

27 November 2019

620.12132-L02-v1.0 Addendum to Review of Transport Matters 20191127.docx

Scentre Limited
85 Castlereagh Street
Sydney NSW 2000

Attention: Robert Johnston

Dear Robert

Westfield Eastgardens Planning Proposal Addendum to Review of Transport Matters

1 Introduction

1.1 Context

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Scentre Limited (Scentre Group) to provide traffic engineering and transport planning advice in relation to the proposed expansion of Westfield Eastgardens, located at 152 Bunnerong Road, Eastgardens.

This addendum letter has been prepared to consider additional transport matters raised by Bayside Council in relation to a Planning Proposal for the expansion of Westfield Eastgardens. The transport matters raised by Council relate to Westfield Drive, a private road located within the Westfield Eastgardens site running along the northern site boundary. This letter should be read in conjunction with the *Westfield Eastgardens Revised Planning Proposal: Review of Transport Matters* ('Transport Review') memorandum prepared by SLR dated 28 February 2019.

1.2 Council Further Transport Matters

It is understood that Scentre Group have been working with Bayside Council to refine the Planning Proposal for the expansion of Westfield Eastgardens and develop a draft Development Control Plan (DCP) to provide formal guidance on future development of the site, including direction on transport design matters.

In email correspondence to Scentre Group, Bayside Council raised a number of transport matters relating to Westfield Drive. The key issues raised by Council of relevance from a transport perspective are summarised as follows:

- Pedestrian access from the adjacent Meriton development (i.e. the site located immediately to the north of Westfield Drive) and management of potential pedestrian/vehicle conflicts along Westfield Drive;
- Potential conflicts between pedestrians and loading docks accessed via Westfield Drive;
- Concerns in relation to vehicle speeds along Westfield Drive and the implementation of traffic calming measures to lower vehicle speeds along Westfield Drive.

To address the above issues, SLR has conducted a review of existing conditions along Westfield Drive, and reviewed a suite of practicable improvement works which could feasibly be implemented at a future stage (i.e. as part of a future development) to mitigate the concerns raised by Council.

2 Westfield Drive

2.1 Existing Traffic Function

Westfield Drive is a private road located within the Westfield Eastgardens site, running along the northern site boundary between Banks Avenue to the west and Bunnerong Road to the east. The primary function of this private road is to provide service vehicle access to a number of Westfield major tenant (Kmart and Myer) loading docks. Access for vehicles up to 19m Articulated Vehicles (AV) is required to these loading docks.

The existing Westfield Drive carriageway is approximately 6.5m in width, facilitating two-way traffic flow between Bunnerong Road and Banks Avenue. Signage indicates a 40km/h speed limit along the entire length of the road. Although a private road, Westfield Drive caters for general public traffic (i.e. there are no physical access restrictions to prevent this) and also for a number of bus routes in the westbound direction, with a bus stop (Stop ID: 203536) located around 60m east of Banks Avenue.

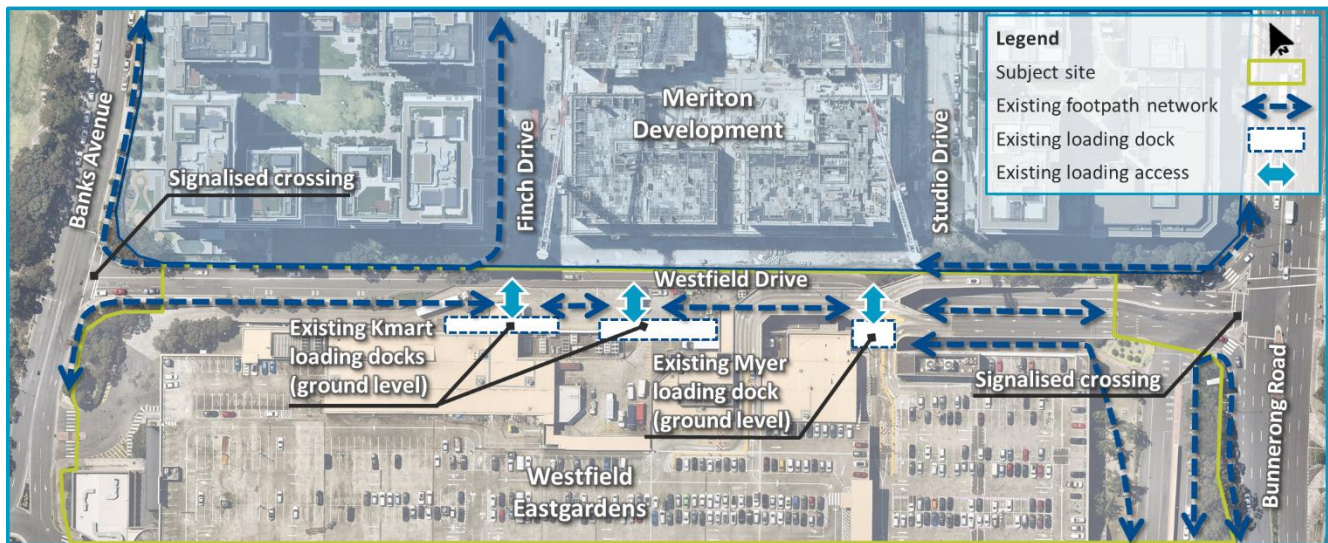
2.2 Existing Pedestrian Provisions

Pedestrian provisions in the vicinity of Westfield Drive are described as follows:

- Southern side of Westfield Drive (i.e. within the subject site):
 - An approximately 1.2m wide footpath is provided between Banks Avenue to the west and the Eastgardens bus interchange on the eastern part of the site. As noted by Council, this footpath crosses a number of loading dock accesses. There is some existing warning signage in the vicinity of the loading dock accesses.
 - A crash barrier separates the footpath from the carriageway along the majority of the length of Westfield Drive. Landscaping is also provided along the majority of the length.
- Northern side of Westfield Drive (i.e. footpath only located within the Meriton site):
 - An approximately 1.5m wide footpath has been constructed along the majority of the length of Westfield Drive between Banks Avenue and Bunnerong Road. Landscaping, a ramp down from the upper car park levels and crash barriers separate the footpath from the carriageway at the eastern end of Westfield Drive.
- Formal pedestrian crossing locations:
 - Western end (i.e. Banks Avenue): A signalised pedestrian crossing is provided between the northern and southern sides of Westfield Drive at the Banks Avenue/Westfield Drive signalised intersection. It is noted that 'Left Turn on Red' (LTOR) is currently permitted at this intersection for vehicles turning left out of Westfield Drive onto Banks Avenue;
 - Eastern end (i.e. Bunnerong Road): A signalised pedestrian crossing is provided between the northern and southern sides of Westfield Drive at the Bunnerong/Westfield Drive signalised intersection, with zebra crossings provided on the left turn slip lanes (i.e. western Westfield Drive approach and southern Bunnerong Road approach).

Reflective of the above, existing conditions along Westfield Drive are mapped on Figure 1.

Figure 1 Westfield Drive Existing Conditions



Source: Nearmap. Note, site bounds indicative only.

2.3 Existing Westfield Drive Loading Docks

As identified on Figure 1, the existing loading docks accessed via Westfield Drive are provided for the major tenants being Kmart and Myer (note, these loading docks are provided for the exclusive use of these major tenants). Scentre Group has provided the following operational details of the existing Westfield Drive loading docks:

- Kmart has advised the following in relation to the existing usage of their loading dock:
 - The loading dock receives 28 deliveries per week on average (or four deliveries per day averaged across the week). Nine of these deliveries are from the Kmart distribution centre, taking place between 9AM-11AM and 1PM-3PM, with the remainder of deliveries by suppliers;
 - The loading dock has a dedicated manager and all drivers are required to undertake an induction prior to making deliveries to the dock.
- Myer has advised the following in relation to the existing usage of their loading dock:
 - The loading dock receives approximately four deliveries per day (i.e. 28 deliveries per week). One delivery per day is from the Myer distribution centre, taking place between 7AM-12PM, with the remainder of deliveries by suppliers;
 - Myer has a loading dock team leader and all Myer delivery drivers are required to undertake an induction.

The above information indicates that the Kmart and Myer loading docks would be anticipated to receive in the order of eight deliveries per day (i.e. between both tenancies). These deliveries predominantly occur outside of typical commuter peak periods and are undertaken by professional drivers, the majority of whom have undertaken site specific inductions and are highly familiar with the site. It is understood that waste collection is also undertaken from these loading docks, however, in SLR's experience waste collection would only occur up to a few times per week (i.e. less than one collection per day), is typically undertaken outside centre operating hours, where the risk of potential interactions is low.

On the basis of the above, the existing loading dock operational characteristics of and number vehicle movements do not present a significant safety risk to pedestrians along Westfield Drive.

2.4 Existing Constraints

The following key constraints are noted in relation to Westfield Drive and consideration of any potential improvements that could be delivered as part of the expansion of Westfield Eastgardens:

- There is no opportunity to increase the width of Westfield Drive and associated footpaths due to the following constraints:
 - Existing built form on the Westfield site;
 - The existing property boundary and existing built form on the Meriton site.
- Westfield Drive will continue to perform an important function for service vehicle access and loading docks for major tenants (Kmart and Myer) as part of existing operations. An expansion of the centre should not result in a material increase in the usage of these loading docks, as exclusive use would be retained by the existing major tenants (i.e. new tenants would not be permitted to use the Kmart and Myer loading docks);
- Fundamentally, Council's concerns relate to an increase in pedestrian demand to/from Westfield Eastgardens due the adjacent Meriton development, which is understood to consist of predominantly residential land uses. The majority of built form on the Meriton site along the Westfield Drive frontage has already been constructed, and furthermore, Scentre Group has no ability to deliver improvement works on the Meriton site;
- SLR and Scentre Group have not been able to identify any requirements/permit conditions for the adjacent Meriton Pagewood Green development to improve pedestrian connectivity between their site and the Eastgardens bus interchange or Westfield Eastgardens as part of the Pagewood Green development approvals.

3 Review of Westfield Drive Transport Matters

3.1 Overview

SLR has conducted a review of the transport issues raised by Council in relation to Westfield Drive. In order to mitigate the relevant transport issues, SLR has considered a variety of improvement options along Westfield Drive which could be implemented as part of a future Westfield Eastgardens expansion.

3.2 Vehicle Speeds Along Westfield Drive

3.2.1 Existing Issues

Council officers have raised concerns over vehicle speeds along Westfield Drive following observations made during site inspections. SLR reviewed traffic survey data provided to Scentre Group by NSW Police from September 2018 indicating an 85th percentile vehicle speed of 49km/h (i.e. 9km/h over the posted speed limit) mid-way along Westfield Drive over the duration of the week long surveys.

SLR notes the following in relation to the existing Westfield Drive arrangements:

- The alignment of Westfield Drive is a relatively flat, 370m long straight section between Bunnerong Road and Banks Avenue. There is a minor deflection in the horizontal alignment around 120m west of Bunnerong Road.
- Anecdotal evidence suggests that some non-local traffic uses Westfield Drive, particularly in the westbound direction, as an alternative (i.e. 'rat-run') route to Wentworth Avenue during peak hour periods;
- The existing back-of house arrangements and currently limited pedestrian activity along Westfield Drive provides the feel of a 'vehicle-based' environment, whereby vehicle drivers assume priority over other transport modes, including pedestrians;
- Construction activities and associated car parking on the footpath along the northern side of Westfield Drive (i.e. associated with the Meriton development) likely also discourages pedestrian activity along Westfield Drive, further enforcing the 'vehicle-based' environment.

Based on the above, the 'unrestricted' alignment of Westfield Drive combined with limited pedestrian activity currently creates the feel of a higher speed environment than the existing 40km/h signage indicates. The existing speed environment likely also encourages 'rat-running' by non-local vehicles.

3.2.2 Potential Speed Control Improvements

In order to lower the vehicle speed environment along Westfield Drive, the following improvements were investigated:

- Provision of speed control devices to physically restrict vehicle speeds;
- Improvements to pedestrian facilities to encourage pedestrian activities in appropriate locations, whilst keeping in mind the key functions of Westfield Drive for service vehicle access and as a bus route that will be retained as part of the Planning Proposal. Potential pedestrian improvements are discussed in Section 3.3 of this document.

With respect to speed control devices, the available types of controls include horizontal displacement devices and vertical displacement devices. In consideration of the limited road width, existing built form, and continued requirement for access by buses and service vehicles, horizontal displacement devices are not considered to be feasible in this instance. Therefore, vertical displacement devices would need to be implemented to control vehicle speeds along Westfield Drive.

As per Table 7.1 (Description and use of LATM devices) of the Austroads Guide to Traffic Management *Part 8: Local Area Traffic Management* (AGTM08-16), a variety of vertical deflection devices are available which have been shown to be effective in reducing local vehicle speeds, traffic volumes and crash risks. In consideration of the requirement for access by buses and service vehicles, a flat-top road hump with an appropriate profile is typically the arrangement preferred by bus operators and local government authorities in order to minimise bus passenger discomfort.

An example of a suitable flat-top road hump profile for bus routes is included at **Attachment A**, indicating the following profile design requirements:

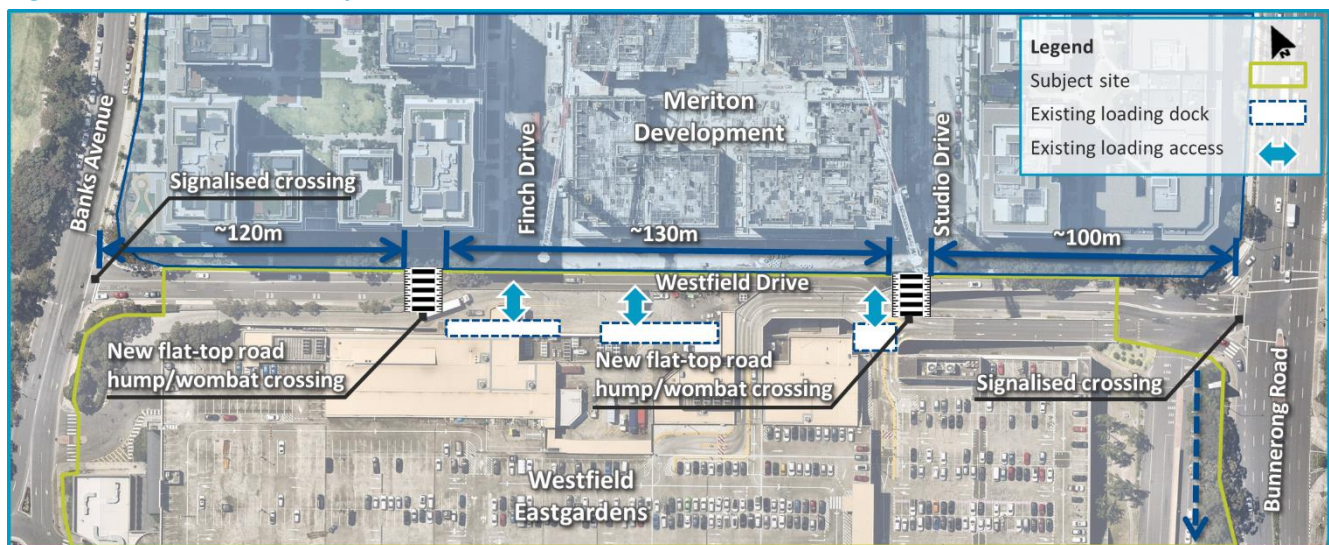
- Maximum hump height: 100 mm;
- Minimum hump length (excluding ramps): 6.0 m for single unit buses and 8.0 m for articulated buses;
- Maximum ramp grade: 1:15.

Further to the above, as discussed in AGTM08-16, a flat-top road hump can be combined with a pedestrian crossing to form a wombat crossing. This is discussed in further detail in Section 3.3 of this document.

To be effective in restricting vehicle speeds to 40km/h, a desirable speed control device spacing of around 100m is typically required. Due to the brownfield nature of the site, locations at which speed control devices could be located are limited. Figure 2 shows the recommended locations for new flat-top road humps/wombat crossings in consideration this desirable spacing and the following constraints:

- Existing access locations (i.e. loading dock accesses and Finch Drive);
- Existing/future footpath locations and pedestrian desire lines.

Figure 2 Recommended Speed Control Device Locations



Implementation of new flat-top road humps/wombat crossings will assist in lowering the speed environment along Westfield Drive, reduce 'rat-running' vehicle trips and also create a more pedestrian-friendly environment with improved accessibility between Meriton Pagewood Green and Westfield Eastgardens.

The design of speed control devices should generally be consistent with the Australian Standard AS1742 *Manual of Uniform Traffic Control Devices Part 13: Local area traffic management*, though it is noted that there will be some flexibility in designs given the private ownership of the road. Liaison with bus operators will also be required to ensure designs accommodate design vehicle requirements.

3.3 Pedestrian Considerations

3.3.1 Council Concerns

Council have raised the following concerns with regard to pedestrian safety and amenity along Westfield Drive:

- Pedestrians (i.e. construction workers associated with the Meriton development) observed crossing Westfield Drive at informal mid-block locations other than the Banks Avenue or Bunnerong Road signalised crossings;
- Concerns over increased pedestrian use (i.e. associated with Meriton development and Westfield Eastgardens expansion) of the southern footpath in the vicinity of the existing loading dock accesses;

- Council's suggested mitigation to the above matters was provision of a median with fencing along the entire length of Westfield Drive and other measures to direct pedestrians to cross at Banks Avenue and Bunnerong Road;
- Sections of footpath which conflict with Crime Prevention Through Environmental Design (CPTED) principles and have amenity issues.

In relation to the feasibility of a median and pedestrian fencing along the entire length of Westfield Drive, the following is noted:

- To be effective in controlling pedestrian movements, the fencing/median would need to be continuous (i.e. no breaks between Banks Avenue and Bunnerong Road); this is not possible as median breaks are required to provide service vehicle access (i.e. for design vehicles up to 19m AV size) to the existing loading docks. Furthermore, as shown on Figure 3 overleaf, pedestrian desire lines to/from the Meriton development are directly opposite the loading docks (i.e. where median breaks are required), therefore, fencing could not physically be provided where it would be most needed to control pedestrian movements);
- The existing carriageway width is around 6.5m, which is at the minimum width required for heavy vehicle required to pass in either direction. Furthermore, existing built form and property boundaries restrict further widening of Westfield Drive.

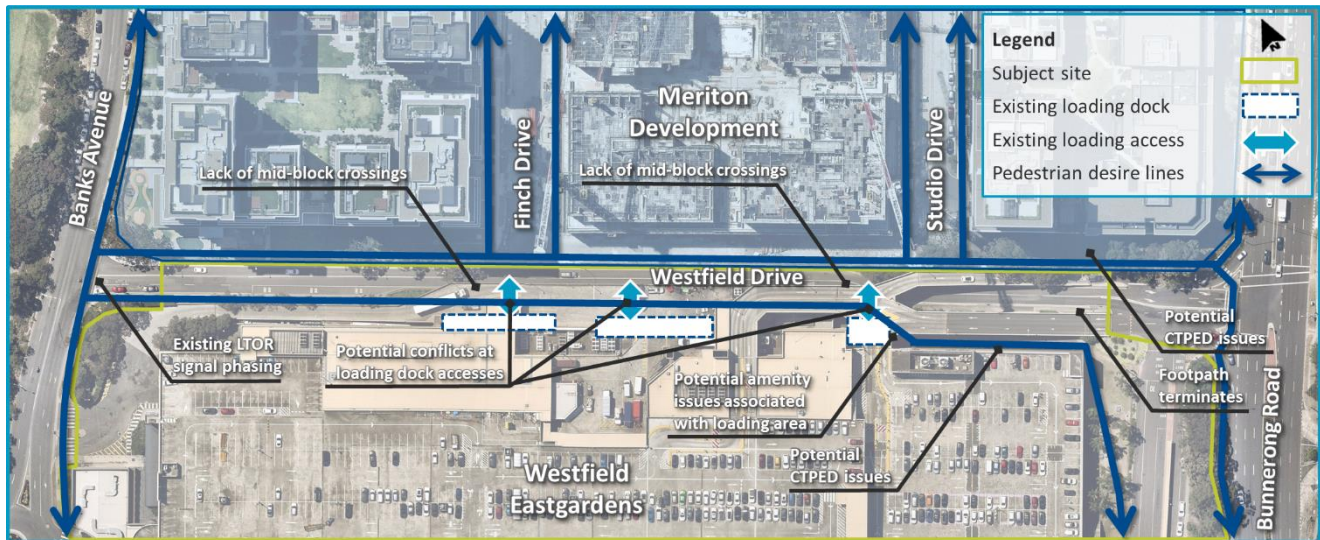
Further to the above, SLR considers pedestrian fencing to be undesirable for a number of secondary reasons including:

- It is often a poor outcome in terms of amenity and urban design;
- It can become a maintenance burden (e.g. if struck by vehicles), which left unrepaired can negatively impact the amenity and feeling of safety of the area;
- Research indicates the pedestrian fencing can actually be detrimental to pedestrian safety. Generally, the presence of pedestrian fencing indicates a 'vehicle environment' rather than a 'pedestrian environment'. This encourages vehicle drivers to feel as though they have priority in the area, potentially resulting in increased vehicle speeds, and a reduction in pedestrian priority.

In summary, median pedestrian fencing is considered undesirable, as this would likely exacerbate existing speeding issues, and a continuous median suitably located to control pedestrian movements along Westfield Drive is not considered to be technically feasible.

To establish an alternative suite of pedestrian improvements works that could be implemented as part of a future expansion of Westfield Eastgardens, SLR carried out a review of pedestrian desire lines (i.e. existing and future), existing gaps in the pedestrian network, and a review of further potential pedestrian issues along Westfield Drive. Pedestrian desire lines, pedestrian issues identified by Council and other issues identified by SLR are mapped on Figure 3.

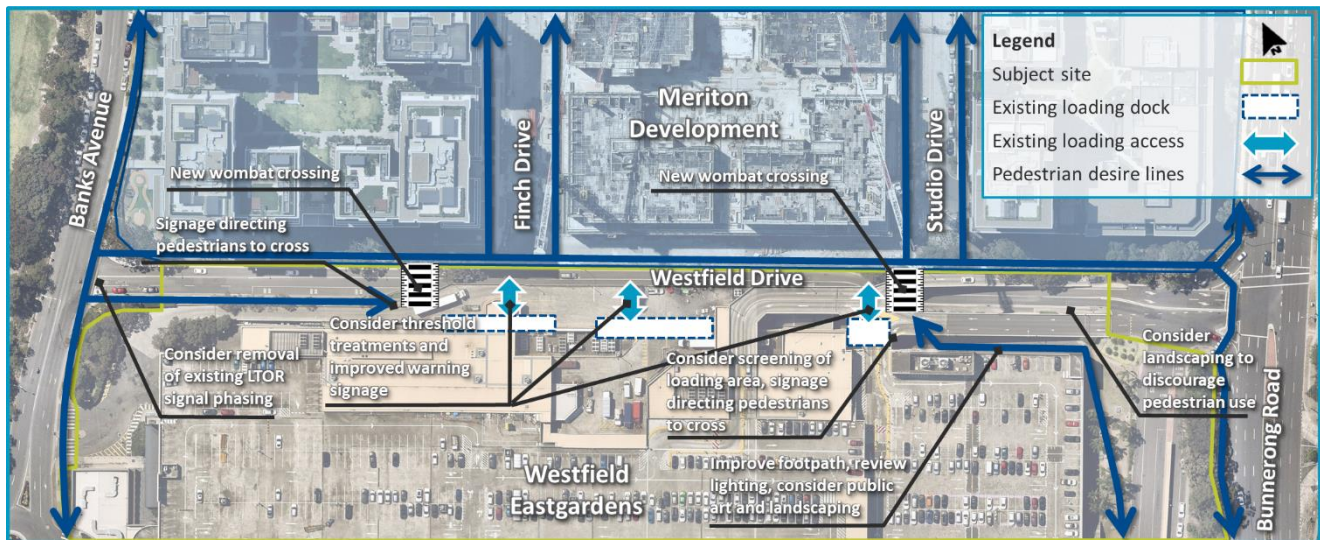
Figure 3 Review of Pedestrian Desire Lines and Issues



3.3.2 Potential Pedestrian Improvements

In response to the pedestrian issues identified on Figure 3, potential improvements which could achieve Council's desired outcomes with respect to pedestrian safety on Westfield Drive, and which also respect the constraints identified in Section 2.4 of this document, have been investigated and are summarised on Figure 4 below.

Figure 4 Recommended Pedestrian Improvements



The recommended improvement works and further investigations to enhance the pedestrian environment along Westfield Drive are summarised as follows (note, only improvements which are not likely to rely on third party property have been considered):

- To improve the safety of pedestrian movements across Westfield Drive, it is recommended that:
 - Wombat crossings be implemented in the indicative locations shown Figure 4, with the dual purpose of reducing vehicle speeds and prioritising pedestrian movements. Further design investigations will be required as part of future development applications including confirmation of sightlines, lighting requirements, and modifications to existing pathways etc.;
 - Consider removal of the existing LTOR signal phasing to improve the safety of crossing movements at the Banks Avenue/Westfield Drive intersections. Note, this was considered as part of the traffic modelling previously undertaken by SLR.
- To reduce the potential for conflicts with service vehicles and pedestrians on the southern side of Westfield Drive, the following is recommended:
 - Wayfinding signage directing pedestrians to cross over to the northern side of Westfield Drive at the new wombat crossings;
 - New threshold treatments and improved warning signage at service access crossing locations.
- To improve pedestrian amenity and security along Westfield Drive, the following should be investigated:
 - Loading and waste storage areas could be screened where appropriate. Low height screening is recommended so that areas are not enclosed (i.e. which could create a personal safety hazard);
 - Landscaping and public art could be used to improve pedestrian amenity along Westfield Drive. Landscaping could also be used to deter undesirable pedestrian movements (e.g. existing buffer kerb between ramps at eastern end of Westfield Drive);
 - Existing lighting and surveillance provisions should be reviewed, particularly at the eastern end of the southern side of Westfield Drive (i.e. to the east of the Myer loading dock).

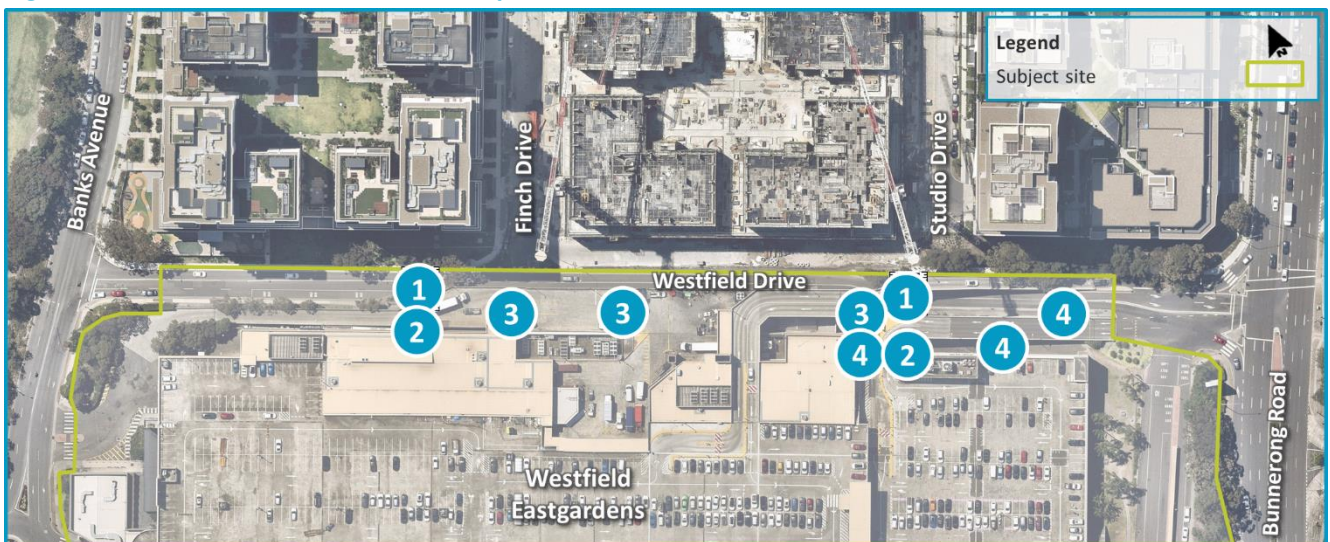
4 Summary

Based on the forgoing discussion, the following key transport design measures are recommended for consideration within the DCP for the future development of Westfield Eastgardens to address the various transport matters raised by Council relation to Westfield Drive:

1. Provision of wombat crossings at the locations identified on Figure 5 to provide the dual function of reducing the speed environment of Westfield Drive and prioritising pedestrian crossing movements;
2. Wayfinding signage directing pedestrians to cross over to the northern side of Westfield Drive at the new wombat crossings;
3. Warning devices and threshold treatments at pedestrian crossing points of service vehicle access locations along the southern side of Westfield Drive;
4. Further investigation of lighting, surveillance, and amenity improvements including landscaping, public art and screening at appropriate locations.

The above measures recommended for consideration within the DCP are mapped on Figure 5.

Figure 5 Recommended Pedestrian Improvements for Consideration in DCP



Should you have any queries in relation to the information contained herein, please do not hesitate to contact the undersigned.

Yours sincerely


CHRIS LAWLOR
Associate - Transport Advisory

Flat-top Road Hump Example (Suitable for Bus/Heavy Vehicle Routes)



1. MINIMUM 4.0m FOR GENERAL TRAFFIC USE (INCLUDING REFUGE VEHICLES). MINIMUM 6.0m FOR BUSES (8.0m FOR ARTICULATED BUSES).
2. RAMP 1 in 10 FOR GENERAL TRAFFIC USE (INCLUDING REFUGE VEHICLES). RAMP 1 in 15 FOR BUSES (INCLUDING ARTICULATED BUSES).
3. LONGITUDINAL DRAINAGE GAP 600mm DESIRABLE (450mm MINIMUM). DESIGNER TO CONSIDER EFFECT OF LOCALISED ROADWAY FLOODING ON ADJACENT PROPERTIES.
4. SIDE RAMP MAXIMUM SLOPE 1 in 8 FOR KERBSIDE PARKING.
5. REFER TO M.U.T.C.D. PART 13, FIGURE 5, NOTES 1 AND 3 FOR RECOMMENDED USE OF WARNING SIGNS.
6. ROAD HUMP MARKINGS AS PER M.U.T.C.D. PART 13, FIGURE 17 AND DETAIL 'A'.
7. LONGITUDINAL DRAINAGE GAP 750mm DESIRABLE (600mm MINIMUM). DESIGNER TO CONSIDER EFFECT OF LOCALISED ROADWAY FLOODING ON ADJACENT PROPERTIES.
8. COLOURED PAVEMENT TREATMENT TO TOP OF PLATFORM (IF SPECIFIED) TO REFERENCE SPECIFICATION FOR CIVIL ENGINEERING WORKS S155 TRAFFIC SIGNS AND PAVEMENT MARKING.
9. 100 DIA. REFLECTIVE ARMOURED SET INTO PLATFORM AS SPECIFIED (OPTIONAL). REFER TO DETAIL 'A' FOR SETOUT.
10. THIS PLAN TO BE READ IN CONJUNCTION WITH M.U.T.C.D. PART 13, FIGURE 5 AND APPENDIX B.
11. STREET TREES, AS SPECIFIED, TO PROVIDE NOISE AND VISUAL BUFFERING WHERE REQUIRED.
12. BACKFILL WITH CONCRETE OR ASPHALT AS DIRECT BY THE SUPERINTENDENT.
13. FOR DESIGN NOTES, CONSTRUCTION NOTES AND LEGEND REFER TO BSD-3201.
14. ALL DIMENSIONS IN MILLIMETRES (U.N.O.)



					<div>DRAWING AUTHORISED FOR PUBLICATION P. COTTON SIGNATURE ON ORIGINAL DATED 06/09/06 _____ MANAGER CITY ASSETS, R.P.E.Q. 2 5 4 6</div>	DESIGN	STANDARD WORKING	DATE	May '06		BRISBANE CITY COUNCIL STANDARD DRAWING		
						DRAWN	CITY DESIGN	DATE	May '06		<div>LOCAL TRAFFIC AREA SPEED PLATFORM – MID BLOCK GENERAL DESIGN CRITERIA</div>	SCALE NOT TO SCALE DWG No. BSD–3216	
B	Drawing Title Amended	JAN '16	JUL '16	JUL '16		CHECKED	D Maher	DATE	June '06			<div>ORIGINAL SIZE A3</div>	<div>REVISION B</div>
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14		<div>DESIGN APPROVED V NASH SIGNATURE ON ORIGINAL _____ SENIOR PROGRAM OFFICER ROAD NETWORK</div>		DRAWING FILENAME BSD-3216 (B) Local traffic area - Speed platform - Mid Block - General design criteria.dwg					
ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE		ASSOCIATED PLANS	SUPERSEDES UMS-941						