardno, the building at ground level has been cut back to provide pedestrian sight lines for vehicles exiting the property.
Headroom Clearance	Not dimensioned on the drawings.
Internal Ramped Accessways	The 6.4 metre wide widths satisfy AS/NZS 2890.1:2004.
Car Parking Modules	
At-grade Parking Spaces	The dimensions of the car parking spaces (2.9 metres by 4.9 metres) satisfy <i>Design standard 2: Car parking spaces</i> .
Accessible Parking Space	A check of the accessible parking spaces on Level B2 Floor Plan using the Trapeze plan management tool indicates that the accessible spaces and associated shared areas satisfy the Australian/New Zealand Standard AS/NZS 2890.6:2009.
Aisles	The aisle widths range from 6.4 metres to 7.175 metres and satisfy <i>Table 2: Minimum dimensions of car parking spaces and accessways</i> of Clause 52.06-9.
Column Depths and Setbacks	Not dimensioned on the drawings.
Clearances to Walls	Not dimensioned on the drawings.
Vehicle Passing Movements	The submitted swept path diagrams for the B99 design vehicle and an oncoming B85 design vehicle are considered satisfactory.
Circulation within Car Park and Vehicle Turnout Area	The circulation for the B99 design vehicle (as shown in Appendix B) of the report is considered satisfactory. The swept path movement within the vehicle turnout area is also considered satisfactory.
Gradients	
Ramp Grade for First 5.0 metres inside Property	The ramp grade for the first 5.0 metres inside the property is 1 in 10 and satisfies <i>Design standard 3: Gradients</i> .
Ramp Grades and Changes of Grade	The ramp grades and changes of grade satisfy <i>Table 3: Ramp gradients</i> of Clause 52.06-9.
Longitudinal Grade	The longitudinal grade of 1 in 133 along the east aisle of Level B2 Floor Plan satisfies AS/NZS 2890.1:2004.

Item	Assessment
Loading and Waste	
Loading Dock	A loading dock has been provided on the south side of Level B1 Floor Plan. The loading dock has not been dimensioned on the drawing.
Waste Management Area	A waste management area has been provided at the northwest corner on Level B1 Floor Plan. It is not clear how this area would function.
Other Items	
Napier Street Concept Plan	The Napier Street Concept Plan as shown in Appendix A of the Cardno report is generally consistent with the endorsed Development Plan dated 21 December 2017. The concept plan allows for satisfactory two-way traffic movements into and out of the car park via Napier Street for a B99 design vehicle. Cardno has not confirmed whether vehicles can satisfactorily enter and exit the angled parking bays along the east side of Napier Street.
Sign Schedule	The regulatory signs as shown on the Napier Street Concept Plan are considered satisfactory. The parking restriction signs on the east side of the street are existing and would remain in their current positions.
Queuing Analysis Check – Performance of Car Park Access Boom Gates	<p>For the purpose of the queuing analysis, it can be assumed that the boom gates would have a service time of 10 seconds. With an inbound AM traffic volume of 183 trips per hour, the utilisation ratio (usage/capacity) can be determined.</p> <p>To determine the storage queue of the boom gate, guidance is sought from the Australian/New Zealand Standard AS/NZS 2890.1:2004. A mechanical device such as a boom gate should have sufficient vehicle storage to accommodate the 98th percentile queue (the queue that will be exceeded on 2% of occasions). By knowing the utilisation ratio of the boom gate, the 98th percentile queue length can be calculated.</p> <p>Queue Length, $N = (\text{Log}_n \text{Pr}(n > N) / \text{Log}_n \rho) - 1$ $\text{Pr}(n > N) = \rho^{N+1}$ where $\rho = r / s$ (utilisation factor) $\rho = \text{average arrival rate} / \text{average service rate}$ $= 183 / 360$ $= 0.508$</p> <p>$N = (\text{Log}_n 0.02 / \text{Log}_n 0.508) - 1$ $= 4.78$ car lengths, say 5 cars</p> <p>The 98th percentile queue length for the boom gate during the AM peak hour is five car lengths. Based on this calculation, we are satisfied the boom gate can satisfactorily operate without resulting in cars queuing outside the property, as the boom gate is located well inside the site in Level B1.</p>

Design Items to be Addressed

Item	Details
Visibility – Development Entrance	A sight triangle measuring 2.5 metres by 2.0 metres should be superimposed at exit lane of the development on the Ground Floor Plan.
Visibility – Internal	Convex mirrors should be installed at corners where passing within the car park may be limited, as recommended by Cardno. This should be detailed on the drawings or as part of the Car Parking Management Plan.
Central Separator – Level B1 Floor Plan	There is no objection to the layout of the central separator dividing the entry and exit lanes of the accessway on the Level B1 Floor Plan as recommended in Appendix B of the Cardno report.
Column Depths and Setbacks	To be dimensioned on the drawings. Positions for columns adjacent to spaces should comply with <i>Diagram 1 Clearance to car parking spaces</i> of Clause 52.06-9 or AS/NZS 2890.1:2004 (where applicable).
Clearances to Walls	To be dimensioned on the drawings and should be at least 300 mm.
Headroom Clearance	To be dimensioned on the drawings. A minimum headroom clearance of 2.1 metres should be provided as per Clause 52.06-9. Headroom clearances above accessible parking spaces should be provided at 2.5 metres as per AS/NZS 2890.6:2009.
Pedestrian Doorways	A number of pedestrian doors open into car parking spaces (B07.01 and B06.01). Doors should not open into car parking spaces. Applicant needs to consider recessing these doors.
Loading Dock	To be dimensioned on the drawings. Line marking should be provided to delineate the loading dock from the accessway.
Waste Management Area	Clarification should be provided as to how this area operates. Could be discussed in the site's Car Parking Management Plan.
Vehicle Crossing – Lower Ground Floor Plan	On the Lower Ground Floor Plan, it appears that the vehicle crossing contains a channelised section across the footpath width. This needs to be deleted from the drawings as it is not consistent with the Napier Street Concept Plan.
Vehicle Entry and Reversing Movements – Angled Parking on East Side of Napier Street	The applicant must demonstrate, with swept path diagrams, that the B99 design vehicle can satisfactorily enter into and reverse out of the angled parking spaces on the east side of Napier Street (especially for bays opposite the raised island and separator). The swept path diagrams must be fully dimensioned with the angled bays clearly drawn.
Proposed Canopy – North West Corner of Site	The proposed canopy must not encroach above the road carriageways of Young Street or Little Victoria Street. Overhead clearances above the footpath and setbacks from the kerb are to satisfy the <i>Building Regulations 2006</i> .
Annotations – Napier Street Concept Plan	The annotation “Existing kerb to be retained” must be replaced with “Kerb to be reconstructed to Council requirements”. The annotation “Reinstate kerb and channel” [for the redundant Victoria Parade crossing] must be replaced with “Demolish redundant vehicle crossing and reinstate with kerb, channel and paving”. The annotation “Match into existing” [at Victoria Parade] must be deleted.

IMPACT ON COUNCIL ROAD ASSETS

The excavation of the deep basement on the site, the construction of the new building, the provision of underground utilities and the passage of construction traffic servicing and transporting materials to the site will impact on Council road assets. Trenching and areas of excavation for underground services invariably deteriorates the condition of footpaths, kerb and channel and road pavements of the adjacent roads to the site.

Heavy haulage vehicles would be frequently using Napier Street to access the site and remove several thousand cubic metres of earth during the excavation for the multi-level basement. Repetitive trip movements by these trucks will damage the surface of Napier Street outside the property. Before the development is occupied and all the proposed traffic islands are installed, the developer will be required to profile (remove the top layer of asphalt, up to a depth of 50 mm) and re-sheet Napier Street, from Victoria Parade to Little Victoria Street.

It is essential that the developer rehabilitates/restores footpaths, kerbing and other road related items, as recommended by Council, to ensure that the road infrastructure surrounding the site has an extended life and high level of serviceability for students, employees, visitors and other users of the ACU site.

ENGINEERING CONDITIONS

Civil Works

Upon the completion of all building works and connections for underground utility services,

- The kerb and channel along the site's Napier Street and Victoria Parade road frontages must be reconstructed to Council's satisfaction and at the Permit Holder's cost.
- The footpath along the property's Napier Street and Victoria Parade road frontages must be reconstructed to Council's satisfaction and at the Permit Holder's cost. The footpath must have a cross-fall of 1 in 40 or unless otherwise specified by Council.
- The new vehicle crossing on the west side of Napier Street must be designed and constructed in accordance with Council's Standard Drawings, Council's *Infrastructure Road Materials Policy* and engineering requirements. The crossing must satisfy the ground clearance requirements for the B99 design vehicle.
- The redundant vehicle crossing on the north side of Victoria Parade must be demolished and reinstated with paving, kerb and channel to Council's satisfaction and at the Permit Holder's cost.
- The road pavement of Napier Street, between Victoria Parade and Little Victoria Street, must be profiled (grinded) and re-sheeted to Council's satisfaction and at the Permit Holder's cost.
- The proposed raised island and separators must be constructed in bluestone semi-mountable kerb as per Council's engineering specifications.

Road Asset Protection

- Any damaged roads, footpaths and other road related infrastructure adjacent to the development site as a result of the construction works, including trenching and excavation for utility service connections, must be reconstructed to Council's satisfaction and at the developer's expense.

Construction Management Plan

- A Construction Management Plan must be prepared and submitted to Council. The Plan must be approved by Council prior to the commencement of works. A detailed dilapidation report should detail and document the existing and post construction conditions of surrounding road infrastructure and adjoining private properties.

Impact of Assets on Proposed Development

- Any services poles, structures or pits that interfere with the proposal must be adjusted, removed or relocated at the owner's expense after seeking approval from the relevant authority.
- Areas must be provided inside the property line and adjacent to the footpath to accommodate pits and meters. No private pits, valves or meters on Council property will be accepted.

In-ground Parking Sensors

- The removal of any kerbside parking sensors and any reinstatement of parking sensors will require the Permit Holder to pay Council the cost of each parking sensor taken out from the kerb/footpath/roadway. Any costs associated with the reinstatement of road infrastructure due to the removal of the parking sensors must also be borne by the Permit Holder.

NON-PLANNING ADVICE FOR THE APPLICANT

Design of Traffic Improvement Works and Road Infrastructure

The applicant must submit detailed civil engineering design drawings for the traffic improvement works in Napier Street for assessment and approval. The design must generally be in accordance with the concept plan under the endorsed Development Plan (dated 21 December 2017). Materials to be used for the construction of the works must comply with Council's *Infrastructure Road Materials Policy*.

Some key points relating to the detailed civil design:

- The new design of the proposed raised pavement crossing and the left-in/left-out treatment at the Napier Street/Victoria Street intersection must incorporate drainage flow paths within the road pavement areas as well as in the footpath area (near the south east corner of the site).
- The two grated side entry pits at the south end of Napier Street are to be upgraded to solid cover side entry pits using heavy duty eco-lite covers.
- Any adjustments to Telstra pits must be undertaken by an authorised Telstra contractor.
- Telecommunication access chambers are located on the Victoria Parade footpath, close to the proposed kerb radial. The developer must identify these access chambers on the drawings.
- As part of the provision for the Legal Point of Discharge, the developer must assess the condition on the stormwater drains at the south end of Napier Street and upgrade to Council's current standards (where required). The developer must also identify the discharge point into the VicRoads drain in Victoria Parade.

Legal Point of Discharge

The applicant must apply for a Legal Point of Discharge under Regulation 610 – Stormwater Drainage of the *Building Regulations 2006* from Yarra Building Services unit. Any storm water drainage within the property must be provided and be connected to the nearest Council pit of adequate depth and capacity (legal point of discharge), or to Council's satisfaction under Section 200 of the *Local Government Act 1989* and Regulation 610.

Discharge of Water from Development

- Only roof runoff, surface water and clean groundwater seepage from above the water table can be discharged into Council drains.
- Contaminated ground water seepage into basements from above the water table must be discharged to the sewer system through a trade waste agreement with the relevant authority or in accordance with EPA guidelines.
- Contaminated groundwater from below the water table must be discharged to the sewer system through a trade waste agreement from the relevant sewer authority.
- Council will not permit clean groundwater from below the groundwater table to be discharged into Council's drainage system. Basements that extend into the groundwater table must be waterproofed/tanked.

Regards

Mark Pisani
Senior Development Engineer
Engineering Services Unit



Napier Street, looking south



Telecommunication Access Chambers – north side of Victoria Parade, just west of Napier Street. Developer is to verify depth and extent of the submerged area of the chamber when designing the raised pavement and intersection treatment.



Existing extension, west side of Napier Street – to be demolished as part of the traffic improvement works.



Angled parking, east side of Napier Street – to be reinstated after the re-sheeting of the Napier Street road pavement.