Moonee Valley Racecourse Redevelopment
Stage B - B1 & B2 Development
Transport Impact Assessment

Client // Hamton Hostplus JVMV Pty Ltd
Office // VIC
Reference // V168170
Date // 04/09/19
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Transport Impact Assessment

Issue: E  04/10/19
Client: Hamton Hostplus JVMV Pty Ltd
Reference: V168170
GTA Consultants Office: VIC

Quality Record

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1. Introduction

1.1 Background

A Planning Scheme Amendment was approved in March 2015 to rezone part of the Moonee Valley Racing Club’s (MVRC) land to an Activity Centre Zone (ACZ), primarily to facilitate the redevelopment of the Moonee Valley Racecourse.

The schedule to the ACZ required the preparation of an Integrated Transport Plan (ITP) and a Transport Access and Management Plan (TAMP), which were prepared by GTA in August 2017 and approved by the Transport Working Group (TWG) in late 2017, which includes representatives from Moonee Valley City Council, VicRoads and Public Transport Victoria (PTV).

A planning permit is now being sought for Stage B, which is the second stage of redevelopment proposed within the Moonee Valley Racecourse. Stage B has been split into two separate applications which includes the Thomas Street Apartments (planning application submitted to Council) and this application.

The B1 & B2 development will ultimately form part of the larger Stage B precinct that is generally located between Thomas Street, the future extension of Kenna Street, the future north-south road along the edge of the racecourse and the recently submitted McPherson Street Townhouses precinct.

It is critical to note that the B1 & B2 application has previously been submitted to Council and a Request for Further Information (RFI) was subsequently issued by Council to the Applicant, including a memorandum from Council’s traffic engineering team, outlining a number of comments/queries relating specifically to traffic and transport matters. In response to the RFI and Council’s traffic team comments, the development plans have subsequently been modified and therefore this report has been updated to assess the latest development plans.

1.2 Development Proposal

The B1 & B2 Development proposal includes the construction of two multi-storey buildings, with a total of 314 dwellings, a retail tenancy and office space as summarised in Table 1.1 below.

It should also be noted that there is a wellness centre for the site which is understood will operate ancillary to the development. It will only service residents for private use within the building and therefore has not been considered as part of this assessment.

Table 1.1: Development Schedule

<table>
<thead>
<tr>
<th>Dwelling Size</th>
<th>B1 and B2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-bedroom</td>
<td>90 dwellings</td>
</tr>
<tr>
<td>2-bedroom</td>
<td>190 dwellings [1]</td>
</tr>
<tr>
<td>3+ bedroom</td>
<td>34 dwellings [2]</td>
</tr>
<tr>
<td>Total dwellings</td>
<td>314 dwellings</td>
</tr>
<tr>
<td>Office</td>
<td>1,225 sqm</td>
</tr>
<tr>
<td>Cafe</td>
<td>137 sqm</td>
</tr>
</tbody>
</table>

[1] Includes 5 x two-bedroom duplex dwellings
[2] Includes 2 x four-bedroom dwellings

A total of 396 spaces are proposed on-site across the three basement levels, as well as three drop-off/pick-up spaces fronting the site at ground level on the proposed extension of Kenna Street (note that these three spaces are not included in the parking provision summary for the...
The intended allocation of the total parking provision will be discussed in further detail in Section 3 of this report. It should be noted that all of the allocated car parking in the Stage B development (Buildings B1, B2 and the Thomas Street Apartments) will be provided within one shared parking area within the basement levels with common access points.

A total of 356 on-site bicycle parking spaces are proposed to be provided as part of the development. This includes 324 secure spaces on the ground level for use by residents and office staff, as well as 32 spaces that will be provided outside at ground level in the form of 16 hoops, located around the site’s frontage to the proposed extension of Kenna Street.

Vehicle access to the car park will ultimately be provided via two access ramps. The first will form a new crossover to Thomas Street, at the north-eastern corner of the site. It is noted that this vehicle access point formed part of the approved Thomas Street Apartments application and will also be used by the B1 & B2 development, due to the common parking levels between the two stages of development. The second access ramp will form a crossover to the future North-South road which is to connect between Thomas Street and Dean Street as part of the Moonee Valley Racecourse development. It is noted that this second access point will not be operational until the aforementioned North-South Road is delivered, which is dependent upon the demolition and relocation of the racecourse grandstand. Vehicle drop-off / pick-up / short-term parking and pedestrian access to the building will be available from the frontage to the proposed private road extension of Kenna Street in the interim.

GTA Consultants was commissioned by the Applicant to undertake a transport impact assessment of the proposed development.

1.3 Subject Site

1.3.1 Overall MVRC Site

The MVRC covers approximately 38ha and has approximate frontages of 850m to Dean Street, 610m to Wilson Street, 250m to Thomas Street and 400m to McPherson Street and 470m to Citylink. The majority of the streets adjacent to the site are Council controlled, with the exception of Citylink, which is owned and operated by Transurban.

The site is currently occupied by the Moonee Valley Racecourse, which is still in active use. Immediately surrounding the site are a range of uses including residential to the north, south and east. A variety of commercial uses exist to the west around Puckle Street and Mount Alexander Road within the Moonee Ponds Activity Centre (MPAC).

1.3.2 Stage B Development Site

As previously mentioned, the Stage B subject site is located along the Thomas Street frontage. The overall site is approximately 3,830sqm and has a frontage of 75m to Thomas Street and will have a frontage to the proposed private road extension of Kenna Street and the future north-south connector street.

The site is located within the ACZ1 and is currently occupied primarily by existing car parking for the MVRC. The site’s location within the overall context of the MVRC is provided in Figure 2.1 and Figure 2.2.
1.4 Surrounding Road Network

1.4.1 Thomas Street

Thomas Street functions as a local street and is generally aligned in an east-west direction. It is a two-way road configured with one lane of traffic in each direction, with a 12.4 metre carriageway (approx.) set within a 20.2 metre road reserve (approx.). Kerbside parking is restricted as a ‘Permit Zone’ in select areas.
Thomas Street carries approximately 800 vehicles per day¹.

1.4.2 McPherson Street

McPherson Street functions as a local street and is generally aligned in a north south direction. It is a two-way road configured with one lane of traffic in each direction, with an 8.5 metre carriageway (approx.) set within a 14.4 metre road reserve (approx.). Kerbside parking is permitted on both sides of the carriageway, with a Taxi Zone in operation along the eastern side of the roadway during racing events.

McPherson Street carries approximately 5,700 vehicles per day¹.

1.5 Purpose of this Report

The report sets out an assessment of the anticipated parking, traffic and transport implications of the proposed development, including consideration of the:

i. the adequacy of the proposed pedestrian, bicycle and public transport access arrangements to the site
ii. the adequacy of the proposed bicycle parking arrangements in terms of supply (quantum) and layout
iii. the adequacy of the proposed car parking provision
iv. the adequacy of the proposed car park layout
v. the adequacy of the proposed arrangements for loading and waste collection
vi. the acceptability of the traffic impacts of the proposed development, including the need for mitigating road works and appropriate vehicular access.

1.6 References

In preparing this report, reference has been made to the following:

- plans for the proposed development prepared by RotheLowman, dated 03/10/19
- Moonee Valley Planning Scheme
- Australian Standard / New Zealand Standard, Parking Facilities (AS2890)
- Moonee Valley Racecourse, Moonee Ponds, Integrated Transport Plan, prepared by GTA, dated 31/08/17
- Moonee Valley Racecourse, Moonee Ponds, Traffic Assessment & Management Plan, prepared by GTA, dated 31/08/17
- an inspection of the site and its surrounds
- other documents as nominated.

¹ Based on the peak hour traffic counts undertaken by Nationwide Traffic Surveys in November 2015 and assuming a peak-to-daily ratio of 10% for local roads.
2. Sustainable Transport Considerations

2.1 Walking & Cycling Network

The future walking and cycling networks for the overall MVRC development area have previously been addressed and included within the ITP document. The key diagrams from the ITP regarding sustainable transport are reproduced in Figure 2.1 and Figure 2.2.

Figure 2.1: Future Walking Network

Source: Integrated Transport Plan, Moonee Valley Racecourse, dated 31 August 2017
Pedestrian and cyclist movements along Thomas Street will continue to operate as per existing conditions.

The Stage B development will ultimately have pedestrian permeability through to the Kenna Street extension, offering directional flexibility for movements to/from the subject site.

Whilst there will be further discussion regarding the extension of Kenna Street design in Section 4.3 of this report, given the bicycle and pedestrian movements will be allowed to occur in both directions along Kenna Street, it is evident that the Stage B design is consistent with the sustainable transport infrastructure set out in the ITP and therefore is considered appropriate.
2.2 Public Transport

Public Transport is also addressed in detail within the ITP document. To this end, multiple recommendations were included for possible improvements to the existing public transport infrastructure in the vicinity of the MVRC.

The future north-south road through the MVRC development area has also been designed to potentially accommodate a future bus link, noting that PTV does not currently have plans to redirect any routes through this connection.

Further to the above, there are existing tram lines provided along Pascoe Vale Road, Ascot Vale Road and Mt Alexander Road, as well as Moonee Ponds Train Station approximately 1km walking distance from the Stage B subject site.

Having regard to the above in the context of the subject site, the proposed development is not considered to warrant any public transport upgrades in this instance.

2.3 Bicycle Parking

2.3.1 Statutory Requirements

Statutory requirements for the provision of bicycle parking are set out in Clause 52.34 of the Moonee Valley Planning Scheme. Based on this, the statutory requirements for the provision of bicycle facilities for the development proposal are set out in Table 2.1.

Table 2.1: Statutory Requirement for Bicycle Facilities

<table>
<thead>
<tr>
<th>Use</th>
<th>Size/No.</th>
<th>Statutory Rate</th>
<th>Statutory Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Employee/Resident</td>
<td>Visitor/Shopper/Student</td>
</tr>
<tr>
<td>Residential Dwellings</td>
<td>314 dwellings</td>
<td>1 space per 5 dwellings</td>
<td>1 space per 10 dwellings</td>
</tr>
<tr>
<td>Office</td>
<td>1,225 sqm</td>
<td>1 to each 300 sqm of NFA</td>
<td>1 to each 1000 sqm of NFA</td>
</tr>
<tr>
<td>Cafe</td>
<td>137 sqm</td>
<td>1 to each 300 sqm of LFA</td>
<td>1 to each 500 sqm of LFA</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.1 indicates that the proposal has a statutory bicycle parking requirement of 99 bicycle spaces, including 67 for residents and staff and 32 for visitors.

In the interest of encouraging cycling as a mode of transport for residents within the proposed development, resident bicycle parking has been provided at a rate of 1 space per dwelling, with 314 secure spaces for residents provided on the ground level, as well as 10 office bicycle spaces that will also be provided in the secure parking area.

In addition, 32 bicycle parking spaces will be provided at ground level in the form of 16 hoops, in various spots along the site frontage to the future Kenna Street extension. This places the visitor spaces in a convenient and accessible location near the main pedestrian entrances from the Kenna Street frontage.

The proposed total provision of 356 bicycle spaces is well above the minimum statutory bicycle parking requirements and is considered to be adequate to encourage cycling as a mode of transport to/from the site.
Associated Facilities

In addition to the requirement for bicycle parking, Clause 52.34-3 of the Moonee Valley Planning Scheme requires 1 shower for the first 5 employee bicycle parking spaces and 1 shower for each subsequent 10 employee bicycle parking spaces (if 5 or more employee bicycle parking spaces are required).

Application of the above rates to the proposed employee bicycle parking provision of 10 spaces indicates that the proposal also generates a statutory requirement of one change room/shower. Two showers/changerooms as well as a number of lockers have been provided adjacent to the western secure bicycle parking areas.

2.3.2 Bicycle Parking Design

Bicycle parking spaces have been designed as a mix of vertical wall-mounted spaces and horizontal at-grade spaces. The designs are in accordance with the Australian Standard requirements (AS2890.3:2015) with a parking envelope 0.5m wide x 1.8m long for horizontal spaces and 0.5m wide x 1.2m off the wall for wall-mounted spaces, both accessed from a minimum 1.5m wide aisle.

It is noted that of the total provision of 356 spaces, 106 are provided as a horizontal at-grade parking system, which equates to 30% and satisfies the Australian Standard requirement of at least 20%.
3. Car Parking Provision

3.1 Statutory Car Parking Requirements

Statutory requirements for the provision of car parking are set out in Clause 52.06 of the Moonee Valley Planning Scheme, with parking rates specified in Table 1 to Clause 52.06-5. An assessment of the statutory parking requirements for the development proposal is set out in Table 3.1.

It is noted that as the site is located within the Principal Public Transport Network Area, the Column B car parking rates from Clause 52.06 apply to the subject site. As such, the Column B rates have been applied in the following assessment.

Table 3.1: Statutory Car Parking Requirements

<table>
<thead>
<tr>
<th>Description</th>
<th>Use</th>
<th>Size/No.</th>
<th>Statutory Parking Rate</th>
<th>Statutory Parking Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apartments</td>
<td>Dwelling (Residents)</td>
<td>314 dwellings (90 x one-bedroom + 190 x two-bedroom + 34 x three+ bedroom)</td>
<td>1 space per one or two bedroom dwelling 2 spaces per three+ bedroom dwelling</td>
<td>348 spaces</td>
</tr>
<tr>
<td></td>
<td>Dwelling (Visitors)</td>
<td>314 dwellings</td>
<td>0 spaces</td>
<td>0 spaces</td>
</tr>
<tr>
<td>Office</td>
<td>Office</td>
<td>1,225 sqm</td>
<td>3 to each 100sqm of NFA</td>
<td>37 spaces</td>
</tr>
<tr>
<td>Retail</td>
<td>Shop / Food and Drink Premises</td>
<td>137 sqm</td>
<td>3.5 to each 100 sqm of LFA</td>
<td>4 spaces</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>389 spaces</td>
</tr>
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</table>

The above assessment anticipates the development proposal has statutory requirement of 389 car parking spaces.

In this instance, the proposed on-site car parking provision of 396 spaces slightly exceeds the minimum statutory requirement and is considered acceptable.

3.2 Car Parking Allocation

For reference, the proposed allocation of on-site car parking between the different land uses has been outlined as follows:

Office

It is proposed to supply parking for the office at the rate of 3.0 spaces per 100sqm NFA, which equates to 37 spaces. This is consistent with the statutory rate outlined in Column B of Table 1 of Clause 52.06.

Retail

The statutory requirement of 4 spaces for the retail use are proposed to be provided as part of the development, which will be located within the secure basement and therefore only available for use by staff. The three short term parking spaces that will be provided fronting the site on the proposed extension of Kenna Street (as well as other on-street parking spaces that will ultimately be provided around the precinct) is expected to be utilised to cater for any customer parking demands outside of residents of the development itself.

Residential Visitors

As per the above summary of statutory car parking requirements, there is no residential visitor parking requirement for the development.
Notwithstanding, it is still proposed to provide 7 on-site visitor parking spaces, as well as the option to utilise the 3 spaces provided along the access road on the site’s southern frontage (noting these 3 drop-off spaces are not included in the total provision for the site).

Residents

It is noted that Council has indicated a preference for car parking provision to be below the statutory minimum rates for the resident component, in line with those reduced rates outlined in the ITP document. In this case, the Applicant has proposed to provide parking for residents in line with the minimum statutory rates and requirement. On this basis, the remaining 348 car parking spaces are intended to be allocated as resident parking, which matches the statutory resident parking requirement.

Car Parking Allocation Summary

Based on the above, the following Table 3.2 summarises the proposed allocation of the 396 parking spaces being provided:

Table 3.2: Proposed Car Parking Allocations

<table>
<thead>
<tr>
<th>Use</th>
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<tr>
<td>Apartments</td>
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</tr>
<tr>
<td></td>
<td>Dwelling (Visitors)</td>
</tr>
<tr>
<td>Office</td>
<td>Office</td>
</tr>
<tr>
<td>Retail</td>
<td>Shop / Food and Drink Premises</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

The car parking allocations summarised in Table 3.2 are considered to be satisfactory to cater for the parking demands of the development.
4. Car Parking & Site Layout

4.1 Vehicle Site Access Arrangements

As previously noted, vehicle access to the B1 & B2 development is proposed to be provided via two access points.

The first of which is via a direct connection to Thomas Street in the north-eastern corner of the site, which was included in the approved Thomas Street apartments application.

The second access will be to the future North-South Road on the eastern side of the development. It is noted that this access point will not be operational until the North-South Road is delivered, which is dependent upon the demolition and relocation of the racecourse grandstand. On this basis there will be an interim and ultimate arrangements for the site, which are discussed in more detail in the following sections.

4.1.1 Interim Vehicle Access Arrangements

Under an interim scenario, the sole access point to the site will be from Thomas Street. This shared vehicle access arrangement will temporarily service all of Stage B, including the Thomas Street apartments and the current B1 & B2 development. The traffic impact considerations of a temporary single vehicle access point are discussed in detail in Section 6.4 of this report.

4.1.2 Ultimate Vehicle Access Arrangements

Under the ultimate arrangement, second access point to the future North-South Road will be connected. The two access points and ramps will form an internal junction on basement level 1. Vehicles entering from the future North-South Road access ramp will be able to stop and prop on a section of ramp at a gentle 1:12 grade prior to the junction, with adequate sight lines up the Thomas Street ramp.

4.2 Design Standards

The proposed parking layout has been assessed in respect to the relevant Design Standards set out in Clause 52.06-09 of the Moonee Valley Planning Scheme.

Design Standard 1: Accessways

The vehicle access to Thomas Street has already been reviewed as part of the Thomas Street Apartments application. Notwithstanding, the following layout comments have been reproduced again below for reference.

- The vehicle accessway measures 6.1m wide, which meets the relevant requirements of Clause 52.06 and the Australian Standard (AS2890.1:2004).
- CAD-based swept path assessment has been completed which demonstrates that simultaneous two-way vehicle movement can be achieved at the access point and around the first two corners of the ramp accessway, where there will be the highest likelihood of two vehicles travelling past each other simultaneously (provided in Appendix A).
- The required pedestrian visibility splay has been marked on plans on the left-hand side (for an exiting vehicle), measuring 2.5m into the site and 2.0m along the site frontage. Any landscaping in this area will be kept below 0.9m in height, in accordance with
Clause 52.06 requirements. It is noted that the adjacent entry lanes of the double width accessway provides the pedestrian visibility to the right as vehicles exit.

- The vehicle access to the future North-South Road measures 6.1m wide, which meets the relevant requirements of Clause 52.06 and the Australian Standard (AS2890.1:2004).
- Once the connection to the North-South Road is completed, pedestrian visibility spays measuring 2.5m into the site and 2.0m along the site frontage will need to be provided in accordance with Clause 52.06 requirements, on the left-hand side for vehicles exiting the site.
- There is a number of locations within the car park where sight distance is restricted by the location of solid walls. Convex mirrors have been noted on the development plans in these locations where considered necessary to improve sight distance (primarily around the junctions with ramps). These convex mirrors are considered to be appropriate treatments at these junctions, due to the requirements for the load bearing walls and noting that this is a private car park.

**Design Standard 2: Car Parking Spaces**

- All car parking spaces have been designed in accordance with the requirements set out in the Australian Standard (AS2890.1:2004) at 2.4m wide x 5.4m long, accessed from a minimum 5.8m wide aisle.
- All columns adjacent to spaces have been provided in accordance with the required clearance envelopes for spaces of this size; 0.75m-1.75m from the open end of the space, or up to 1.75m from the closed end of the space.
- Any dead-end aisles have a 1.0m aisle extension provided for manoeuvring in/out of end spaces. In any instances where this be cannot be provided, swept paths have been completed to confirm ability for vehicles to adequately enter and exit the adjacent car parking spaces as required. This includes the specific parking spaces that were requested to be tested by Council’s traffic team (refer to Appendix A).

**Design Standard 3: Gradients**

- The ramp from Thomas Street down to basement level 1 has been designed to cater for access by an 8.8m MRV (accessing the loading area already assessed as part of the Thomas Street application). The design of this section of ramp is discussed in more detail in Section 5.1.3 of this report.
- Based on the ramp section plans, the slope for the first 7m into the site is 1:16, to cater for the heavy vehicle access, which satisfies the Clause 52.06 requirement of 1:10 for the first 5m.
- Information provided to GTA indicates that the ramp from the future North South Road down to basement level 1 will cater for access by a 6.4m SRV. The ramp is to be designed with a uniform maximum grade of 1:12, which satisfies the Clause 52.06 requirement of 1:10 for the first 5m and also the maximum grade requirements for an SRV truck.
- The other ramps that run between the remaining basement levels are designed for standard resident vehicle access only, with a maximum grade of 1:5 which is appropriate for a private residential car park. There are 2.0m long transition sections of 1:8 at the top and bottom of these ramps.

### 4.3 Kenna Street Extension

Kenna Street is currently 90m long and runs east west between Walker Street and McPherson Street in Moonee Ponds (i.e. no connection to Pascoe Vale Road and therefore currently carrying low traffic volumes and providing local access only). As part of the Moonee Valley Racecourse Redevelopment, Stage B - B1 & B2 Development.
Racecourse masterplan, Kenna Street is intended to be extended as a public road to the east of McPherson Street to connect with the north-south connector street within the overall redevelopment area.

The ultimate role and function of this Kenna Street extension through the redevelopment site as outlined in the ITP was to act as a local access street (i.e. no connector-road function). The connection will provide one of several key pedestrian and cyclist links for east-west permeability through the precinct. In terms of vehicle movements, the road hierarchy for this street is intended primarily to provide local user access to the developments and sites that front the local street only. While some traffic may ultimately choose to cut through the Kenna Street extension as a ‘rat run’ route, Kenna Street will provide no direct connections through to the arterial road network and therefore this is not its intended purpose to function as a collector road carrying large traffic volumes.

Noting the above, due to the constraints of the delivery timing of the future north-south road in conjunction with the removal of the racecourse grandstand, the following sections outline the intended interim and ultimate arrangements for the Kenna Street extension.

4.3.1 Interim Arrangement

Under interim conditions (i.e. until the north-south connector street is delivered), the proposed section of the Kenna Street extension will operate as a private two-way accessway, to allow vehicles to drop-off / pick-up at the B1 & B2 front entrance (or any potential emergency vehicle access or loading) and exit again back to McPherson Street. Therefore, the development plans show an indicative private road way measuring at least 5.8m wide.

Swept path assessments confirm that an 8.8m Medium Rigid Truck is able to travel along the private road, including using the interim turnaround area at the eastern end. Additionally, two 99th percentile vehicles (B99) are able to pass simultaneously on the straight sections of the private roadway. Given the low probability of conflict along the private roadway with the minimal traffic movements expected to be generated, this is considered to be acceptable for the interim arrangement.

4.3.2 Ultimate Arrangement

Under the ultimate design scenario, Kenna Street is intended to be extended through to the north-south connector and operate as a two-way 16m wide public local access road, as outlined in the ITP.

An indicative ‘red-line’ overlay plan has been prepared separately by RotheLowman (Plan No. SK01.04AA, dated 26/08/19) which provides a concept outline for the ultimate cross-section and alignment of the 16m local access street. The cross section is generally consistent with that included in the first approved section through the centre of the Stage A development, with 6.0m carriageway, 1.5m footpaths on both sides and indented parking bays/lanes.

It is noted that the alignment has been designed in order to minimise the encroachment to the Tree Protection Zones (TPZ), to maintain their presence in the Stone Pine Square publicly accessible park area. In this regard, due to the cross fall in this area a small retaining wall will be required between the footpaths and the carriageway running past these two existing significant trees. This retaining wall has been offset 0.5m from the carriageway, which is considered to be sufficient given the low speed environment and that there will not be any pedestrian infrastructure provided in this section between the retaining wall and carriageway.

Through this section where the TPZ area is being avoided, there will not be any on-street indented parking bays/lane on the southern side of the carriageway, in order to minimise the impacts to
the TPZ. The on-street parking bays will terminate on either side of this section to the east and west, which considered entirely appropriate given the aim to avoid the TPZ as much as possible. The essential roadway infrastructure is still being maintained, being the carriageway and footpaths on both sides, noting that the footpath through the TPZ will be required to match the natural grade through this section. It should also be noted that the ITP only identifies that this connection should be a 16m wide local access street, with an indicative street alignment design that indicated a full parking lane along both sides of this street connection. The proposed ultimate arrangement discussed above is generally consistent with this arrangement outlined in the ITP, noting that removing the parking lane temporarily past the front of the TPZ is not considered to compromise the intended role and function of the local access street connection.

It is expected that detailed plans of the ultimate public local access street design will be prepared once the north-south road is delivered and this connection can be completed.
5. Loading & Waste Collection

5.1 Loading Facilities

5.1.1 Statutory Requirements

Clause 65 of the Moonee Valley Planning Scheme indicates that “Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate: ... The adequacy of loading and unloading facilities ...”.

5.1.2 Proposed Loading Arrangements

Residential loading demand is typically limited to move-in/move-out furniture requirements. Office and retail loading can have more frequent demand, but typically only from small delivery vehicles or couriers.

The proposed loading facilities on Basement Level 1 will service the whole of the Stage B development and can cater for independent access by two 8.8m Medium Rigid Vehicles (MRV) in size.

In addition, for any small courier or package deliveries to the building, one of the drop-off/pick-up spaces on the private road extension of Kenna Street will be made available for these types of deliveries. These are typically completed by regular cars or vans.

5.1.3 Loading Area Design & Layout

The basement loading area has already been reviewed and assessed as part of Thomas Street Apartments application. Notwithstanding, the following commentary has been provided again on the loading area design.

A height clearance of at least 4.5m has been provided within the loading service area and the accessway that leads to it from Thomas Street, as per the Australian Standards requirements for vehicles of this size (AS2890.2:2002).

The loading service bays have been designed 3.5m wide x 8.8m long in accordance with the Australian Standard, with sufficient room at the rear of the bays for loading to occur. In this regard, it is recommended that 3.5m x 8.8m linemarked service bays are provided in the loading area to guide trucks to each independent loading bay. The loading area backs on to the pedestrian walkway which provides convenient connections to the lift cores of all the stages of development within Stage B.

The ramps that lead to basement level 1 where the loading area is located have been designed in accordance with the Australian Standard requirements for vehicles of this size. The ramps have a maximum grade within 1:6.5 (15.4%) and maximum changes in grade of 1:16 (6.25%), which occur over at least 7m of travel.

Swept path assessment has been completed which demonstrates that an 8.8m MRV is able to access the basement in a forward direction, reverse into the loading area and exit again in a forward direction, all with adequate clearance to surrounding solid structures (refer to Appendix A). It is noted that both loading bays are able to be accessed independently of one another (i.e. if one bay is occupied it does not restrict access to the other).
5.2 Waste Collection

Information provided to GTA by the Leigh Design indicates that waste collection will occur from the abovementioned loading area and expected to be undertaken by a collection vehicle equivalent to an 8.8m MRV in size.

It is understood that for the B1 & B2 development bins will be transferred from the storage room to the loading area for collection either by the waste contractor or a building manager.

As outlined in the previous section, both loading bays are able to be independently accessed by an 8.8m MRV and therefore able to accommodate the anticipated waste collection vehicle.
6. Traffic Impact

6.1 Preamble

There has been extensive traffic microsimulation and SIDRA modelling previously undertaken for the overall MVRC redevelopment, as part of the works for the Transport Assessment and Management Plan (TAMP) prepared by GTA (dated 31/08/17), which has been approved by the Transport Working Group for the MVRC.

6.2 Traffic Generation

The approved TAMP includes the traffic generation rates that were utilised in the abovementioned traffic modelling.

The traffic generation estimates for the whole of Stage B, including Thomas Street Apartments, is set out in Table 6.1.

Table 6.1: Stage B Traffic Generation

<table>
<thead>
<tr>
<th>Use</th>
<th>Size/No.</th>
<th>Peak Hour Traffic Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rate</td>
</tr>
<tr>
<td>Residential</td>
<td>314 dwellings</td>
<td>0.28 vph per dwelling [1]</td>
</tr>
<tr>
<td>Office</td>
<td>1225 sqm</td>
<td>2 vph per 100sqm of NFA [2]</td>
</tr>
<tr>
<td>Retail</td>
<td>137 sqm</td>
<td>4 vph [3]</td>
</tr>
<tr>
<td>Thomas Street Apartments</td>
<td>76 dwellings</td>
<td>0.28 vph per dwelling [1]</td>
</tr>
</tbody>
</table>

[r] Rate sourced from the TAMP prepared by GTA
[3] Assuming that the four staff allocated spaces arrive in the peak hour

Application of these rates equates to a traffic generation of up to 138 vehicle movements in a weekday peak hour.

6.3 Traffic Impact

As previously mentioned, the traffic impacts of the overall MVRC redevelopment have been assessed as part of the approved TAMP and deemed to be acceptable.

As the proposed residential development is consistent with the anticipated land use and yields adopted for the subject site in the TAMP modelling, the traffic impact for the Thomas Street apartments is considered to be acceptable.

6.4 Site Access Assessment

Ultimately, access to the B1 & B2 Development is to be provided via two access ramps, connecting to Thomas Street and the future North-South Road, as requested by Council’s traffic engineering team.

However, as previously noted, the access ramp to the North-South Road will not be operational until construction of this road is completed. Information provided to GTA indicates that construction of this road is dependent upon demolition and relocation of the racecourse.
grandstand. As such, the interim arrangement for the site will be for vehicle access to be provided through the single access ramp to Thomas Street.

While the single vehicle access point is considered to be sufficient to cater for the full Stage B development (Thomas Street Apartments and B1&B2), for completeness a SIDRA Intersection analysis of the Thomas Street site access to the basement car park has been completed to demonstrate that it will operate satisfactorily with a single access point in the interim. The outcomes of this assessment are provided in the following sections.

6.4.1 Traffic Distribution

The site generated traffic volumes outlined above [including Thomas Street Apartments] have been assumed to have an even 50:50 east/west directional split for the purpose of this assessment. Additionally, the following in/out ratios have been assumed for each weekday peak hour:

- **AM Peak Hour**
  - Residential – 20% in / 80% out
  - Office – 90% in / 10% out
  - Retail – 100% in / 0% out.

- **PM Peak Hour**
  - Residential – 60% in / 40% out
  - Office – 10% in / 90% out
  - Retail – 0% in / 100% out.

The through traffic volumes along Thomas Street have been extracted from the microsimulation model post development scenario, to represent the ultimate traffic volumes anticipated past the site access with full redevelopment of the racecourse.

Based on the above, the following Figure 6.1 and Figure 6.2 present the ultimate post development traffic volumes through the Thomas Street site access intersection.

6.4.2 Site Access Operation

Based on the above assumptions for traffic generation and distribution, a SIDRA assessment has been completed for the Thomas Street site access. The commonly used measure of intersection performance is referred to as the Degree of Saturation (DOS). The DOS represents the flow-to-capacity ratio for the most critical movement on each leg of the intersection. For unsignalised
intersections, a DOS of around 0.90 is typically considered the ‘ideal’ limit, beyond which queues and delays increase disproportionately.2

Table 6.2 presents a summary of the anticipated post development operation of the Thomas Street site access, with full development of Stage B (Thomas St Apartments + B1 & B2), as well as the ultimate through volumes along Thomas Street with full redevelopment of Moonee Valley Racecourse. For reference, the full results are provided in Appendix B of this report.

Table 6.2: Thomas Street Site Access Post Development Assessment – Weekday Peak Hour Operation

<table>
<thead>
<tr>
<th>Peak Hour</th>
<th>Approach</th>
<th>DOS</th>
<th>Average Delay (sec)</th>
<th>95th Percentile Queue (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>Site Access (South)</td>
<td>0.09</td>
<td>7 sec</td>
<td>2 m</td>
</tr>
<tr>
<td></td>
<td>Thomas Street (East)</td>
<td>0.11</td>
<td>1 sec</td>
<td>0 m</td>
</tr>
<tr>
<td></td>
<td>Thomas Street (West)</td>
<td>0.11</td>
<td>1 sec</td>
<td>1 m</td>
</tr>
<tr>
<td>PM</td>
<td>Site Access (South)</td>
<td>0.07</td>
<td>7 sec</td>
<td>2 m</td>
</tr>
<tr>
<td></td>
<td>Thomas Street (East)</td>
<td>0.12</td>
<td>1 sec</td>
<td>0 m</td>
</tr>
<tr>
<td></td>
<td>Thomas Street (West)</td>
<td>0.11</td>
<td>1 sec</td>
<td>2 m</td>
</tr>
</tbody>
</table>

The results in Table 6.2 indicate that with full development of Stage B and the overall MVRC redevelopment, a single site access point to service all of Stage B is expected to operate with an ‘excellent’ level of service with negligible queues and delays.

As such, from a traffic impact perspective a consolidated access point to Thomas Street is considered to be sufficient to cater for the combined traffic generation of all of Stage B.

6.4.3 Sensitivity Assessment

Further to the previous section, to assess the sensitivity of the site access operation, an additional assessment has been completed with an increased development yield of 600 dwellings between Thomas Street Apartments and B1 & B2 (i.e. 210 more dwellings than actual anticipated total yield).

The results from this assessment differ little when compared to the previously outlined results above indicating that the site access to Stage B is very insensitive to any potential increases in traffic volumes. These results can be provided upon request if required by Council.

6.4.4 Australian Standard Access Facilities

Further to the above commentary regarding the satisfactory operation of a single site access to Stage B, Section 3 from AS/NZS 2890.1:2004 refers to Appendix D for guidance on capacity at entry and exits to car parks, where it states the following:

“the number of entry and exit lanes required in a large car park will depend on the following:....
(c) The vehicular capacity of the lanes at the entry/exit point”

It goes on to provide a capacity indication of 600 vehicles/hour/lane for a free flow entry or exit lane (no boom gate or card reader which are located down in the basement) or 400

---

2 SIDRA INTERSECTION B adopts the following criteria for Level of Service assessment:

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Unsignalised Intersection</th>
<th>Signalled Intersection</th>
<th>Roundabout</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Excellent</td>
<td>&lt;=0.60</td>
<td>&lt;=0.60</td>
<td>&lt;=0.60</td>
</tr>
<tr>
<td>B Very Good</td>
<td>0.60-0.70</td>
<td>0.60-0.70</td>
<td>0.60-0.70</td>
</tr>
<tr>
<td>C Good</td>
<td>0.70-0.80</td>
<td>0.70-0.90</td>
<td>0.70-0.85</td>
</tr>
<tr>
<td>D Acceptable</td>
<td>0.80-0.90</td>
<td>0.90-0.95</td>
<td>0.85-0.95</td>
</tr>
<tr>
<td>E Poor</td>
<td>0.90-1.00</td>
<td>0.95-1.00</td>
<td>0.95-1.00</td>
</tr>
<tr>
<td>F Very Poor</td>
<td>&gt;=1.0</td>
<td>&gt;=1.0</td>
<td>&gt;=1.0</td>
</tr>
</tbody>
</table>
vehicles/hour/lane for a lane with a card reader (in the event that boom gates/security gates were to be placed at the Thomas Street access point rather than further down in the basement).

As previously outlined, all of Stage B is only expected to generate up to 138 vehicle movements in a peak hour, which includes entry and exit movements, and therefore well below these capacities for a single access. This is reinforced by the SIDRA assessment that has been completed, indicating that there is more than sufficient capacity to cater for the total traffic generation of Stage B through a single access point.

6.4.5 Summary

On this basis, a single access point to Thomas Street is considered to be an acceptable interim arrangement for vehicle access to all of Stage B, until such time that the additional connection to the north-south connector road can be constructed.
7. Conclusion

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

i The proposed development generates a statutory car parking requirement of 388 spaces.

ii The proposed provision of 396 parking spaces exceeds the total statutory parking requirement. The proposed allocation of car parking is generally in-line with both the statutory minimum rates and empirical data rates and considered to be appropriate.

iii The proposed parking layout and vehicle access arrangements are consistent with the dimensional requirements as set out in the Moonee Valley Planning Scheme and/or Australian/New Zealand Standards for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).

iv Ultimately, it is proposed for Kenna Street to be extended as a public local access street, from east of the McPherson Street Townhouses boundary to the future north-south connector street. However, under interim conditions (i.e. until the north-south connector street is delivered) it is proposed for this Kenna Street extension to operate as a private road extension from east of McPherson Street Townhouses. This interim private accessway will operate as a two-way accessway, to allow vehicles to drop-off / pick-up at the B1 & B2 front entrance (or any potential emergency vehicle access or deliveries) and exit again back to McPherson Street. The proposed interim private road is intended to function as a low-speed pedestrian and cyclist friendly environment.

v A separate indicative ‘red-line’ overlay plan has been prepared to indicate the intended ultimate alignment and cross section of the public 16m local access street. The preliminary design and alignment of this ultimate street section is considered to be acceptable and generally consistent with that outlined in the ITP, noting the constraints associated with avoiding the TPZ. It is expected that the detail of the design can be provided via the preparation of a functional design plan as a condition of permit, once the north-south road is constructed and this ultimate Kenna Street extension can be completed.

vi A loading/waste collection area has been provided in the basement capable of catering for an 8.8m MRV for residential move-in/move-out loading requirements and waste collection.

vii It is proposed to provide bicycle parking well above the statutory requirements, with a total of 356 spaces provided across the site. These are primarily stored securely in the basement for resident/employee use, with 32 visitor spaces spread out along the proposed private road frontage. This provision is considered appropriate to encourage cycling as a mode of transport to/from the development.

viii The site is expected to generate up to and 117 vehicle movements in a weekday peak hour (138 movements when adding the combined Thomas Street apartments traffic).

ix As part of the approved TAMP, extensive microsimulation modelling was undertaken for the entire MCRC redevelopment, which deemed the traffic impacts of the overall development to be acceptable. As the proposed Stage B developments are in accordance with the land use identified for the subject site, the traffic impacts of the development are already accounted for in the TAMP modelling and therefore considered appropriate.

x Noting the above, as well as other factors discussed within this report, the provision of a single site access point to service all of Stage B is considered to be entirely appropriate as an interim arrangement, noting that ultimately a second access point is proposed to
be provided to the future north-south connector road, once this connection is delivered.
Appendix A

Swept Path Assessment Diagrams
WARNING
GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. SHOULD BE PROVEN ON SITE. NO GUARANTEE IS APPROXIMATE ONLY AND THEIR EXACT POSITION.

BEWARE OF UNDERGROUND SERVICES
PRELIMINARY PLAN
WITHOUT NOTIFICATION
ONLY SUBJECT TO CHANGE FOR DISCUSSION PURPOSES

SWEPT PATH KEY
ASSUMED SPEED 5km/h
FROM VEHICLE BODY
300mm CLEARANCE
VEHICLE TYRE PATH
VEHICLE BODY PATH
0.90% CLEARANCE
FROM VEHICLE BODY

PROPOSED B1 & B2 DEVELOPMENT
LOWER GROUND LEVEL
MOONEE VALLEY RACECOURSE REDEVELOPMENT
8.8m MRV SWEPT PATH ASSESSMENT
DRAWING NO. V168170-AT01-01
P2

DESIGNED
C. GREENLAND
APPROVED BY
C. GREENLAND
DATE ISSUED 30 AUGUST 2019

SP
G
C
R
EW
M
FE
CP EX.
PROPOSED B1 & B2 DEVELOPMENT
LOWER GROUND LEVEL
MOONEE VALLEY RACECOURSE REDEVELOPMENT
899 SWEEPT PATH ASSESSMENT
DRAWING: V168170-AT01-02

SWEPT PATH KEY

VEHICLE CENTRE LINE
VEHICLE TYRE PATH
VEHICLE BODY PATH
100% CLEARANCE
FROM VEHICLE BODY
ASSUMED SPEED 3km/h

LOCK TO LOCK TIME

<table>
<thead>
<tr>
<th>Width</th>
<th>Track</th>
<th>Lock to Lock Time</th>
<th>Steering Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>meters</td>
<td>meters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.84</td>
<td>1.84</td>
<td>8.0</td>
<td>33.9</td>
</tr>
<tr>
<td>3.05</td>
<td>0.95</td>
<td>5.20</td>
<td></td>
</tr>
<tr>
<td>5.20</td>
<td>0.95</td>
<td>3.05</td>
<td></td>
</tr>
<tr>
<td>3.05</td>
<td>0.95</td>
<td>5.20</td>
<td></td>
</tr>
</tbody>
</table>

WARNING
GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. SHOULD BE PROVEN ON SITE. NO GUARANTEE IS APPROXIMATE ONLY AND THEIR EXACT POSITION THE LOCATIONS OF UNDERGROUND SERVICES ARE BEWARE OF UNDERGROUND SERVICES

PRELIMINARY PLAN
DRAWN AUGUST 30 2019

A. HARMER
C. GREENLAND
30 AUGUST 2019
SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 100mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED: 5km/h

ASSUMED SPREAD: 50m

LOCK TO LOCK TIME

- WIDTH: 2.50
- TRACK: 2.50
- STEERING ANGLE: 38.7°
**Proposed B1 & B2 Development**

**Baseground Level 2**

**Moonee Valley Racecourse Redevelopment**

**B85 Swept Path Assessment**

---

**Swept Path Key**

- **Vehicle Entry Line**: Path taken by the vehicle when entering the area.
- **Vehicle Body Path**: Path followed by the vehicle's body.
- **50mm Clearance From Vehicle Body**: Minimum clearance from the vehicle body.
- **Assumed Speed**: 5 km/h

---

**Key Dimensions (in metres)**

- **Width (W)**: 3.67
- **Track (T)**: 1.87
- **Steering Angle (S)**: 4.91
- **Lock to Lock Time (LT)**: 6.0

---

**Warning**: Given that all existing services are shown, they should be proven on site. No guarantee is approximate only and their exact position. Beware of underground services.
Appendix B

SIDRA Intersection Results
\section*{MOVEMENT SUMMARY}

\textbf{Site: 101 [Thomas Street / Site Access - Post Dev - AM]}

Thomas Street / Site Access  
Site Category: (None)  
Giveaway / Yield (Two-Way)

<table>
<thead>
<tr>
<th>Movement Performance - Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mov ID</strong></td>
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<tr>
<td>----------</td>
</tr>
<tr>
<td><strong>South: Site Access</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Approach</td>
</tr>
<tr>
<td><strong>East: Thomas St (E)</strong></td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
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<tr>
<td>Approach</td>
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<td><strong>West: Thomas St (W)</strong></td>
</tr>
<tr>
<td>11</td>
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<tr>
<td>12</td>
</tr>
<tr>
<td>Approach</td>
</tr>
<tr>
<td><strong>All Vehicles</strong></td>
</tr>
</tbody>
</table>

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
## MOVEMENT SUMMARY

**Site:** 101 [Thomas Street / Site Access - Post Dev - PM]

**Thomas Street / Site Access**  
**Site Category:** (None)  
**Giveaway / Yield (Two-Way)**

### Movement Performance - Vehicles

<table>
<thead>
<tr>
<th>Mov ID</th>
<th>Turn</th>
<th>Demand Flows</th>
<th>Deg. Satn %/v/c</th>
<th>Average Delay sec</th>
<th>Level of Service</th>
<th>95% Back of Queue Vehicles veh</th>
<th>Prop. Queued</th>
<th>Effective Stop Rate</th>
<th>Aver. No. Cycles</th>
<th>Aver. Speed km/h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>South: Site Access</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>L2</td>
<td>36</td>
<td>0.0</td>
<td>0.066</td>
<td>6.2</td>
<td>LOS A</td>
<td>0.2</td>
<td>1.6</td>
<td>0.32</td>
<td>0.61</td>
</tr>
<tr>
<td>3</td>
<td>R2</td>
<td>36</td>
<td>0.0</td>
<td>0.066</td>
<td>7.1</td>
<td>LOS A</td>
<td>0.2</td>
<td>1.6</td>
<td>0.32</td>
<td>0.61</td>
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<tr>
<td></td>
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<td>72</td>
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<td>0.066</td>
<td>6.6</td>
<td>LOS A</td>
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<td>0.61</td>
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<tr>
<td><strong>Approach</strong></td>
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<tr>
<td><strong>East: Thomas St (E)</strong></td>
<td></td>
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<td></td>
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<td>0.00</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.00</td>
<td>0.09</td>
</tr>
<tr>
<td><strong>West: Thomas St (W)</strong></td>
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<td></td>
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</table>

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.


HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.