

**Kaufland Australia Pty Ltd**

Construction of two-storey retail development for Kaufland Supermarket including supporting small tenancies, solar-panels, associated undercroft car park, offices, various signage, and landscaping.

**10 ANZAC Highway Forestville**

090/E004/18 – Deferred item

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**OVERVIEW**

<b>Application No</b>	090/E004/18
<b>KNET ID</b>	2018/09469/01
<b>Applicant</b>	Kaufland Australia
<b>Proposal</b>	Construction of two-storey retail development for Kaufland Supermarket including supporting small tenancies, solar-panels, associated undercroft car park, offices, various signage, and landscaping.
<b>Subject Land</b>	10 ANZAC Highway Forestville
<b>Zone/Policy Area</b>	Urban Corridor Zone / Transit Living Policy Area
<b>Relevant Authority</b>	State Commission Assessment Panel pursuant to Schedule 10 (20) State Coordinator General
<b>Lodgement Date</b>	16 April 2018
<b>Council</b>	City of Unley
<b>Development Plan</b>	Unley Development Plan (Consolidated 19 December 2017)
<b>Public Notification</b>	Category 2
<b>Representations</b>	3 representations, nil to be heard.
<b>Referral Agencies</b>	DPTI (for Commissioner of Highways)
<b>Report Author</b>	Lauren Talbot, Senior Planning Officer
<b>RECOMMENDATION</b>	Development Plan Consent

**EXECUTIVE SUMMARY**

On the 23 August 2018, the State Commission Assessment Panel (the Panel) considered the above proposal and resolved to defer its' decision on the application pending additional information being provided and areas of particular concern being sufficiently addressed by the Kaufland Australia (the Applicant). The Applicant has subsequently provided amended plans and documentation to address each point of deferral.

Given the amended plans included design improvements that incorporated an additional, contiguous allotment into the subject land, the application required a second round of Category 2 public notification. A total of 3 valid representations (2 in support, 1 with concerns) were received during the second round of public notification; with 1 wishing to be heard which has subsequently been withdrawn. These representations are in addition to previous valid representations made during the first round of notification, thereby bringing the total number of representations to 7 (3 in-support, 2 in-support with concerns and 2 opposed). The main focus for representors concerns are the impacts associated with increased traffic in the locality, the visual appearance of the development and the land use generally being at odds with those envisaged by the Urban Corridor Zone and Transit Living Policy Area.

The amended plans were referred to the City of Unley and to the Commissioner of Highways (DPTI – Transport Assessment) to review and comment on the changes. The Council the Commissioner of Highways were generally supportive of the changes with the exception of Council still holding concern with the proposed large scale, single-use offering; noting that the proposed LMA provides greater certainty as to the future development of the balance of the site so as to achieve the Zone intent. Council also



raised traffic, landscaping and amenity concerns that are responded to by the applicant. DPTI transport have no further concerns with the proposal.

It is noted that a number of discussions have been held between Council, DPTI Transport and Kaufland, and that all parties are willing to work through further detailed design issues and public realm matters as the project progresses through more detailed design phases.

The main areas of concern with the proposed development are:

- Traffic impacts to the immediate and surrounding locality;
- Amenity impacts resulting from the built form, land use scale and operations;
- Departure from the Transit Living Policy Area policies which envisage higher density, mixed use (residential and commercial) development.

The Applicant has responded positively to the deferral points raised by the Panel which, in the administrations opinion, address the above matters in an appropriate manner and result in a better development outcome in terms of how the proposal will sit within the locality (both visually and from an operational perspective) and for securing future development of the land to the east for residential purposes to achieve better alignment with the extent of land uses envisaged by the Policy Area.

Notwithstanding the departures from Development Plan policy, impacts associated with traffic, visual appearance and amenity are considered to have been appropriately addressed by the Applicant. Accordingly, the development is not considered to be seriously at variance, and is considered to display sufficient merit to warrant the granting of Development Plan Consent, subject to conditions.

## **ASSESSMENT REPORT**

### **1. BACKGROUND**

#### **1.1 Deferral**

On the 23 August 2018, the Panel resolved to defer its' decision of this application and requested the Applicant to provide additional information and to further consider the following key matters:

- Re-assessment of the treatment of the Leader Street façade/frontage including but not limited to alterations such as glazing/windows to provide real activation and passive surveillance to the public interface as envisaged in the Zone.
- Conformity with the setback policies to Maple Avenue which is required to be a 2m minimum.
- Reduction of the expanse of the concrete/paved area at the western most crossover for the small tenancies service area on Maple Avenue
- Commitment to a land management agreement that secures the balance of the site for predominantly residential purposes.
- Provision of more effective interface treatments between the eastern boundary and the remaining undeveloped portion of the site to ensure a suitable environment for future residential uses.
- Provision of accurate perspective views of the development from ANZAC Highway south and north approach at street level.
- Clarification that the landscape plan includes mature trees to the ANZAC Highway car parking area.
- Provision of concept plans detailing proposed modifications to the ANZAC Highway / Leader Street signalised junction shall be prepared in consultation

with the Department of Planning Transport and Infrastructure (DPTI) (and Unley Council where necessary).

## **1.2 Amendments**

The key changes to the overall scheme can be summarised as follows:

- Increased building setback to the northern boundary at Maple Avenue;
- Reduced building setback to ANZAC Highway;
- Reduction in building footprint and number of car parks;
- Revised landscaping scheme including provision of additional mature trees within the car parking and along each boundary of the site;
- Removal of eastern emergency only through access;
- Additional landscaping along the eastern boundary of the development site and the addition of 2.4m acoustic fence;
- Alterations to all four elevations and façade treatments;
- Relocation of main supermarket entrance to central point of the site (eastern side of building);
- Addition of ground floor retail and café tenancies facing ANZAC Highway including café and playground to south west corner;
- Relocation of Leader Street vehicular access point further east;
- Consolidation of three (3) access points on Maple Avenue to two (2) access points and reconfiguration of the Maple Avenue customer/small deliveries entry/exit point;
- Relocation and alterations to the loading bay area and loading bay access point on Maple Avenue.

The applicant has also supplied the following updates reports and documentation:

- Updated Planning Report by Urbis
- Draft Land Management Agreement
- Updated Waste Management Report by Rawtec
- Updated Traffic Management Plan by WGA
- Updated Stormwater Management Plan by WGA
- Updated Pedestrian Movement Plan by WGA
- Updated Acoustic Report by Resonate
- Updated Light spill memo by NDY

## **2. COUNCIL AND AGENCY COMMENTS**

The amended plans were referred City of Unley and to the Commissioner of Highways (DPTI Transport). Referral responses are contained in the ATTACHMENTS.

### **2.1 Commissioner of Highways**

The department remain generally supportive of the proposed access locations and proposed modification to the ANZAC Highway U-turn bay/emergency vehicle bay, subject to detailed design.

The main concern previously raised by DPTI Transport was with the projected volume of traffic at peak times generated by this development and potential future development within the Zone and its impact upon the Leader Street/ ANZAC Highway intersection and subsequent traffic flows along ANZAC Highway.

It was suggested that a second right-turn lane from ANZAC Highway into Leader Street would enable greater capacity of the intersection and alleviate the potential traffic impacts on ANZAC Highway for this, and future development within the area. The applicant has committed to an upgrade scheme for the ANZAC Highway/Leader Street junction which the department is highly supportive of this outcome, subject to detailed design.

Whilst there are some minor modifications that will need to be made to the development to address a number of access and safety matters, the department is supportive of the proposed development, particularly given that the proposed development will address traffic impacts through an upgrade of the ANZAC Highway/Leader Street signalised junction.

A number of conditions have been provided in the event that consent is granted.

## **2.2 City of Unley Comments**

The City of Unley have acknowledged the amendments are positive and generally a beneficial refinement to the proposal and detailed design. See ATTACHMENT 4 for Council's comments and supplementary e-mail regarding public realm upgrades.

Concerns that remain for Council are summarised below:

- Large-scale retail use rather than a primarily residential development with limited local commercial/retail uses in accord with the Zone. Further assurance is afforded through the applicant's agreement to a Land Management Agreement.
- The speciality tenancies at ground level along the western (ANZAC Highway) frontage and relocation of café and integrated playground and outdoor dining to the south west corner adjacent to Leader Street is positive.
- A large scale, low-rise 'warehouse' type building is sub-optimal building scale not capitalising on 6-storey zoning potential and mixed use character.
- The forward re-positioning, increased side road setbacks, increased landscaping and more interesting elevations, e.g. Leader Street glazing and feature timber battens, are positive.
- Trading hours from 12:00am (midnight) to 9:00pm Monday to Friday, to 5:00pm Saturday and from 11:00 am to 5:00 pm Sunday have the potential for unreasonable impact- suggested condition standard retail hours only.
- Servicing hours and potential greater noise disruptions, noting there is an undefined proposal for "night fill deliveries", should be limited- condition suggested serving occur no later than 7pm on week days, 5pm on weekend.
- Consolidated waste and delivery area on Maple Avenue is positive, confirm that area is fenced off (silent sliding gates) when not being used.
- Suggest additional trees (1 per 6 spaces not 1 per 8) be incorporated to parking area and additional landscaped areas included in front setback to ANZAC Highway.
- Eastern boundary landscaping width is only 1.5m – should be increased to at least 2.5m to enable 4m centres for tree species selected
- Need to show 2.4m high acoustic fence as specified in acoustic report
- Removal of mature street tree #32 on Leader Street is not supported
- Street tree removals on Maple Avenue to be replaced
- Out-door advertising reduced in number and scale including proposed replacement of LeCornu sign for one that is only 12-15m not 20m

### *Traffic*

- Increased movement of pedestrians across Leader Street and ANZAC Highway from adjacent Ashford Hospital to new major development needs to be recognised and addressed. Call for investigation by DPTI into proposed pedestrian crossing

with appropriate refuge in centre-island, similar to others on ANZAC Highway and Greenhill Road and for Leader Street also.

- In-principle support for the modified signalised intersection of ANZAC Highway and dual northern right turn lanes into Leader Street
- The development and associated infrastructure alterations are likely to pose notable traffic impacts on local road network.

*Note- a review of traffic impacts will be undertaken 6 months following the commencement of operation of the main tenant of the site with a view towards assessing any necessary adjustments and improvements that should be made to the design and arrangements for traffic; - turn movements at the southern access point on Leader Street currently meet the warrant for traffic signals.*

- The removal of on-street car parking has not been quantified nor the undesirable potential impact upon recently installed infrastructure on the southern side of Leader Street from creating space for right turns.
- A condition is requested that detailed design of the access ways to Leader Street, (without impacting infrastructure on southern side and minimising on street parking loss, be undertaken to the satisfaction of Council with a view for signals not to be required)
- Public footpaths be reinstated and incorporated into public realm with a minimum width of 1.8-2.0 metres (minimum pinch points of 1.5);
- Maintenance of cycling path is positive

A number of conditions have been requested by Council to be placed on any impending approval. These have been reviewed and some have been incorporated into the recommendations of this report where appropriate.

### **2.3 Applicant Response to Council Comments**

#### ***Pedestrian Crossing for ANZAC Highway and Leader Street***

WGA and Kaufland have had discussions on this concern with DPTI. It has been agreed that as the project moves into detailed design, a suitable outcome will be generated. The key issue to note is that suitable access into Ashford Hospital for emergency vehicles needs to be considered with any proposal. Further development of solutions will be undertaken during the detailed design phase in collaboration with key DPTI stakeholders.

#### ***Further traffic modelling requested 6 months following operation***

WGA have provided significant additional information and traffic modelling quantifying impacts on Leah Street which was provided and responses given within the previous submission. The model also incorporated predicted future traffic generation as a result of this development and provided an extensive assessment of the traffic impacts on the road network in the vicinity of the development. We believe more than adequate information and assessment has been provided and do not agree with this requirement.

#### ***Leader Street access currently meet warrant for traffic signals***

We note that in addition to the warrant graphic provided by the councils traffic reviewer the DPTI document 'Part 2 – Code of Technical Requirements' states that regardless of whether the numerical guidelines for traffic signals indicate that signals may be warranted a detailed analysis involving the use of traffic modelling software should be undertaken. This statement has been omitted from council's traffic reviewer's submission.

In accordance with this recommendation, WGA has completed detailed traffic modelling to DPTI standards, and the results from this modelling have been previously provided to Council and its independent traffic reviewer, as Appendix D of the Traffic and Parking Assessment Report, Rev H. The modelling indicates that there is an average delay of 4.1s at the junction. We have since modelled the junction as



signalised. This results in an increase of average delay to 25.1s. Therefore signals are not warranted and if installed would actually increase delay for road users when considering the expected traffic demand.

***Removal of on-street car parking and impact upon recently installed infrastructure***

The removal of on-street parking has been previously provided as Attachment A in the document titled WGA171147-TN-TT-0001[C]. The proposed area of affected on-street parking has been clearly identified. An exact number of on-street parks removed is not applicable as on-street parking along Leader Street is not delineated and is governed by vehicle lengths and driver discretion. Please refer to the screenshot below and note that the Concept Plan has also been provided. WGA also notes that the original design did not impact on Council infrastructure (specifically the bioswales on the southern side) at this intersection. The current parameters used in the design and widening of the road at the junction are based on recommendations provided by Council's independent traffic reviewer.

***A condition requested detailed design of the accessways to Leader Street, without impacting infrastructure on southern side and minimising on-street parking loss, be undertaken to the satisfaction of Council with a view for signals not to be required;***

WGA have provided several concepts to Council for review. We have actively engaged council on a number of occasions. The current designs are based on input provided to date from Council and its traffic reviewer. If current designs are not in-line with council requirements we require these parameters to be provided so we can develop an appropriate solution. A condition to this effect accepted by the applicant.

***Public footpaths be reinstated and incorporated into public realm with a minimum width of 1.8-2.0 metres (minimum pinch points of 1.5);***

Kaufland has agreed to provide up to 55m<sup>2</sup> of area to accommodate widening of the footpath to match existing footpath widths along Leader Street and ANZAC Highway. Please refer to Attachment B for the concept plan.

***The rear service and delivery area off Maple Avenue accommodate vehicles up to a maximum length of 16 metres and access openings be secured and closed-off from view by sliding gates (noiseless system) matching the boundary fencing adjacent to Maple Avenue;***

There may be an error with the noted maximum vehicle length, the design should typically accommodate the largest non-restricted access vehicle which is a 19.0m Semi (not the 16.0m mentioned). We also confirm sliding gates across access points are proposed to be installed and are shown within the current amended plans.

***Use and operation***

A Land Management Agreement is proposed to ensure the balance of the site is to be developed for predominantly residential purposes in the future, which will facilitate an overall mixed use outcome to be achieved for the site, as required by the objectives of the Urban Corridor Zone.

The delivery and operating hours proposed by the City of Unley are not considered necessary to protect the amenity of surrounding residential properties as per acoustic report supplied. It is noted that deliveries between 5am and 7am are critical for the efficient operation of the supermarket, with fresh local produce being delivered during this period for sale throughout that day.

It is noted as not being required by the acoustic report to achieve compliant noise levels; however, the applicant has proposed the addition of a sliding gate to the loading area for screening purposes, as requested by City of Unley.

***Additional landscaping (1 per 6 parking spaces) and planting along the eastern boundary and acoustic fence to be added***

The landscaping plan has since been updated to include additional trees within the car park to the front and rear areas and an increase in width of the landscaping buffer running along the eastern boundary. The acoustic fence has also been added to the plans as detailed in the acoustic report.

***Street trees #32 and #33 to be retained***

A supplementary letter from Kaufland dated 10 April 2019 confirms that following discussions with staff from Unley Council on 9 April 2019, street tree #32 on Leader Street will be retained despite there being works in close proximity to the tree. This is due to Councils arborist review of the plans and advice that it can be protected and retained.

Further to this, street tree #33 (also on Leader Street) was also shown as needing to be removed however, this is a regulated tree, and whilst it is acknowledged that work will occur within the vicinity of this tree, Kaufland has now committed to retaining and protecting this tree along with tree #32 and the landscaping plan has been amended to show both trees as being retained.

As both trees are assets to the City of Unley, the applicant has committed to work with Council toward public realm upgrades as part of further discussions to be had with Council regarding detailed design of the Leader Street access point and other modifications including other minor street tree removals/pruning etc. that will still need to occur.

***Signage***

Proposed Pylon Sign A will replace the existing Le Cornu pylon sign located on the site and has been designed to reflect the existing height, at approximately 20.6 metres. The replacement sign is deemed a 'like for like replacement' in terms of height and scale, noting that proposed signage atop the pylon itself is smaller than that of the 'Le Cornu' sign by approximately 5.8 square metres.

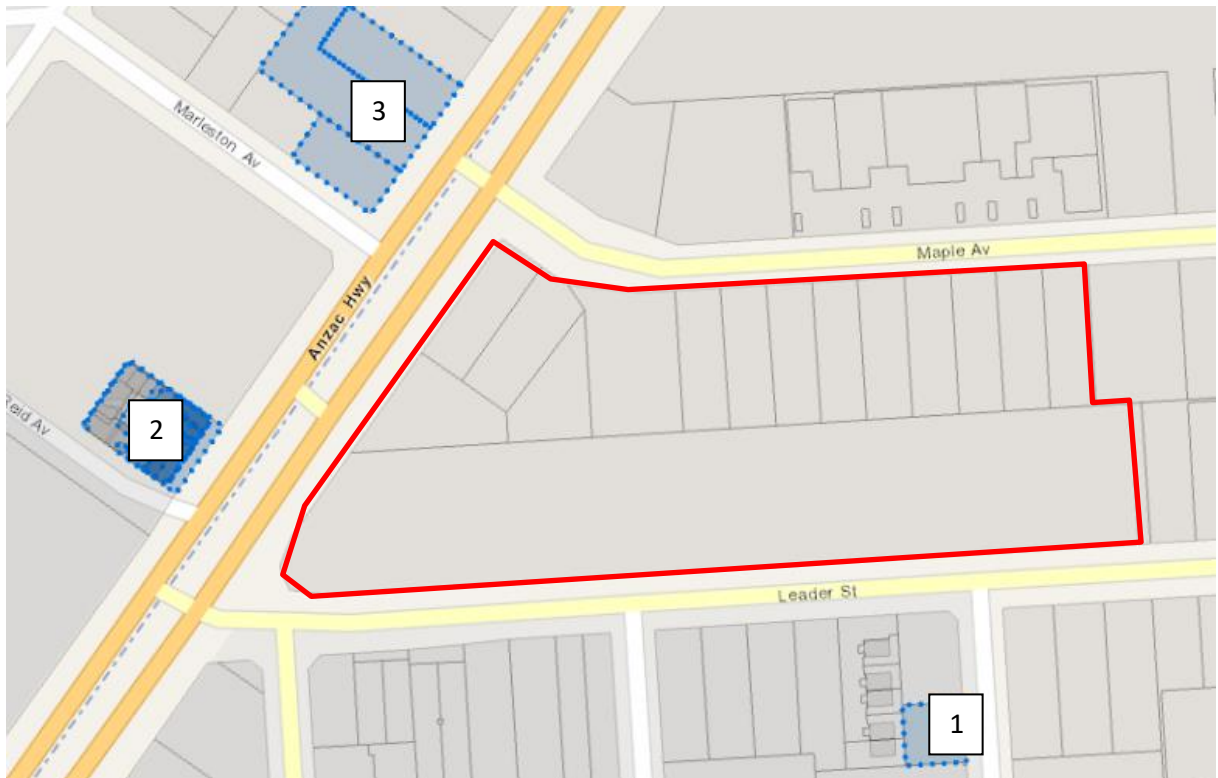
It is considered the substantial size of the site, its location on an arterial road, and the scale and nature of the proposed development supports the scale and quantum of the signage proposed. It is considered that the signage will not detrimentally impact of the appearance of the surrounding area and are considered an appropriate response in the Urban Corridor Zone.

### **3. PUBLIC NOTIFICATION**

The application was assigned Category 2 for the purposes of notification because it did not meet any kind of development defined in the Development Plan as Category 1 and therefore is assigned to Category 2 pursuant to PDC 23 of the Urban Corridor Zone.

Due to the proposed amendments resulting from the deferral, coupled with the applicants proposed changes, a second round of public notification was required. A copy of the representations from the second round of notification together with the applicants' response are contained in the ATTACHMENTS.

A total of 3 representations were received, with 1 indicating they wish to be heard who has subsequently withdrawn their representation. These are numbered and shown on the corresponding map below.



**Figure 1- Map of Representations**

A summary of all valid representors concerns are listed below:

**Table 1 – Summary of Representations**

	<b>Issue</b>	<b>Applicants Response</b>
1	<p><i>Support</i>  <i>Will service an increasing number of apartments being proposed within the area</i>  <i>Low building height proposed prevents high rise apartments which will create overlooking issues</i></p> <p><i>Provides reasonable level of tree cover as well as adequate car parking</i></p> <p><i>Will prevent continued degradation of the existing site which is hideous</i></p>	
2	<p><i>Happy with development</i></p>	
3	<p><i>Support with concerns</i>  <i>Local traffic from northern side of ANZAC Highway who turn right onto Maple Avenue will be restricted due to short length of ANZAC Highway right-turn lane into Maple Ave. Suggested a longer right turn lane on ANZAC Highway is required.</i></p>	<p>The design encourages vehicles to use Leader Street, which is signalised, and is being upgraded as part of this development. Improved right turn access into Leader Street will reduce some of the existing vehicles turning into Maple Street.</p> <p>WGA also advise that the manoeuvre across three lanes is potentially dangerous</p>

	<b>Issue</b>	<b>Applicants Response</b>
		<p>and should not be encouraged. DPTI also agree with this statement which is why modifications are required to the central median to eliminate this movement from the opposite carriageway.</p> <p>WGA note that there are several locations further along ANZAC Highway where traffic from Marleston Avenue could undertake a U-Turn to safely access Maple Avenue, in the event that the right turn lane is full.</p>

### **3.1 Representations**

All previous representations are still valid regardless of some not wishing to re-submit a representation. There was only one (1) representation lodged which supersedes the submission made in the first notification (Representor 1 above). It is also noted that 1 other representation was re-submitted however this has been withdrawn.

This brings the total of valid representations for the application to eight (8), with three (3) in support, three (3) in support with concerns, and two (2) opposed. Details of all previous submissions are contained within the previous agenda from the 23 August 2018, forming part of the attachments to this agenda.

From the previous notification, a total of 15 invalid representations were received from owners and occupiers in the surrounding locality, but outside of the notification area. During the second round of notification, two invalid submissions were received, both requesting to be heard at the SCAP hearing. It should be noted that pursuant to Section 38(17) of the *Development Act 1993*, the relevant authority is not required to take into account a representation made by a person who is not entitled to be given notice of a Category 2 application.

Advice from DPTI Transport, in relation to traffic matters, indicates that whilst there will likely be more traffic making a right turn into Maple Avenue, there are potentially already existing challenges with this manoeuvre and the proposal to lengthen this lane will do little to alleviate this concern as it will simply provide additional storage but will not reduce the queue length. Essentially, should vehicles be unable to make the manoeuvre from Marleston Avenue (West of ANZAC Highway) to Maple Avenue, there is still opportunity to complete a U-turn only 200m further up ANZAC Highway which is arguably a safer option to be taken even now. If more motorists are expected to do this following the development, more vehicles will need to undertake the U-turn further up which is likely a better outcome overall in terms of safety.





The amended external design is considered to be a significant improvement to the previous design. With the addition of windows and an active use on the south west corner, the development will provide passive and active surveillance to the street and the revised material and articulated design will assist in breaking up the scale and bulk of the large building, contributing to a comfortable and appealing street environment as sought after in the Zone (Objective 6).

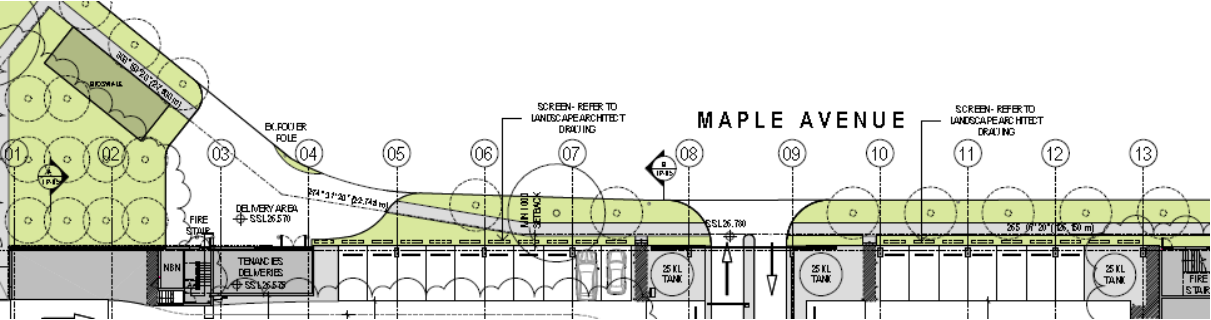
**4.1.2 Conformity with the setback policies to Maple Avenue which is required to be a 2m minimum.**

*Reduction of the expanse of the concrete/paved area at the western most crossover for the small tenancies service area on Maple Avenue*

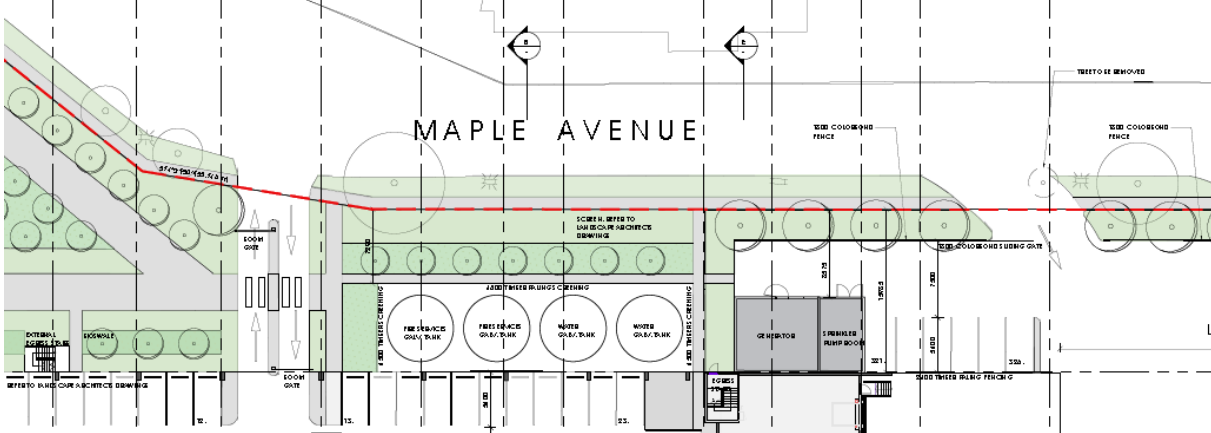
The Urban Corridor Zone requires a setback of 2m from a secondary road frontage (UCZ- PDC 15) and provide for a safe, comfortable street environment for pedestrians (UCZ- Objective 6). The proposed setback to Maple Avenue has been increased to 7.29m which exceeds the required 2m setback. This setback area has been substantially improved by additional landscaping and screening of the servicing provisions along the frontage.

Further to this, the access point off Maple Avenue has been relocated and reduced in width to approximately 8m which is a significant reduction to the previously proposed crossover at 21m as shown below in Figure 3.

Maple Avenue access and setback (superseded)



Maple Avenue access and setback (amended)



**Figure 3- Maple Avenue access and setback**

The amendments to the setback and access point on Maple Avenue are considered to provide a safer, more pedestrian friendly outcome and interface to the northern side of Maple Avenue. The increase in setback enables a more comprehensive landscaping scheme to soften the appearance of the building and car parking areas as sought after in the Zone.

*4.1.3 Commitment to a land management agreement that secures the balance of the site for predominantly residential purposes.*

The desired character of the Transit Living (ANZAC Highway) Policy Area seeks for new development to be comprised of taller, mixed use buildings that are intended for predominantly residential purposes. Land north of Leader Street (old Le Cornu site) should be developed as an integrated, mixed use development which comprises a mixture of commercial uses including retail showrooms, offices, medical services, and residential uses above. The proposed development represents a departure from this desired character however the Applicant contends that the remainder of the land to the east (which will be made 'development ready' following demolition of all existing buildings) can still achieve, unencumbered, a mixed use outcome with future residential development of the land.

To further demonstrate the land owners commitment to supporting a residential development outcome to the east, the Applicant has agreed to, and provided, a draft Land Management Agreement (LMA) (see attachments) which will be registered against the Certificate of Title. The LMA is a legal instrument stipulates that:

*The balance land must be developed for predominantly residential purposes to the intent that the Balance Land cannot be developed:*

- *with any single use development other than residential or with commercial or retail components unless they form an ancillary part of an integrated Residential development; and*
- *must be developed in a manner which provides such visual and/or acoustic mitigation for the development on the Development Land as may be required by the Minister or any other relevant authority.*

The draft LMA is currently being reviewed by the Crown Solicitors Office and will still take some time to be registered to the title. Accordingly, a condition is proposed to ensure the final LMA is fully executed prior to occupation of the development.

*4.1.4 Provision of more effective interface treatments between the eastern boundary and the remaining undeveloped portion of the site to ensure a suitable environment for future residential uses.*

To further demonstrate that the proposed development will not create an unreasonable environment (in terms of noise and inappropriate activity) for future residential development to occur to the east, the applicant proposes the following measures to assist in protecting the undeveloped portion of land:

- Changes to the location of the services/loading area resulting in an increase in setback of the services area to approximately 80m (was previously 20m) from the eastern boundary;
- The previous design sited the Maple Avenue services access on the eastern boundary with a narrow strip of landscaping. The amended

services access has now been moved approximately 50m west, away from the eastern boundary;

- The applicant has now proposed a wider (4.2m) landscaped buffer along the eastern development boundary including shrubs and trees (Capital Ornamental Pears- can grow to 6m with 2.5m spread) and;
- An acoustic fence of 2.4m in height has been added along the eastern boundary of the development site.
- A sliding gate fence along the Maple Avenue loading area entrance is proposed and will be closed when not in use.

This approach is recommended in the acoustic report prepared by Resonate on behalf of the Applicant, as being sufficient to moderate noise levels measured at the ground level of future residential development.

The Urban Corridor Zone requires that amenity impacts such as noise and air quality will be mitigated through appropriate building design and orientation (Objective 7). Impacts to the existing residential interface on Leader Street have previously been considered however, to reiterate, the acoustic report advises that the day time ambient noise levels (predominantly from traffic on ANZAC Highway and Leader Street) already exceed the predicted noise levels expected from the proposed development. It also estimates that with predicted night time activity being relatively low (33 car movements from 12pm-7am), the predicted noise levels will not exceed the target criteria as outlined in the Environment Protection (Noise) Policy 2007. Further to this, the siting of the services area on Maple Avenue away from the existing residential interface is considered appropriate and will ensure sufficient mitigation of noise from deliveries and waste collection activity.

Similarly, the Lighting memo supplied by the applicant anticipates that following a final lighting plan for the site, some design measures will be implemented to ensure that internal and external lighting is compliant with the requirements of AS 4282:1997 to minimise light spill at nearby residential sites. A condition is proposed for a final Lighting Plan (including relevant calculations) to be submitted for approval prior to final Development Approval being issued.

Trading hours are proposed as follows:

- Monday – Friday: 12am- 9pm
- Saturday: 12am to 5pm
- Sunday: 11am to 5pm

Deliveries are proposed as follows:

- 1 x night time delivery between 10pm-5am
- Deliveries between 5am and 7am - however not more than 1 x delivery per 15 minute period as adhering the noise criteria limits
- Unrestricted deliveries between 7am- 10pm

Conditions restricting the applicant to these times above (subject to legislative shop trading hours), are recommended in this report.

#### *4.1.5 Provision of accurate perspective views of the development from ANZAC Highway south and north approach at street level.*

The applicant has provided accurate perspective renders of the development as shown in the plans in Attachment 1 however additional/amended





The northwest corner of the site on Maple Avenue and ANZAC Highway has also been substantially enhanced with additional trees ('Bottle Trees'), ground covers, paved footpaths, a bike storage area, rain gardens and tall screening hedging. The vehicle access from ANZAC Highway and Maple Avenue has reconfigured and now creates greater separation of the pedestrian paths and vehicles access paths creating a safer and more appealing pedestrian environment.

The revised landscaping plan also provides the following:

- A wider (4.2m) landscaped buffer along the eastern development boundary including shrubs and trees (Capital Ornamental Pears- can grow to 6m in height with 2.5m spread) and;
- Trees, low shrubbery, rain gardens, bio swales and hedging within the Maple Avenue and Leader Street setbacks providing significant softening of the building and screening of the car parking at a pedestrian level;
- The wire landscaping creepers along the ground level of the undercroft parking area provides additional screening of vehicle parking from view from Leader Street and Maple Avenue;

The amended landscaping plan is a significant improvement to the overall landscape approach for the development and is considered to adequately address the landscaping aspirations outlined in the Development Plan and the deferral request.

*4.1.7 Provision of concept plans detailing proposed modifications to the ANZAC Highway / Leader Street signalised junction shall be prepared in consultation with the Department of Planning Transport and Infrastructure (DPTI) (and Unley Council where necessary).*

A concept plan detailing the proposed modifications of the junction has been provided (within the Traffic Assessment Report in the attachments) and has now been reflected in the architectural plans forming part of the proposal. Discussions between Kaufland, City of Unley and DPTI Transport regarding the proposed intersection upgrades have progressed with Council advising of their in-principle support for this concept acknowledging it will enable better traffic flow through the intersection with the increase in demand. It is noted that further design details are still required to be worked through, therefore a condition is proposed in order to finalise the detailed design and for the works to occur prior to occupation of the development.

## **4.2 Traffic and Parking**

Issues related to increased traffic volumes within the locality have been previously addressed however the following changes to the plans are noted:

### *Car parking*

The Urban Corridor Zone requires a minimum rate of 3 spaces per 100 square metres of Gross Leasable Area (GLA) and a maximum rate of 5 spaces per 100 square metres of GLA. This equates to a total maximum requirement of 308 spaces for the proposed development.

Increased landscaping and reconfiguration of the site has resulted in a total loss of 25 parking spaces from 443 to 418. The re-distribution of car parking further to the east behind the building has seen a reduction in parking within the ANZAC Highway frontage from 94 spaces to 49 which is seen as a positive outcome including the addition of more mature trees for screening.

The site still provides a surplus of parking spaces compared to the Development Plan requirements however this is considered an appropriate response which is also supported by Council, noting the likely demands for parking for a retail offering of this scale and limited on-street parking available within the locality.

*Bicycle parking*

The Development Plan requires bi-cycle parking to be provided at a rate of 1 per 300 square metres of GLA and 1 visitor space per 600 square metres of GLA. This equates to a total of 32 spaces overall. The proposed development will exceed this amount providing a total of 34 visitor/shopper bicycle racks and approximately 28 employee dedicated spaces.

*Leader Street Access*

The Leader Street access point has been relocated further to the east. It provides for both right turn in, and right turn out movements. The analysis provided in the traffic report advises that the current design (which shows a slight widening of the road on both the southern and northern sides of Leader Street) provides for some vehicles to sit and wait to turn right in whilst allowing traffic to continue straight on Leader Street heading west without the need to create a dedicated right turn lane (which would require more significant changes to Leader Street).

Council has raised that the southern Leader Street access point may warrant the requirement for signals to be installed however, the applicants traffic engineer has advised (through reviewing of SIDRA modelling) that there will be a negative impact to traffic flow on Leader Street and greater delays caused as a result of installing signals at the entrance.

It is noted that the proposed widening of the road will alleviate some traffic flow issues however it is noted that the final design of this access point, including the associated impacts to existing infrastructure and street trees will still require further refinement and assessment. A reserved matter is therefore proposed which requires a final detailed design of the Leader Street Access point, including any changes to Council infrastructure shall be developed to the satisfaction of the Panel.

## **5. CONCLUSION**

The proposed development is of a nature that does not easily conform to the policies contained within the Urban Corridor Zone/Transit Living (ANZAC Highway) Policy Area. It is acknowledged that whilst the use of the site for a shop is appropriate for the Zone, the scale and configuration exceeds what the policy calls for.

The development is located on a key, underutilised site, bound by a highly trafficked arterial road and has been vacant since 2016. Although residential development is not proposed as part of this application, a significant portion of the land will be bound to a Land Management Agreement stipulating that the balance land will be developed for predominantly residential purposes to meet the need for a mixed-use outcome as envisaged in the policy.

The local traffic conditions have been acknowledged by the applicant and a balanced assessment of the traffic impacts has been undertaken. Measures such as upgrading of the Leader Street and ANZAC Highway intersection and road widening to assist the flow of traffic on Leader Street are proposed to alleviate those traffic concerns.

The proposal is considered to offer a high-quality retail development including positive features such as an outward facing café and other retail tenancies to activate the frontage of the supermarket to ANZAC Highway. The building itself also proposes attractive design elements through the use of different materials that contrast and complement the façade of the building and reduces the overall bulk and scale. Lastly, the development also includes a comprehensive landscape design which provides a high level of amenity to the area and will enhance the walkability and aesthetics of the pedestrian paths around the development.

The applicant has responded positively to the deferral points raised by the Panel previously and on balance, it is considered that the proposed development demonstrates sufficient merit to warrant consent, subject to conditions.

## **6. RECOMMENDATION**

It is recommended that the State Commission Assessment Panel:

- 1) RESOLVE that the proposed development is NOT seriously at variance with the policies in the Development Plan.
- 2) RESOLVE that the State Commission Assessment Panel is satisfied that the proposal sufficiently accords with the relevant Objectives and Principles of Development Control of the Unley Council Development Plan.
- 3) RESOLVE to grant Development Plan Consent to the proposal by Kaufland Pty Ltd for construction of a retail development including internal supporting small tenancies, solar-panels, associated under croft car park, offices, various signage, and landscaping 10 ANZAC Highway, Forestville, subject to the following reserved matter and conditions of consent.

## **RESERVED MATTER**

Pursuant to Section 33 (3) of the Development Act 1993, the following matters shall be reserved for further assessment, to the satisfaction of the State Commission Assessment Panel (SCAP), prior to the granting of Development Approval:

1. A detailed design for the Main Leader Street Access point shall be developed in consultation with City of Unley which provides for right-turn in space whilst avoiding impacts on infrastructure on the southern side of Leader Street and the Regulated Street Tree #33 and with a view for signals not to be required.

*Reason for reserved matter: To ensure the relevant road authorities are consulted in the detailed design and construction of recommended modifications to the local and road networks.*

## **PLANNING CONDITIONS**

1. The development granted Development Plan Consent shall be undertaken and completed in accordance with the stamped plans and documentation, except where varied by conditions below.

*Reason for condition: to ensure the development is constructed in accordance with endorsed plans and application details.*

## **Site contamination**

2. A statement by a suitably qualified professional that demonstrates that the land is suitable for its intended use (or can reasonably be made suitable for its intended



use) shall be submitted to the State Commission Assessment Panel prior to any works commencing on the site.

*Reason for condition: To ensure the land is suitable for its intended purpose*

### External Lighting

3. A final external lighting plan of the site including car parking areas, advertising signs, windows and buildings shall be submitted to the State Commission Assessment Panel prior to final Development Approval being issued demonstrating conformity with Australian Standard 4282-1997 and shall be located, directed, shielded and be of such limited intensity that no nuisance or loss of amenity is caused to any person beyond the site to the reasonable satisfaction of the State Commission Assessment Panel.

*Reason for condition: to ensure external lighting does not introduce undue potential for hazards to users of the adjacent road network or residential interface in accordance with the necessary standard.*

### Land Management Agreement

4. The final Land Management Agreement as proposed between Kaufland and the Minister for Planning shall fully executed prior to occupation of the development.

*Reason for condition: To ensure the final agreement is executed prior to operation of the supermarket commencing.*

### Acoustics

5. The acoustic attenuation measures recommended in the acoustic report, dated 1 April 2019 by Resonate, shall be fully incorporated into the building rules documentation to the reasonable satisfaction of the State Commission Assessment Panel. Such acoustic measures shall be made operational prior to the occupation or use of the development.

*Reason for condition: to ensure activities on the site do not cause unreasonable nuisance or loss of amenity in the locality.*

### Transport and Access

6. All vehicle car parks, driveways and vehicle entry and manoeuvring areas shall be designed and constructed in accordance with relevant Australian Standards and be constructed, drained and paved with bitumen, concrete or paving bricks in accordance with sound engineering practice and appropriately line marked to the reasonable satisfaction of the State Commission Assessment Panel prior to the occupation or use of the development.

*Reason for condition: to ensure driveways and vehicle facilities are designed to adhere to the necessary standards.*

7. All bicycle parks shall be designed and constructed in accordance with relevant Australian Standards and be made available for use at all times during operating hours.

*Reason for condition: to ensure bicycle facilities are designed to adhere to the necessary standards.*

8. The ANZAC Highway/Leader Street junction shall be upgraded to cater for the projected traffic impacts associated with the development, including two right turn lanes on ANZAC Highway and two eastbound lanes on Leader Street for a short distance before merging back to one lane. Additionally, the ANZAC Highway u-turn bay/emergency vehicle bay shall be modified to prohibit its use by traffic exiting the ANZAC Highway access point. All required road works associated with this shall be designed and constructed in accordance with Austroads Guides/Australian Standards and to DPTI (Traffic Operation's) satisfaction. All associated costs (including project management and any necessary road lighting and drainage upgrades) shall be borne by the applicant (unless otherwise agreed by DPTI). These road works shall be completed prior to occupation of the development.
9. The applicant shall contact DPTI's, Traffic Operations Section, Network Planning Engineer, Ms Teresa Xavier on (08) 8226 8389 or via email at Teresa.Xavier@sa.gov.au, to discuss the proposed road works prior to undertaking any detailed design. Furthermore, the applicant shall enter into a "Developer Agreement" to undertake the above works.

*Reason for conditions: to ensure the relevant road authorities are consulted in the detailed design and construction of recommended modifications to the local and arterial road networks and to ensure the Department's interests in proposed modifications to the arterial road network are subject to a formal Developer Agreement and will be designed and constructed to satisfy necessary Guides and Standards.*

10. The largest vehicle permitted on-site shall be restricted to a 19 metres articulated vehicle (AS 2890.2-2018).

*Reason for condition: to ensure vehicles of a suitable size are operated within the development.*

11. All off-street car parking shall be designed in accordance with AS/NZS 2890.1:2004 and AS/NZS 2890.6:2009.

*Reason for condition: to ensure off-street car parking facilities are designed to adhere to the necessary standards.*

12. Clear sightlines, as shown in Figure 3.3 'Minimum Sight Lines for Pedestrian Safety' in AS/NZS 2890.1:2004 and Figure 3.4 in AS/NZS 2890.2:2018, shall be provided at the property line to ensure adequate visibility between vehicles leaving the site and pedestrians on the adjacent footpath.

*Reason for condition: to minimise risks of conflict between motorists and pedestrians at the subject land's boundaries in accordance with the necessary standards.*

13. All off-street commercial vehicle facilities shall be designed in accordance with AS 2890.2-2018.

*Reason for condition: to ensure off-street commercial vehicle facilities are designed to adhere to the necessary standard.*

14. All service vehicles shall enter and exit the site from Maple Avenue only.

*Reason for condition: to ensure large service vehicles will not travel along Leader Street unless unforeseen closure out of the control of the applicant occurs.*

### Hours of operation

15. There shall be a maximum of one (1) 19m articulated truck delivery at night (between 10pm and 5am) and deliveries between 5am and 7am are to occur not more than one truck per 15 minute period.

*Reason for condition: to ensure delivery vehicle movements to loading docks are restricted to mitigate unreasonable noise impacts.*

16. Subject to legislative requirements for operating hours of large format retail businesses, the maximum hours of operation of the premises shall be restricted to the following times:

- Monday – Friday: 12am to 9pm
- Saturday: 12am to 5pm
- Sunday: 11am to 5pm

*Reason for condition: to restrict the maximum hours of operation.*

### Infrastructure

17. All Council, utility or state agency maintained infrastructure (i.e. roads, kerbs, drains, crossovers, footpaths, etc.) that is demolished, altered, removed or damaged during the construction of the development shall be reinstated to Council, utility or state-agency specifications. All costs associated with these works shall be met by the proponent.

*Reason for condition: to ensure appropriate reinstatement of any Council, utility or state-agency maintained infrastructure affected by construction activities.*

### Advertising Signage

18. The illuminated signage, as proposed, shall be permitted with LED lighting used for internal illumination of a light box only. No other internal illumination is allowed.

19. The illuminated signage shall be limited to a low level of illumination so as to minimise distraction to motorists ( $\leq 150\text{cd/m}^2$ ).

20. The signage shall not contain any element that flashes, scrolls, moves or changes, or imitates a traffic control device.

*Reason for conditions: to ensure illuminated signage does not introduce undue potential for hazards to users of the adjacent road network*

### Stormwater

21. All stormwater infrastructure design and construction shall be in accordance with Australian Standard AS/NZS 3500.3:2015 (Part 3) to ensure that stormwater does not adversely affect any adjoining property or public road.

*Reason for condition: to ensure stormwater infrastructure is designed and constructed to minimise potential for flood risk to adjoining property or public roads associated with stormwater runoff in accordance with the necessary standard.*

## Mechanical Plant & Equipment

22. Air conditioning or air extraction plant or ducting shall be sited and acoustically screened such that no unreasonable nuisance or loss of amenity is caused to residents and users of properties in the locality to the reasonable satisfaction of the State Commission Assessment Panel.

*Reason for condition: to ensure mechanical equipment does not cause unreasonable nuisance or loss of amenity in the locality.*

## Landscaping

23. Landscaping areas as shown on the stamped plans and Landscape Plan dated March 2019 by Formium Landscape Architects shall be established prior to the occupation of the development and shall be maintained and nurtured at all times with any diseased or dying plants to be replaced.
24. A watering system shall be installed at the time landscaping is established and operated so that all plants receive sufficient water to ensure their survival and growth.

*Reason for conditions: To ensure the landscaping proposed is carried out from occupation and will be maintained.*

## Waste Management

25. All trade waste and other rubbish shall be stored in covered containers prior to removal and shall be kept screened from public view.
26. Waste service vehicles shall only visit the site between: 7.00am and 7.00pm Monday to Saturday (excluding public holidays) and 9:00am to 5:00pm Sundays (or public holidays).

*Reason for conditions: To ensure all waste storage and delivery will not introduce undue potential for amenity and hazards to the locality.*

## ADVISORY NOTES

- a) Building Rules Consent must be obtained for the development within 12 months of the date of this notification, unless this period has been extended by the State Commission Assessment Panel.
- b) The applicant is reminded of its general environmental duty, as required by Section 25 of the Environment Protection Act 1993, to take all reasonable and practical measures to ensure that the activities on the whole site, including during construction, do not pollute the environment in a way which causes or may cause environmental harm. Environment Protection Authority information sheets, guidelines documents, codes of practice technical bulletins etc. can be accessed on the following web site: <http://www.epa.sa.gov.au>
- c) The applicant is reminded the emission of noise from the premises is subject to control under the Environment Protection Act and Regulations 1993, and the applicant (or person with the benefit of this consent) should comply with those requirements.
- d) The Metropolitan Adelaide Road Widening Plan shows a possible requirement for a 4.5 metres x 4.5 metres cut-off at the ANZAC Highway/Maple Avenue corner for possible future road purposes. The consent of the Commissioner of Highways

under the Metropolitan Adelaide Road Widening Plan Act 1972 is required to all new building works located on or within 6 metres of the possible requirement. As no building works are proposed within the above areas, consent is not required in this instance.

- e) The proposed modifications to the ANZAC Highway/Leader Street junction will require some land from the site to be dedicated to road purposes at no cost to DPTI and Council. A land division dedicating this land will need to be undertaken prior to the development becoming operational.
- f) The applicant or any person with the benefit of this consent, must ensure that any consent/permit from other authorities or third parties that may be required to undertake the development, have been granted by that authority prior to the commencement of the development.
- g) The applicant is reminded of their obligations under the Local Nuisance and Litter control Act 2016 and the Environment Protection Act 1993, in regard to the appropriate management of environmental impacts and matters of local nuisance. For further information about appropriate management of construction site, please contact the City of Unley.
- h) This Development Plan Consent will expire after 12 months from the date of this Notification, unless final Development Approval from Council has been received within that period or this Consent has been extended by the State Commission Assessment Panel.
- i) The applicant is also advised that any act or work authorised or required by this Notification must be substantially commenced within 1 year of the final Development Approval issued by Council and substantially completed within 3 years of the date of final Development Approval issued by Council, unless that Development Approval is extended by the Council.
- j) The applicant has a right of appeal against the conditions which have been imposed on this Development Plan Consent. Such an appeal must be lodged at the Environment, Resources and Development Court within two months from the day of receiving this notice or such longer time as the Court may allow. The applicant is asked to contact the Court if wishing to appeal. The Court is located in the Sir Samuel Way Building, Victoria Square, Adelaide, and (telephone number 8204 0289).



**Lauren Talbot**  
**SENIOR PLANNER**  
**DEPARTMENT OF PLANNING TRANSPORT AND INFRASTRUCTURE**



## Development Application

10 Anzac Highway, Forestville 5035

Kaufland Australia Pty Ltd  
ABN 866 165 91667

Contact : Brianna Johnson  
Phone: +61 ( 0)404 045 339  
Email: Brianna.johnson@kaufland.com  
Ref. : Forestville-DA-1  
Level 7 / 431 King William Street,  
Adelaide SA 5000



### Lauren Talbot

Senior Planning Officer

Planning and Development Directorate  
Department of Planning, Transport and  
Infrastructure

Dear Lauren,

### **APPLICATION NO. 090/E004/18 NO. 10 ANZAC HIGHWAY, FORESTVILLE AMENDED DEVELOPMENT APPLICATION**

#### **1. Introduction**

We write to provide you details of our amended application for the construction of a retail development at 10 Anzac Highway, Forestville.

Our development application has been prepared in response to the deferral comments provided by The State Commission Assessment Panel (SCAP) at the hearing held on 23 August 2018.

#### **2. Proposed Amendments**

The key changes to the overall scheme can be summarised as follows:

- Increased building setback to the northern boundary at Maple Avenue
- Reduced building setback to Anzac Highway
- Provision of mature trees within the car parking area adjacent to Anzac Highway
- Relocation of Leader Street vehicular access point
- Relocation of Maple Avenue vehicular access point
- General alterations to the layout of the loading bay
- Addition of ground floor retail and café tenancies

- Relocation of travelator, centrally within the site
- General alterations to the car parking layout and function
- General alterations to the building façade treatment and materiality
- Relocation of the playground area
- Overall reduction in the building footprint

### **3. Response to SCAP Deferral Comments**

SCAP resolved to defer the application to consider the below matters. Each of the below matters have been addressed in the amended proposal, as discussed, resulting in an improved overall design outcome.

1. *Reassessment of the treatment to the Leader Street façade/frontage including but not limited to alterations such as glazing/windows to provide real activation and passive surveillance to the public interface as envisaged in the Zone.*

The amended design proposes window treatments along the southern elevation at the upper level, providing a positive response to Leader Street. This improved design outcome also increases visual permeability and ensures activation and passive surveillance to the public realm, consistent with the desired character of the Urban Corridor Zone and the Transit Living Policy Area.

Additionally, the proposed play area and café tenancy have been relocated to the south west corner of the building frontage, adjacent to Leader Street. This results in increased activity at street level, positively responding to the type of development envisaged by the Urban Corridor Zone.

Please refer to Architectural Plans prepared by Studio 117 for further detail.

2. *Conformity with the setback policies to Maple Avenue which is required to be a 2m minimum.*

The proposed setbacks to Maple Avenue have been increased to achieve compliance with the setback requirements of the Urban Corridor Zone. The minimum setback proposed is 7.29 metres, allowing for an increased provision of landscaping along the northern site boundary.

Please refer to Architectural Plans prepared by Studio 117 and the Landscape Plan prepared by Formium for further detail.

3. *Reduction of the expanse of the concrete/paved area at the western most crossover for the small tenancies service area on Maple Avenue.*

The western most crossover has been revised, with a reduction in the extent of hard surface area. Additional landscaping, including tree planting within this location acts to soften the overall appearance of the north-western portion of the site.

Please refer to Architectural Plans prepared by Studio 117 and the Landscape Plan prepared by Formium for further detail.

4. *Commitment to a land management agreement that secures the balance of the site for predominantly residential purposes.*

The proposed retail development will occupy approximately two thirds of the overall former LeCornu site, and will not compromise the ability for the balance of the site to be developed for residential purposes in the future, and for an overall mixed use outcome to be achieved for the site, as required by the objectives of the Urban Corridor Zone

Notwithstanding, the applicant is prepared to enter into a Land Management Agreement with the Minister for Planning that secures the balance of the site for predominantly residential purposes. A Land Management Agreement has been drafted, and has been provided to the Department of Transport, Planning and Infrastructure for review.

5. *Provision of more effective interface treatments between the eastern boundary and the remaining undeveloped portion of the site to ensure a suitable environment for future residential uses.*

To provide a suitable environment for residential uses within the undeveloped portion of the site, the interface treatment to the east has been amended. This includes further articulation in the built form and an increase in the landscaped setback along the eastern boundary.

The building layout has been altered and pedestrian access to the development is now provided at the 'rear' of the store with a travelator. This will increase pedestrian/ customer activity in the rear car park and surveillance of this area.

Further to this, eighteen 'Pyrus Capital (Ornamental Pear)' trees have been proposed along the eastern boundary, together with a 2.4 metre fence, in line with recommendations from our acoustic engineer.

Please refer to Architectural Plans prepared by Studio 117 and the Landscape Plan prepared by Formium for further detail.

6. *Provision of accurate perspective views of the development from Anzac Highway south and north approach at street level.*

Perspective views from a number of key vantage points along Anzac Highway, Leader Street and Maple Avenue have been prepared to accurately depict the proposed development in the context of the surrounding area.

Please refer to Architectural Plans prepared by Studio 117 for further detail.

7. *Clarification that the landscape and site plans include mature trees to the Anzac Highway car parking area.*

As detailed in the amended Landscape Plan, it is confirmed that the trees proposed in this location will be mature at the time of planting, to provide for an immediate positive landscape outcome.

Tree planting within both the front and rear car parking area helps to break up the hard surface area and improves views to these areas from each respective interface.

Please refer to Architectural Plans prepared by Studio 117 and the Landscape Plan prepared by Formium for further detail.

8. *Provision of concept plans detailing proposed modifications to the Anzac Highway/ Leader Street signalised junction, these plans shall be prepared in consultation with the Department of Planning Transport and Infrastructure (DPTI) (and Unley Council where necessary).*

Concept plans have been prepared in consultation with DPTI and Unley City Council, detailing proposed modifications to the Anzac Highway/ Leader Street signalised junction. The concept design proposes an additional right turn lane from Anzac Highway into Leader Street, minimising the amount of green time required to accommodate this movement.

As demonstrated in the concept plan, two right turn lanes can be accommodated by narrowing the median on the southern approach along with some minor signal modifications.

The proposed modifications necessitate a widening to the public roadway to accommodate sufficient bicycle and pedestrian accessways. Kaufland have agreed to transfer the land required by this proposal (at no cost).

The proposed modifications result in improved capacity and overall performance of the intersection, offsetting the potential traffic impact from the development.

Please refer to Traffic Advice prepared by WGA (Appendix E & Attachment A, B & C) for further detail.

#### **4. Response to Additional Queries**

We have also been asked to provide clarity on the following:

##### *1. Confirmation of Street Trees to be removed*

An updated Arboriculturalist Impact Report is being finalised by Arborman Tree Solutions. We have received initial feedback that a maximum of five street trees are proposed to be removed.

We highlight that there is to be no direct impact on the commemorative trees along the Anzac Highway frontage and two trees that were previously proposed for removal will now be retained.

The trees which are proposed to be removed are due to:

- Two trees being in conflict with the location of the loading bay area (albeit three other trees have been protected by utilising this location)
- One tree being in conflict with the proposed road widening to the western end of Leader Street as per consultation with DPTI
- Maximum of two trees (to be confirmed), along the Leader Street frontage. We have proposed to retain the trees with pruning, however are awaiting advice from Arborman Tree Solutions as to the long-term impact on tree health and feasibility of this solution

We believe the overall outcome of increasing the number and variety of trees to the site is positive, as such we have proposed to plant two 'White Gum' trees to the western end of Leader Street, together with significant perimeter plantings of 'Chinese Elms', 'Coral Gums' and 'Golden Rain Trees'.

Please refer to Landscape Plan prepared by Formium for further detail.

##### *2. Species of trees along the rear eastern interface boundary.*

A row of eighteen Pyrus 'Capital' (Ornamental Pear) Trees have been proposed for the rear eastern interface boundary. The trees are proposed to be planted at 4.0 metre centres and have an approximate mature height of 7.0 metres.

Please refer to Landscape Plan prepared by Formium for further detail.



## **5. Conclusion**

It is submitted that the development proposal appropriately responds to the matters raised by SCAP and provides for a positive outcome across the site.

Should you have any queries please do not hesitate to contact the undersigned.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Brianna Johnson', written in a cursive style.

**Brianna Johnson**

Property Developer

Kaufland Australia

Brianna.johnson@kaufland.com

0404 045 339

## 6. Contents of the Development Application

	<b>Contents</b>	<b>Consultant</b>
<b>01</b>	Town Planning Report	Urbis
<b>02</b>	Architectural Plans	Studio 117
<b>03</b>	Landscape Plans	Formium
<b>04</b>	Traffic Report	Wallbridge Gilbert Aztec
<b>05</b>	Pedestrian Plan	Wallbridge Gilbert Aztec
<b>06</b>	Acoustic Report	Resonate
<b>07</b>	Waste Management Plan	Rawtec
<b>08</b>	Stormwater Management Plan	Wallbridge Gilbert Aztec
<b>09</b>	Obtrusive Lighting Letter	Norman Disney & Young
<b>10</b>	Arboricultural Impact Assessment	Arborman Tree Solutions
<b>11</b>	Land Management Agreement	
<b>12</b>	Certificates of Title	Land Services SA

# DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

COUNCIL: CITY OF UNLEY

APPLICANT: KAUFLAND AUSTRALIA

Postal Address: LEVEL 2 / 100 DORCAS  
ST. SOUTH MELBOURNE 3205

Owner: AS ABOVE

Postal Address: AS ABOVE

BUILDER: TBA

Postal Address: -

Licence No: \_\_\_\_\_

**FOR OFFICE USE**

Development No: \_\_\_\_\_

Previous Development No: \_\_\_\_\_

Assessment No: \_\_\_\_\_

- Complying
- Non Complying
- Notification Cat 2
- Notification Cat 3
- Referrals/Concurrences
- DA Commission

Application forwarded to DA

Commission/Council on

/ /

Decision: \_\_\_\_\_

Type: \_\_\_\_\_

Date: / /

**CONTACT PERSON FOR FURTHER INFORMATION**

Name: SAM RUSSELL-MILLED

Telephone: 0424 043 602 [work] \_\_\_\_\_ [Ah]

Fax: \_\_\_\_\_ [work] \_\_\_\_\_ [Ah]

EXISTING USE: FORMER LE CORNU RETAIL  
OUTLET.

	Decision required	Fees	Receipt No	Date
Planning:	_____	_____	_____	_____
Building:	_____	_____	_____	_____
Land Division:	_____	_____	_____	_____
Additional:	_____	_____	_____	_____
Development Approval	_____	_____	_____	_____

DESCRIPTION OF PROPOSED DEVELOPMENT: FREESTANDING RETAIL DEVELOPMENT

LOCATION OF PROPOSED DEVELOPMENT: 10 ANZAC HIGHWAY, FORESTVILLE 5035

House No: 10 Lot No: \_\_\_\_\_ Street: ANZAC HIGHWAY Town/Suburb: FORESTVILLE

Section No [full/part] -- Hundred: ADELAIDE Volume: 5888 Folio: 429

Section No [full/part] \_\_\_\_\_ Hundred: \_\_\_\_\_ Volume: \_\_\_\_\_ Folio: \_\_\_\_\_

**LAND DIVISION:**

Site Area [m<sup>2</sup>] 36,120m<sup>2</sup> Reserve Area [m<sup>2</sup>] -- No of existing allotments 35

Number of additional allotments [excluding road and reserve]: -- Lease: YES  NO

BUILDING RULES CLASSIFICATION SOUGHT: 6, 7a Present classification: 6

If Class 5,6,7,8 or 9 classification is sought, state the proposed number of employees: Male: 30 Female: 30

If Class 9a classification is sought, state the number of persons for whom accommodation is provided: --

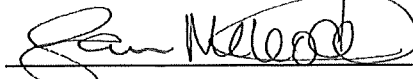
If Class 9b classification is sought, state the proposed number of occupants of the various spaces at the premises: --

DOES EITHER SCHEDULE 21 OR 22 OF THE DEVELOPMENT REGULATIONS 2008 APPLY? YES  NO

HAS THE CONSTRUCTION INDUSTRY TRAINING FUND ACT 2008 LEVY BEEN PAID? YES  NO

DEVELOPMENT COST [do not include any fit-out costs]: \$ 34,610,000

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the Development Regulations 2008.

SIGNATURE: 

Dated: 04 / 05 / 2018

## Certificate of Title - Volume 5772 Folio 282

Parent Title(s) CT 1285/102  
Creating Dealing(s) CONVERTED TITLE  
Title Issued 09/05/2000 Edition 8 Edition Issued 27/03/2018

### Estate Type

FEE SIMPLE

### Registered Proprietor

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENT 53 DEPOSITED PLAN 2907  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

NIL

### Schedule of Dealings

NIL

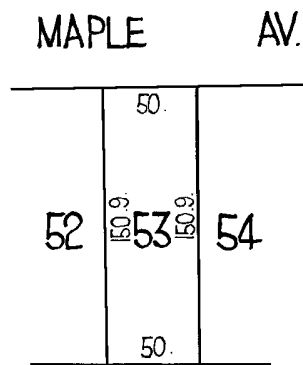
### Notations

Dealings Affecting Title NIL  
Priority Notices NIL  
Notations on Plan NIL

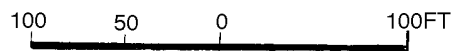
### Registrar-General's Notes

APPROVED FX253588

Administrative Interests NIL



L.T.O. PLAN 1004



DISTANCES ARE IN FEET AND INCHES  
FOR METRIC CONVERSION  
1 FOOT = 0.3048 METRES  
1 INCH = 0.0254 METRES



REAL PROPERTY ACT, 1886



The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.



## Certificate of Title - Volume 5772 Folio 287

Parent Title(s) CT 1285/101  
Creating Dealing(s) CONVERTED TITLE  
Title Issued 09/05/2000 Edition 8 Edition Issued 27/03/2018

### Estate Type

FEE SIMPLE

### Registered Proprietor

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENT 52 DEPOSITED PLAN 2907  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

NIL

### Schedule of Dealings

NIL

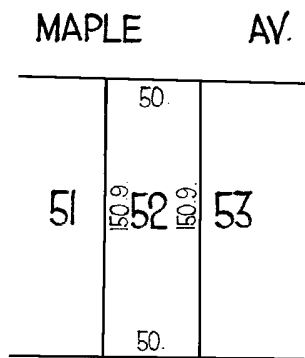
### Notations

Dealings Affecting Title NIL  
Priority Notices NIL  
Notations on Plan NIL

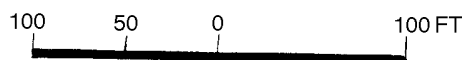
### Registrar-General's Notes

APPROVED FX253588

Administrative Interests NIL



*L.T.O. PLAN 1004*



DISTANCES ARE IN FEET AND INCHES  
FOR METRIC CONVERSION  
1 FOOT = 0.3048 METRES  
1 INCH = 0.0254 METRES

## Certificate of Title - Volume 5835 Folio 831

Parent Title(s) CT 4153/725  
Creating Dealing(s) CONVERTED TITLE  
Title Issued 31/01/2001 Edition 7 Edition Issued 27/03/2018

### Estate Type

FEE SIMPLE

### Registered Proprietor

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENT 18 FILED PLAN 9791  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

NIL

### Schedule of Dealings

NIL

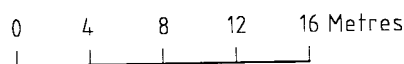
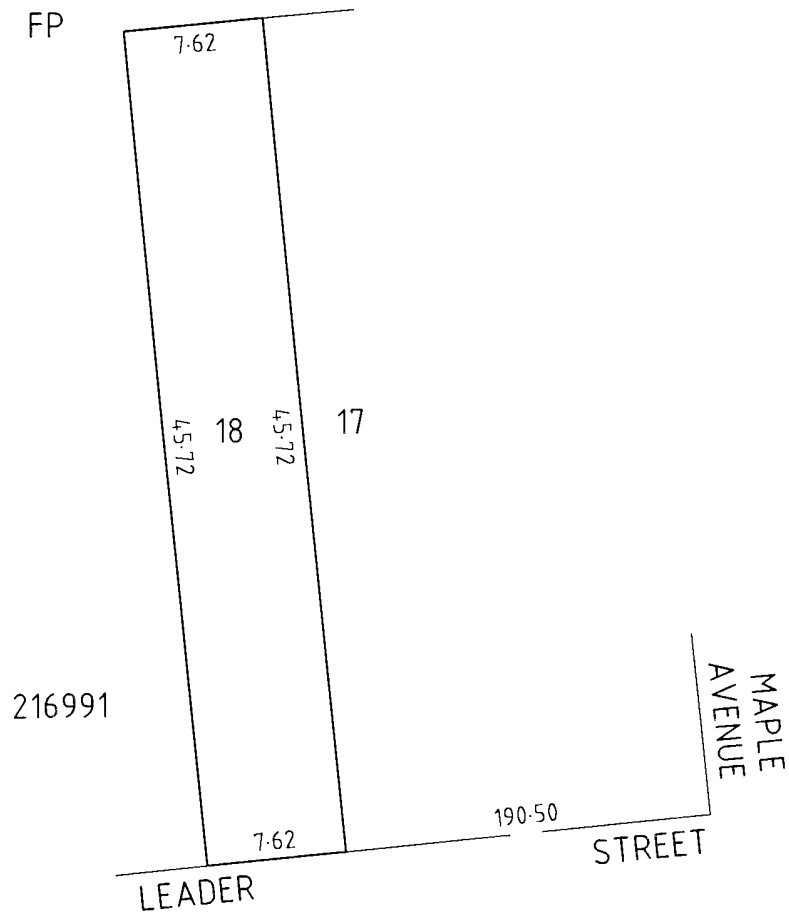
### Notations

Dealings Affecting Title NIL  
Priority Notices NIL  
Notations on Plan NIL

### Registrar-General's Notes

APPROVED FX253588

Administrative Interests NIL



## Certificate of Title - Volume 5880 Folio 803

Parent Title(s) CT 5395/429  
Creating Dealing(s) T 9389787  
Title Issued 02/10/2002 Edition 7 Edition Issued 27/03/2018

### Estate Type

FEE SIMPLE

### Registered Proprietor

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENT 19 FILED PLAN 9791  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

SUBJECT TO THE EASEMENT(S) OVER THE WITHIN LAND TO THE SOUTH AUSTRALIAN WATER CORPORATION  
(T 9389787)

### Schedule of Dealings

NIL

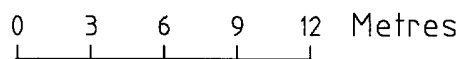
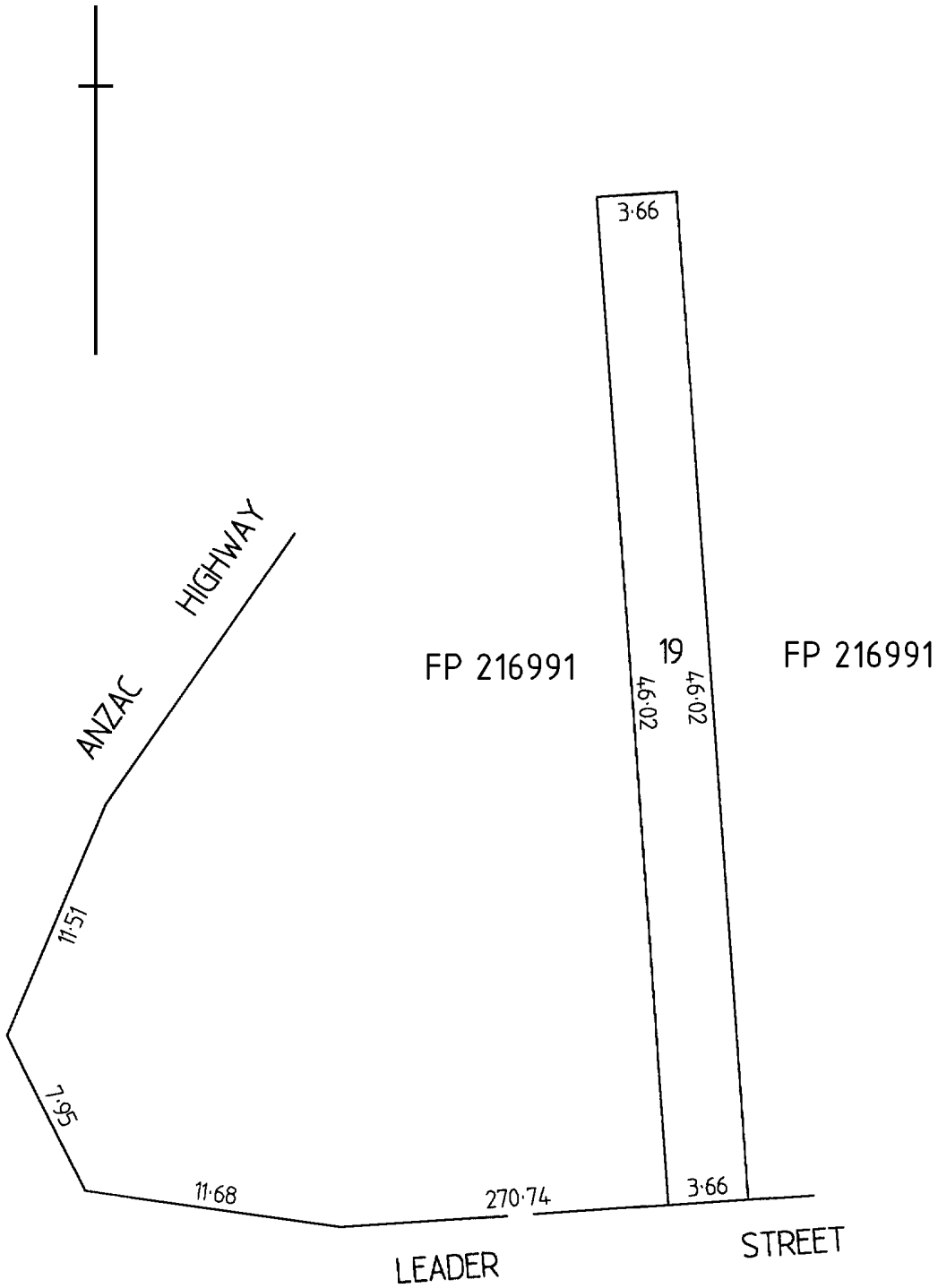
### Notations

Dealings Affecting Title NIL  
Priority Notices NIL  
Notations on Plan NIL

### Registrar-General's Notes

APPROVED FX253588

Administrative Interests NIL





## Certificate of Title - Volume 5888 Folio 429

Parent Title(s) CT 2760/3  
Creating Dealing(s) CONVERTED TITLE  
Title Issued 07/02/2003 Edition 9 Edition Issued 27/03/2018

### Estate Type

FEE SIMPLE

### Registered Proprietor

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENTS 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119 AND 120 FILED PLAN 216991  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

ALLOTMENT COMPRISING PIECES 121, 122 AND 123 FILED PLAN 216991  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

SUBJECT TO RIGHT(S) OF WAY AND EASEMENT(S) OVER THE LAND MARKED A (LAND GRANT VOL.1197 FOLIO 172)

### Schedule of Dealings

NIL

### Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

### Registrar-General's Notes

APPROVED FX253588

Administrative Interests NIL

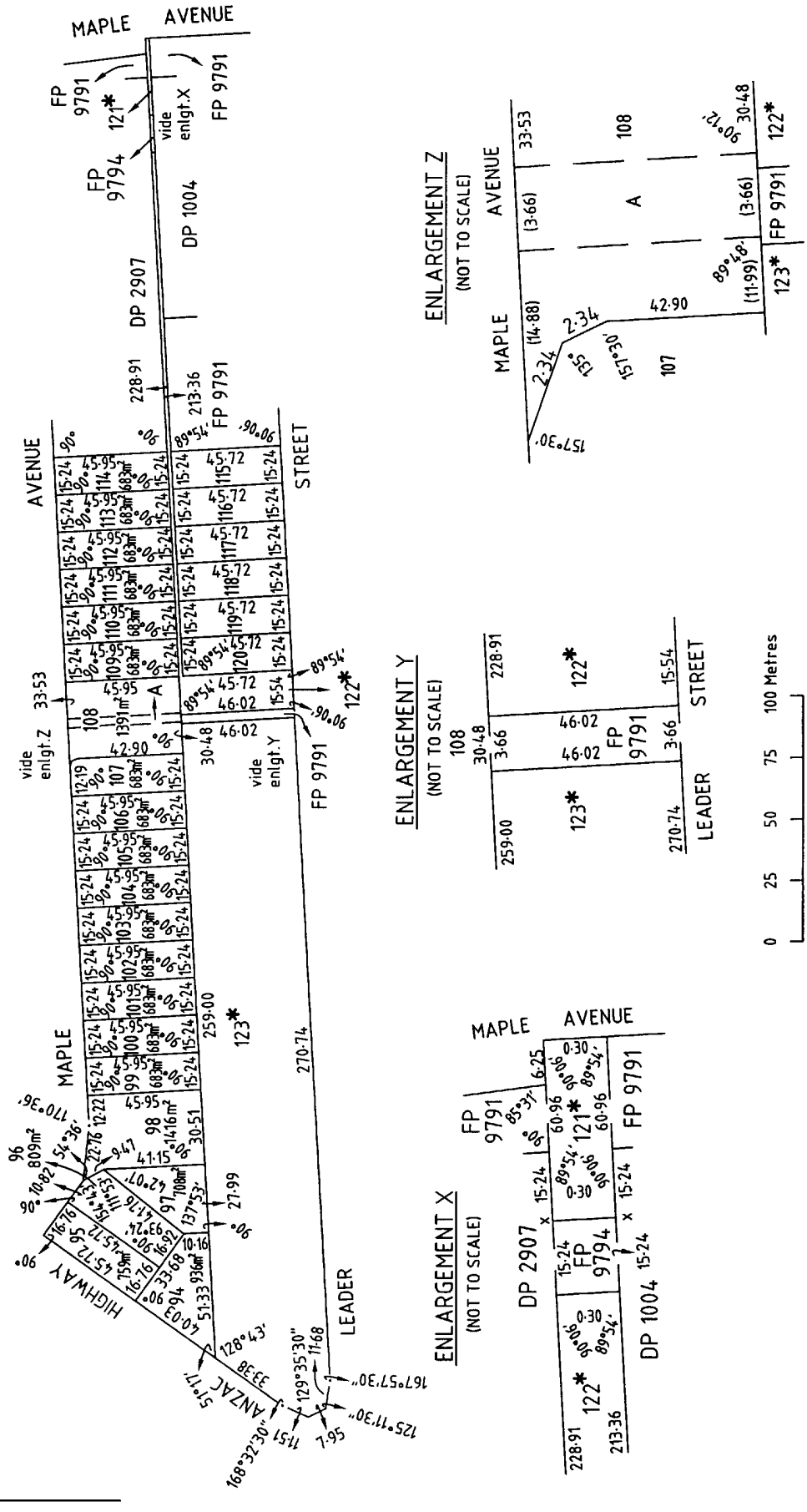
THIS PLAN IS SCANNED FOR CERTIFICATE OF TITLE 2760/3

LAST PLAN REF: DP 1004 & DP 2907 & FP 9791  
 SEE TITLE TEXT FOR EASEMENT DETAILS

SCHEDULE OF PIECES COMPRISED IN ONE ALLOTMENT

PIECES COMPRISED IN ONE ALLOTMENT	TOTAL AREA
121, 122 and 123	1.35 ha approx

\* Asterisk denotes PIECE identifier only.  
 NOTE: All remaining parcels are each an allotment.



NOTE: SUBJECT TO ALL LAWFULLY EXISTING PLANS OF DIVISION

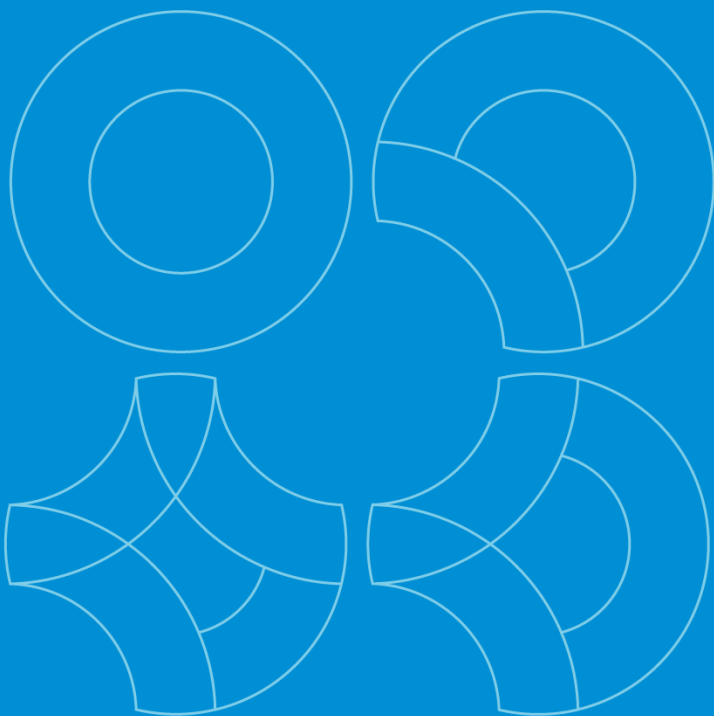
# Existing Electrical Infrastructure Clearance Report

## Kaufland AUS 1 development Forestville, South Australia

Prepared by  
Simpson Kotzman  
Consulting Engineers  
1 March 2018



**Simpson**Kotzman



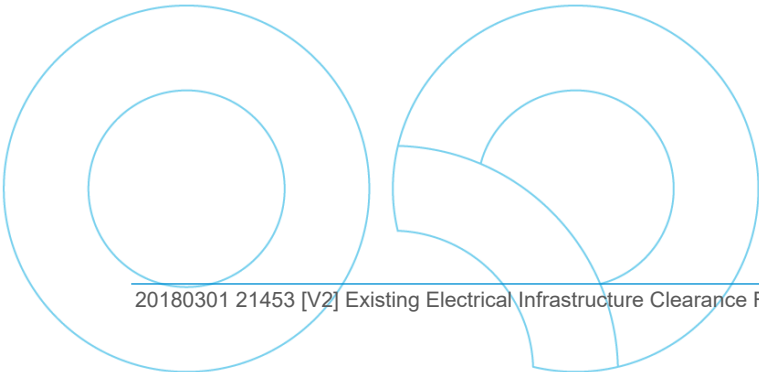
# Existing Electrical Infrastructure Clearance Report

## Kaufland AUS 1 development Forestville, South Australia

Prepared by  
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1 March 2018

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- 3 Proposed Building and Powerline locations .....2
- 4 Conclusion .....2



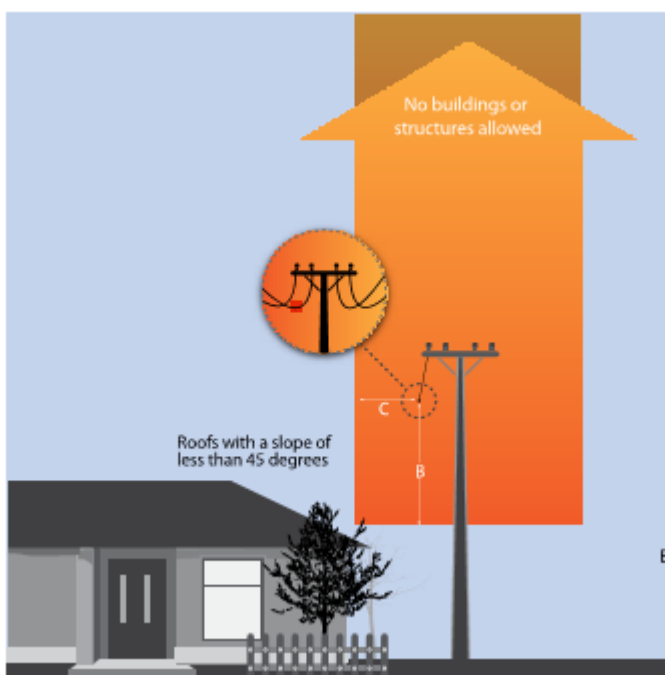
# 1 Introduction

This report relates to the clearance requirements from existing overhead electricity cable to the proposed building to be located at 10 Anzac Highway Forestville South Australia

This review and report is based on information regarding the required clearances form overhead cabling provided by the Government of South Australia and the respective Office of the Technical Regulator relating to “Building Safely Near Powerlines” and on-site survey of the existing power lines in Maple Avenue.

We have assessed the existing powerlines on all perimeter roads and note the following:

- Leader street powerlines are located on the opposite of the road to the proposed development and are considered safe from the development.
- Maple Avenues power lines are located on the same side of the street to the development and require assessment to determine if affected by the proposed building.
- Powerlines located on Anzac Highway are a long distance from the proposed building and are considered safe from the development.



Voltage	Up to and including 1 kV		Above 1 kV		Above 1 kV up to and including 33 kV	66 kV
	Insulated	Bare	Insulated with earthed screen	Insulated without earthed screen		
<b>Conductor type</b>					<b>Bare or covered</b>	<b>Bare</b>
<b>Dimension A</b> – Vertically above those parts of a building or structure normally accessible to persons.	2.7 m	3.7 m	2.7 m	3.7 m	5.5 m	6.7 m
<b>Dimension B</b> – Vertically above those parts of a building or structure not normally accessible to persons but on which a person can stand.	0.1 m	2.7 m	2.7 m	2.7 m	4.7 m	5.5 m
<b>Dimension C</b> – In horizontal direction from those parts of a building or structure normally accessible to persons or that is not normally accessible to persons but on which a person can stand.	0.1 m	1.5 m	1.5 m	1.5 m	3.1 m	5.5 m
<b>Dimension D</b> – In any direction from those parts of a building or structure not normally accessible to persons.	0.1 m	0.6 m	0.1 m	0.6 m	2.5 m	4.5 m

## 2 Existing Building and Powerline locations

It is proposed to locate the building with a 1metre offset from the current property boundary and has a height of approximately 9metres.

The existing power lines consist of “bare/covered” conductors one set at the lower level being Low Voltage(LV) less than 1kV and the upper cables being High Voltage(HV) being >1kV and <33kV. The Low voltage cables have been surveyed to have a height of approximately 7.14metres and the high voltage cables have a height of approximately 7.6metres.

The HV cabling is installed symmetrically on the pole heads until pole number 5 from Anzac highway corner where it is offset away from the property on outrig arms across poles 5 and 6 then it re-aligns to be again symmetrically mounted to the pole heads. (refer Photographs Fig 1-4.)



Figure 1.



Figure 2.











## 4 Conclusion

From the surveyed existing powerline locations and the proposed building location with an excessive sway allowance the proposed building is inside the designated clearance zone for the existing powerlines.

An application will be made to SA Power to relocate these existing overhead HV power lines either by offsetting these on the existing poles using cantilever arms (as per the existing offsets on poles 5 & 6) or relocating all the overhead HV and LV cabling underground.

This application and resolution will be made to SA Power, to ensure the existing cabling meets the requirements of Government of South Australia and the respective Office of the Technical Regulator relating to "Building Safely Near Powerlines".

The approval process for this application will take some time but would need to be undertaken prior to construction starting on this site.

We would recommend that this be put into action as soon as possible.

---

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**Associates:** Tom Christie, Chris Downing, Nathan Meier, Tony Spillane, Robert Tombolato, Daniel Vogrig



# 10 ANZAC HIGHWAY, FORESTVILLE

TOWN PLANNING REPORT



APRIL 2019



**URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:**

Director	Jane Kelly
Consultant	Mietta Gleeson
Project Code	MA10864
Report Number	Rep02



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# EXECUTIVE SUMMARY

This report has been prepared on behalf of Kaufland Australia Pty Ltd in support of a planning permit application to construct a supermarket at the former LeCornu site located at No.10 Anzac Highway, Forestville (the subject site).

The site is significant in Adelaide, having operated as LeCornu's main retail showroom for over 40 years until late 2016. The redevelopment of the site to accommodate one of Kaufland Australia's flagship stores in Australia will allow the site to reinstate its important and well established retail legacy, continuing to service the residents of Adelaide.

The proposal is best described as the demolition of an existing large format retail premises and the construction of a group of shops, including a supermarket (Kaufland Store) car parking, signage and landscaping. The retail development site will occupy approximately two thirds of the overall site at 10 Anzac Highway, with the balance of the site to be subject to a separate application in the future.

Pursuant to the 'procedural matters' section of the Urban Corridor Zone, the application is neither complying nor non-complying and therefore, must be assessed on its merits against the relevant provisions of the Unley (City) Development Plan.

This planning report describes the subject site and surrounding context; details the proposed works; and provides an assessment of the proposal against the relevant planning controls and policies contained within the Unley (City) Development Plan.

The report concludes the proposed use and development is of high architectural merit and is suitable for the site and surrounding neighbourhood character. Specifically, the report determines:

- The redevelopment of an underutilised strategic site on a high frequency transport corridor for a high-quality retail development is strongly aligned with State and Local planning policy.
- The development of the site for retail premises is consistent with the site's inclusion within the Urban Corridor Zone, which encourages a mix of land uses including shops and services.
- The proposed development will not compromise the ability for an overall mixed use outcome (including residential uses) to be delivered on the site, as the retail component that is the subject of this application occupies approximately two thirds of the total site.
- The building is appropriately resolved on site and respectful of its surrounds. This is achieved through activation to Leader Street; introducing substantial setbacks to the residential interfaces; the use of quality materials and finishes; and siting loading and waste collection operations away from the residential interface.
- The proposed design response is sensitive to its context and has been carefully designed to respond to each of the site's interfaces. The proposal does not result in any unreasonable off-site amenity impacts by way of visual bulk, overlooking or overshadowing.
- The development will deliver activation to Leader Street and Anzac Highway through the inclusion of ground floor speciality tenancies, café and playground and the use of substantial glazing which will provide views into the development.
- The proposal will achieve principles of Environmentally Sustainable Design (ESD) through building design features and initiatives, and Water Sensitive Urban Design (WSUD).
- The proposal has been designed to incorporate a variety of landscaping elements including tree planting and low level shrubs and garden beds. The building and hard stand areas are setback off the boundaries to allow for tree planting and landscaping around the site's perimeter and within the car parking areas. The landscaping proposed will improve the site's appearance for customers and from the public realm and neighbouring properties, and will deliver positive WSUD outcomes.
- Car parking areas are predominantly screened from view, and sufficient car parking is provided to ensure that customers can efficiently park on site, and to minimise offsite amenity impacts upon the surrounding area.

- Anticipated traffic movements can be accommodated within the capabilities and capacity of surrounding streets, including Anzac Highway, Maple Avenue and Leader Street.
- The proposal will deliver an overall net community benefit through a high quality and accessible retail development offering a new range of essential household products not currently available to residents in Adelaide.

This report should be read in conjunction with the following documents:

**Current Documents:**

- Certificate of Title
- Architectural Plans prepared by Studio 117, dated 8 April 2019
- Traffic Advice prepared by WGA, dated 13 March 2019
- Additional Traffic Advice prepared by WGA, dated 5 April 2019
- Landscape Plan prepared by Formium, dated March 2019
- Pedestrian Report prepared by WGA, dated 20 March 2019
- Obtrusive Lighting Letter prepared by Norman Disney Young, dated 4 March 2019
- Arboricultural Impact Assessment prepared by Arborman Tree Solutions, dated 28 March 2019
- Land Management Agreement
- Stormwater Management Plan prepared by WGA, dated 19 March 2019
- Acoustic Report prepared by Resonate Consultants, dated 7 March 2019
- Waste Management Plan prepared by Rawtec, dated February 2019

**Previous Documents:**

- Contamination Letter prepared by Greencap, dated 27 February 2018
- Further Due Diligence Assessment prepared by EP Risk, dated 7 June 2017

# KAUFLAND OVERVIEW

Headquartered in Neckarsulm Germany, Kaufland is a subsidiary of the Schwarz Group, the world's fourth largest retailer. As a grocery chain, Kaufland are committed to providing customers with access to a wide range of reasonably priced produce. Each store can stock up to 60,000 product lines, some of which are our their own attractive K-Classic brands. Kaufland operate more than 1,230 stores in Germany, the Czech Republic, Poland, Bulgaria, Croatia, Romania and Slovakia with more than 150,000 employees across Europe.

Kaufland are a growth-oriented corporation continually assessing their expansion possibilities in existing and potential markets. With this in mind, Kaufland are currently conducting a feasibility study by analysing the Australian market, with the Forestville development to be one of the first Kaufland stores in Australia.





# 1. THE PROPOSAL

The proposal can be described as a freestanding retail development comprising a full line supermarket, a café, retail tenancies and associated car parking, landscaping and signage, as outlined below.

## 1.1. SUPERMARKET USE

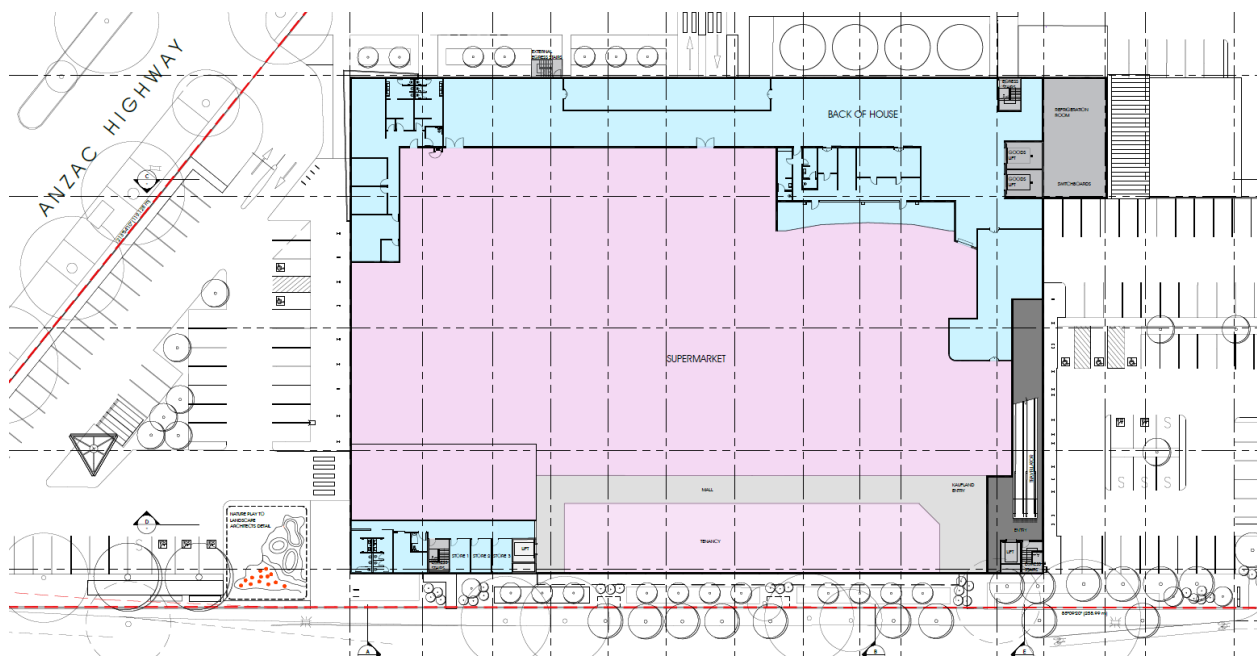
The proposal is for a purpose built Kaufland supermarket, along with associated retail uses. The development will comprise:

- 3,975 square metre supermarket
- 1,610 square metres of back of house
- Four retail tenancies, comprising 976 square metres, broken down as follows:
  - **First Floor Tenancy** 527 square metres
  - **Café** 80 square metres
  - **Tenancy 1** 114 square metres
  - **Tenancy 2** 104 square metres
  - **Tenancy 3** 151 square metres

Trading house for the Centre are proposed as follows:

- Weekdays: 12.00 AM – 9.00 PM
- Saturday: 12.00 AM – 5.00 PM
- Sunday: 11.00 AM – 5.00 PM

Figure 1 – Proposed first floor layout (extract from TP-03)



## 1.2. BUILDING LAYOUT AND FORM

The building will be of contemporary design, with siting and design responses to respect the neighbourhood character context and to minimise impacts on surrounding residences.



Key aspects of the proposal are as follows:

- A mixture of at grade and undercroft car parking located across the ground level. Some car parking will be provided within the front setback of the site which is typical of a retail development, to provide some immediately visible and accessible car parking to passing traffic.
- Supermarket and retail uses located at the upper level.
- A double storey building, with the main pedestrian entrance from the eastern elevation.
- An overall building height of 14.62 metres at the parapet to Maple Avenue and a height of 13.12 metres as the building addresses Leader Street.
- Setbacks to all site boundaries to facilitate landscaping at all interfaces, including a setback to Leader Street of 5 metres and a minimum of 7.29 metres to Maple Avenue.
- Business identification signage (as detailed in Section 1.4)

### 1.3. CAR PARKING, ACCESS AND LOADING

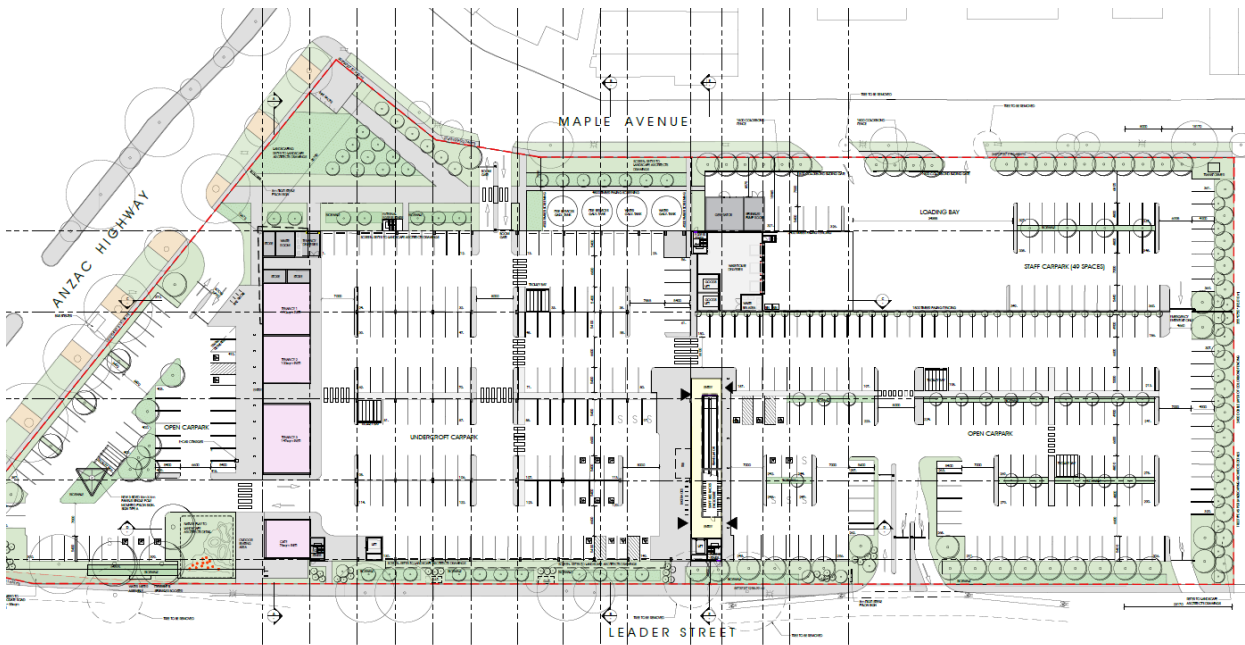
The existing vehicle crossover located at the northern end of the Anzac Highway frontage is proposed to be retained to allow for vehicle access to the site. Direct vehicle access to the undercroft car parking area will be provided by a double width vehicle crossover to Maple Avenue and a triple width crossover to Leader Street.

A total of 418 car parking spaces are proposed across the site, with spaces located within the front site setback, the building undercroft and to the rear of the building. The car parking area will comprise 9 accessible parking spaces and 11 family parking spaces. The provision for 34 customer and 28 staff bicycle parking spaces, as well as 2 EV charging spaces are proposed throughout the car parking area. All car spaces have been designed in accordance with the relevant Australian Standards.

A full scale loading dock is proposed within the north east of the development site. Trucks will enter and exit the loading area via Maple Avenue.

The Traffic and Parking Assessment report by WGA dated 13 March 2019 provides further details of the proposed access and loading arrangements and car parking provision.

Figure 2 – Proposed car parking layout (TP-02)



## 1.4. SIGNAGE

The development proposes the provision of six advertising signs across the site. This will comprise:

- 1 x 3 sided, externally illuminated pylon sign to replace the existing 'Le Cornu' sign in the site's front setback, measuring approximately 20 metres in height, comprising the Kaufland logo.
- 1 x 2 sided, internally illuminated pylon sign located in the front setback, measuring 7 metres in height, comprising the Kaufland logo.
- 3 x internally illuminated wall mounted sign measuring 6 metres x 6 metres, located on the western and northern building façade, comprising the Kaufland logo.
- 4 x internally illuminated wall mounted signs measuring 5 metres x 5 metres, located on the northern and southern building façades, comprising the Kaufland logo.
- 9 x externally illuminated wall mounted signs measuring 3.5 x 5 metres, located on the northern and southern building façades, comprising business identification signs for future speciality tenants.
- 2 x internally illuminated wall mounted signs measuring 6.3 x 3.3 metres, located on the east and western building façade, comprising parking signage
- 3 x externally illuminated wall mounted signs measuring 0.8 x 2 metres (approx.), located on the western and eastern building façade, comprising parking signage

## 1.5. LAND DIVISION

The application seeks land division consent to consolidate the existing land titles. The consolidation applies only to the front portion of the site, affected by this application, with the titles within balance of the site unchanged.

## 1.6. PROCEDURAL REQUIREMENTS

### 1.6.1. Relevant Authority

The relevant authority to determine the development application is the State Commission Assessment Panel (SCAP), with referral being made to the City of Unley. A request was made under Schedule 10, Part 20 of the Development Regulations, 2008 to the State Coordinator-General, and by letter dated 26 March 2018, the State Coordinator-General confirmed that the application would be assessed by the SCAP.

### 1.6.2. Nature of Development

As outlined above, it is considered that the proposal is best described as the demolition of an existing large format retail premises and the construction of a new retail development including a supermarket with associated car parking, signage and landscaping. Pursuant to the 'Procedural Matters' section of the Urban Corridor Zone, the application is neither complying nor non-complying and therefore, must be assessed on its merits against the relevant provisions of the Unley (City) Development Plan.

### 1.6.3. Public Notification

The 'Procedural Matters' section of the Urban Corridor Zone identifies that the proposed development is a Category 2 form of development as the site is located within the Transit Living (Anzac Highway) Policy Area 24 and proposes the development of a group of shops with a gross leasable floor area greater than 500 square metres.

## 2. SUBJECT SITE CONTEXT

As outlined in Section 1.5, this application proposes the division of the site at 10 Anzac Highway, Forestville. This site has a total area of 3.6 hectares, and is illustrated in Figure 3 below in blue shading. The section of the site that is the subject of this application relates to proposed Lot 501 only and is outlined in red in Figure 3. The rear portion, or balance of the overall site, will be subject to a separate development application in the future.

### 2.1. SUBJECT SITE

The subject site is located at 10 Anzac Highway, Forestville, on the eastern side of Anzac Highway, approximately 400 metres south of the intersection with Richmond Road/Greenhill Road and approximately 3 kilometres southwest of the Adelaide CBD.

The site is irregular in shape and features a generally flat topography. The site has a frontage to Anzac Highway of approximately 130 metres, a secondary frontage to both Maple Avenue (approximately 195 metres) and Leader Street (approximately 263 metres), comprising a total site area of approximately 2.305 hectares.

The subject site currently comprises a number of warehouse buildings and a large asphalt, at grade car park. The site has most recently been used for a large scale furniture store, Le Cornu. Vehicle access to the site is provided by a single vehicle crossover to each road frontage. Limited vegetation borders the car park and a number of street trees are located adjacent to the western site boundary.

Figure 3 – Subject Site Aerial



#### 2.1.1. Certificate of Title

No.10 Anzac Highway, Forestville is currently located across five titles comprising 34 allotments; Lots 94-123 on FP 216991, Lot 52 & 53 on DP 2907 and Lot 18 & 19 on FP 9791.

An easement in favour of the SA Water Corporation Easement, for sewerage purposes is located on Lot 19 FP 9791 and a Right of Way and Easement to the Crown, for the purpose of laying and maintaining pipes, runs north-south down the centre of Lot 108 on 216991 from Leader Street.





Picture 1 – Subject site, existing conditions viewed east from Anzac Highway



Picture 2 – Existing car parking within front setback



Picture 3 – Existing undercover car parking on site



Picture 4 – Existing site, viewed west from Maple Avenue



Picture 5 – Existing site, viewed west on Leader Street

## 2.1.2. Site History

The site has considerable history in Adelaide. The site was originally used for industrial and commercial uses including the manufacturing of military vehicles, aircraft and ammunition during WWII and car manufacturing including the Chrysler Factory. Since 1973 the site was used for the iconic Le Cornu store, a large scale self-service furniture warehouse, until the showroom closed in late 2016.

A preliminary Site Contamination Report has been prepared by ES Risk, with the initial assessment highlighting the following:

- No significantly elevated volatile compounds (the key contaminants of concern identified from the Site history) were identified at any of the grid based or targeted MiHPT investigation locations.
- No extensive hydrocarbon contamination is present that would likely impede future proposed use of the site.
- Asbestos, synthetic mineral fibers (SMF), polychlorinated biphenyls (PCB), lead and oxygen depleting substances (ODS) were all identified, or presumed to be present at the site. Qualified professionals should be engaged to ensure the proper removal, management and disposal of any suspected or confirmed hazardous materials.
- The results do not indicate that site conditions would prohibit the future development of the site for low or high density residential use (pg. 16).

In addition, Greencap undertook a soil investigation to assess the contamination status of soils at the site, and to provide information relating to offsite soil disposal requirements.

To the best of Greencap's knowledge, no groundwater investigations or direct soil vapour measurements have previously been undertaken at the site, however, there are unlikely to be complete pathways that result in an unacceptable risk to human health to on-site occupants (of the retail development) on the basis of the following:

- Groundwater is located at depth (available information suggests groundwater underlying the site is likely to be at depths greater than 10 metres below ground level). Proposed construction works and any future works at the site would not extend to these depths. Furthermore, groundwater will not be used for any purpose (i.e. irrigation, etc) following development.
- Previous reports (mentioned above) indicated there was considered to be a low likelihood of significant soil vapour impacts being present at the site in terms of the proposed future commercial redevelopment.
- The proposed development, which incorporates a carpark at grade under the majority of the proposed commercial building, with open sides, reduces the likelihood of any accumulation of vapours that may pose any risk to human health through inhalation.

In light of the above, there is considered to be a low risk to the health of future site occupants (of the retail development) from exposure to any impacted soils that might remain on site, or from inhalation from vapours that may potentially be present under the site. The site is deemed to be suitable to accommodate the proposed retail development from an environmental impacts perspective.

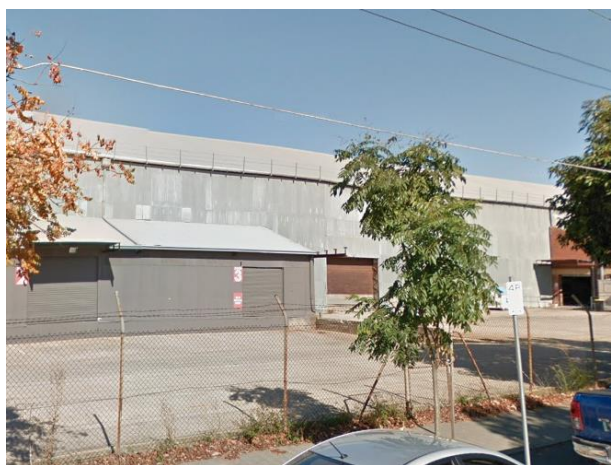
## 2.2. IMMEDIATE SURROUNDS

### East

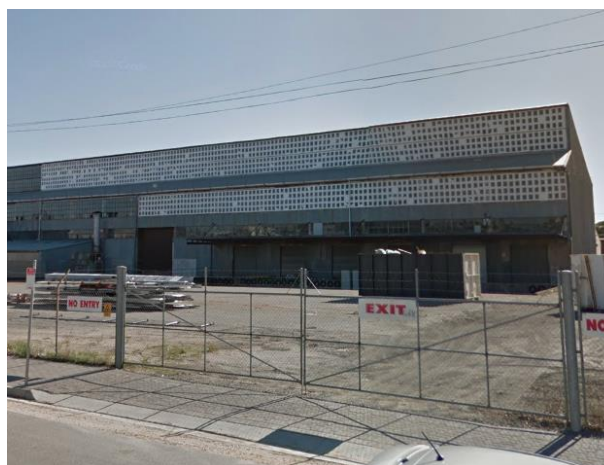
Immediately to the east of the subject site is the rear or balance of No. 10 Anzac Highway. As outlined within Section 1.5 of this report, the proposal seeks to consolidate the land at No.10 Anzac Highway affected by this proposal into 1 allotment. As such, abutting the site to the east will be the rear portion of No.10 Anzac Highway.

This land currently comprises a number of large, double storey light industrial/warehouse building and two former dwellings.

Further east, land comprises small industrial and warehouse buildings, and a train line connecting Adelaide City with the southern suburbs of Adelaide. The Adelaide Showgrounds is located on the eastern side of the train line.



Picture 6 – Rear of No.10 Anzac Highway, Forestville (viewed from Maple Avenue)



Picture 7 – Rear of No.10 Anzac Highway, Forestville (viewed from Leader Street)

### North

Maple Avenue forms the subject site's northern boundary, providing access from Anzac Highway through to the railway line to the east. Maple Avenue accommodates one lane of traffic in each direction and on-street parallel car parking. A range of small industrial and warehouse uses are located on the northern side of Maple Avenue, predominantly comprising single or double storey brick buildings.

Further north is the Keswick Army Barracks, which is earmarked as a future high density mixed use precinct.



Picture 8 – Double storey commercial use fronting Maple Avenue



Picture 9 – Double storey commercial use fronting Maple Avenue



## South

Leader Street forms the subject site's southern boundary, providing connection between Anzac Highway and Goodwood Road to the east. Leader Street accommodates one lane of traffic in each direction and on-street parallel car parking. A number of single storey dwellings front the southern side of Leader Street, as well as a set of double storey units. A large double storey brick factory building operating as a bakery fronts Leader Street between First Avenue and Leah Street. It is understood that the bakery is to be relocated in the near future and replaced by residences.

Further south, land predominantly comprises residential land uses, featuring single storey detach dwellings on large lots.



Picture 10 – Brick factory (bakery) fronting Leader Street



Picture 11 – Single storey dwellings on the southern side of Leader Street

## West

The subject site abuts Anzac Highway to the west. Anzac Highway is a main arterial road running southwest from the Adelaide CBD, providing three lanes of traffic in each direction. A pedestrian footpath, bus stop and eight established street trees are located within the nature strip between the subject site and Anzac Highway.

Further west, across Anzac Highway is the Ashford Hospital. The hospital and associated buildings range in height from single storey up to five storeys. The hospital presents as a five storey form to the corner of Anzac Highway and Reid Avenue and is built to both site boundaries.



Picture 12 – Ashford Hospital, Forestville



Picture 13 – Anzac Highway, viewed north

## 2.3. WIDER AREA

The subject site is located on the boundary of an established residential area to the south, and a commercial/light industrial to the north. The site is within close proximity to a variety of amenities and services including public transport, recreation and community facilities. These include:

- Ashford Hospital is located opposite the subject site on Anzac Highway.
- Adelaide Showgrounds are located directly east of the subject site, across the railway line.
- Goodwood Railway Station (approximately 500 metres south east).
- Adelaide Showgrounds Railway Station (approximately 550 metres north east).
- Tram route running between the CBD and Glenelg (approximately 500 metres south).
- Eleven bus routes utilise Anzac Highway, with a bus stop is located directly adjacent to the site (245, 248, 263, 265, 719, 721, 722, 723. AO31, M44, N262 & N721).
- Two bus routes utilise Leader Street, with a bus stop located adjacent to the site, between Leah Street and Charles Street (W90 & W91).

Figure 4 illustrates the location of the above surrounding services and facilities.



Figure 4 – Locality Map



### **3. PLANNING ASSESSMENT**

The planning assessment addresses the following key matters:

- Planning policy support for the proposal
- Appropriateness of the proposed land use
- Built form outcomes
- External amenity considerations
- Building services and performance

Details of the planning controls and policy are included within Appendix A.



## 4. RESPONSE TO PLANNING POLICY FRAMEWORK

The proposed development of the subject site is considered to meet the objectives of the Planning Strategy (*The 30-Year Plan for Greater Adelaide, 2017 update*) and the Unley (City) Development Plan. A summary of the relevant State and Local Planning policies is contained within Appendix A, with the key points outlined below:

### 4.1. THE 30-YEAR PLAN FOR GREATER ADELAIDE

The proposal reflects the objectives of the *30-Year Plan for Greater Adelaide, 2017 update*, as follows:

- The proposal facilitates the revitalisation of a large vacant and underutilised strategic inner suburban with a quality commercial development, supporting employment and economic growth within the local area.
- The proposal will reinstate the site's historic and well established retail use, for a contemporary development, which will service the convenience shopping needs of local residents and passing commuters.
- The proposal achieves the locational requirements for retail development outside of a designated activity centre, and will support the principles of accessibility, high quality urban design and economic growth and competitiveness.
- The proposed development provides an appropriate response to the site and surrounding context, including a transition in scale to the nearby residential properties and the provision of landscaping to soften the appearance of the built form and contribute to the presentation of the development to the streetscape.
- The development contributes to 'the new urban form' of compact mixed use communities through the provision of a supermarket use within an established community, and within an area identified for renewal and intensification. The development will provide for day-to-day shopping needs of local residents, and commuters returning home, on a highly accessible site and within immediate proximity to public transport services and walking and cycling distance of surrounding residential areas.
- The development has been designed to incorporate measures to promote energy efficiency and water security, including the installation of solar panels and water sensitive urban design and stormwater management measures such as rainwater storage and bioswales for runoff filtration.

### 4.2. RESPONSE TO THE CITY OF UNLEY DEVELOPMENT PLAN

#### 4.2.1. Council Wide Policy

The Unley (City) Development Plan outlines strategic and policy objectives to guide the preferred development outcomes of the municipality. The proposed development aligns with the General Policy section of the Development Plan, with the key points outlined below:

- The proposed retail development is considered an appropriate development outcome outside of a business, centre or shopping zone given the site's established retail use and identification for a future mixed use outcome including retail uses (Transit Living Policy Area 24); the existing mixed use nature of the surrounding area; the site's location on a main transport corridor and the ability of the road network to accommodate future traffic generated by the proposal; the site's proximity to public transport options; the site's substantial size to ensure all customer car parking and loading activities occur on site; the ability to minimise amenity impacts upon nearby residences along Leader Street through setbacks, design, landscaping and the siting of loading and waste collection operations on Maple Avenue. (*Centres and Shops PDC 10 & 11*).
- The development promotes safety of users of the site and security of the property through appropriate design outcomes including the provision of clearly defined public and private spaces, active uses at the street frontage overlooking Anzac Highway and adequate lighting and signage. (*Crime Prevention PDC 1 & 2*).
- Landscaping forms an integral part of the overall design of the development, fostering a human scale and to enhance the visual amenity of the area. The proposed plant and tree species have been selected

to ensure sight lines are available throughout the development, and to avoid concealment opportunities. (*Crime Prevention PDC 1 & 2*).

- The proposed development is of high design quality and appropriately responds to the context of the site and surrounds. As further detailed in Section 7, the built form responds to the immediate surrounds to limit external amenity impacts including visual bulk, overshadowing, overlooking and noise (*Design and Appearance PDC 1, 9 & 10*).
- Solar panels are proposed to be installed on the roof of the building to provide for on-site power generation. In addition, the built form has been designed to ensure efficient solar access is maintained to all surrounding properties (*Energy Efficiency PDC 2 & 3*).
- The development has been appropriately sited and designed to minimise adverse impact on the existing residential properties to the south, located within the Residential Streetscape Zone. This includes locating the loading bay and mechanical services to the north of the site, limiting the potential for noise sources to the more sensitive residential interface along Leader Street. (*Interface between Land Uses PDC*).
- Landscaping is incorporated into the design to enhance the overall appearance of the development, and to provide opportunities for WSUD. The landscaping concept for the site will be further developed with environmental officers from the City of Unley Council. (*Landscaping PCD 1 & 2*).

#### **4.2.2. Urban Corridor Zone**

The Urban Corridor Zone contemplates the inclusion of a mix of uses, at varying densities, and with active street frontage, while ensuring the metropolitan transport movement function is preserved. The proposed development responds to the objectives of the Urban Corridor Zone in the following ways:

- The proposal is for a retail development at a medium density scale, which is oriented towards Anzac Highway. The supermarket and complementary retail tenancies are a compatible non-residential use in this location, that will provide for the day-to-day shopping needs of the local community and support the economic vitality of the area (*Objective 1 & 3*).
- The proposed development incorporates variation in the roof form across the development, including the provision of glazing at the upper level to add visual interest to the skyline when viewed from the streetscape and afar.
- The building has been designed to transition down in scale to the north and south to appropriately respond to the surrounding context of built form that currently exists along Maple Avenue and Leader Street (*Objective 5*).
- The incorporation of a ground level café with alfresco seating encourages activation of the site frontage at a human scale and ensures the development contributes to an appealing street environment for pedestrians along Anzac Highway and Leader Street (*Objective 2*).
- The development, including the car parking areas across the site, has been designed to provide a comfortable and safe experience for customers, through the provision of pedestrian paths, pedestrian crossings and external lighting (*Objective 6*).
- The development has been designed in consultation with an acoustic consultant who has provided advice on the fencing and screening, to limit the impact of noise sources on the amenity of residential properties along Leader Street (*Objective 7*).
- The proposal will contribute to the desired character of the zone through the redevelopment of a currently vacant and underutilised key strategic site, with a quality retail anchor that will serve as a catalyst for new development in the precinct. The site is of a substantial size, which will ensure the offsite amenity impacts can be appropriately controlled through generous building setbacks and the transition of building height across the site, and the siting of loading and waste collection on Maple Avenue, and away from residences along Leader Street. The new retail development will occupy approximately half of the overall former LeCornu site, and the balance of the site will be subject to a future development application. The retail proposal will not prejudice the overall site from achieving a mixed use outcome, as desired by the zone (*Objective 8*).

### 4.3. APPROPRIATENESS OF THE PROPOSED LAND USE IN THE UCZ

As outlined previously, the proposed development incorporates a Kaufland Supermarket (Shop), including the sale of liquor, and eight retail tenancies (shop). A 'shop or group of shops' is an envisaged form of development in the Urban Corridor Zone.

Similarly, the desired character statements of the Urban Corridor Zone and Transit Living Policy Area encourage the development of the site for a mixed use development, with an emphasis on commercial uses that support the day to day needs of the local population.

*PDC 1* of the Transit Living Policy Area states:

*"Shops or groups of shops contained in a single building should have a gross leasable area of less than 500 square metres, except for sites located north of Leader Street."*

Given the subject site is situated to the north of Leader Street, the proposed leasable floor area of the group of shops located within the proposed development, in excess of 500 square metres, is considered an appropriate land use outcome in this location and consistent with the Urban Corridor Zone.

Consistent with *PDC 2* of the Transit Living Policy Area, the development incorporates a number of smaller integrated tenancies, which will complement the predominate supermarket use, including a café space.

As outlined above, the retail proposal will occupy approximately half of the site at 10 Anzac Highway, and will not compromise the ability for the balance of the site to be developed for residential purposes in the future, and for an overall mixed use outcome to be achieved for the site.

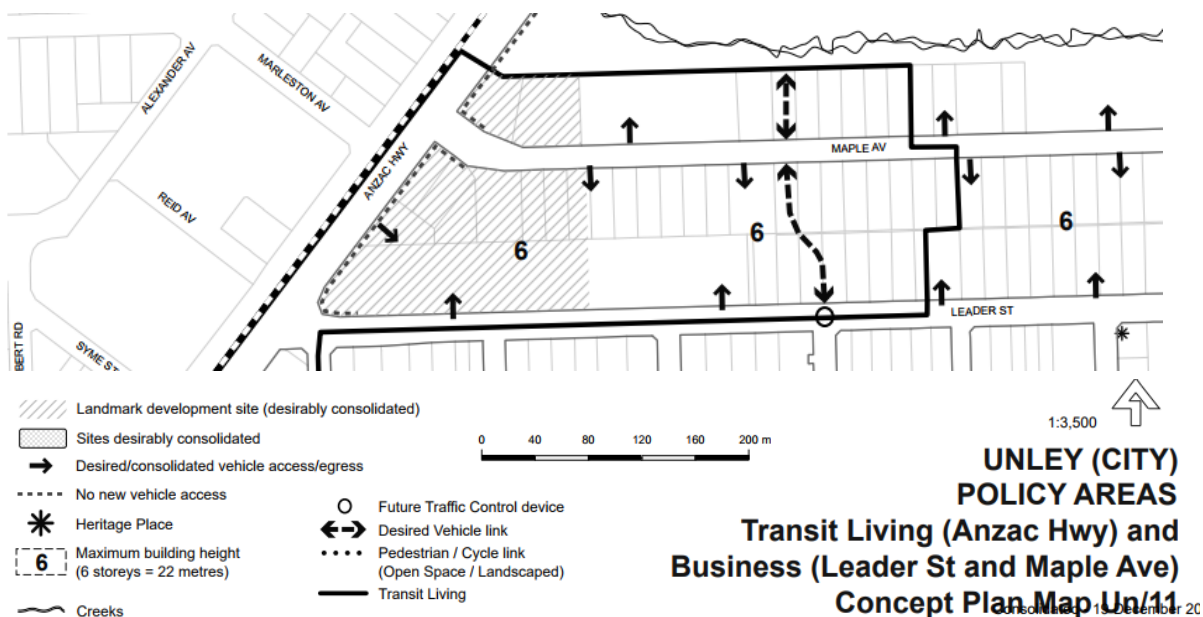
# 5. BUILDING DESIGN

## 5.1. BUILDING RESPONSE TO THE DESIRED CHARACTER

The development has been designed to reflect the existing and emerging character of the surrounding area. It is considered that the proposed development is consistent with the desired character of the Urban Corridor Zone and the Transit Living Policy Area, as follows:

- Consistent with the desired character for land within the Transit Living Zone north of Leader Street, the development proposes a quality retail development, which capitalises on direct access to public transport and supports the daily needs of residents and local workers.
- The development has been designed to respond to the adjoining residential properties located on the southern side of Leader Street, by providing architectural details and articulation, including upper level glazing.
- The development has been carefully designed to minimise overshadowing and overlooking amenity impacts to adjoining residential properties on the southern side of Leader Street.
- Well designed landscaping is proposed across the site, assisting in integrating the development with the streetscape. The landscape concept plan proposes planting around the perimeter of the site, with a particular emphasis on tree planting within the front site setback to visually soften the appearance of the built form and hard surface area of the car parks.
- The design of the development proposes appropriate screening of the undercroft car parking area to minimise impacts on adjoining residential properties. This includes timber screens on the building, as well as fixed landscape screens and a landscape buffer between the wall of the car parking areas and the site boundary.
- The development includes WSUD and ESD measures to appropriately contribute to the reuse and treatment of stormwater and provide for a reduction in energy consumption and the urban heat island effect.
- Vehicle access is proposed from each site frontage, with predominate access from Leader Street and Maple Avenue, while the existing vehicle crossing to Anzac Highway will be retained to allow for left-in and left-out access only.
- The general layout of the development has been designed in accordance with Concept Plan Map Un/11, including the consolidation of the site for a landmark development and the provision of appropriate vehicle links and vehicle access points.

Figure 5 – Extract of Concept Plan Map Un/11



## 5.2. APPROPRIATENESS OF THE PROPOSED BUILT FORM

The proposed development has been designed to reflect the Principles of Development Control of the Urban Corridor Zone and Transit Living Policy, ensuring an appropriate built form outcome on the site. It is noted that Kaufland stores have specific design requirements in terms of the operation and function of their supermarkets, which have sought to be replicated wherever possible. The development responds to the PDC's as detailed below and within Section 6 of this report.

Table 1 – Quantitative Provisions of the Urban Corridor Zone

	DEVELOPMENT PLAN GUIDELINE	PROPOSED
<b>MIN. BUILDING HEIGHT (PDC 12)</b>	3 storeys or no less than 11.5 metres (Anzac Hwy) or 2 storeys or no less than 8 metres (Leader St or Maple Ave)	Anzac Hwy: 2 storeys & 13.12 - 14.62 metres, Maple Ave: 14.62 metres, Leader St: 13.12 metres
<b>MAX. BUILDING HEIGHT (PDC 12)</b>	6 storeys or 22 metres	2 storeys & 14.62 metres
<b>MIN. PRIMARY ROAD SETBACK (PDC 14)</b>	3 metres from Anzac Highway	More than 3 metres from Anzac Highway
<b>MIN. SECONDARY ROAD SETBACK (PDC 15)</b>	2 metres from Leader St and Maple Ave	5 metres from Leader Street and 7.29 metre from Maple Avenue

In addition to the provisions outlined above and the amenity considerations discussed in Section 6, the development presents an appropriate design outcome as follows:

- At least 50 percent of the frontage of the development to Anzac Highway is visually permeable, including large sections of glazing at both the ground and upper level. In combination with the ground level café and upper level outdoor seating area, this promotes activation of the street frontage and maximises passive surveillance (*Transit Living Policy Area PDC 6*).
- In response to *Urban Corridor Zone PDC 6* and *Transit Living Policy Area PDC 7* the provision of some car parking within the site frontage is considered an appropriate response given the existing site conditions, with car parking provided in this location. This site layout is typical of retail developments, which require some visible and accessible car parking for passing customers. The design and layout of the car park, including the provision of landscaped areas and tree planting to provide shade and soften the appearance of the hard surface, results in an improved design outcome.
- The proposed location of the loading bay to the north east of the site, ensures loading operations will occur via Maple Avenue (*Transit Living Policy Area PDC 8*).
- No solid fencing is to be proposed around the development. Where fencing is proposed, this is to be constructed of timber battens allowing for visual permeability to improve site lines and allow for passive surveillance to Maple Avenue and Leader Street *Urban Corridor Zone PDC 9*.

### 5.2.1. Leader Street Setback

The Urban Corridor Zone specifies that development involving the following is non-complying:

*'Any development or portion thereof within 5 metres of the Leader Street road boundary that exceeds 2 storeys, or 9 metres in height above natural ground level within the Transit Living Policy Area and Business Policy Area north of Leader Street.'*

To ensure the development is not assessed as being 'non-complying', and on the basis that the proposed maximum height of the development is required to exceed 9 metres for operational reasons, the building has been setback a minimum of 5 metres from the southern site boundary adjacent to Leader Street.



## 6. EXTERNAL AMENITY CONSIDERATIONS

The site is within an area of transition, earmarked for substantial change. The light industrial and former large format retail uses on the subject site and to the north of Leader Street are set to be replaced by more intensive mixed use development, with a predominantly residential focus. The existing residences to the south of Leader Street are also identified for change, and are expected to be replaced by town houses or apartment developments over time.

The proposed large format supermarket has specific design requirements which influence the site layout and built form. The proposed development has been designed to respond to the desired character of the area, whilst also being respectful to the existing residences along Leader Street. The design has given particular consideration to the three key measures of amenity impact – visual bulk, overlooking and overshadowing.

The design response in relation to these factors is outlined below, reflecting the relevant Principles of Development Control of the General Section and the Urban Corridor Zone of the City of Unley Development Plan, while also representing a design outcome that reflects the overarching commercial nature of the development.

### 6.1. VISUAL BULK

The design response seeks to minimise visual bulk through a range of design elements, including the following:

- The provision of an outdoor seating area and ground level tenancies provides visual interest and breaks up the scale of the development when viewed from Anzac Highway (*Urban Corridor Zone PDC 7*).
- The varied construction materials across each street frontage provide articulation in the built form, which assists with reducing the perceived bulk of the development when viewed from the streetscape (*Design and Appearance PDC 1*).
- The bulk of the development when viewed from Anzac Highway is broken up through variation in light and dark elements, recessive built form elements and the provision of architectural features including a permeable timber canopy (*Design and Appearance PDC 1*).
- The raised parapet heights at the site frontage, as well as the varied roof heights provide articulation across the development, while also ensuring that roof top services are screened, allowing for only limited views from within the public realm (*Design and Appearance PDC 4*).
- Landscaping is proposed across the site, providing an attractive environment for customers, while also softening the appearance of the built form from the public realm.
- The proposed visually permeable fencing to the Leader Street frontage will provide additional visual interest and assists with reducing the mass of the development when viewed from these interfaces.

Figure 6 - Perspective of the proposed development from the western end of Leader Street



## 6.2. VISUAL PRIVACY

The development has been designed to avoid direct views to the habitable room windows and areas of secluded private open space of adjoining properties, consistent with *Design and Appearance PDC 10*. The development includes upper level windows along the southern façade, however these have been appropriately screened to ensuring no opportunity for overlooking to the residential properties situated along Leader Street.

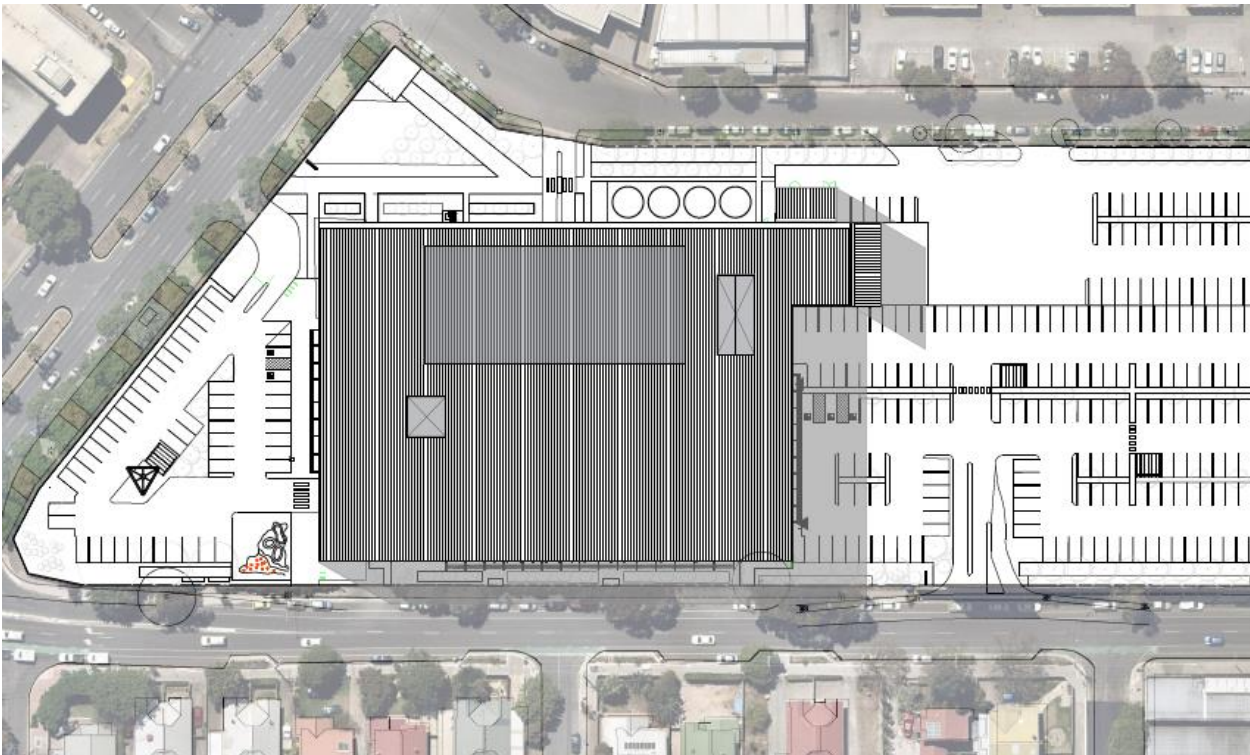
## 6.3. OVERSHADOWING

Having considered the orientation, layout and scale of the proposed building, shadows created by the development will primarily fall within the subject site and to the south within Leader Street.

Shadow diagrams for the proposed development have been prepared for at 9am, 12pm and 3pm on the September equinox and are included within the Architectural Plans. The shadow diagrams illustrate that the additional shadowing created by the proposal will not impact on the existing conditions for daylight access to the neighbouring residential properties to the south, in accordance with *Design and Appearance PDC 9*.

Similarly, the development will not impact upon the efficient solar access or open space of the properties to the south in accordance with *Energy Efficiency PDC 1 and 2*.

**Figure 7 – Proposed additional overshadowing at 3pm on the September equinox**



## 6.4. NOISE

The principal anticipated noise sources from the proposed development will be from vehicles within the car park, delivery trucks and from the fixed mechanical services plant.

The desired character statement of the Urban Corridor Zone acknowledges the mixed nature of the site's locality, and states, '*Overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques, however it is noted noise and air amenity cannot be expected to be equivalent to a purely residential area.*' (our emphasis).

The proposed development has been designed to mitigate noise emissions as best as possible, however given the nature of the development being a large scale retail development, some noise generation throughout the day is inevitable.

The siting of the loading operations for the development on Maple Avenue will minimise noise impacts associated with the development upon existing Leader Street residents.

Consistent with *Interface Between Land Uses PDC's 7 & 10*, the development and proposed noise attenuation measures proposed will ensure the relevant criteria of the *Environment Protection (Noise) Policy 2007*, will be achieved.

## 6.5. CRIME PREVENTION MEASURES

The Development Plan contains a number of provisions which seek to ensure that development provides a safe environment where the risk of crime is minimised. The proposed development has been designed to reflect *Crime Prevention PDC 1 and 2*, and provide a safe environment for future users and surrounding residents as follows:

- The proposed development is set back from Anzac Highway behind an open car park area, and will comprise an active frontage through extensive glazing, and a ground floor café. These features will provide activity within the site's frontage and casual surveillance of the customer car park at the front of the store from both Anzac Highway and within the development itself.
- The risk of vandalism and graffiti will be minimised through the use of a variety of building materials and colours, and through the opportunities for casual surveillance which have been built in to the design of the development.
- The car parking area will include lighting to Australian Standards and signage will be provided to assist with wayfinding and to highlight the entrances and pathways to and within the site.
- The proposed landscaping will maintain view-lines to entrances and exits as well as allowing clear views to areas where people may gather, this will also assist in ensuring potential entrapment spots will be avoided and provide choice for pedestrian for movement options.
- Clearly defined entrances to the building will assist shoppers to orient themselves and gain an understanding of their surroundings.
- Where proposed, the development incorporates visually permeable fencing to allow for casual surveillance and limit concealed areas.

## 6.6. APPROPRIATENESS OF PROPOSED OUTDOOR ADVERTISING SIGNAGE

The Development Plan contains a number of provisions for outdoor advertisements which seek to ensure that advertising signage is sensitively designed and is integrated with the associated building design while avoiding visual clutter.

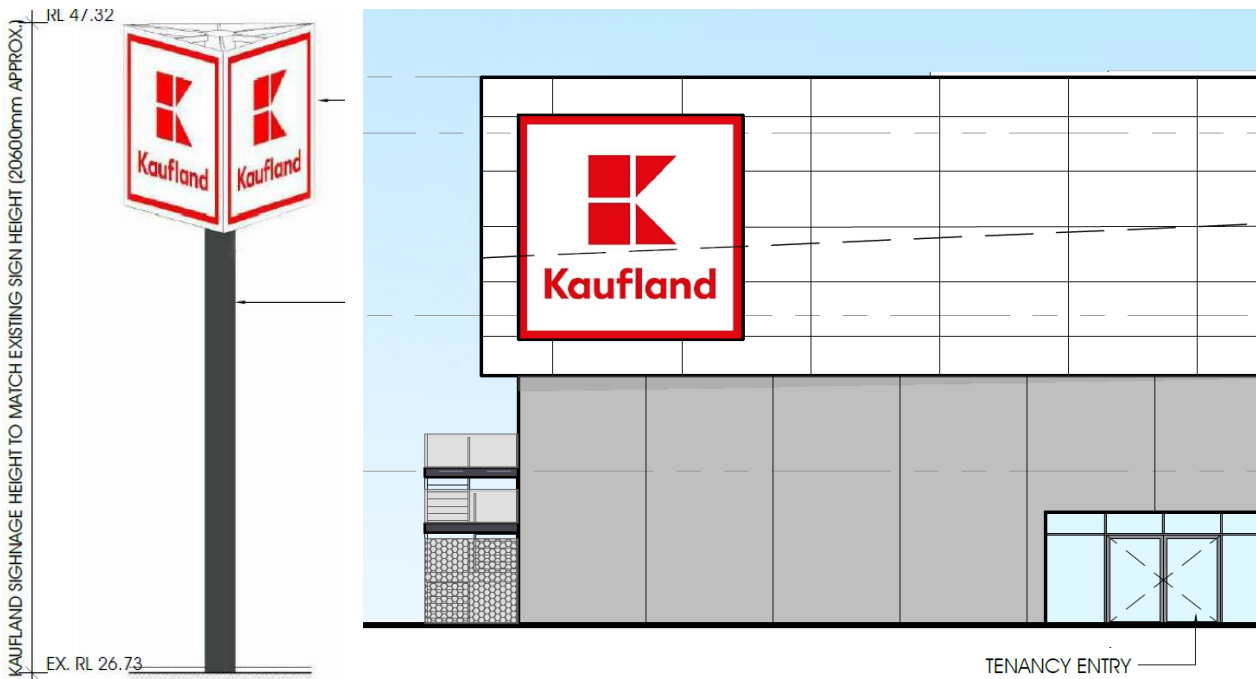
In terms of the proposal's consistency with the *Outdoor Advertisements PDC's*, it is noted that:

- The lettering and colouring of the proposed signage is consistent across the proposed development and directly aligns with the Kaufland supermarket use and Kaufland branding (*PDC 1*).
- The proposed wall mounted signs will be affixed to the building to prevent entry of birds or other pests (*PDC 4*).
- The proposed signs do not extend above the silhouette of the building, with the design ensuring that the location, siting, design, materials and shape of the proposed signs are coordinated with, and complimentary to, the architectural form and design of the proposed building (*PDC 5 & 7*).
- Advertising displays are contained within the boundaries of the subject land and have been designed and located to clearly identify the retail activity to passing traffic and clearly identify the access points into the site to facilitate safe traffic movements, without any flashing or animations (*PDC 17 & 21*).
- The illumination of the proposed advertisements will not impact on an approaching driver or create difficulty in the driver's perception of the road or persons or objects on the road due to their location and height above ground level (*PDC 19*).





Picture 14 – Existing pylon sign within the front setback and fixed wall signs fronting Anzac Highway



Picture 15 – Proposed advertising signage (replacement pylon sign and fixed wall sign western elevation)

PDC 6 relates to complying advertisement signs as outlined in Table Un/1. With regard to free-standing advertisements (pylon signs) Table Un/1 states:

- (a) Overall height of advertisements not to exceed six metres.
- (b) Only one free-standing advertisement on each site.

The proposed freestanding advertising signs are considered appropriate for the following reasons:

- Proposed Pylon Sign A will utilise the existing Le Cornu signage structure located on the site and has been designed to reflect the existing height. The replacement sign is deemed a 'like for like replacement' in terms of height and scale.
- Whilst the proposed pylon (freestanding) signs exceed the preferred overall height of 6 metres for freestanding advertisements, one of the signs is a replacement of the existing freestanding sign.
- It is considered the substantial size of the site, its location on an arterial road, and the scale and nature of the proposed development supports the scale and quantum of the signage proposed. It is considered that the signage will not detrimentally impact of the appearance of the surrounding area and are considered an appropriate response in the Urban Corridor Zone.
- While there will be two pylon (freestanding) signs, they will be appropriately separated across the front car parking area and will provide an important directional role for customers to identify the site. Given the

size of the site and the scale of development, the provision of two pylon signs is considered an appropriate outcome.

- The proposed sign to be horizontally mounted onto the roof top will not be visible from the public realm, or neighbouring properties. It will only be visible from the air, for passing aeroplanes. The proposed rooftop sign is a creative way to brand the site and to raise awareness of Kaufland's entry into Australia. It is considered that the sign will not will not impact upon the public realm, or the amenity of the area, and is appropriate.

**Figure 8 - Perspective of the proposed signage viewed from Anzac Highway**



# 7. BUILDING SERVICES AND PERFORMANCE

## 7.1. PARKING, TRAFFIC AND ACCESS

The Development Plan contains numerous provisions which seek to ensure that traffic can move efficiently and safely while also ensuring that an appropriate amount of car parking is provided to meet the demands generated by the development.

A detailed assessment of the proposed traffic, parking and access arrangements of the proposed development are provided within the Traffic Impact Assessment Report and Pedestrian Flow Plan prepared by WGA. The analysis presented in the report concludes that the traffic generation and parking requirements associated with the proposed development can be satisfactorily accommodated by the proposal.

The proposed development is in accordance with the relevant Council Wide and Urban Corridor specific PDC's as detailed below:

- Parking provision and disabled parking provisions exceeds Development Plan requirements (*Transportation PDC 19 & Urban Corridor Zone PDC 20*).
- The proposed solution for the signalised Anzac Highway/Leader Street has sufficient capacity to accommodate the anticipated trip generation based on existing traffic volumes (*Transportation PDC 4*).
- The development does not propose to increase the number of access points to Anzac or alter the function of the existing function of the existing access point, limiting traffic hazards and the function of the surrounding road network (*Transportation PDC 4*).
- Access for delivery and service vehicles to the proposed development will be via Maple Avenue and is anticipated to have a minimal impact on surrounding road networks. (*Transportation PDC 16 & Transit Living Policy Area PDC 8*).
- The provision of some car parking within the site frontage is considered an appropriate response given the existing site conditions, with car parking provided in this location. The design and layout of the car park, including the provision of landscaped areas and tree planting to provide shade and soften the appearance of the hard surface, results in an improved design outcome (*Urban Corridor Zone PDC 6 & Transit Living Policy Area PDC 7*).

## 7.2. WASTE MANAGEMENT

The development proposes waste be stored in two separate locations, with one area servicing the Ancillary Tenancies located adjacent to Tenancy 1 and the other within the loading area capturing the waste produced by the Supermarket operations.

Waste collection is to be conducted by a commercial waste collector. Collection is to take place from the loading area, with trucks entering the premises in a forward direction from Maple Avenue. Collection would take place direct from the designated waste area.

The proposed waste outcome is consistent Council Wide PDC's for Waste as follows:

- The development has been designed to minimise the generation of waste through the inclusion of efficient recycling measures, with the development estimated to generate more than 30,000 litres of co-mingled recycling, organics (food) recycling and cardboard recycling per week (*PDC 1*).
- Waste will be stored within designated waste storage areas within the development and once full will be transferred to collection areas on the Ground Level loading dock area. This will ensure that waste is separated from adjoining areas, limiting odour within the development as well as limiting any detrimental impact on the surrounding area (*PDC 6*).
- The waste storage areas proposed by the development are of an appropriate size to allow for the efficient recycling of waste. This includes the likely installation of an organics compactor to manage supermarket organics waste, facilitating efficiency onsite, reducing daily traffic movements and achieving best practice waste management (*PDC 5*).



## 7.3. LANDSCAPING

A Landscape Plan has been prepared by Formium and highlights the proposed landscaping throughout the site.

The proposed landscaping design is consistent with Council Wide *PDC*'s for Landscaping as follows:

- The proposed landscaping scheme has been carefully designed to complement the scale of the site and the proposed built form. This is achieved through the retention of existing established trees around the site's perimeter and the provision of a range of additional trees, particularly within the side setbacks, which will reach varying heights at maturity (*PDC 1*).
- The landscaping proposed within the front setback includes defined spaces including seating areas and a playground, which provide gathering spaces for customers, while also defining edges between the areas for pedestrian movement and the car parking area (*PDC 1*).
- Particular emphasis has been placed on providing a landscaped setback/buffer along the Leader Street frontage to provide screening to the ground level car parking area and improve the amenity of the adjoining residential interface (*PDC 1*).
- The provision of landscaping throughout the car parking areas softens the appearance of the hard surfaces and ensures that passive surveillance to and from the site remains unrestricted (*PDC 1 & 2*).

Figure 9 – Overview of proposed landscaping concept

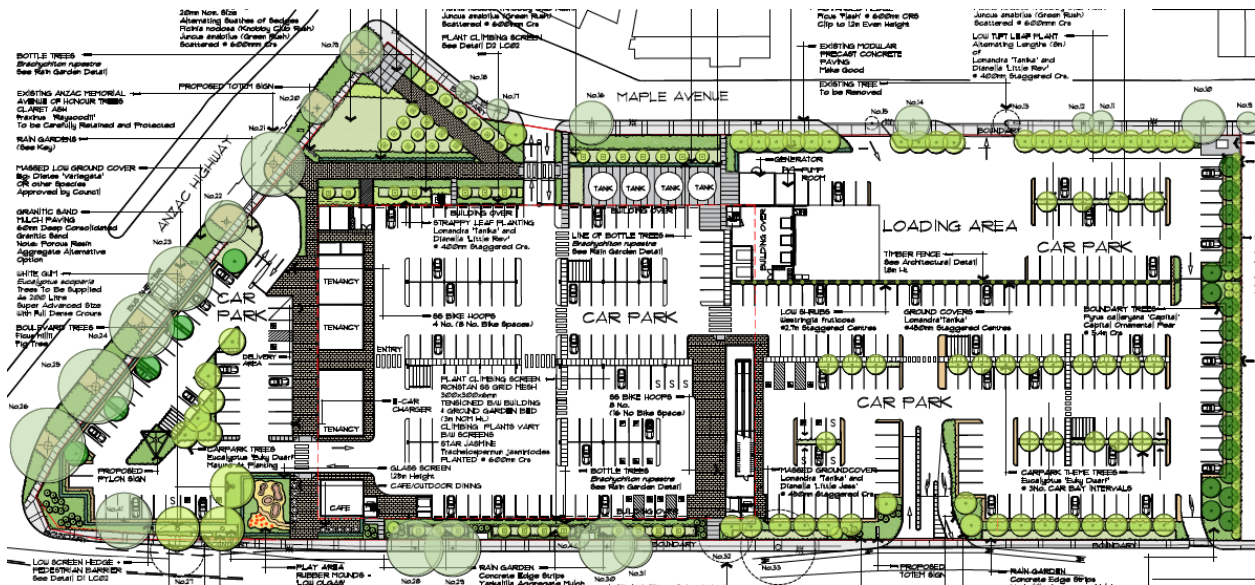


Figure 10 – Landscaping concept viewed from Leader Street





## 7.4. ENVIRONMENTALLY SUSTAINABLE DESIGN & STORMWATER MANAGEMENT

The proposed development has been designed to incorporate energy efficient and water management initiatives in accordance with the relevant Council wide PDC's as outlined below:

- The development incorporates the provision of PV solar panels across the building's rooftop to provide for on-site energy generation. The panels are located toward the northern section of the building's rooftop to ensure maximum exposure to direct sunlight (*Energy Efficiency PDC 3*).
- The building has been designed and sited to ensure that the main activity area at the frontage of the building is provided with adequate daylight access throughout the year (*Energy Efficiency PDC 2*).
- The development includes the provision of rainwater collection tanks for the capture and re-use of stormwater on the site and manage stormwater flows during peak flooding events (*Natural Resources PDC 7 & 11*).
- The development incorporates integrated bios wales, tree pits and raingardens across the hard surfaces areas, including the front and rear car parking areas, to provide for appropriate water capture and re-use, while also ensuring that water flows from the site are appropriately filtered to minimise pollutant transport to the stormwater system (*Natural Resources PDC 7, 8, & 11*).

Figure 11 – Examples of proposed kerb inlet swales and raingardens



A Stormwater Management Plan has been prepared by WGA and highlights the locations of water flows and catchment on the site. The development includes three rainwater tanks for rainwater reuse, as well as two onsite detention tanks with for slow release of stormwater to the bio swales/raingardens.

## 8. CONCLUSION

The proposed development will deliver an exciting new format of supermarket shopping to the residents of Adelaide. The proposal at No.10 Anzac Highway, Forestville represents a considered design response for a strategic main road site, as expressed in the enclosed documentation. The proposed development is aligned with state and local planning policy and is worthy of support noting:

- The proposal will reinstate an underutilised and currently vacant strategic site, and deliver a quality retail development generating new employment opportunities and essential goods and services to local residents.
- The proposal will facilitate the regeneration of the site and broader precinct to a vibrant mixed use area, as desired by the objectives of the Urban Corridor Zone.
- The proposed retail development will not compromise the ability for the balance of the site to be developed for residential purposes in the future, and for an overall mixed use outcome to be achieved for the site.
- The proposed design responds to the existing and desired character of the area, through a substantial setback to the sensitive residential interface along Leader Street; variations in building scale across the site; the use of a variety of quality materials and finishes, and landscaping along site boundaries and within car parking areas.
- The proposed development seeks to minimise offsite amenity impacts for existing residents through the siting of loading operations on Maple Avenue, away from Leader Street; the provision of an appropriate supply of on-site car parking; and a scale of development that will not cause any overshadowing or overlooking impacts upon existing residents.

For the above mentioned reasons, it is respectfully submitted that the proposal is worthy of planning support.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.



# **APPENDIX A      PLANNING POLICY AND CONTROLS**

# CITY OF UNLEY DEVELOPMENT PLAN

## COUNCIL WIDE

### Centres and Shops

#### OBJECTIVES

- Objective 1:** Shopping, administrative, cultural, community, entertainment, educational, religious, and recreational, facilities located in integrated centres which are distributed rationally.
- Objective 2:** Centres established and developed in accordance with a hierarchy based on function, so that each type of centre provides a proportion of the total requirement of goods and services commensurate with its role.
- Objective 3:** A hierarchy of centres located in centre zones or areas.

The grouping of a wide range of facilities in integrated centres will benefit the community by encouraging economic, and shared, use of facilities, providing a meeting place for communities, and encouraging ready access by both public and private transport. The hierarchy of centres is based on the principle that each type of centre provides a proportion of the total community requirement for goods and services commensurate with its role.

Centres within the area of metropolitan Adelaide are of the following type:

- (a) The Central Business Area of the City of Adelaide;
- (b) Regional Centre;
- (c) District Centre;
- (d) Neighbourhood Centre; and
- (e) Local Centre.

The degree to which the various facilities can be located within a centre will depend, among other things, upon the size of the centre, the specific policies relating to the centre, the implications of competing centres for the population being served, and the characteristics of the population to be served. Each development proposal for a centre should be evaluated against that centre's and other centres', defined roles in the centre hierarchy.

New development in centres should result in the expansion of the total range of retail goods and services available to the population to be served, have regard to the location and role of other existing and proposed centre zones, and be of a size and type which would not demonstrably lead to the physical deterioration of any existing centre zone or designated shopping area.

The identification of each zone in a hierarchy of centres should be such as to:

- (a) cater for the existing and future population's shopping and community needs;
- (b) provide a degree of choice in the location of centre facilities;
- (c) be safely and readily accessible to the population to be served, particularly by public transport, and obviate the need for unscheduled large-scale traffic and transport works;
- (d) have minimal adverse impact on residential areas;
- (e) concentrate development on one side of an arterial road, or one quadrant of an arterial road, intersection and have minimal adverse impact on traffic movement on arterial roads. Linear extension of centre zones or areas along arterial, roads is to be minimised;
- (f) reflect the potential to rehabilitate or extend centre zones or areas, and make effective use of existing investment in public infrastructure, utilities and transport, any costs involved being offset by benefits to the population being served;

- (g) be of a size and shape suitable for their functions, and provide car parking facilities:
- (h) have regard to the maintenance of retail employment levels in the area; and
- (i) have regard to the degree to which existing centres satisfy the above objectives.

The development of new centres may be staged, and specific areas may be set aside for community and other non-retail uses, with the total integrated development producing a character desired for that particular centre.

**Objective 4:** The central business area to provide the principal focus for the economic, social and political life of metropolitan Adelaide, and the State.

The central business area is located in the City of Adelaide.

**Objective 5:** Regional centres to function as the main centres outside the central business area for a full range of shopping, administrative, cultural, community, entertainment, education, religious and recreational facilities, as public transport interchanges and focus of public transport networks and public and private office development.

Regional centres are shown in the Development Plans for the relevant council areas, at Elizabeth, Modbury, Marion, Noarlunga and Port Adelaide.

In some instances the distribution of existing shopping development will be such that some centres, which provide a full range of other regional facilities, will be unable to develop the full range of shopping facilities envisaged for a regional centre.

**Objective 6:** District centres served by public transport and including shopping facilities that provide mainly 'convenience' goods and a sufficient range of 'comparison' goods to serve the major weekly shopping trips, as well as a comparable range of other community facilities.

The size of a district centre and the range of facilities within it, may vary throughout the area of metropolitan Adelaide but should be related to the size and characteristics of the population it serves. The largest district centres should serve a population in the order of 60 000 people.

The following list indicates those facilities which are appropriate in a fully developed district centre:

Ambulance Station Bank	Primary School Restaurant
Child Minding/Child Care Centre	Secondary School Service
Church	Station Special School
Cinema Civic	Specialty Shop Supermarket
Centre	Swimming Pool
Club/Meeting Hall Commercial Development	Community Health Centre
Library	Consulting Room
Offices (general, professional, governmental)	Day Care Centre
Park	Discount Department Store
Personal Service Establishments	Further Education
Playing Field	Hospital Hotel/Tavern
Police Station	Indoor Recreation Centre
Pre-school	

**Objective 7:** Neighbourhood centres to include shopping facilities that provide mainly 'convenience' goods to serve the day-to-day needs of the neighbourhood, and a limited range of more frequently required 'comparison' goods as well as a narrow range of facilities. There are not likely to be administrative facilities in neighbourhood centres.

The size of a neighbourhood centre and the range of facilities within it may vary within the area of metropolitan Adelaide but it should be related to the size and characteristics of the population it serves. The



largest neighbourhood centres should serve a population in the order of 10 000 people.

The following list indicates those facilities which are appropriate in a fully developed neighbourhood centre:

Bank	Park
Branch Library	Personal Service Establishment
Child Minding/Child Care Centre	Playing Field
Church	Pre-school Primary
Club/Meeting Hall	School Restaurant
Commercial Development	Service Station
Community Welfare Local Office	Specialty Shop
Consulting Room	Squash Court
Local Health Centre	Supermarket
Office (to serve nearby residents)	

**Objective 8:** Local centres to include shopping and local community facilities to serve day-to-day needs of the local community.

Local centres on arterial roads should comply with the same criteria as those for other local centres.

**Objective 9:** Retail showroom development should only be allowed outside of designated centres if it can be clearly demonstrated that it could be undesirable or impractical to locate them in the vicinity of designated centres.

Retail showrooms, trading in furniture, floor coverings, household appliances and other similar articles of bulky merchandise, require expensive indoor areas for the display of products and exhibit a lower parking demand than convenience shops. Retail showrooms complement the overall provision of facilities in centres and should be located on the periphery of those centres.

In inner areas, the designation of service retail zones for retail showroom development may be appropriate in the event that a centre location cannot be achieved. Such a zone should not be created in a linear fashion along arterial roads.

**Objective 10:** Retailing not consistent with facilities envisaged in a centre located and operated so as not to adversely affect any designated centre, commercial, business or residential, zones, or areas, and traffic movements on local, primary, and primary arterial roads.

The diversification of locations for retailing providing goods and services not compatible with the grouping of facilities envisaged for regional, district, and neighbourhood, centres may be considered so long as the integrity of the centre hierarchy is not compromised and the development is compatible with land uses in the locality.

Retail development of this kind should be evaluated having regard to:

- (a) its locational and operational compatibility with existing shopping, business, commercial zones, or areas, including the nature of the goods and materials to be stocked, and the noise levels of vehicles and plant used on, and servicing, the site;
- (b) its effect on adjacent residential development;
- (c) the increased use of local and arterial roads;
- (d) the adequacy of vehicular access and car parking; and
- (e) the maintenance of building and site development standards required for centres.

## PRINCIPLES OF DEVELOPMENT CONTROL

### General

- 1 Development or redevelopment within centre and mixed use zones, or areas, should meet the following criteria:
  - (a) Their location and assigned role in the centre hierarchy of designated centres and designated centre zones, or areas.
  - (b) The need to integrate facilities in the zone, or area.
  - (c) Staging of development within the centre and the needs for any future expansion of the zone, or area, as a whole.
  - (d) Multiple use of facilities and sharing of utility spaces.
  - (e) Attractive development, with a unified design of buildings and produce a close relationship between shops in a lively setting.
  - (f) Materials compatible with the natural features of the site and adjacent buildings.
  - (g) Acceptable micro-climatic conditions and degree of exposure in designing and orienting buildings, and locating open space and car parking areas.
  - (h) Development and operation of facilities within a zone, or area, compatible with adjoining areas. This should be promoted through landscaping, screen walls, centre orientation, location of access ways, buffer strips and transitional use areas.
  - (i) Signs designed in scale with the amenity of the area, and carefully located. Illumination from signs or floodlights should not spill over to adjacent areas.
  - (j) Access and car parking for residential areas located within centres separate from the access and car parking areas serving the other centre facilities.
  - (k) Integration of public transport requirements.
  - (l) Provision of retail showrooms for the trading of bulky goods on the periphery of centres, or in designated service retail zones in inner areas.
- 2 Centres should have minimal adverse impacts on residential areas.
- 3 Centres should be so located as to make effective use of existing investment in public infrastructure, utilities, transport and other facilities, and any costs involved should be off-set by benefits to the population being served.
- 4 Centres should be located consistent with policies pertaining to adjoining council areas.
- 5 The development of centres should not result in the physical deterioration of any designated centre.

### Location and Design

- 6 Shopping development should be located as follows:
  - (a) A shop or group of shops with a total floor area of greater than 250 square metres should be located in a centre or mixed use zone, or area.
  - (b) A shop or group of shops with a gross leasable floor area of 250 square metres or less should not be located on an arterial road as shown on [Map Un/1 \(Overlay 1\)](#) unless located in a centre or mixed use zone, or area.

- (c) A shop or group of shops with a gross leasable floor area of 250 square metres or less located outside a centre or mixed use zone, or area should not hinder the development or function of any centre or mixed use zone, or area, and should conform with the design, access, car parking and design principles for centre or mixed use zones or areas set out in principle of development control numbered 11 below.

7 The total floor area of shops in a Local Centre Zone should not exceed 450 square metres.

8 Development within centre zones should conform with the following design and location principles:

- (a) Development should provide for the integration of existing and future facilities so as to promote ease of pedestrian movement and sharing of facilities as well as to retain the opportunity for future expansion within the zone.
- (b) Within zones which straddle arterial roads or intersections of arterial roads, the major shopping focus, defined by the total floor area and associated car parking, should be restricted to one side of the road or one quadrant of the intersection.
- (c) Development should not:
  - (i) generate pedestrian or vehicular traffic onto or across an arterial road in such a way as to materially impair the movement of traffic on that road or to cause safety hazards; and
  - (ii) involve utilization of land, including car parking and landscaping, which is required for road widening.
- (d) Development within centre zones should avoid significant vertical separation between the public footway and ground floor level, or separation of the public footway and ground floor level by voids to undercroft parking areas.
- (e) Where necessary, development should:
  - (i) provide access and facilities for the disabled and parking in accordance with principles of development control numbered 24 and 25 under the heading Transport (Movement of People and Goods);
  - (ii) minimise energy consumption for lighting, heating, cooling and ventilation;
  - (iii) provide public spaces such as malls, plazas and courtyards;
  - (iv) provide public facilities including toilets, infant changing facilities for parents, seating, telephones and community information boards;
  - (v) provide access for public transport and sheltered waiting areas for passengers;
  - (vi) provide lighting for buildings and ancillary areas, with no light spill causing nuisance or hazard;
  - (vii) provide facilities for the parking and securing of bicycles; and
  - (viii) provide facilities for the storage and collection of shopping trolleys.
- (f) Landscaping should be provided and maintained in order to:
  - (i) establish a buffer between development in the zone and adjacent areas;
  - (ii) complement the landscaping provided by adjacent development and enhance the visual appearance and character of the zone;
  - (iii) shade, define and create windbreaks for pedestrian paths and spaces; and
  - (iv) screen service yards, loading areas and outdoor storage areas.

- 9 Centres should develop on one side of an arterial road, or one quadrant of an arterial road intersection. Where centre facilities, already straddle an arterial road, or the intersection of two arterial roads, development within them should:
  - (a) concentrate on one side of the arterial, road or one quadrant of the arterial road intersection; and
  - (b) minimise the need for pedestrian and vehicular movement across the arterial road, from one part of the centre to another.
- 10 Centre type development located outside centre zones should of a size and type which would not hinder the development or function of any centre zone, in accordance with the objectives for centres and shops and the objectives for the appropriate zones and should conform with the access, car parking and design principles for centre zones set out below.
- 11 Shopping development which is more appropriately located outside business, centre or shopping, zones, or areas, should:
  - (a) be of a size and type which would not hinder the development or function of any business, centre, or shopping, zone or area, in accordance with the objectives and principles of development control for centres and shops, and the objectives and principles of development control for the appropriate zones, or areas;
  - (b) conform to the criteria above, and the design, access, and car parking requirements for business, centre, and shopping, zones, or areas, set out in other principles of development control;
  - (c) result in the expansion of the total range of retail goods and services presently available to the community;
  - (d) result in a maintenance of retail employment in the area; and
  - (e) not demonstrably lead to the physical deterioration of any designated centre.
- 12 The location and design of centres and shopping development should ensure that all sources of noise, including refrigeration and air conditioning equipment, garbage collection and car parking, do not cause excessive or disturbing noise at neighbouring properties.

### **Transport, Access and Parking**

- 13 Centres should be highly accessible to the population to be served, especially by public transport, where that applies.
- 14 Centres should have a minimal adverse impact on traffic movements on arterial roads.
- 15 Access points for the development should be determined by Transport SA in consultation with the Planning Authority.
- 16 Development in the form of retail showrooms trading in bulky goods merchandise, should provide adequate manoeuvring and circulation areas in order to accommodate truck and trailer movements.
- 17 Centre type development should make adequate provision on the site to enable the loading, unloading and manoeuvring of vehicles without the necessity to use public roads, and in a manner which results in minimal conflict between service vehicles and customer vehicles, pedestrians and cyclists.
- 18 Provision for the movement of people and goods within business, centre, and shopping zones, or areas, should comply with the following:
  - (a) Development should not cause inconvenient and unsafe traffic and pedestrian movements or be likely to result in the need for significant expenditure on transport and traffic works, or facilities within, or outside, the locality.

- (b) Development should be concentrated for pedestrian convenience and not allowed to extend unnecessarily along road frontages; (increasing the depth of development is a more desirable alternative).
- (c) The separation of pedestrian and vehicle movements within zones or areas, is most desirable to ensure safety and convenience.
- (d) Access to car parking areas should be designed not to cause congestion or detract from the safety of traffic on abutting roads.
- (e) Adequate and convenient provision should be made for service vehicles and the storage and removal of waste goods and materials.
- (f) Parking areas should be consolidated and co-ordinated into convenient groups, rather than located individually, and the access points minimised.
- (g) Car parks should be orientated so as to facilitate direct and convenient access of pedestrians between them and the facilities they serve.
- (h) On-site parking shall be determined having regard to:
  - (i) the amount, type and timing of movement generated by the use;
  - (ii) the design, location and configuration of parking spaces;
  - (iii) the ability of the site to accommodate the parking spaces;
  - (iv) the potential for shared use of parking spaces;
  - (v) the effect on surrounding activities;
  - (vi) specific in requests of cyclists; and
  - (vii) the availability of appropriate on-street parking.

(Also see Principles 21 and 22 under the heading Transport (Movement of People and Goods) and [Table Un/5](#) for Off Street Vehicle Parking Requirements).

## **Crime Prevention**

### **OBJECTIVES**

Objective 1: A safe, secure, crime resistant environment where land uses are integrated and designed to facilitate community surveillance.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Development should promote the personal safety of people by:
  - (a) enabling them to be seen, to see and to interpret their surrounds, through:
    - (i) adequate lighting;clear sightlines;
    - (ii) the elimination of entrapment spots;
    - (iii) the design of buildings to overlook public space;
    - (iv) the mixing of activities which facilitate more constant public use;
    - (v) appropriate use and design of landscaping and fencing;

- (b) enabling them to leave an area or seek assistance when in danger, through legible design and comprehensive signage.
- 2 Development should promote the security of property by:
- (a) clearly defining ownership and legitimate use of private, public and community space
  - (b) minimising access between roofs, balconies and windows of adjacent buildings;
  - (c) avoiding the use of materials which are likely to be susceptible to damage and vandalism;
  - (d) avoiding landscaping and fencing which may present a security risk by providing concealment opportunities;
  - (e) screen planting and use of prickly plant species in areas susceptible to vandalism.

## **Design and Appearance**

### **OBJECTIVES**

- Objective 1:** Development of a high design standard and appearance that responds to and reinforces positive aspects of the local environment and built form.
- Objective 2:** Roads, open spaces, paths, buildings and land uses laid out and linked so that they are easy to understand and navigate.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Buildings should reflect the desired character of the locality while incorporating contemporary designs that have regard to the following:
- (a) building height, mass, proportion and siting;
  - (b) external materials, patterns, colours and decorative elements;
  - (c) roof form and pitch;
  - (d) façade articulation and detailing;
  - (e) verandahs, eaves, parapets and window screens.
- 2 Where a building is sited on or close to a side or rear boundary, the boundary wall should minimise:
- (a) the visual impact of the building as viewed from adjoining properties;
  - (b) overshadowing of adjoining properties and allow adequate sunlight access to neighbouring buildings.
  - (c) The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare to neighbouring properties, drivers or cyclists.
- 3 Structures located on the roofs of buildings to house plant and equipment should be screened from view to the street and adjacent building viewing points (existing or envisaged) and should form an integral part of the building and roof top design in relation to creating an attractive appearance, external finishes and colours.
- 4 Balconies should:
- (a) be integrated with the overall form and detail of the building;



- (b) include balustrade detailing that enables line of sight to the street;
  - (c) be recessed where wind would otherwise make the space unusable;
  - (d) be self-draining and plumbed to minimise runoff.
- 5 Transportable buildings and buildings which are elevated on stumps, posts, piers, columns or the like, should have their suspended footings enclosed around the perimeter of the building, and the use of verandahs, pergolas and other suitable architectural detailing to give the appearance of a permanent structure.

### **Overshadowing**

- 6 The design and location of buildings should enable direct winter sunlight into adjacent dwellings and private open space and minimise the overshadowing of:
- (a) windows of habitable rooms;
  - (b) upper-level private balconies that provide the primary open space area for a dwelling;
  - (c) solar collectors (such as solar hot water systems and photovoltaic cells).

### **Visual Privacy**

- 7 Development should minimise direct overlooking of the habitable rooms and private open spaces of dwellings through measures such as:
- (a) appropriate site layout and building orientation;
  - (b) off-setting the location of balconies and windows of habitable rooms with those of other buildings so that views are oblique rather than direct to avoid direct line of sight;
  - (c) building setbacks from boundaries (including building boundary to boundary where appropriate) that interrupt views or that provide a spatial separation between balconies or windows of habitable rooms;
  - (d) screening devices (including fencing, obscure glazing, screens, external ventilation blinds, window hoods and shutters) that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity.
- 8 Permanently fixed external screening devices should be designed and coloured to complement the associated building's external materials and finishes

### **Relationship to the Street and Public Realm**

- 9 Buildings (other than ancillary buildings, group dwellings or buildings on allotments with a battle axe configuration) should be designed so that the main façade faces the primary street frontage of the land on which they are situated.
- 10 Buildings, landscaping, paving and signage should have a coordinated appearance that maintains and enhances the visual attractiveness of the locality.
- 11 Buildings should be designed and sited to avoid extensive areas of uninterrupted walling facing areas exposed to public view.
- 12 Building design should emphasise pedestrian entry points to provide perceptible and direct access from public street frontages and vehicle parking areas.
- 13 In mixed use and medium and high density residential areas, development facing the street should be designed to provide interesting and pedestrian friendly street frontages by:
- (a) including features such as frequent doors and display windows, retail shopfronts and/or outdoor

eating or dining areas;

- (b) minimising the frontage for fire escapes, service doors, plant and equipment hatches;
- (c) avoiding undercroft, semi-basement or ground floor vehicle parking that is visible from the primary street frontage;
- (d) using colour, vertical and horizontal elements, roof overhangs and other design techniques to provide visual interest and reduce massing; and
- (e) including awnings, eaves, verandahs or similar, to the street where setbacks and ground floor uses allow.

14 Where zero or minor setbacks are desirable, development should incorporate shelter over footpaths to enhance the quality of the pedestrian environment.

### **Outdoor Storage and Service Areas**

15 Outdoor storage, loading and service areas should be:

- (a) screened from public view by a combination of built form, solid fencing and/or landscaping;
- (b) conveniently located and designed to enable the manoeuvring of service and delivery vehicles;
- (c) sited away from sensitive land uses.

### **Building Setbacks from Road Boundaries**

16 Except in areas where a new character is desired, the setback of buildings from public roads should:

- (a) be similar to, or compatible with, setbacks of buildings on adjoining land and other buildings in the locality;
- (b) contribute positively to the function, appearance and/or desired character of the locality.

17 Except where specified in a particular zone, policy area or precinct, buildings and structures should be set back from road boundaries having regard to the requirements set out in [Table Un/2](#)

Except where specified in a particular zone, policy area or precinct, the main face of a building should be set back from the primary road frontage in accordance with the following table:

- 18 Except in areas where a new character is desired or where specified in a zone, policy area or precinct, the setback of development from a secondary street frontage should reflect the setbacks of the adjoining buildings and other buildings in the locality.
- 19 All setbacks from the road frontage should be additional to the road widening setback established under the *Metropolitan Adelaide Road Widening Plan Act 1972*.

## **Energy Efficiency**

### **OBJECTIVES**

**Objective 1:** Development designed and sited to conserve energy.

**Objective 2:** Development that provides for on-site power generation including photovoltaic cells and wind power.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

1 Development should provide for efficient solar access to buildings and open space all year around.

2 Buildings should be sited and designed:

- (a) to ensure adequate natural light and winter sunlight is available to the main activity areas of adjacent buildings;
- (b) so that open spaces associated with the main activity areas face north for exposure to winter sun;
- (c) to allow for cross ventilation and natural cooling of buildings and zoning of building layouts to enable main living room areas to be separately heated and cooled;
- (d) to incorporate roof top gardens and green 'living' walls, particularly for multi-storey and large developments, to reduce the 'urban heat island effect';
- (e) to use energy efficient building materials or the re-use of existing materials (embodied energy).

### On-site Energy Generation

3 Development should facilitate the efficient use of photovoltaic cells and solar hot water systems by:

- (a) taking into account overshadowing from neighbouring buildings;
- (b) designing roof orientation and pitches to maximise exposure to direct sunlight.

4 Public infrastructure and lighting, should be designed to generate and use renewable energy.

## Form of Development

### OBJECTIVES

**Objective 1:** Orderly and economic development.

**Objective 2:** The development of Adelaide as an international and national centre for cooperative research and innovation in science, technology, environmental management, education and the arts.

**Objective 3:** The establishment of urban development which provides models in the conservation and management of resources and the natural environment and the enhancement of natural site features, in urban planning and the provision of physical and social infrastructure.

A concept that encapsulates the vision of Adelaide as an international city where a wide variety of social and economic activities can occur and which provides models, through research, innovation and the application of technology, in the conservation and management of resources, the natural environment, urban planning community development and the provision of physical and social infrastructure.

The Adelaide economy built on research, education and advanced industries, serviced by advanced infrastructure and be export oriented. The principal industries identified for Adelaide are education, information technology and environmental management. Other important industries are media, leisure, tourism and health.

**Objective 4:** A proper distribution and segregation of living, working and recreational activities by the allocation of suitable areas of land for those purposes.

In the 21st Century Adelaide's growth will be accommodated through higher densities within the present urban area and development within the Willunga Basin and northern Adelaide Plains. The future form and nature of the existing metropolitan area will be influenced by meeting housing choice in the metropolitan area. Current and anticipated demographic trends in the metropolitan area indicate population growth but a changing population structure, with falling dwelling occupancy rates and declining population in many areas, particularly in the inner and middle suburbs, will necessitate increasing dwelling density to maintain population levels.

While taking these trends into account, there are social, environmental and economic benefits to be gained from higher residential densities within the metropolitan area and in turn this Plan promotes and seeks to implement a policy of housing choice.

It is an essential element in the future development of Adelaide, to address concerns about increased housing demand, efficient use of urban infrastructure and population change. This can be achieved by increasing the number of dwellings that can be accommodated within the existing boundary of the metropolitan area, and arresting and perhaps reversing the decline in population which has been evident in many parts of the metropolitan area. While these aims are applicable across the metropolitan area, implementation must recognise the particular requirements of residential character and amenity, environmentally sensitive areas, water catchment areas, and other land which is subject to specific hazard or constraint.

**Objective 5:** Maintenance of the long-term operational, safety and commercial aviation requirements of the Adelaide International Airport and Parafield Airport.

**Objective 6:** Adequate public parks and recreation areas conveniently located.

Open spaces are needed in a city for outdoor recreation, and all age groups must be catered for. The size of the open spaces must be adequate, and they must be located conveniently for the people who use them.

**Objective 7:** The City of Unley will be a City that offers its citizens the best of living and working environments.

In the next decade, the City of Unley will be recognised for community spirit, desirable character, and business success in a sustainable and safe environment.

New people and investment growth will bring vibrancy to the City's tapestry of local communities supporting their environment and each other. Unley will be recognised for its social and economic innovations. Citizens will be proud of their environment, their successes and their strength of community well being.

Development will primarily occur on individual sites as compatible, complementary and reinforcing elements within the existing desirable form and character of localities and the City.

## PRINCIPLES OF DEVELOPMENT CONTROL

### General

- 1 Development should be in accordance with the Unley Plan, [Map Un/1 \(Overlay 1\)](#) primarily by:
  - (a) concentrating comprehensive redevelopment and renewal for more intensive mixed activity and housing development along major transport corridors and within/adjacent to key centres and activity hubs;
  - (b) replacing existing buildings and land uses not contributing to a locality's character within areas of historic and valued streetscape character where revitalisation is warranted;
  - (c) restoring and conserving valued buildings and streetscape character, including the visual rhythms and patterns created by physical elements in a streetscape including the valued buildings, site proportions, building curtilage, fencing, mature trees and private gardens.
- 2 Development should be orderly and economic.
- 3 New housing and other urban development should create a safe, convenient and pleasant environment in which to live.
- 4 No development other than residential development and advertisements, should be erected, added to or altered on any land so that any portion of it is constructed nearer to the existing boundary of a road, or to the boundary of any land shown as being required for road widening on the plan deposited under the provisions of the *Metropolitan Adelaide Road Widening Plan Act*, than the distance prescribed for each road or portion thereof in Column 3 of [Table Un/2](#).
- 5 Landfill facilities should not be located in existing or future urban, township, living, residential, commercial, centre, office, business, industry or institutional zones, or environment protection, conservation, landscape, open space or similar zones, or in a Water Protection Area.

## Interface Between Land Uses

## OBJECTIVES

- Objective 1:** Development located and designed to minimise adverse impact and conflict between land uses.
- Objective 2:** Protect community health and amenity from adverse impacts of development.
- Objective 3:** Protect desired land uses from the encroachment of incompatible development.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:
  - (a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants
  - (b) noise
  - (c) vibration
  - (d) electrical interference
  - (e) light spill
  - (f) glare
  - (g) hours of operation
  - (h) traffic impacts.
- 2 Development should be sited and designed to minimise negative impacts on existing and potential future land uses desired in the locality.
- 3 Development adjacent to a Residential Zone should be designed to minimise overlooking and overshadowing of adjacent dwellings and private open space.
- 4 Residential development adjacent to non-residential zones and land uses should be located, designed and/or sited to protect residents from potential adverse impacts from non-residential activities.
- 5 Sensitive uses likely to conflict with the continuation of lawfully existing developments and land uses desired for the zone should be designed to minimise negative impacts.
- 6 Non-residential development on land abutting a residential zone should be designed to minimise noise impacts to achieve adequate levels of compatibility between existing and proposed uses.

## Noise Generating Activities

- 7 Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant *Environment Protection (Noise) Policy* criteria when assessed at the nearest existing noise sensitive premises.
- 8 Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.
- 9 Outdoor areas (such as beer gardens or dining areas) associated with licensed premises should be designed or sited to minimise adverse noise impacts on adjacent existing or future noise sensitive development.

- 10 Development proposing music should include noise attenuation measures that achieve the following desired noise levels:

Noise level assessment location	Desired noise level
Adjacent existing <i>noise sensitive development</i> property boundary	Less than 8 dB above the level of background noise ( $L_{90,15min}$ ) in any octave band of the sound spectrum and Less than 5 dB(A) above the level of background noise ( $LA_{90,15min}$ ) for the overall (sum of all octave bands) A-weighted level
<i>Adjacent land</i> property boundary	Less than 65dB(Lin) at 63Hz and 70dB(Lin) in all other octave bands of the sound spectrum or Less than 8 dB above the level of background noise ( $L_{90,15min}$ ) in any octave band of the sound spectrum and 5 dB(A) overall (sum of all octave bands) A-weighted level

### Air Quality

- 11 Development with the potential to emit harmful or nuisance-generating air pollution should incorporate air pollution control measures to prevent harm to human health or unreasonable interference with the amenity of sensitive uses within the locality.
- 12 Chimneys or exhaust flues associated with commercial development (including cafes, restaurants and fast food outlets) should be designed to ensure they do not cause a nuisance or health concerns to nearby sensitive receivers by:
- incorporating appropriate treatment technology before exhaust emissions are released to the atmosphere
  - ensuring that the location and design of chimneys or exhaust flues maximises dispersion and takes into account the location of nearby sensitive uses.

### Land Division

#### OBJECTIVES

- Objective 1:** Land in appropriate localities divided into allotments in an orderly and economic manner
- Objective 2:** Land division to provide for development opportunities appropriate to the desired character.
- Objective 3:** Public open space providing diverse recreational opportunities.
- Objective 4:** Encouragement of walking, cycling and public transport usage.

#### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Land should not be divided:
- in a manner which would prevent the satisfactory future division of the land, or any part thereof;
  - if the proposed use, or the establishment of the proposed use, is likely to lead to undue erosion of the land or land in the vicinity thereof;
  - unless wastes produced by the proposed use of the land, or any use permitted by the principles of development control, can be managed so as to prevent pollution of a public water supply or any



surface or underground water resources;

- (d) if the size, shape and location of, and the slope and nature of the land contained in each allotment resulting from the division is unsuitable for the purpose for which the allotment is to be used;
- (e) if any part of the land is likely to be inundated by floodwaters and the proposed allotments are to be used for a purpose which would be detrimentally affected when the land is inundated;
- (f) where community facilities or public utilities are lacking or inadequate;
- (g) where the proposed use of the land is the same as the proposed use of other existing allotments in the vicinity, and a substantial number of the existing allotments have not been used for that purpose;
- (h) if it would cause an infringement of any provisions relating to building work contained in the *Development Act 1993* or any by-law or regulation made thereunder;
- (i) if the division and subsequent use is likely to lead to clearance of or damage to one or more significant trees.

2 When land is divided:

- (a) any reserves or easements necessary for the provision of public utility services should be provided;
- (b) stormwater not used or disposed of on the subject land should be capable of being drained safely and efficiently from each proposed allotment and disposed of from the land in a satisfactory manner;
- (c) a water supply sufficient for the purpose for which the allotment is to be used should be made available to each allotment;
- (d) provision should be made for the disposal of waste waters, sewage and other effluent from each allotment without risk to health;
- (e) roads or thoroughfares should be provided where necessary for safe and convenient communication with adjoining land and neighbouring localities;
- (f) each allotment resulting from the division should have safe and convenient access to the carriageway of an existing or proposed road or thoroughfare;
- (g) proposed roads should be graded, or be capable of being graded to connect safely and conveniently with an existing road or thoroughfare;
- (h) at the intersection of two or more roads, an appropriate corner cut-off is provided to ensure adequate sight lines are maintained for motorists and pedestrians.

## Landscaping

### OBJECTIVES

**Objective 1:** The amenity of land and development enhanced with appropriate planting and other landscaping works, using locally indigenous plant species where possible.

### PRINCIPLES OF DEVELOPMENT CONTROL

1 Landscaping of development should:

- (a) be provided to soften the appearance of built form;

- (b) complement the scale of the built form;
- (c) be consistent with any particular desired character or important contextual features of the landscape setting in the locality;
- (d) define spaces and edges;
- (e) provide microclimate benefits such as shade and shelter;
- (f) retain existing landscaping, where practicable;
- (g) use species and techniques that require low water use and support and enhance local biodiversity;
- (h) enhance the appearance of development, establish visual buffers to adjacent development and screen service, loading, outdoor storage and parking areas.

2 Landscaping should not:

- (a) unreasonably restrict solar access to habitable rooms and solar collection areas in adjoining development;
- (b) be likely to cause structural damage or impact upon adjoining development through root damage and canopy drop;
- (c) remove opportunities for passive surveillance to public areas;
- (d) promote concealment and the potential for criminal activities adjacent to footpaths and public activity areas;
- (e) introduce environmental weeds to sensitive environmental areas.

## Medium and High Rise Development (3 or More Storeys)

### OBJECTIVES

- Objective 1:** Medium and high rise development that provides housing choice and employment opportunities.
- Objective 2:** Residential development that provides a high standard of amenity and adaptability for a variety of accommodation and living needs.
- Objective 3:** Development that is contextual and responds to its surroundings, having regard to adjacent built form and character of the locality and the Desired Character for the Zone and Policy Area.
- Objective 4:** Development that integrates built form within high quality landscapes to optimize amenity, security and personal safety for occupants and visitors.
- Objective 5:** Development that enhances the public environment, provides activity and interest at street level and a high quality experience for residents, workers and visitors by:
- (a) enlivening building edges;
  - (b) creating attractive, welcoming, safe and vibrant spaces;
  - (c) improving public safety through passive surveillance;
  - (d) creating interesting and lively pedestrian environments;
  - (e) integrating public art into the development where it fronts the street and public spaces;

- (f) incorporating generous areas of high quality fit for purpose landscaping, green walls and roofs.

**Objective 6:** Commercial, office and retail development that is designed to create a strong visual connection to the public realm and that contributes to the vitality of the locality.

**Objective 7:** Buildings designed and sited to be energy and water efficient.

## PRINCIPLES OF DEVELOPMENT CONTROL

*Note: Some of the following Principles of Development Control (PDC) prescribe a measurable design solution as one way of achieving the intent of the PDC. Where this solution is met, it should be taken as meeting the intent of the principle. Alternative design solutions may also achieve the intent of the PDC and, when proposed should be assessed on their merits.*

### Design and Appearance

- 1 Buildings should be designed to respond to key features of the prevailing local context within the same zone as the development. This may be achieved through design features such as vertical rhythm, proportions, composition, material use, parapet or balcony height, and use of solid and glass.
- 2 In repetitive building types, such as row housing, the appearance of building facades should provide some variation, but maintain an overall coherent expression such as by using a family of materials, repeated patterns, facade spacings and the like.
- 3 Windows and doors, awnings, eaves, verandas or other similar elements should be used to provide variation of light and shadow and contribute to a sense of depth in the building façade.
- 4 Buildings should:
  - (a) achieve a comfortable human scale at ground level through the use of elements such as variation in materials and form, building projections and elements that provide shelter (for example awnings, verandas, and tree canopies);
  - (b) be designed to reduce visual mass by breaking up the building façade into distinct elements;
  - (c) ensure walls on the boundary that are visible from public land include visually interesting treatments to break up large blank facades.
- 5 Buildings should reinforce corners through changes in setback, materials or colour, roof form or height.
- 6 Materials and finishes should be selected to be durable and age well to minimise ongoing maintenance requirements. This may be achieved through the use of materials such as masonry, natural stone and prefinished materials that minimise staining, discolouring or deterioration.
- 7 Balconies should be integrated into the overall architectural form and detail of the development and should:
  - (a) utilise sun screens, pergolas, louvres, green facades and openable walls to control sunlight and wind;
  - (b) be designed and positioned to respond to daylight, wind, and acoustic conditions to maximise comfort and provide visual privacy;
  - (c) allow views and casual surveillance of the street while providing for safety and visual privacy of nearby living spaces and private outdoor areas;
  - (d) be of sufficient size, particularly depth, to accommodate outdoor seating.

## Street Interface

- 8 Development facing the street should be designed to provide attractive, high quality and pedestrian friendly street frontage(s) by:
- (a) incorporating active uses such as shops or offices, prominent entry areas for multi-storey buildings (where it is a common entry), habitable rooms of dwellings, and areas of communal public realm with public art or the like where consistent with the Zone and/or Policy Area provisions;
  - (b) providing a well landscaped area that contains a deep soil zone space for a medium to large tree in front of the building (except in a High Street Policy Area or other similar location where a continuous ground floor façade aligned with the front property boundary is desired).

One way of achieving this is to provide a 4 metre x 4 metre deep soil zone area in front of the building;

- (c) designing building façades that are well articulated by creating contrasts between solid elements (such as walls) and voids (for example windows, doors and balcony openings);
- (d) positioning services, plant and mechanical equipment (such as substations, transformers, pumphouses and hydrant boosters, car park ventilation) in discreet locations, screened or integrated with the façade;
- (e) ensuring ground, undercroft, semi-basement and above ground parking does not detract from the streetscape;
- (f) minimising the number and width of driveways and entrances to car parking areas to reduce the visual dominance of vehicle access points and impacts on street trees and pedestrian areas.

- 9 Common areas and entry points of the ground floor level of buildings should be designed to enable surveillance from public land to the inside of the building at night.

- 10 Entrances to multi-storey buildings should:

- (a) be oriented towards the street;
- (b) be visible and clearly identifiable from the street, and in instances where there are no active or occupied ground floor uses, be designed as a prominent, accentuated and welcoming feature;
- (c) provide shelter, a sense of personal address and transitional space around the entry;
- (d) provide separate access for residential and non-residential land uses;
- (e) be located as close as practicable to the lift and/or lobby access;
- (f) avoid the creation of potential areas of entrapment.

- 11 To contribute to direct pedestrian access and street level activation, the finished ground level of buildings should be no more than 1.2 metres above the level of the footpath, except for common entrances to apartment buildings which should be at ground level or universally accessible.

- 12 Dwellings located on the ground floor with street frontage should have individual direct pedestrian street access.

- 13 The visual privacy of ground floor dwellings within multi-storey buildings should be protected through the use of design features such as orientation, elevation of ground floors above street level, setbacks from street and the location of verandas, windows, porticos or the like.

One way of achieving this is for ground floor level dwellings in multi-storey developments to be raised by up to 1.2 metres (provided access is not compromised where relevant).

## Building Separation and Outlook

- 14 Residential buildings (or the residential floors of mixed use buildings) should have habitable rooms, windows and balconies designed and positioned with adequate separation and screening from one another to provide visual and acoustic privacy and allow for natural ventilation and the infiltration of daylight into interior and outdoor spaces.

One way of achieving this is to ensure any habitable room windows and/or balconies are separated by at least 6 metres from one another where there is a direct 'line of sight' between them and be at least 3 metres from a side or rear property boundary. Where a lesser separation is proposed, alternative design solutions may be applied (such as changes to orientation, staggering of windows or the provision of screens or blade walls, or locating facing balconies on alternating floors as part of double floor apartments), provided a similar level of occupant visual and acoustic privacy, as well as light access, can be demonstrated.

- 15 Living rooms should have a satisfactory short range visual outlook to public, communal or private open space.

## Dwelling Configuration

- 16 Buildings comprising more than 10 dwellings should provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling.
- 17 Dwellings located on the ground floor with street frontage should have habitable rooms with windows overlooking the street or public realm.
- 18 Dwellings with 3 or more bedrooms, should, where possible, have the windows of habitable rooms overlooking internal courtyard space or other public space.

## Adaptability

- 19 Multi-storey buildings should include a variety of internal designs that will facilitate adaptive reuse, including the conversion of ground floor residential to future commercial use (i.e. by including floor to ceiling heights suitable for commercial use).

## Environmental

- 20 Multi-storey buildings should:
  - (a) minimise detrimental micro-climatic and solar access impacts on adjacent land or buildings, including effects of patterns of wind, temperature, daylight, sunlight, glare and shadow;
  - (b) incorporate roof designs that enable the provision of photovoltaic cells and other features that enhance sustainability (including landscaping).
- 21 Green roofs (which can be a substitute for private or communal open space provided they can be accessed by occupants of the building) are encouraged for all new residential commercial or mixed use buildings.
- 22 Development of 5 or more storeys, or 21 metres or more in building height (excluding the rooftop location of mechanical plant and equipment), should be designed to minimise the risk of wind tunnelling effects on adjacent streets by adopting one or more of the following:
  - (a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street;
  - (b) substantial verandas around a building to deflect downward travelling wind flows over pedestrian areas;
  - (c) the placement of buildings and use of setbacks to deflect the wind at ground level.
- 23 Deep soil zones should be provided to retain existing vegetation or provide areas that can accommodate new deep root vegetation, including tall trees with large canopies.

One way of achieving this is in accordance with the following table:

Site area	Minimum deep soil area	Minimum dimension	Tree/ deep soil zones
<300m <sup>2</sup>	10m <sup>2</sup>	1.5 metres	1 small tree/10m <sup>2</sup> deep soil
300-1500m <sup>2</sup>	7% site area	3 metres	1 medium tree/30m <sup>2</sup> deep soil
>1500m <sup>2</sup>	7% site area	6 metres	1 large or medium tree/60m <sup>2</sup> deep soil
Tree size and site area definitions			
Small tree:	< 6 metres mature height and < less than 4 metres canopy spread		
Medium tree:	6-12 metres mature height and 4-8 metres canopy spread		
Large tree:	12 metres mature height and > 8 metres canopy spread		
Site area:	The total area for development site, not average area per dwelling		

24 Deep soil zones should be provided with access to natural light to assist in maintaining vegetation health.

### Site Facilities and Storage

25 Dwellings should provide a covered storage area of not less than 8 cubic metres in one or more of the following areas:

- (a) in the dwelling (but not including a habitable room)
- (b) in a garage, carport, outbuilding or an on-site communal facility and be conveniently located and screened from view from streets and neighbouring properties.

26 Development should provide a dedicated area for the on-site collection and sorting of recyclable materials and refuse, green organic waste and wash-bay facilities for the ongoing maintenance of bins. This area should be screened from view from public areas so as to not to detract from the visual appearance of the ground floor.

27 Where the number of bins to be collected kerbside is 10 or more at any one time, provision should be made for on-site collection.

28 The size of lifts, lobbies and corridors should be sufficient to accommodate movement of bicycles, strollers, mobility aids and visitor waiting areas.

### Zone Interface

29 Unless separated by a public road or reserve, development site(s) adjacent to any zone that has a primary purpose of accommodating low rise (1 to 2 storey) residential activity should incorporate deep soil zones along the common boundary to enable medium to large trees to be retained or established to assist in screening new buildings of 3 or more storeys in height.

One way of achieving this is for development comprising building elements of three or more storeys in height to be setback at least 6 metres from a zone boundary, and incorporate a deep soil zone area capable of accommodating medium to large trees with a canopy spread of not more than 8 metres when fully mature.

## Natural Resources

### OBJECTIVES

**Objective 1:** Retention, protection and restoration of the natural resources and environment.

**Objective 2:** Protection of the quality and quantity of South Australia's surface waters, including inland, and underground waters.

**Objective 3:** The ecologically sustainable use of natural resources including water resources, ground water, surface water and watercourses.



- Objective 4:** Natural hydrological systems and environmental flows reinstated, and maintained and enhanced.
- Objective 5:** Development consistent with the principles of water sensitive design.
- Objective 6:** Development sited and designed to:
- (a) protect natural ecological systems;
  - (b) achieve the sustainable use of water;
  - (c) protect water quality, including receiving waters;
  - (d) reduce runoff and peak flows and prevent the risk of downstream flooding;
  - (e) minimise demand on reticulated water supplies;
  - (f) maximise the harvest and use of stormwater;
  - (g) protect stormwater from pollution sources.
- Objective 7:** Storage and use of stormwater which avoids adverse impact on public health and safety.
- Objective 8:** Native flora, fauna and ecosystems protected, retained, conserved and restored.
- Objective 9:** Restoration, expansion and linking of existing native vegetation to facilitate habitacorrors for ease of movement of fauna.
- Objective 10:** Minimal disturbance and modification of the natural landform.
- Objective 11:** Protection of the physical, chemical and biological quality of soil resources.
- Objective 12:** Protection of areas prone to erosion or other land degradation processes from inappropriate development.
- Objective 13:** Protection of the scenic qualities of natural and rural landscapes.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.
- 2 Development should ensure that South Australia's natural assets, such as biodiversity, water and soil, are protected and enhanced.
- 3 Development should not significantly obstruct or adversely affect sensitive ecological areas such as creeks or wetlands.
- 4 Development should be appropriate to land capability and the protection and conservation of water resources and biodiversity.

## Water Sensitive Design

- 5 Development should be designed to maximise conservation, minimise consumption and encourage reuse of water resources.
- 6 Development should not take place if it results in unsustainable use of surface or underground water resources.
- 7 Development should be sited and designed to:
  - (a) capture and re-use stormwater, where practical;

- (b) minimise surface water runoff;
  - (c) prevent soil erosion and water pollution;
  - (d) protect and enhance natural water flows;
  - (e) protect water quality by providing adequate separation distances from watercourses and other water bodies;
  - (f) not contribute to an increase in salinity levels;
  - (g) avoid the water logging of soil or the release of toxic elements;
  - (h) maintain natural hydrological systems and not adversely affect:
    - (i) the quantity and quality of groundwater;
    - (ii) the depth and directional flow of groundwater;
    - (iii) the quality and function of natural springs.
- 8 Water discharged from a development site should:
- (a) be of a physical, chemical and biological condition equivalent to or better than its pre- developed state;
  - (b) not exceed the rate of discharge from the site as it existed in pre-development conditions.
- 9 Development should include stormwater management systems to protect it from damage during a minimum of a 1-in-100 year average return interval flood.
- 10 Development should have adequate provision to control any stormwater over-flow runoff from the site and should be sited and designed to improve the quality of stormwater and minimise pollutant transfer to receiving waters.
- 11 Development should include stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure the carrying capacities of downstream systems are not overloaded.
- 12 Development should include stormwater management systems to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system.
- 13 Stormwater management systems should preserve natural drainage systems, including the associated environmental flows.
- 14 Stormwater management systems should:
- (a) maximise the potential for stormwater harvesting and re-use, either on-site or as close as practicable to the source;
  - (b) utilise, but not be limited to, one or more of the following harvesting methods:
    - (i) the collection of roof water in tanks;
    - (ii) the discharge to open space, landscaping or garden areas, including strips adjacent to car parks;
    - (iii) the incorporation of detention and retention facilities;
    - (iv) aquifer recharge.

- 15 Where it is not practicable to detain or dispose of stormwater on site, only clean stormwater runoff should enter the public stormwater drainage system.
- 16 Artificial wetland systems, including detention and retention basins, should be sited and designed to:
  - (a) ensure public health and safety is protected;
  - (b) minimise potential public health risks arising from the breeding of mosquitoes.

### **Water Catchment Areas**

- 17 Development should ensure watercourses and their beds, banks, wetlands and floodplains are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes.
- 18 No development should occur where its proximity to a swamp or wetland will damage or interfere with the hydrology or water regime of the swamp or wetland.
- 19 A wetland or low-lying area providing habitat for native flora and fauna should not be drained, except temporarily for essential management purposes to enhance environmental values.
- 20 Along watercourses, areas of remnant native vegetation, or areas prone to erosion, that are capable of natural regeneration should be fenced off to limit stock access.
- 21 Development such as cropping, intensive animal keeping, residential, tourism, industry and horticulture, that increases the amount of surface run-off should include a strip of land at least 20 metres wide measured from the top of existing banks on each side of a watercourse that is:
  - (a) fenced to exclude livestock;
  - (b) kept free of development, including structures, formal roadways or access ways for machinery or any other activity causing soil compaction or significant modification of the natural surface of the land;
  - (c) revegetated with locally indigenous vegetation comprising trees, shrubs and other groundcover plants to filter runoff so as to reduce the impacts on native aquatic ecosystems and to minimise soil loss eroding into the watercourse.
- 22 Development resulting in the depositing of an object or solid material in a watercourse or floodplain or the removal of bank and bed material should not:
  - (a) adversely affect the migration of aquatic biota;
  - (b) adversely affect the natural flow regime;
  - (c) cause or contribute to water pollution;
  - (d) result in watercourse or bank erosion;
  - (e) adversely affect native vegetation upstream or downstream that is growing in or adjacent to a watercourse.
- 23 The location and construction of dams, water tanks and diversion drains should:
  - (a) occur off watercourse;
  - (b) not take place in ecologically sensitive areas or on erosion prone sites;
  - (c) provide for low flow by-pass mechanisms to allow for migration of aquatic biota;
  - (d) not negatively affect downstream users;

- (e) minimise in-stream or riparian vegetation loss;
  - (f) incorporate features to improve water quality (eg wetlands and floodplain ecological communities);
  - (g) protect ecosystems dependent on water resources.
- 24 Irrigated horticulture and pasture should not increase groundwater induced salinity.
- 25 Development should comply with the current *Environment Protection (Water Quality) Policy*.

### **Biodiversity and Native Vegetation**

- 26 Development should retain existing areas of native vegetation and where possible contribute to revegetation using locally indigenous plant species.
- 27 Development should be designed and sited to minimise the loss and disturbance of native flora and fauna.
- 28 Native vegetation should be conserved and its conservation value and function not compromised by development if the native vegetation does any of the following:
- (a) provides an important habitat for wildlife or shade and shelter for livestock;
  - (b) has a high plant species diversity or includes rare, vulnerable or endangered plant species or plant associations and communities;
  - (c) provides an important seed bank for locally indigenous vegetation;
  - (d) has high amenity value and/or significantly contributes to the landscape quality of an area, including the screening of buildings and unsightly views;
  - (e) has high value as a remnant of vegetation associations characteristic of a district or region prior to extensive clearance for agriculture;
  - (f) is growing in, or is characteristically associated with a wetland environment.
- 29 Native vegetation should not be cleared if such clearing is likely to lead to, cause or exacerbate any of the following:
- (a) erosion or sediment within water catchments;
  - (b) decreased soil stability;
  - (c) soil or land slip;
  - (d) deterioration in the quality of water in a watercourse or surface water runoff;
  - (e) a local or regional salinity problem;
  - (f) the occurrence or intensity of local or regional flooding.
- 30 Development that proposes the clearance of native vegetation should address or consider the implications that removing the native vegetation will have on the following:
- (a) provision for linkages and wildlife corridors between significant areas of native vegetation;
  - (b) erosion along watercourses and the filtering of suspended solids and nutrients from runoff;
  - (c) the amenity of the locality;
  - (d) bushfire safety;
  - (e) the net loss of native vegetation and other biodiversity.

- 31 Where native vegetation is to be removed, it should be replaced in a suitable location on the site with locally indigenous vegetation to ensure that there is not a net loss of native vegetation and biodiversity.
- 32 Development should be located and occur in a manner which:
- (a) does not increase the potential for, or result in, the spread of pest plants, or the spread of any nonindigenous plants into areas of native vegetation or a conservation zone;
  - (b) avoids the degradation of remnant native vegetation by any other means including as a result of spray drift, compaction of soil, modification of surface water flows, pollution to groundwater or surface water or change to groundwater levels;
  - (c) incorporates a separation distance and/or buffer area to protect wildlife habitats and other features of nature conservation significance.
- 33 Development should promote the long-term conservation of vegetation by:
- (a) avoiding substantial structures, excavations, and filling of land in close proximity to the trunk of trees and beneath their canopies;
  - (b) minimising impervious surfaces beneath the canopies of trees;
  - (c) taking other effective and reasonable precautions to protect both vegetation and the integrity of structures and essential services.
- 34 Horticulture involving the growing of olives should be located at least:
- (a) 500 metres from:
    - (i) a national park;
    - (ii) a conservation park;
    - (iii) a wilderness protection area;
    - (iv) the edge of a substantially intact stratum of native vegetation greater than 5 hectares in area;
  - (b) 50 metres from the edge of stands of native vegetation 5 hectares or less in area.
- 35 Horticulture involving the growing of olives should have at least one locally indigenous tree that will grow to a height of at least 7 metres sited at least every 100 metres around the perimeter of the orchard.

## **Soil Conservation**

- 36 Development should not have an adverse impact on the natural, physical, chemical or biological quality and characteristics of soil resources.
- 37 Development should be designed and sited to prevent erosion.
- 38 Development should take place in a manner that will minimise alteration to the existing landform.
- 39 Development should minimise the loss of soil from a site through soil erosion or siltation during the construction phase of any development and following the commencement of an activity.

## **Outdoor Advertisements**

### **OBJECTIVES**

**Objective 1:** An urban environment not disfigured by advertisements.

**Objective 2:** Advertisements in retail, commercial and industrial urban areas, and centre zones, designed to enhance the appearance of those areas.

**Objective 3:** Advertisements not hazardous to any person.

## PRINCIPLES OF DEVELOPMENT CONTROL

### General

- 1 Lettering, colouring and other design work on any advertisement should be carried out in a competent manner, and relate to the activity carried out upon the site on which it is erected.
- 2 Advertisements should be simple in form and provide for instant recognition and should not dominate or obscure other advertisements or result in visual clutter.
- 3 In residential zones advertisements should only be erected upon non-residential premises.
- 4 Advertisements affixed to a building should be affixed as closely as possible to the building to prevent the entry of birds and vermin behind the advertisement.
- 5 Advertisements should not be erected upon:
  - (a) public footways, verandah posts or public utility poles located on public footways;
  - (b) a vehicle carriageway, dividing strip or traffic island;
  - (c) a vehicle adapted and exhibited primarily as an advertisement;
  - (d) a building so as to extend above the silhouette of the building; and
  - (e) residential land unless erected to fulfil a statutory requirement associated with the residential use of the land.
- 6 Advertisements not complying with Column 2 of the section of [Table Un/1](#) relating to Advertisements should, however, comply with the relevant conditions specified in Column 3 of that section of [Table Un/1](#).

### Amenity and Character

- 7 The location, siting, size, shape and materials of construction, of advertisements should be:
  - (a) consistent with the desired character of areas or zones as described by their objectives;
  - (b) consistent with the predominant character of the urban or rural landscape; or
  - (c) in harmony with any building or site of historic significance or heritage value in the locality.
- 8 Advertisements should not detrimentally affect by way of their siting, size, shape, scale, glare, reflection or colour the amenity of areas, zones, or localities, in which they are situated.
- 9 Advertisements should not impair the amenity of areas, zones, or localities, in which they are situated by creating, or adding to, clutter, visual disorder and the untidiness of buildings and spaces.
- 10 Advertisements should not obscure views of attractive landscapes or particular trees or groups of trees.
- 11 The scale of advertisements should be compatible with the buildings on which they are situated and with nearby buildings and spaces.
- 12 Advertisements wholly or partly consisting of bunting, streamers, flags, windvanes, and the like should not



detrimentally affect the amenity of areas, zones or localities in which they are situated.

- 13 Buildings occupied by a number of tenants should exhibit co-ordinated and complementary advertisements to identify the tenants and their types of businesses.
- 14 Structural supports of any advertisement should be designed wherever possible to be concealed from public view.
- 15 Advertisements should be located so as not to require the lopping of street and site vegetation.
- 16 Illuminated advertisements should not be erected in residential zones.

### **Safety**

- 17 Advertisements should not create a hazard to persons travelling by any means.
- 18 Advertisements should not obscure a driver's view of other road vehicles, of rail vehicles at or approaching level crossings, of pedestrians and of features of the road such as junctions, bends, changes in width, traffic control devices and the like that are potentially hazardous.
- 19 Advertisements should not be so highly illuminated as to cause discomfort to an approaching driver, or create difficulty in their perception of the road, or of persons or objects on it.
- 20 Advertisements should not be liable to interpretation by drivers as an official traffic sign, or convey to drivers information that might be confused with instructions given by traffic signals or other control devices, or impair the conspicuous nature of traffic signs or signals.
- 21 Advertisements should not detract drivers from the primary driving task at a location where the demands on driver concentration are high.
- 22 Advertisements should not be erected in positions close to existing electricity mains so that potentially hazardous situations are created.

### **Advertising in Mixed Use, Corridor and District Centre Zones**

- 23 Advertisements and/or advertising hoardings should be:
  - (a) no higher than the height of the finished floor level of the second storey of the building to which it relates;
  - (b) where located below canopy level, flush with the wall or projecting horizontally;
  - (c) where located at canopy level, in the form of a fascia sign;
  - (d) where located above the canopy, flush with the wall and within the height of the parapet.
- 24 Advertisements or advertising hoardings should not exceed 25 percent of the ground floor wall area on the façade the sign is placed.

### **Waste**

#### **OBJECTIVES**

- Objective 1:** Development that, in order of priority, avoids the production of waste, minimises the production of waste, re-uses waste, recycles waste for re-use, treats waste and disposes of waste in an environmentally sound manner.
- Objective 2:** Development that includes the treatment and management of solid and liquid waste to prevent undesired impacts on the environment including, soil, plant and animal biodiversity, human health and the amenity of the locality.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be sited and designed to prevent or minimise the generation of waste (including wastewater) by applying the following waste management hierarchy in the order of priority as shown below:
  - (a) avoiding the production of waste;
  - (b) minimising waste production;
  - (c) reusing waste;
  - (d) recycling waste;
  - (e) recovering part of the waste for re-use;
  - (f) treating waste to reduce the potentially degrading impacts;
  - (g) disposing of waste in an environmentally sound manner.
- 2 The storage, treatment and disposal of waste materials from any development should be achieved without risk to health or impairment of the environment.
- 3 Development should avoid as far as practical, the discharge or deposit of waste (including wastewater) onto land or into any waters (including processes such as seepage, infiltration or carriage by wind, rain, sea spray, stormwater or by the rising of the water table).
- 4 Untreated waste should not be discharged to the environment, and in particular to any water body.
- 5 Development should include appropriately sized area to facilitate the storage of receptacles that will enable the efficient recycling of waste.
- 6 Development that involves the production and/or collection of waste and/or recyclable material should include designated collection and storage area(s) that are:
  - (a) screened and separated from adjoining areas;
  - (b) located to avoid impacting on adjoining sensitive environments or land uses;
  - (c) designed to ensure that wastes do not contaminate stormwater or enter the stormwater collection system;
  - (d) located on an impervious sealed area graded to a collection point in order to minimise the movement of any solids or contamination of water;
  - (e) protected from wind and stormwater and sealed to prevent leakage and minimise the emission of odours;
  - (f) stored in such a manner that ensures that all waste is contained within the boundaries of the site until disposed of in an appropriate manner.

### Wastewater

- 7 The disposal of wastewater to land should only occur where methods of wastewater reduction and reuse are unable to remove the need for its disposal, and where its application to the land is environmentally sustainable.
- 8 Wastewater lagoons should not be sited in any of the following areas:
  - (a) within land subject to a 1-in-100 year average return interval flood event;

- (b) within 50 metres of the top of the bank of a watercourse;
  - (c) where the base of the lagoon would be below any seasonal water table.
- 9 Artificial wetland systems for the storage of treated wastewater, such as wastewater lagoons, should be:
- (a) sufficiently separated from adjoining sensitive uses to minimise potential adverse odour impacts
  - (b) sited and designed to minimise potential public health risks arising from the breeding of mosquitoes.

### **Waste Treatment Systems**

- 10 Development that produces any sewage or effluent should be connected to a waste treatment system that complies with (or can comply with) the relevant public and environmental health legislation applying to that type of system.
- 11 The methods for, and siting of, effluent and waste storage, treatment and disposal systems should minimise the potential for environmental harm and adverse impacts on:
- (a) the quality of surface and groundwater resources;
  - (b) public health;
  - (c) the amenity of a locality;
  - (d) sensitive land uses.
- 12 Waste treatment should only occur where the capacity of the treatment facility is sufficient to accommodate likely maximum daily demands including a contingency for unexpected high flows and breakdowns.
- 13 Any on-site wastewater treatment system/ re-use system or effluent drainage field should be located within the allotment of the development that it will service.
- 14 A dedicated on-site effluent disposal area should not include any areas to be used for, or could be reasonably foreseen to be used for, private outdoor open space, driveways, car parking or outbuildings.
- 15 The spreading or discharging of treated liquid or solid waste onto the ground should only occur where the disposal area consists of soil and vegetation that has the capacity to store and use the waste without contaminating soil or surface or ground water resources or damaging crops.
- 16 Stock slaughter works, poultry processors, saleyards, piggeries, cattle feedlots, milking sheds, milk processing works, fish processing works, wineries, distilleries, tanneries and fellmongeries, composting works, waste or recycling depots and concrete batching works should have a wastewater management system that is designed so as not to discharge wastes generated by the premises:
- (a) into any waters;
  - (b) onto land in a place where it is reasonably likely to enter any waters by processes such as:
    - (i) seepage;
    - (ii) infiltration;
    - (iii) carriage by wind, rain, sea spray, or stormwater;
    - (iv) the rising of the watertable.

# ZONE

## URBAN CORRIDOR ZONE

Refer to [Maps Un/3, 4, 5 and 9](#) that relate to this zone.

### OBJECTIVES

- Objective 1:** A mixed use zone accommodating a range of compatible non-residential and medium and high density residential land uses orientated towards a high frequency public transport corridor.
- Objective 2:** Integrated, mixed use, medium and high rise buildings with ground floor uses that create active and vibrant streets with residential development above.
- Objective 3:** A mix of land uses that enable people to work, shop and access a range of services close to home.
- Objective 4:** Adaptable and flexible building designs that can accommodate changes in land use and respond to changing economic and social conditions.
- Objective 5:** A built form that provides a transition down in scale and intensity at the zone boundary to maintain the amenity of residential properties located within adjoining zones.
- Objective 6:** A safe, comfortable and appealing street environment for pedestrians that is sheltered from weather extremes, is of a pedestrian scale and optimises views or any outlook onto spaces of interest.
- Objective 7:** Noise and air quality impacts mitigated through appropriate building design and orientation.
- Objective 8:** Development that contributes to the desired character of the zone.

### DESIRED CHARACTER

This zone supports mixed use development on major road corridors and comprises non-residential development in association with medium to high density residential living, including more than 15 percent of dwellings as affordable housing. Development will create a linear corridor that will focus and frame the main road and create active street frontages. Buildings of 3 or more storeys will be the predominant built form, with key strategic sites developed with landmark buildings that will feature prominent, attractive and activating road facades.

The siting and design of buildings will achieve high quality urban design outcomes. Development will be undertaken within defined building envelopes. Buildings at the periphery of the zone will have an appropriate transition that relates to development in adjacent zones of a lower scale and intensity. Contextual qualities, including the setting and juxtaposition of heritage places/character items with new or refurbished development, will be respected.

Heritage buildings will be adapted, maintaining their heritage qualities with development encouraged to the rear and behind the front façades. Buildings adjacent to heritage buildings will be sympathetic to the heritage nature in their design.

The urban corridor roads function as major metropolitan transport movement systems as well as for local movement, access and parking. Restricted and consolidated vehicle access points will be available and access will be mainly from secondary road frontages, limited rear access lanes and through-site integrated and shared rights-of-way. Controlled pedestrian and cycle crossing points will be focused and consolidated at key locations. Development design and function will be people orientated with safe and convenient accessibility to and through buildings from roads and parking.

Parking areas will be consolidated and shared and screened from public view. Access and parking are to be sited and designed to minimise negative impacts on adjoining residential areas, including appropriate separation and

screen and buffer landscaping. Road treatments are to be provided at the interface of the zone that correspond with the likely associated uses and discourage non-related traffic in residential streets.

A high amenity pedestrian environment will be established that provides integrated linkages to adjacent centres, public transport stops and public spaces. Access for people with disabilities, signage, seating and street lighting will be provided along key walking routes between public transport stops and major activity nodes. Cycle routes will be visible, safe, accessible, well signed and connected with key local destinations and the Parkland fringe.

Overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques, however, it is noted noise and air amenity cannot be expected to be equivalent to a purely residential area. Impacts on adjoining zones will be minimised through appropriate land uses, building envelopes, transition of building heights, design and location of on-site activities/windows/balconies, and use of landscaping.

Well-designed landscaping will assist to visually soften large building façades, screen and buffer parking/service areas/zone interface areas, and provide amenity, biodiversity and micro-climate benefits.

Water sensitive urban design (WSUD) for the harvest, treatment, storage and reuse of stormwater, and environmentally sustainable design (ESD) for reduction in energy consumption through passive design, construction and operation is envisaged with development. Green (vegetated) places will assist urban heat island effects and roof top gardens will provide opportunities for private and communal open space.

Given the distinctly different land use mixes, urban design features and street character intended for the various sites to which the zone is applied, four different policy areas have been designated as follows:

- (a) Boulevard Policy Area – where taller, mixed use buildings of predominantly office uses at ground and low building levels and residential apartments above are intended along the Greenhill Road and Glen Osmond Road frontage with its premium Park Land interface where grand buildings and strong landscape settings are appropriate.
- (b) High Street Policy Area – where more moderate scaled buildings of mixed use are intended along Unley Road with predominantly small scale shops, mixed business services and hospitality uses at ground and low building levels and upper level comprising residential apartments.
- (c) Business Policy Area – where development will be varied in focus on commercial and business land uses at street level with dwellings located above along the more commercially oriented parts of Leader Street.
- (d) Transit Living Policy Area – where taller, mixed use buildings are intended for predominantly residential development together with low impact, generally commercial uses that support the daily needs of the local population (such as offices, consulting rooms, shops, cafés and restaurants) located at ground level. Upper levels are intended to provide residential apartments to take advantage of high frequency public transport corridors upon which such developments are located.

Detailed concept plans are prepared for distinct sections of the roads, detailing matters including desired accessways/road links, excluded property frontage access, variations to prescribed building heights, consolidated sites, heritage sites and any particular intended urban design element or feature.

The potential for buildings within the zone to penetrate the Adelaide International Airport Obstacle Surface Limitation exists. It is essential that development within the zone not impede the long-term operational, safety and commercial aviation requirements of the Adelaide International Airport.

## **PRINCIPLES OF DEVELOPMENT CONTROL**

### **Land Use**

- 1 The following types of development, or combination thereof, are envisaged in the zone: Affordable housing  
Aged persons accommodation  
Community centre  
Consulting room  
Dwelling  
Educational establishment  
Entertainment venue  
Licensed

premises  
 Office  
 Pre-school  
 Residential flat building  
 Retirement village Shop or  
 group of shops  
 Supported accommodation Tourist  
 accommodation.

- 2 Development listed as non-complying is generally inappropriate.

### Form and Character

- 3 Development should be consistent with the desired character for the zone.
- 4 Development should be in accordance with Concept Plan [Maps Un/1 to 7 and 11](#).
- 5 Residential development should achieve a minimum net residential site density in accordance with the following:

Policy Area	Minimum net residential site density
Boulevard (Greenhill Road) Policy Area 19	75 dwellings per hectare net (except within the southern half of the Annesley Campus Area fronting Rose Terrace 35 dwellings per hectare net)
High Street (Unley Road) Policy Area 20	60 dwellings per hectare net
Transit Living (Anzac Highway) Policy Area 24	45 dwellings per hectare net
Business (Leader Street and Maple Avenue) Policy Area 25	No minimum

- 6 Vehicle parking should be located to the rear of development or not be visible from public land along the primary road frontage.

### Design and Appearance

- 7 Buildings on sites with a frontage greater than 10 metres should be well articulated through variations in forms, materials, openings and colours.
- 8 Buildings should be designed and sited to address the primary public road and to face other public thoroughfares (other than rear laneways) and open spaces and to enable suitable sunlight access to public and common private open space as well as good daylighting of habitable room windows of dwellings.

## OVERLAYS

### Overlay – Affordable Housing

Refer to [Maps Un/1 \(Overlay 5a and 5b\)](#) that relates to this overlay. The following policies apply to the ‘designated area’ marked on the relevant Overlay Map.

#### INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

#### OBJECTIVES

**Objective 1:** Affordable housing that is integrated into residential and mixed use development.

**Objective 2:** Development that comprises a range of affordable dwelling types that caters for a variety of household structures.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development comprising 20 or more dwellings should include a minimum of 15 percent affordable housing (as defined by the *South Australian Housing Trust Regulations 2010* as amended).

## Overlay – Strategic Transport Routes

Refer to [Maps Un/1 \(Overlay 4a and 4b\)](#) that relates to this overlay. The following policies apply to the 'designated area' marked on the relevant Overlay Map.

### INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

### OBJECTIVES

**Objective 1:** Development that recognises the importance of strategic transport routes and does not impede traffic flow or create hazardous conditions for pedestrians, cyclists or drivers of vehicles, including emergency services vehicles.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development adjacent to a strategic transport route should:
  - (a) avoid the provision of parking on the main carriageway;
  - (b) be accessible via service roads, where possible, that provide:
    - (i) parking off the main carriageway;
    - (iii) a buffer from the main carriageway for pedestrian and cycle activity;
  - (c) not impede the potential for overhead cabling and associated infrastructure to be established in an existing or proposed tram corridor.
- 2 Vehicular site access should not be provided along the main street frontage where an alternative access is available.
- 3 Development adjacent kerbside bus stops should be set back to provide sufficient space for indented bus bays with associated hard stand area, shelter and a 1.2 metre wide continuous accessible path behind the bus shelter.

## Overlay – Noise and Air Emissions

Refer to [Maps Un/1 \(Overlay 3a, 3b and 3c\)](#) that relate to this overlay. The following policies apply to the 'designated area' marked on the relevant Overlay Map.

### INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

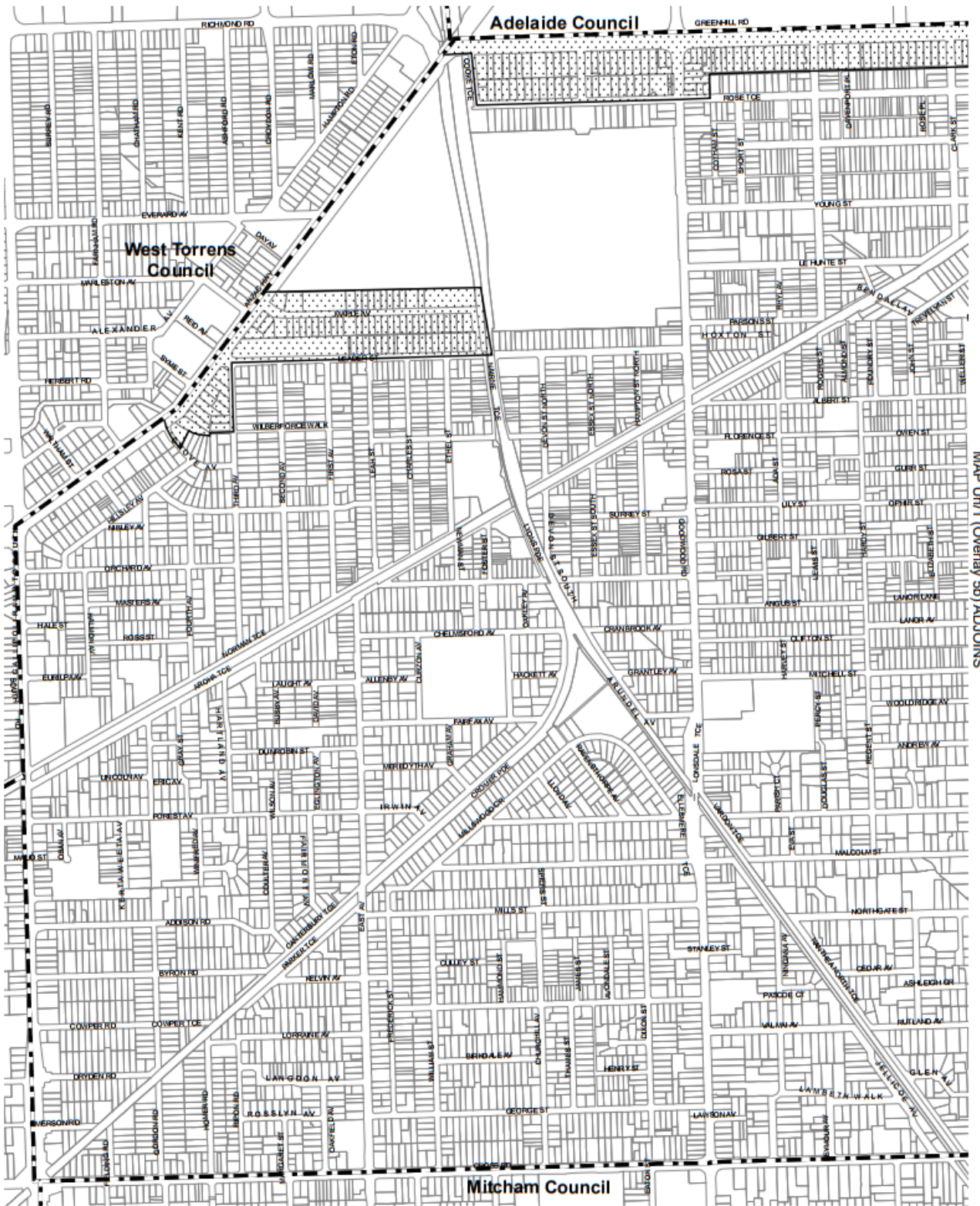


## OBJECTIVES

**Objective 1:** Protect community health and amenity from adverse impacts of noise and air emissions.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Noise and air quality sensitive development located adjacent to high noise and/or air pollution sources should:
  - (a) shield sensitive uses and areas through one or more of the following measures:
    - (i) placing buildings containing less sensitive uses between the emission source and sensitive land uses and areas;
    - (ii) within individual buildings, place rooms more sensitive to air quality and noise impacts (e.g. bedrooms) further away from the emission source;
    - (iii) erecting noise attenuation barriers provided the requirements for safety, urban design and access can be met;
  - (b) use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants provided wind impacts on pedestrian amenity are acceptable;
  - (c) locate ground level private open space, communal open space and outdoor play areas within educational establishments (including childcare centres) away from the emission source.



MAP Un/1 (Overlay 5a) ADJOINS

1:12,500

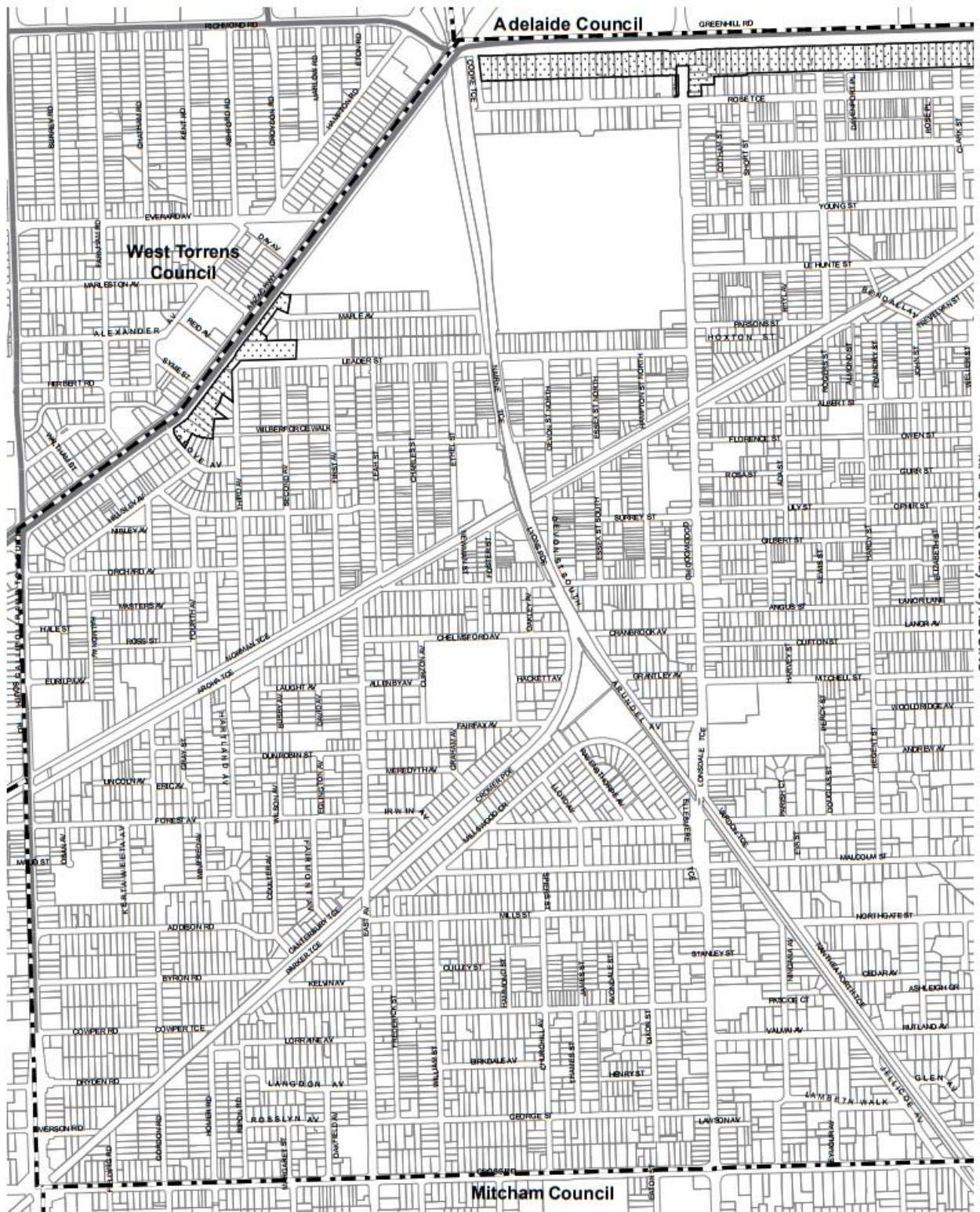
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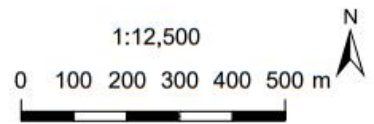
**UNLEY (CITY)**  
**AFFORDABLE HOUSING**  
**MAP Un/1 (Overlay 5a)**  
 Consolidated - 19 December 2017

- Designated Area within which Affordable Housing applies
- Development Plan Boundary





MAP Un/1 (Overlay 4a) ALUJUNS

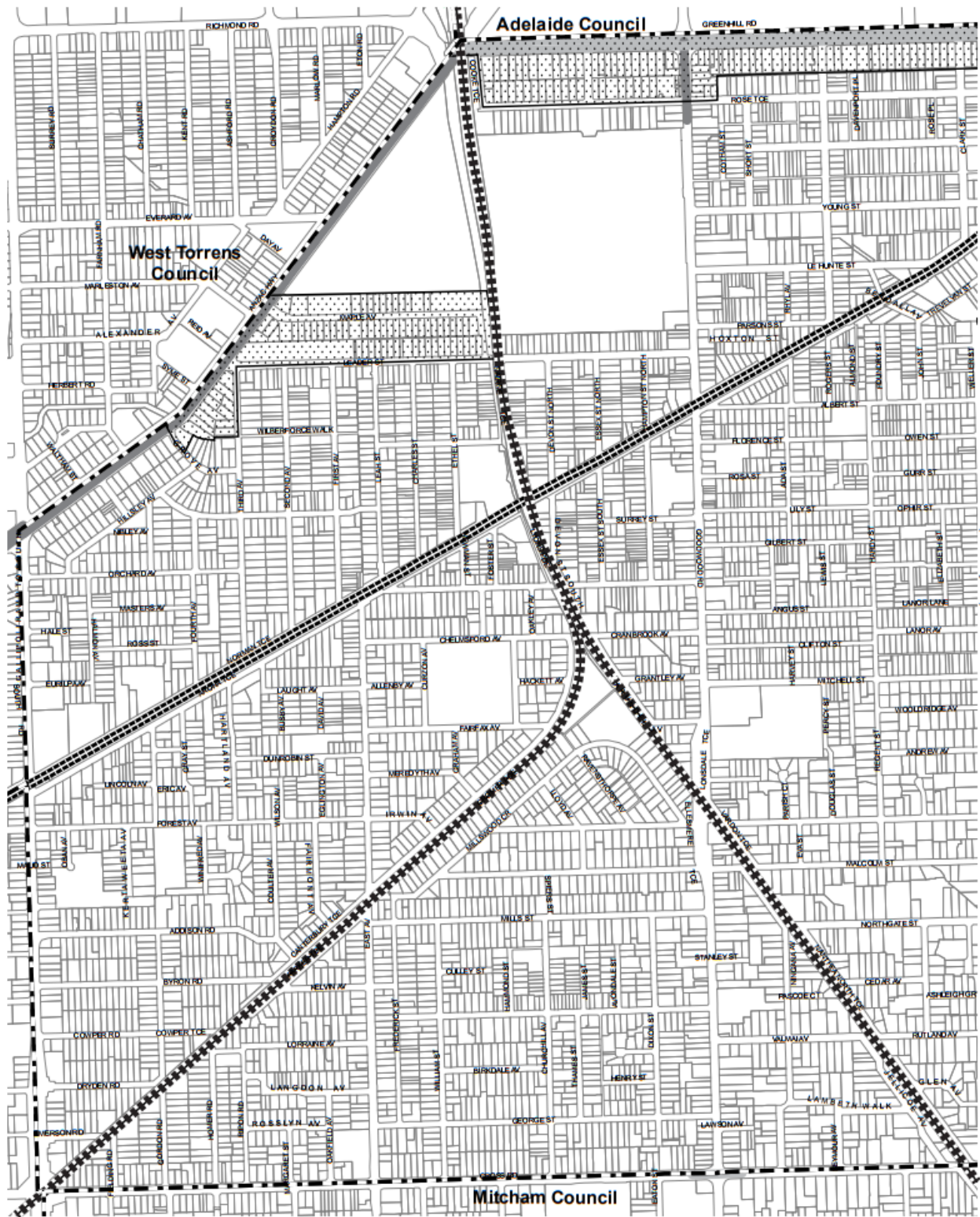


# UNLEY (CITY) STRATEGIC TRANSPORT ROUTES MAP Un/1 (Overlay 4a)

Consolidated - 19 December 2017

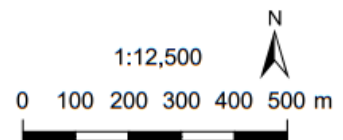
- Designated Area
- Strategic Roads Network
- Development Plan Boundary



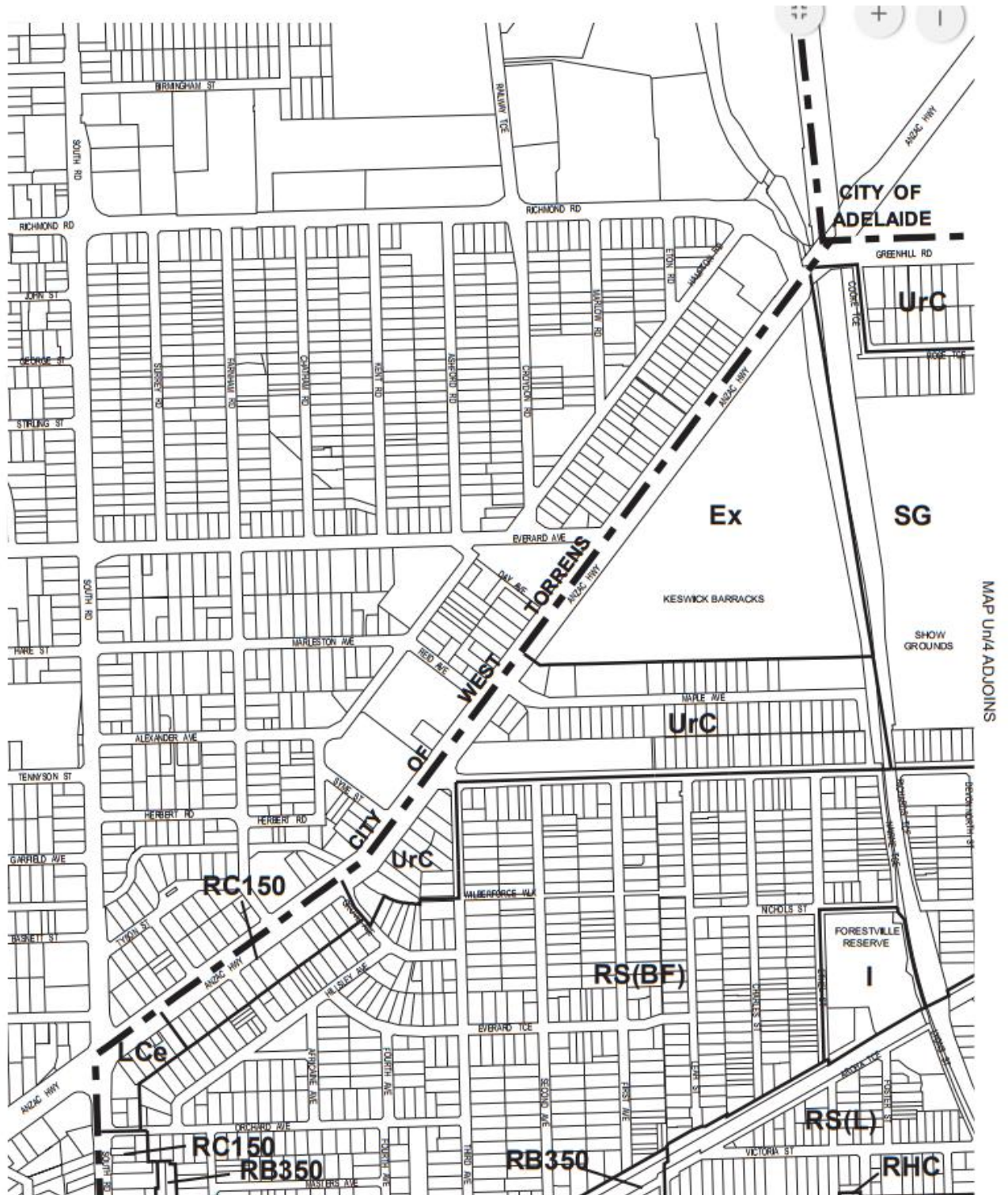


MAP Un/1 (Overlay 3b) ADJOINS

- Train Corridor
- Tram Corridor
- Designated Road: Type A road
- Designated Road: Type B road
- Designated Area
- Development Plan Boundary



# UNLEY (CITY) NOISE AND AIR EMISSIONS MAP Un/1 (Overlay 3a)



Note: For Policy Areas See Map Un/12

- Ex** Excluded
- I** Institutional
- LCe** Local Centre
- RB350** Residential B 350
- RC150** Residential C 150
- RHC** Residential Historic Conservation
- RS(BF)** Residential Streetscape (Built Form)
- RS(L)** Residential Streetscape (Landscape)
- SG** Showground
- UrC** Urban Corridor

- Zone Boundary
- Development Plan Boundary

MAP Un/7 ADJOINS



## UNLEY (CITY) ZONES MAP Un/3







### **BRISBANE**

Level 7, 123 Albert Street  
Brisbane QLD 4000  
Australia  
T +61 7 3007 3800

### **MELBOURNE**

Level 12, 120 Collins Street  
Melbourne VIC 3000  
Australia  
T +61 3 8663 4888

### **PERTH**

Level 14, The Quadrant  
1 William Street  
Perth WA 6000  
Australia  
T +61 8 9346 0500

### **SYDNEY**

Level 23, Darling Park Tower 2  
201 Sussex Street  
Sydney NSW 2000  
Australia  
T +61 2 8233 9900



LANDS TITLES REGISTRATION OFFICE  
SOUTH AUSTRALIA  
**APPLICATION**  
FORM APPROVED BY THE REGISTRAR-  
GENERAL

PRIORITY NOTICE ID	
--------------------	--

SERIES NO	PREFIX
	AG

**BELOW THIS LINE FOR OFFICE &  
STAMP DUTY PURPOSES ONLY**

**AGENT CODE**

LODGED BY:

CORRECTION TO:

SUPPORTING DOCUMENTATION LODGED WITH INSTRUMENT  
(COPIES ONLY)

- 1 .....
- 2 .....
- 3 .....
- 4 .....
- 5 .....

CORRECTION	PASSED
REGISTERED	
REGISTRAR-GENERAL	

# APPLICATION TO NOTE LAND MANAGEMENT AGREEMENT (Pursuant to s57A(5) of the Development Act 1993)

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**PRIVACY COLLECTION STATEMENT:** The information in this form is collected under statutory authority and is used for maintaining publicly searchable registers and indexes. It may also be used for authorised purposes in accordance with Government legislation and policy requirements.

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## LAND DESCRIPTION

The whole of the land in CT Volume 5888 Folio 429, Volume 5772 Folio 282, Volume 5772 Folio 287, Volume 5835 Folio 831 and Volume 5880 Folio 803

---

## ESTATE & INTEREST

Fee Simple

---

**APPLICANT** (Full name and address)

**Minister for Planning** of [\*\*]

---

## SPECIFY NATURE OF APPLICATION

The applicant applies pursuant to s57A(5) of the *Development Act 1993* (SA) to note the Agreement dated [\*\*] between the Applicant and Kaufland Australia Pty Ltd (ACN 616 591 667) against the land above described.

---

DATED .....

**CERTIFICATION** *\*Delete the inapplicable*

### Applicant(s)

\*The Prescribed Person has taken reasonable steps to verify the identity of the Applicant.

\*The Prescribed Person holds a properly completed Client Authorisation for the Conveyancing Transaction including this Registry Instrument or Document.

\*The Prescribed Person has retained the evidence to support this Registry Instrument or Document.

\*The Prescribed Person has taken reasonable steps to ensure that the Registry Instrument or Document is correct and compliant with relevant legislation and any Prescribed Requirement.

Signed By:

.....  
Name of certifying party

.....  
Capacity of certifying party

.....  
for: Crown Solicitor's Office

On behalf of the **Applicant**

---

# **LAND MANAGEMENT AGREEMENT BY DEED**

MINISTER FOR PLANNING

KAUFLAND AUSTRALIA PTY LTD

## DATE

## PARTIES

**Minister for Planning of [\*\*] (Minister)**

and

**Kaufland Australia Pty Ltd** (ACN 616 591 667) of Level 8, 80 Dorcas Street, South Melbourne VIC 3205 (**Kaufland**)

## BACKGROUND

- A. Pursuant to the Development Application Kaufland has sought development authorisation to develop the Development Land.
- B. The Minister has agreed to approve the Development Application subject to Kaufland entering into this deed.

## AGREED TERMS

### 1. DEFINITIONS AND INTERPRETATION

#### 1.1 Definitions

In this deed:

**Act** means the *Development Act 1993*.

**Balance Land** means the balance of the Land which excludes the Development Land.

**Business Day** means a day that is not a Saturday, Sunday or public holiday in South Australia.

**Development Application** means application No. 090/E004/18.

**Development Land** means the portion of the Land which Kaufland proposes to develop pursuant to the Development Application and which is marked [\*\*] on the plan in Annexure 1.

**Land** means the whole of the land in Certificates of Title Volume 5888 Folio 429, Volume 5772 Folio 282, Volume 5772 Folio 287, Volume 5835 Folio 831 and Volume 5880 Folio 803.

#### 1.2 Interpretation

In this deed, unless the context otherwise requires:

1.2.1 headings do not affect interpretation;

1.2.2 singular includes plural and plural includes singular;

1.2.3 words of one gender include any gender;

1.2.4 a reference to a party includes its executors, administrators, successors and permitted assigns;

- 1.2.5 a reference to Kaufland includes any person registered or entitled to be registered as a proprietor of an estate in fee simple in the Land or any part thereof;
- 1.2.6 a reference to a person includes a partnership, corporation, association, government body and any other entity;
- 1.2.7 an agreement, representation, warranty or indemnity by two or more parties (including where two or more persons are included in the same defined term) binds them jointly and severally;
- 1.2.8 an agreement, representation, warranty or indemnity in favour of two or more parties (including where two or more persons are included in the same defined term) is for the benefit of them jointly and severally;
- 1.2.9 a reference to legislation includes any amendment to it, any legislation substituted for it, and any subordinate legislation made under it;
- 1.2.10 a provision is not construed against a party only because that party drafted it;
- 1.2.11 an unenforceable provision or part of a provision may be severed, and the remainder of this deed continues in force, unless this would materially change the intended effect of this deed;
- 1.2.12 the meaning of general words is not limited by specific examples introduced by 'including', 'for example' or similar expressions; and
- 1.2.13 an expression defined in the Act has the meaning given by the Act at the date of this deed.

**1.3 Background**

The Background forms part of this deed and is correct at the date of this deed.

**1.4 Legislation**

The requirements of this deed are to be construed as additional to the requirements of the Act and any other legislation affecting the Land.

**2. DEVELOPMENT LAND**

The Minister has agreed to approve the Development Application subject to Kaufland entering into this deed.

**3. BALANCE LAND**

The Minister and Kaufland agree that the Balance Land:

- 3.1 must be developed for predominantly residential purposes to the intent that the Balance Land cannot be developed:
  - 3.1.1 with any single use development other than residential; or
  - 3.1.2 with commercial or retail components unless they form an ancillary part of an integrated residential development; and
- 3.2 must be developed in a manner which provides such visual and/or acoustic mitigation for the development on the Development Land as may be required by the Minister or any other relevant authority.

4. **OWNER'S OBLIGATION**

Kaufland must provide a copy of this deed to any person taking tenure of the Land or any part thereof before commencement of that tenure.

5. **NOTATION OF THIS DEED**

Each party must do and execute all acts documents and things necessary to ensure that as soon as possible after the execution of this deed by all parties this deed is noted by the Registrar-General on the Certificates of Title for the Land pursuant to section 57A(5) of the Act.

6. **RESCISSION**

The Minister and Kaufland agree as follows:

6.1 Kaufland proposes to lodge a plan of division to create a separate allotment or allotments for the Balance Land;

6.2 upon the creation of a separate allotment or allotments for the Balance Land the Minister and Kaufland will do all things necessary so that this deed:

6.2.1 ceases to be noted on the Certificates of Title for the Development Land; and

6.2.2 is only noted on the Certificates of Title for the Balance Land.

7. **TRANSFER OF BALANCE LAND**

If Kaufland transfers the Balance Land to another party, on and from the date the transfer is registered:

7.1 this deed will be binding upon the registered proprietor for the time being of the Balance Land and references in this deed to Kaufland will be deemed to be references to that registered proprietor; and

7.2 subject to clause 6, this deed will cease to be binding upon Kaufland Australia Pty Ltd (ACN 616 591 667).

8. **MISCELLANEOUS**

8.1 **Alteration**

This deed may be altered only by a supplementary deed signed by the Minister and Kaufland.

8.2 **Approvals and consents**

Unless otherwise provided, a party must act reasonably in giving (conditionally or unconditionally) or withholding any approval or consent requested under this deed.

8.3 **Entire agreement**

This deed:

8.3.1 constitutes the entire agreement between the parties about its subject matter;

8.3.2 supersedes any prior understanding, agreement, condition, warranty, indemnity or representation about its subject matter.



#### 8.4 **Waiver**

A waiver of a provision of or right under this deed:

8.4.1 must be in writing signed by the party giving the waiver;

8.4.2 is effective only to the extent set out in the written waiver.

#### 8.5 **Exercise of power**

8.5.1 The failure, delay, relaxation or indulgence by a party in exercising a power or right under this deed is not a waiver of that power or right.

8.5.2 An exercise of a power or right under this deed does not preclude a further exercise of it or the exercise of another right or power.

#### 8.6 **Governing law**

8.6.1 This deed is governed by the law in South Australia.

8.6.2 The parties irrevocably submit to the non-exclusive jurisdiction of the courts in South Australia.

### 9. **NOTICES**

9.1 A notice, demand, consent, approval or communication under this deed (**Notice**) must be:

9.1.1 in writing, in English and signed by a person authorised by the sender; and

9.1.2 hand delivered or sent by pre paid post or facsimile to the recipient's address or facsimile number specified below, as varied by any Notice given by the recipient to the sender.

At the date of this deed, the address and facsimile number for Notices are:

#### **Minister**

Address: [\*\*]

Facsimile no: [\*\*]

Attention: [\*\*]

#### **Kaufland**

Address: Level 8, 80 Dorcas Street, South Melbourne VIC 3205

Facsimile no: [\*\*]

Attention: [\*\*]

9.2 A Notice is deemed to be received:

9.2.1 if hand delivered, on delivery;

9.2.2 if sent by prepaid mail, four Business Days after posting (or seven Business Days after posting if posting to or from a place outside Australia);

9.2.3 if sent by facsimile, at the time and on the day shown in the sender's transmission report, if it shows that the entire Notice was sent to the recipient's facsimile number last notified by the recipient to the sender.

However if the Notice is deemed to be received on a day that is not a Business Day or after 5:00pm, the Notice is deemed to be received at 9:00am on the next Business Day.

9.3 If two or more persons comprise a party, Notice to one is effective Notice to all.

10. **COSTS**

10.1 Each party must bear its own costs of and incidental to the preparation of this deed.

10.2 Kaufland must bear the costs of noting this deed on the Certificates of Title for the Land.

**EXECUTED** as a deed

**The Common Seal** of the **Minister for Planning** was hereunto affixed by the Authorised Officer in the presence of:

.....  
Witness Full Name of Authorised Officer

.....  
Full Name of Witness Office Held

**Executed by Kaufland Australia Pty Ltd**  
pursuant to section 127 of the *Corporations Act 2001*

.....  
Signature of Director Signature of Director/Company Secretary  
*(Please delete as applicable)*

.....  
Name of Director (print) Name of Director/Company Secretary (print)

Annexure 1

Plan



# Kaufland Australia 10 Anzac Highway, Forestville

Waste Management Plan



## Document verification

Date	Version	Title	Prepared by	Approved by
14/12/17	V1.0	Kaufland Draft WMP	Jarvis Webb & Kristian Le Gallou	Jarvis Webb
08/03/18	V1.1	Kaufland WMP	Jarvis Webb & Kristian Le Gallou	Jarvis Webb
06/07/18	V2.0	Kaufland Updated WMP	Kristian Le Gallou	Mark Rawson
21/02/19	V3.0	Kaufland Updated WMP	Kristian Le Gallou & Jarvis Webb	Jarvis Webb
28/02/19	V3.1	Kaufland Updated WMP	Kristian Le Gallou & Jarvis Webb	Jarvis Webb

## Important notes

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# Document summary

This Waste Management Plan (WMP) has been developed at the planning stage of the Development. The Client, Project Managers and Project Architects have been consulted and consideration given to the relevant policy requirements (Appendix 1).

The proposed Waste Management System (WMS) is outlined in this document. This a high-level view and includes a preliminary design that demonstrates waste can be successfully managed at the site. If land uses and waste management arrangements for the development are altered during detailed design work, this WMP may need to be updated.

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# 1. Development summary

Project	Kaufland Supermarket, 10 Anzac Highway, Forestville
Client	Kaufland Australia
Architect	Studio 117
Project Manager	Kaufland Australia

## 1.1. Land use and occupancy

Table 1 outlines the proposed building and land uses of the development. The waste resource generation categories are based on the land use outlined in the plans. The waste resource generation for the supermarket have been based solely on information provided to Rawtec by Kaufland Australia. These waste and recycling generation rates are based on calculations from Kaufland stores in Europe and America.

The waste and recycling generation rates for the tenancies are based on the SA Better practice guide for Waste Management in Residential or Mixed-Use Developments. Based on discussions with Kaufland we have allocated the large first-floor tenancy as half food and beverage and half retail.

*Table 1 Land use and occupancy overview*

Level	Tenancy	Waste resource generation category <sup>1</sup>	Estimated size
First floor	Supermarket + Back of house	Kaufland Supermarket	5,585m <sup>2</sup>
	Tenancy	Retail (Greater than 100 m <sup>2</sup> )	262m <sup>2</sup>
		Retail (Greater than 100 m <sup>2</sup> )	262m <sup>2</sup>
Ground	Tenancy 1	Retail (Greater than 100 m <sup>2</sup> )	110m <sup>2</sup>
	Tenancy 2	Retail (Greater than 100 m <sup>2</sup> )	100m <sup>2</sup>
	Tenancy 3	Retail (Greater than 100 m <sup>2</sup> )	150m <sup>2</sup>
	Café	Café/restaurant	75m <sup>2</sup>

<sup>1</sup> Waste Resource Generation land use categories are based on the SA Better Practice Guide - Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014).





## 1.2. Waste management considerations

The Client and Project Architect have identified design preferences that may influence waste management (Table 2). These arrangements have been considered when designing the Waste Management System (WMS).

Table 2: Development waste management considerations

Consideration	Description
<b>Tenant waste</b>	Tenants will collect their operational waste within their tenancies using small bins. Tenants may also have access to a bin press to compress their waste into manageable quantities. They will then transfer the waste to the tenant waste room.
<b>Movement of waste throughout the development</b>	The tenant bulk bins will be managed by the building manager/maintenance at specified times during the day. Bins will be transferred to the supermarket loading area for collection.
<b>Internal management of cardboard and soft plastics</b>	Kaufland Australia plans to manage cardboard and soft plastics waste streams using a baler located on the first floor. Baled resources will then be transported back to the distribution centre or collected by a contractor.
<b>Waste collection</b>	All waste will be collected from the supermarket loading area and will take place using a commercial waste contractor.

## 1.3. Recommended services

For the development to achieve effective waste and recycling management it's recommended the services outlined in Table 3 be provided.

Table 3: Recommended waste management services

Required/recommended waste and recycling collection services						
Land Use	Commercial	Commercial	Commercial	Commercial	Commercial	
Development Land Uses	Supermarket	Level 1 Tenancy - F&B	Level 1 Tenancy - Retail	Tenancy 1, 2 & 3	Café	
<b>Routine Collection (Rear Lift)</b>	General Waste	X	X	X	X	X
	Comingled Recycling	X	X	X	X	X
	Organics Recycling	X	X	X	X	X
	Cardboard Recycling	X	X	X	X	X
	Soft Plastic Recycling	X	NS	NS	NS	NS
<b>On-Call or External Drop-Off</b>	Hard Waste	X	X	X	X	X
	E-Waste	X	X	X	X	X
	CFL/Lighting	X	X	X	X	X
	Printer Cartridges	X	X	X	X	X
	Batteries	X	X	X	X	X

X = Required/Desired

NS = Not serviced as not required

## 2. Waste management analysis

### 2.1. Estimated waste and recycling volumes

Table 4 below outlines the estimated volumes of waste and recycling produced within the development per stream each week. These recommendations align with the *SA Better Practice Guide - Waste Management in Residential or Mixed-Use Developments* (Green Industries SA, 2014).

Table 4: Estimated waste volumes produced by the development<sup>2</sup>

Estimated waste generation volumes (litres per week)							
Land Use Type	Commercial	Commercial	Commercial	Commercial	Commercial	Total	
Development Land Use	Supermarket	Level 1 Tenancy - F&B	Level 1 Tenancy - Retail	Tenancy 1, 2 & 3	Café		
WRGR Classification	<i>Kaufland Supermarket</i>	<i>Café/Restaurant</i>	<i>Retail (Greater than 100m<sup>2</sup>)</i>	<i>Retail (Greater than 100m<sup>2</sup>)</i>	<i>Café/Restaurant</i>		
<b>Waste Stream</b>	General Waste	25,200	5,500	1,100	1,500	1,600	<b>34,900</b>
	Comingled Recycling	5,900	900	300	400	300	<b>7,800</b>
	Organics Recycling	4,300	7,300	60	80	2,100	<b>13,800</b>
	Cardboard Recycling	62,900	2,800	800	1,100	800	<b>68,400</b>
	Soft Plastic Recycling	5,900	NE	NE	NE	NE	<b>5,900</b>
<b>Total Site Volume</b>	<b>104,200</b>	<b>16,500</b>	<b>2,300</b>	<b>3,100</b>	<b>4,800</b>	<b>130,800</b>	

\*Totals have been rounded and may not equate

NE = Not Estimated as Not Required

<sup>2</sup> Estimates are based on the proposed land use data provided by the client and architect, client expectations and waste management policies (Outlined in Appendix 1). The supermarket metrics and waste resource generation rates are based on data provided by Kaufland. The other metrics used are based on those found in The SA Better Guide Practice Guide - Waste Management for Residential and Mixed-Use Developments, other publicly available waste generation metric sources or have been developed by Rawtec based on industry knowledge and experience.

Volumes for the following streams have not been estimated, however, they would be managed accordingly:

- Electronic waste (batteries, printer cartridges, lighting)
  - E-waste would be temporarily stored within the development. It would then be taken to an appropriate receival facility (e.g. recycling depot or participating retailer) or collected by a certified collection contractor.
- Hard Waste (during tenancy fit out, or residential land uses)
  - Hard waste would be temporarily stored within the development and managed via a pull-in/pull-out collection service during retrofitting or maintenance activities. This would be arranged by the tenants in conjunction with building services, to ensure that collection via the on-property loading area is undertaken at an appropriate time.

## 2.2. Bin size and collection details

Table 5 below provides estimates of the number of bins and collections per week required to service the development. These figures are based on the total volumes of waste and recycling for the development and the assumption that all waste and recycling would be collected by one service provider.

*Table 5: Estimated bin requirements and collections per week*

	Supermarket			Tenant - daily waste		
	Bin Size (L)	Number of Bins Required	Weekly Collections	Bin Size (L)	Number of Bins Required	Weekly Collections
General Waste	4,500	2	4	240	2	
Comingled Recycling	1,100	3	3	240	1	
Organics Recycling	660	5	5	240	2	Transferred daily to Kaufland BOH
Cardboard Recycling	Baler	NE	NE	660	1	
Soft Plastic Recycling	Baler	NE	NE	-	-	
<b>Total</b>		10	12		6	

\*Totals have been rounded and may not equate  
NE = Not estimated as managed by Kaufland

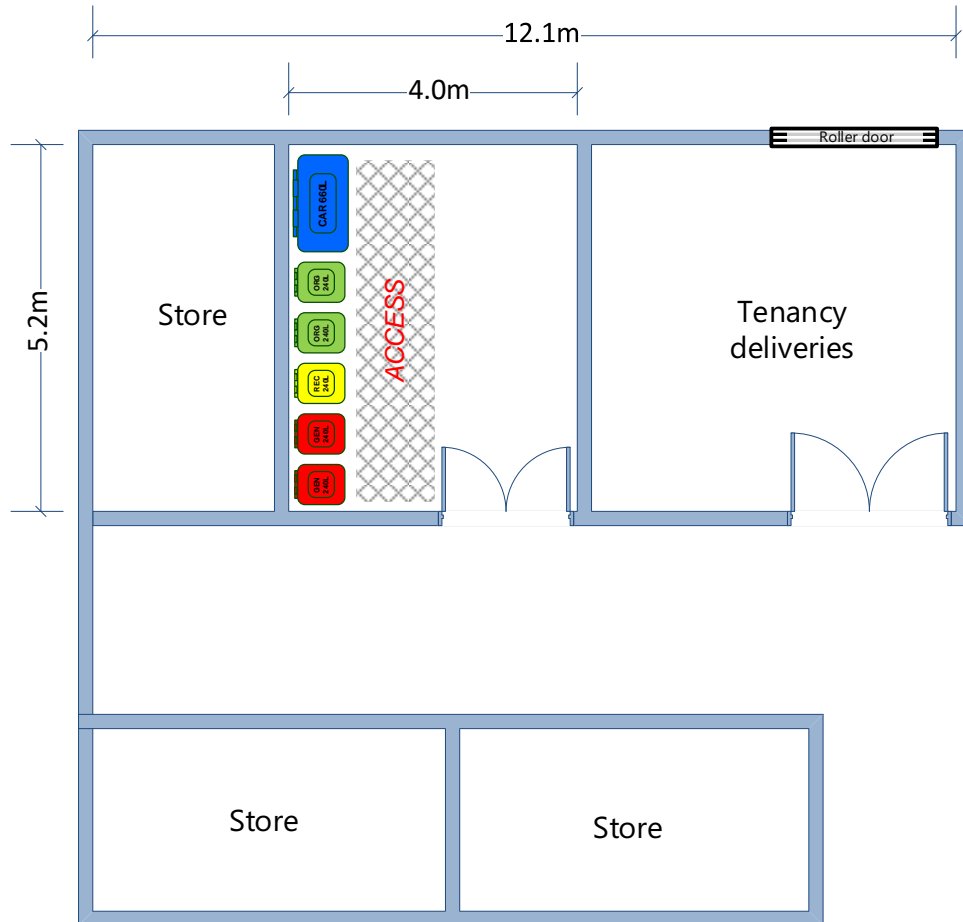




### Ground level tenant waste storage area

Figure 2 outlines the waste storage area for the ground level tenant waste. Tenants will consolidate their waste and recycling generated in daily operations within smaller bins in their own tenancy and would transfer the material to the bins provided in the tenancy delivery area as required. These bins will then be managed by building management and transferred each day to the Kaufland back of house/warehouse deliveries area via Kaufland staff. It is recommended that mechanical aids (e.g. bin tug with a trailer and mobile bin lifter at the Kaufland loading area) be provided to ensure the safe and efficient transfer of bins from the tenancies to the Kaufland back of house/loading area.

Figure 2: Recommended layout of the ground level tenant waste area



LEGEND
<b>GEN = General waste</b>
<b>REC = Comingled recycling</b>
<b>ORG = Organics</b>
<b>CAR = Cardboard recycling</b>

**Note:** These bin sizes are for **illustration purpose only** and are based on the standard MASTEC Australia bin sizes (<http://www.mastec.com.au>). Bin sizes and shapes may differ depending on manufacturer, collection contractor or local waste authority. Please allow extra room (e.g. >10%) for differences in bin sizes, bin access, opening and closing and manoeuvring etc.



### 3. Waste management system

A waste management system has been developed to effectively manage the waste generated at the development. The WMS outlined in Table 6 outlines the waste management system for the supermarket.

Table 6: Waste management system for Kaufland supermarket.

Proposed waste management system - Supermarket	
<b>Waste/recycling services</b>	<ul style="list-style-type: none"> <li>• General waste</li> <li>• Comingle recycling</li> <li>• Organics recycling</li> <li>• Cardboard recycling</li> <li>• Soft plastics recycling</li> </ul>
WMS step	WMS notes
<b>1. User storage</b>	<ul style="list-style-type: none"> <li>• Kaufland staff will collect and aggregate waste and recycling using the following methods.               <ul style="list-style-type: none"> <li>– General waste to be collected in bins using black bin liners.</li> <li>– Comingled recycling collected loose in bins/containers.</li> <li>– Food organics bins collected in bins using compostable liners.</li> <li>– Cardboard collected loose ready for baling.</li> <li>– Soft plastics to be bagged ready for baling.</li> </ul> </li> <li>• Supermarket staff will use bulk bins or smaller bins (60-120 litre) to collect and store waste and recycling and then transfer into the bulk bins or baler.</li> </ul>
<b>2. Transfer pathways</b>	<ul style="list-style-type: none"> <li>• Cardboard and soft plastics will be transferred to the baler and baled.</li> <li>• Other waste would be transferred from the supermarket and back of house and separated into the large bulk bins located in either the first floor waste room/area or the ground floor waste room.</li> </ul>
<b>3. Aggregation &amp; storage</b>	<ul style="list-style-type: none"> <li>• Full bulk bins can be stored wither within the ground floor waste area or outside in the presentation zone prior to collection.</li> <li>• Baled resources can be stored within the ground floor waste area/ warehouse deliveries area, then loaded onto a delivery truck and returned to the distribution centre or collected by contractor.</li> </ul>
<b>4. Bin collection</b>	<ul style="list-style-type: none"> <li>• Waste and recycling bulk bins will be collected by a commercial contractor on a regular basis.</li> <li>• 1100 and 660 litre bins will be collected via a rear lift collection vehicle. The operator will empty the bins and then return them to the presentation zone. Building management/maintenance will then return the bins to their original locations.</li> <li>• The 4.5m<sup>3</sup> general waste bin will be collected via a front lift collection vehicle. The operator will empty the bins and return them to the original locations.</li> <li>• Section four outlines further collection requirements.</li> </ul>



The WMS outlined in Table 7 outlines the waste management system for the supermarket.

Table 7: Waste management system for Ground level tenants

Proposed waste management system - Ground level tenants	
<b>Waste/recycling services</b>	<ul style="list-style-type: none"> <li>• General waste</li> <li>• Organics recycling</li> <li>• Comingle recycling</li> <li>• Cardboard recycling</li> </ul>
WMS step	WMS notes
<b>5. User storage</b>	<ul style="list-style-type: none"> <li>• Each tenant will collect and store operational waste within the tenancy. This may be in 60-120 litre bins. Bins should align with the bin system throughout the development.               <ul style="list-style-type: none"> <li>– General waste to be collected using black bin liners.</li> <li>– Comingled recycling collected loose.</li> <li>– Food organics bins collected using compostable liners.</li> <li>– Cardboard collected loose.</li> </ul> </li> </ul>
<b>6. Transfer pathways</b>	<ul style="list-style-type: none"> <li>• Tenancy staff/cleaners will transfer waste from inside the tenancy to the bins provided in the tenant waste room.</li> <li>• At specified times, building management/maintenance will transfer the bins to the rear of the supermarket. Waste and recycling will then be transferred to Kaufland bins and cardboard can be delivered to the baler.</li> <li>• Empty bins will then be returned to the tenant waste room.</li> <li>• Transfer pathways should not have any steps, be at least 1.25m wide and have no gradients greater than 1:10.</li> </ul>
<b>7. Aggregation &amp; storage</b>	<ul style="list-style-type: none"> <li>• Once transferred from the tenant waste area, waste and recycling will be consolidated in the Kaufland bulk bins.</li> </ul>
<b>8. Bin collection</b>	<ul style="list-style-type: none"> <li>• Collection will follow the supermarket processes outlined above in Table 6 above.</li> </ul>





## 4. Collection requirements

### 4.1. Vehicle movements per week

The number of collection vehicle movements has been estimated at 12 per week. This is based on the estimated waste and recycling volumes and service frequency as outlined in Table 5.

Four of these vehicle movements will be a front lift collection vehicle. The remainder will be a rear lift collection vehicle.

### 4.2. Collection vehicle

Approximate truck dimensions are provided to help the traffic consultant's analysis (Table 8). Please note:

- Collection vehicle dimensions and operating requirements vary between waste collection contractors.
- Rawtec does not offer assurance that the collection zone can accommodate waste collection vehicles.
- The Traffic Consultant must independently confirm there is sufficient space for the collection vehicle and that it can enter and exit the development safely.
- The client must ensure the preferred waste collection contractor can service the development before collection can begin.

Table 8: Truck dimensions for consideration

Approximate collection vehicle dimensions			
Vehicle type	Rear lift	Front lift	Pan-tech/flat bed
Collection type	Collection of bins up to 1100 L	Collection of bins 1.5m <sup>3</sup> to 6m <sup>3</sup>	At call waste streams
Dimensions	Up to 4m (h) x 2.5m (w) x minimum 8.8m, up to 10m (l)	Up to 4.2 m (h) x 2.5 m (w) x up to 11m (l)	Up to 4.5m (h) x 2.5m (w) x minimum 8.8m, up to 10m (l)
Rear loading space required	2m	-	-
Operational vehicle height	Up to 4m	Up to 9m	Up to 4.5m
Vehicle turning circle	18-25m	25m	10m



## 5. Further considerations

Due to the significant nature of the development and volumes of waste calculated to be produced, Rawtec suggest that Operational Waste Management plans be developed for the supermarket and tenancies following the design and build phase. These documents would provide guidance for tenants and staff to ensure appropriate and consistent waste management practices are implemented throughout the development.

Further opportunities exist for Kaufland Australia to minimise the amount of waste going to landfill. Supermarkets can produce a significant volume of packaged food waste that unless separated, cannot be recycled through an organics service. A depackaging process could be implemented where food is removed from its packaging via machinery. The organic content is recycled through a commercial composting process and the packaging element is separated by material type and recycled.



## Appendix 1 - Policies

This WMP has been prepared in consideration of the following policies, design and operational requirements:

- The South Australian Environment Protection (Waste to Resources) Policy 2010 (W2REPP) (Government of South Australia, 2011):
  - Waste is subject to resource recovery processes, which can include source separation, before disposal to landfill.
- South Australian Better Practice Guide - Waste Management in Residential or Mixed-Use Developments (Green Industries SA (previously Zero Waste SA), 2014):
  - Identifies need for areas to store waste and recyclable materials. They must be appropriate to the size and type of development, screened from public, minimises disturbance to residents and provides access to service vehicles.



## Appendix 2 - Additional waste management and design considerations

This table provides additional considerations and advice for the development. This information is based on the SA Better Practice Guide Waste Management for Residential and Mixed-Use Developments.

Area	Consideration
Bin design, colours and signage	<ul style="list-style-type: none"> <li>• Bins and signage should conform to the Australian Standard for Mobile Waste Containers (AS 4213).</li> </ul>
Bin transfer routes	<ul style="list-style-type: none"> <li>• The Better Practice Guide recommends transfer routes be at least 1.25m wide, free of obstructions and steps and a slope of no more than 1:10.</li> </ul>
Bin washing	<ul style="list-style-type: none"> <li>• A bin washing station must:               <ul style="list-style-type: none"> <li>– Slope to a drain leading to the sewer</li> <li>– Have a tap and a hose with mains supply</li> <li>– Be at least 2m x 2m</li> <li>– Be slip resistant to prevent slippage during washing.</li> </ul> </li> <li>• Note:               <ul style="list-style-type: none"> <li>– Line marking and bunding is not required around the bin wash area.</li> <li>– Bins can be stored on top of the bin wash area in the waste room. During washing, other bins can be placed outside the waste collection room while bins are washed in the waste room. Alternatively, the bin wash area can be installed outside the waste room. It may also be possible for the waste contractor to be contracted to provide this service (either on-site or off-site).</li> </ul> </li> </ul>
Detailed design and construction	<ul style="list-style-type: none"> <li>• This WMP provides a high-level overview of waste management at the development. Appropriate design and construction advice should be sought during the detailed design phase to ensure equipment, infrastructure and building services can fulfil the functions proposed.</li> </ul>
Education and training	<ul style="list-style-type: none"> <li>• Consideration should be given to providing education and training for tenants/staff in the building's WMS to ensure appropriate waste management practices.</li> <li>• The inclusion of better practice waste management requirements within strata or commercial lease agreements should also be considered.</li> </ul>
Health and amenity	<ul style="list-style-type: none"> <li>• The Better Practice Guide stipulates effective WMS design should:               <ul style="list-style-type: none"> <li>– Minimise and mitigate odour and noise</li> <li>– Preserve visual amenity for residents/tenants, neighbours and the public</li> <li>– Prevent waste spreading beyond the defined location</li> <li>– Specify washable services enabling periodic cleaning</li> <li>– Provide adequate ventilation.</li> </ul> </li> </ul>



Area	Consideration
Lid within a lid bin	<ul style="list-style-type: none"> <li>• Bulk bins (e.g. 1100 litre) with a 'lid within a lid' system can be used to make waste and recycling disposal easier for tenants/staff.               <ul style="list-style-type: none"> <li>– A smaller, lighter lid reduces the weight and risk for people disposing of materials.</li> <li>– The larger lid can be locked, stopping oversize items being put into the bin.</li> </ul> </li> </ul>
Peak periods	<ul style="list-style-type: none"> <li>• Peak periods during the year (e.g. Easter, Public Holidays, Christmas) can increase waste generation rates. Additional collections may need to be scheduled in these circumstances.</li> </ul>
Waste collection timing	<ul style="list-style-type: none"> <li>• Waste collection timing and frequency should be scheduled to minimise the impact of noise and traffic on residents, neighbours and the public.</li> </ul>
Waste storage area	<ul style="list-style-type: none"> <li>• A secure storage area should be provided to prevent interference with the bins and equipment from the public.</li> </ul>
Waste streams	<ul style="list-style-type: none"> <li>• The SA Better Practice Guide indicates that organics (food and/or garden) is a required/expected service for residents in South Australia.</li> <li>• It is beneficial for disposal points of all three streams (general waste, comingled recycling and food organics) located together.</li> </ul>





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# WGA

WALLBRIDGE GILBERT  
AZTEC

Kaufland

## **Kaufland – 10 Anzac Hwy Stormwater Management Plan**

### **REPORT**

Project No. WME170735

Doc No. WME-170735-RP-CV-0001

Rev. I

19 March 2019

WGA



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### Revision History

Rev	Date	Issue	Originator	Checker	Approver
F	8/03/19	DRAFT - Revised Building Plan	EH	EH	
G	15/03/19	For Approval	EH	EH	MH
H	18/03/19	For Approval	EH	EH	MH
I	19/03/19	For Approval	EH	EH	MH

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## Appendices

**Appendix A** Existing Survey & Preliminary Site Plan

**Appendix B** Catchment Plans

**Appendix C** Flood Mapping

**Appendix D** Council Correspondance

**Appendix E** Calculations

**Appendix F** Stormwater Management Plan

# 1 STORMWATER MANAGEMENT PLAN

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## 1.1 INTRODUCTION

Wallbridge Gilbert Aztec (WGA) has been engaged by Kaufland to prepare a preliminary stormwater management report for the proposed commercial development at 10 Anzac Highway, Forestville in the City of Unley. It is understood the proposed development will comprise a new supermarket building, including loading dock and storage, undercroft parking at grade, open carparking facilities and landscaped areas. Refer to Appendix A for a copy of the preliminary site plan.

The development of this Stormwater Management Plan (SMP) has included communications with the City of Unley as well as review of a fact sheet provided by the City of Unley regarding stormwater management requirements and the current Brownhill Creek Flood mapping.

This report is intended to conceptually outline the stormwater design for the proposed development and detail the stormwater management methodology. A final detailed design should be carried out to provide construction documentation and incorporate the stormwater design principles outlined in this report. The final documentation is considered to be beyond the scope of this report.

### 1.1.1 Catchment Description

The site is located approximately 3km south- west of the Adelaide CBD, bounded by Anzac Highway, Leader Street and Maple Avenue.

The site is currently developed and was the site of the Le Cornu complex. The site is a long term commercial and industrial site.

### 1.1.2 Existing Stormwater Infrastructure

Location SA (<http://location.sa.gov.au/viewer/>) drainage layers were reviewed along with site survey to understand the existing stormwater infrastructure.

Existing plans show no existing underground stormwater infrastructure in Maple Avenue, and it was observed onsite that existing downpipes discharge to the kerb and drain to a side entry pit at the corner of Maple Avenue and Anzac Highway.

There is an existing stormwater drain in Anzac Highway which has a size of 450-600mm diameter (note: survey and Locations SA have differing records), this site survey shows a connection to this drain from the site, via side entry pits in Anzac Highway (Outfall #1). The Anzac Highway drain discharges to Brownhill Creek approximately 200m south of the site.

There are two stormwater drains in Leader Street, to the West a number of side entry pits connect back to the Anzac Highway drain (Outfall #2), and from Second Avenue there are side entry pits and a 900mm diameter drain which drains to Brownhill Creek via Second Avenue (Outfall #3). It is assumed the majority of the existing roof discharges to the drain to the East (Outfall #3), and the existing carpark drains and small portion of the roof drain to the west and the Anzac Highway drain (Outfall#2).

An image from Location SA is provided below.



**Figure 1 Existing drainage outfalls**

Reference: <http://location.sa.gov.au/viewer/>

Existing site catchment plans are provided in Appendix B outlining the assumed existing drainage connections.

### 1.1.3 Existing Flood Mapping

Existing floodplain mapping has been undertaken by Council for the area due to the flooding from Brownhill Creek (to the south of the site) and Keswick Creek (to the north of the site). There is a Stormwater Management Plan in place for the catchment to reduce the flood extents, however delivery dates for the upgrade works have not been confirmed therefore the development will need to assume the existing flood mapping conditions as current for the purpose of this development. A copy of the existing Flood Mapping overlay is provided in Appendix C.

The proposed Finished Floor Levels for the building have been with respect to this mapping, as outlined in Section 1.2.4 and overland flow paths have been maintained across the site for major flood events.

#### 1.1.4 Council Requirements

Communication with The City of Unley commenced on the 21<sup>st</sup> September 2017, to ascertain guidance on the stormwater management requirements for the site. Matthew Sanderson (City of Unley) provided references including;

- The City of Unley Development and Stormwater Management Design Guidelines.
- High Resolution Flood Mapping Brownhill & Keswick Creek 100yr ARI base case.
- Leader Street Streetscape Upgrade detailed design drawings.

These documents were used to understand the stormwater management requirements, existing surrounding infrastructure and potential flood risk. The key criteria outlined for the site stormwater management requirements were determined to be;

- Maximum outflow from the site equivalent to 1 in 5 year ARI (45min) pre-development rate based on a predevelopment percentage impervious 80%.
- Combined Rainwater Harvest Tanks (RWT) and Water Sensitive Urban Design (WSUD) elements will be integrated into the site design and OSD calculations.
- Maximum discharge rate to kerb of 4L/s per outlet in 5 year ARI.
- 300mm freeboard above the 100 year floodplain to habitable floor space.
- Best Practice Stormwater Quality Reduction Targets met.

A copy of the correspondence with Council is provided in Appendix D.

## 1.2 STORMWATER MANAGEMENT METHODOLOGY

The stormwater management methodology is outlined below and presented on the Stormwater Management Plan in Appendix F.

### 1.2.1 Catchments & Outfalls

There are three existing catchment outfalls on the site as shown in Figure 1. The stormwater management methodology has been designed to match the existing catchments conditions to each outfall where possible to minimise the risk of overloading any existing drainage network, as outlined on the proposed site catchment plan is provided in Appendix B.

### 1.2.2 Detention & Retention

To satisfy Council's on Site Detention (OSD) requirement, the maximum outflow from the site must be no greater than the equivalent of 1 in 5 year ARI (45min) pre-development rate based on a predevelopment percentage impervious 80%. An OSD calculation for the total site was undertaken, the parameters and result are outlined in Table 1.

**Table 1 Overall Site OSD Requirement**

Preliminary OSD (Whole of Site)	
Total Site Area (ha)	2.3ha
Intensity 5 year ARI (45min)	26.1mm/hr
Pre-development Flow (Q5) 5 yr ARI (45min) @ C=0.8	130L/s
Post-Development C value	0.9
OSD Total Site	176kL

As the site has three outfalls therefore the OSD requirement designed accommodates this as outlined in Table 2a and 2b. As the new sub-catchments have different times of concentration, the refined OSD calculation as outlined in Table 2b provide sub-catchment OSD breakdowns and total which have been accommodated in the strategy.

**Table 2a Maximum Allowable Discharge - Based on 5 year ARI (45min) pre-development Flow**

Drainage Catchment	Existing Catchment Area (ha)	Pre-Development C (Council specified) *	Intensity 5yr ARI 45min (mm/hr)	Q <sub>allowable</sub> ** (m3/s)
Outfall #1	1.65	0.8	26.1	0.096
Outfall #2	0.35	0.8	26.1	0.020
Outfall #3	0.3	0.8	26.1	0.017
<b>Total</b>	<b>2.3</b>			<b>0.13</b>

\* Assumes 80% paved existing condition

\*\* Q<sub>allowable</sub> – maximum outfall discharge (based on C=0.8 Q5)

**Table 2b OSD Requirement (per sub-catchment) – Assuming no WSUD**

Drainage Catchment	New Catchment Area (ha)	Q <sub>allowable</sub> * (m3/s)	OSD Volume#1 (kL)
Outfall #1	1.55	0.096	104
Outfall #2	0.28	0.020	17
Outfall #3	0.47	0.017	55
<b>Total</b>	<b>2.3</b>		<b>176</b>

\*\* Q<sub>allowable</sub> – maximum outfall discharge (based on C=0.8 Q5)

# Assumes no WSUD

In keeping with the City of Unley Guidelines and discussions with Council the stormwater management methodology aims to integrate WSUD and rainwater harvesting for a more holistic outcome. Therefore a combined storage strategy based on Rainwater Tanks (RWT) for reuse, raingarden for detention storage (and infiltration) and OSD tanks is proposed for the site.

The design has provided 2 x 72.5kL water storage tanks for capture and reuse of roof runoff, these tanks will be combined OSD and rainwater harvest tanks. Acknowledging that RWTs can be partially full during a rain event, only 50% of the total capacity has been considered for OSD, as outlined in Table 3. On review of a monthly water balance (as provided in Appendix E) the tanks are likely to be full in the winter months, therefore the final design of the tanks will need to integrate an appropriate overflow level to maintain some OSD capacity in the tank, or consider a 'leaky tank' design to slow release a portion of the stored rainwater to the raingardens over the course of a day or so. The tanks will not meet the annual irrigation demand and will run dry in the summer however they will still supplement water demands providing a more holistic outcome.

The proposed combined storage strategy is outlined in Table 3.

**Table 3 Proposed Combined OSD & Retention Integrating WSUD & RWTs**

Drainage Catchment	OSD volume required (kL)	RWT /OSD Volume (kL)	50% RWT Volume <sup>1</sup> (kL)	OSD Pipe (kL)	OSD (Raingarden) <sup>3</sup> (kL)	Total (kL)	Target Met?
Outfall #1	104	145	72.5	0	40	112.5	Yes
Outfall #2	17	0	0	0	20	20	Yes
Outfall #3	55	0	0	18	37	55	Yes
<b>Total</b>	<b>176</b>	<b>145</b>	<b>72.5</b>	<b>18</b>	<b>97</b>	<b>187.5</b>	<b>Yes</b>

RWT = Rain Water Tank (plumbed reuse)

OSD = On Site Detention Tank (slow release with orifice control)

OSD (Raingarden/bioswale) = On Site Detention within Raingarden (based on a 200 (swale) -250mm (raingarden) ponding depth)

<sup>1</sup> Only 50% of RWT volume considered in OSD assessment to allow a partially full tank in storm event.

<sup>2</sup> Based on 200-250mm ponding depth in raingarden. (Subject to final design intent, the actual area available for OSD area may be up to 80% of total area due to batters, the above calculation has accommodated this reduction).

Minimum Filter Areas to raingardens are specified to ensure the treatment and OSD requirements are met.

### 1.2.3 Water Quality

The stormwater management methodology integrates raingardens and rainwater tanks for treatment and reuse. In accordance with the City of Unley water quality requirements these elements have been sized to achieve the pollutant reduction targets outlined in Table 4. A MUSIC model has been produced to review pollutant reduction across the site for the proposed stormwater management methodology and the results are outlined in Table 4, with summary of the modelling provided in Appendix E.

**Table 4 Water Quality Targets**

	City of Unley Reduction Target	MUSIC Modelling Result		
		Outfall #1	Outfall #2	Outfall #3
<b>Gross Pollutants</b>	90%	100%	100%	100%
<b>Suspended Solids</b>	80%	98%	99%	98%
<b>Total Phosphorous</b>	60%	83%	81%	80%
<b>Total Nitrogen</b>	45%	82%	70%	70%

Additional water quality treatment will be provided to the loading dock, where the site grading will not allow the pavement to fall to a raingarden. A Humeceptor or similar approved treatment unit will be installed to remove total suspended solids and entrained hydrocarbons from runoff.



#### 1.2.4 Site Levels

The site is located in the floodplain as shown in Appendix C, therefore the habitable floor space is to be set a minimum 300mm above the adjacent floodplain.

The majority of the ground floor is at-grade carparking therefore the minimum FFL requirement is not required to be met, therefore the levels will be designed to match into existing and have grading to suit access requirements and drainage flow paths. However, the minimum floor levels to the cafe, tenancies, service area and the first floor escalator access and entry will be set in accordance with the flood plain as outlined in Table 5 and shown on plan.

**Table 5 Proposed Minimum Finished Floor Levels**

	<b>Estimated Existing Flood Level</b>	<b>Minimum FFL (+300mm)</b>
<b>Service Area/ Deliveries</b>	27.1m	27.4m
<b>Escalator Access/Entry</b>	26.8 m	27.1m
<b>Café/tenancy 1,2,3/storage area &amp; waste storage</b>	26.8 m	27.1m

\*To suit architecture, plan an achieve flood freeboard at entry.

### 1.3 SUMMARY

The stormwater management methodology adopts an integrated design including WSUD and traditional OSD. The Stormwater Management Plan provided in Appendix F outlines the proposed concept for managing stormwater runoff across the site and discharging to Council drains at one of three outfalls to meet the OSD requirements outlined by Council.

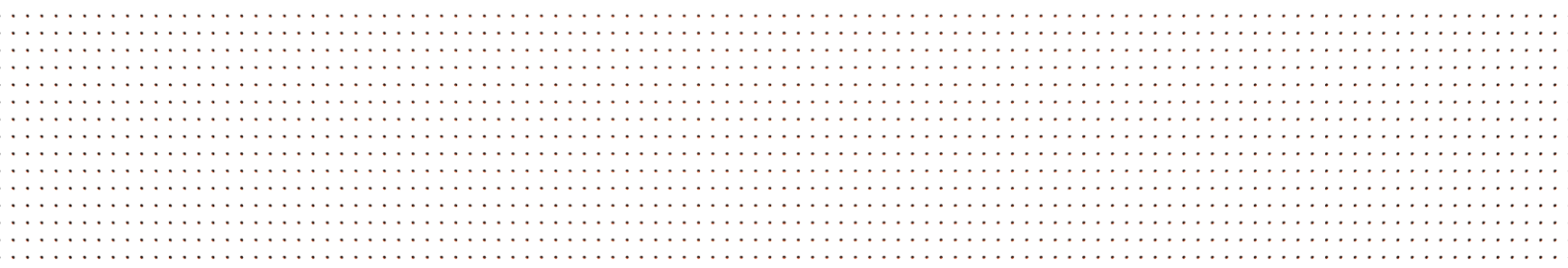
The stormwater management methodology has reviewed the floodplain mapping for the area provided by Council and acknowledges the estimated 100 year ARI flood levels around the site. The proposed finished floor levels for all habitable areas have therefore been set a minimum 300mm above the expected 100 year ARI flood level to mitigate the risk of flood waters on habitable zones and entry.

The calculations and plans contained within this report have been prepared to demonstrate the philosophy behind the proposed treatment of the stormwater runoff from this development. The information provided is preliminary and will be subject detailed design and documentation.

---

# APPENDIX A

## EXISTING SURVEY & PRELIMINARY SITE PLAN







0	07.07.2017	ORIGINAL ISSUE	CB	AMX
A	12.07.2017	SERVICE TOPSTONES / OVERHEAD WIRES	TLH	TLH
B	27.09.2017	ADDITIONAL ROOF HEIGHTS, INVERTS,	CB	HJD
C	28.09.2017	POWERLINE HEIGHTS MAPLE AVE ADDED	CB	NLT
D	26.11.2017	LE CORNU SIGN ELEVATIONS ADDED	RES	RES
REV	DATE	DESCRIPTION	CALC	FIELD
ADDITIONS, AMENDMENTS AND APPROVALS				

LEGEND	
41.36WT WATER TABLE	PSM PEG / TBM
46.16FL FLOOR LEVEL	EDGE OF VEGETATION
48.12IL INVERT LEVEL	ROAD SIGN / HOARD.
TEL COMM. PILLAR / PIT	TRAFFIC LIGHT
SIGN / BUS SIGN	LITTER BIN
WATER METER	WATER / LIGHT POLE
SPRINKLER / IRRIIG VALVE	CABLE MARKER
INVERT	MAIL BOX / SIGNAL BOX
DOMESTIC OUTLET	TICKET MACHINE
DOWNPIPE	ROAD / ELEC. SERVICE
DOMESTIC SUMP	WATER SV / FP
STORMWATER WHOLE	ELEC. / GAS METER
SEP / GRATING	GAS SERVICE
TEL COMM. MARK	BOREHOLE
TRUCK	POWER / LIGHT POLE
STONE / WOODEN POLE	POST / BOLLARD
POST / BOLLARD	SEWER RM / IQ / SIP
SEWER RM / IQ / SIP	UNKNOWN POINT / SERVICE

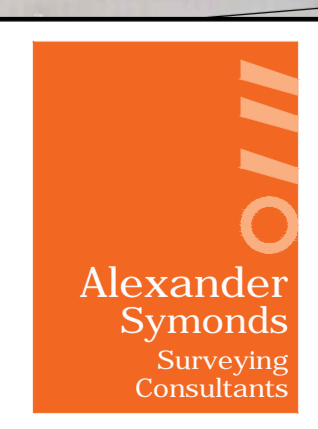
COORDINATE SYSTEM	
VERTICAL:	AHD
HORIZONTAL:	GROUND PLANE ORIENTED TO: MGA 4 ONE 54
SCALE:	GROUND 1:CSF 1:000 1:6 438 58
ADOPTED STATION & AUTHORITY	
PSM 6628.807	RL 27.338 SDB
PSM 6628.807	E 2781 5.728 SDB
	N 612 22 3 SDB
SDB denotes SA Government survey data base values (Dated: 06 / 12 / 2004)	

Notes:	
Property boundaries shown hereon have been compiled from the government records and have not been verified by field survey.	
Level information shown hereon is suitable for planning purposes only & should not be used for detailed design.	
CONTOUR INTERVAL	0.5m
SURVEY:	
DRAWN:	CB 05.07.2017
CHECKED:	

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 11 King William Street Kent Town,  
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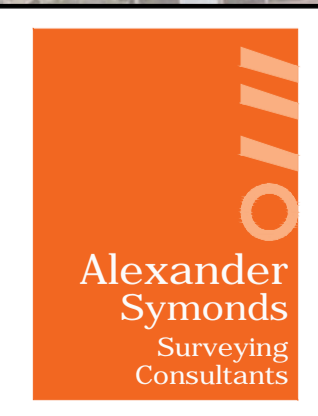
0	07.07.2017	ORIGINAL ISSUE	CB	AMX	TLH
A	12.07.2017	SERVICE TOPSTONES / OVERHEAD WIRES	CB	HLJ	RES
B	27.09.2017	ADDITIONAL ROOF HEIGHTS, INVERTS	CB	NLT	RES
C	28.09.2017	POWERLINE HEIGHTS MAPLE AVE ADDED	CB	RES	RES
D	26.11.2017	LE CORNU SIGN ELEVATIONS ADDED	CB	RES	RES
REV	DATE	DESCRIPTION	CALC	FIELD	
ADDITIONS, AMENDMENTS AND APPROVALS					

LEGEND	
47.36WT WATER TABLE	TEL COMM PILLAR / PIT
45.16FL FLOOR LEVEL	TRAFFIC LIGHT
48.12IL INVERT LEVEL	SIGN / BUS SIGN
TAP	LITTER BIN
WATER METER	MAIL BOX / SIGNAL BOX
SPRINKLER / IRRIIG VALVE	TICKET MACHINE
HYDRANT	DOWNPIPE
DOMESTIC OUTLET	DOMESTIC SUMP
ROAD / ELEC. SERVICE	STORMWATER WHOLE
WATER SV / FIP	SEP / GRATING
SEWER RM / IQ / SIP	
UNKNOWN POINT / SERVICE	
PSM	EDGE OF VEGETN
PEG / TBM	ROAD SIGN / HOARD.
CABLE MARKER	TREE / SHRUB
POWER / LIGHT POLE	POWER REGULATED / SIGNIFICANT TREE
STONE / WOODEN POLE	POST / BOLLARD
SEWER RM / IQ / SIP	SEWER RM / IQ / SIP
UNKNOWN POINT / SERVICE	UNKNOWN POINT / SERVICE
BOTTOM OF BANK	TOP OF BANK
CHANGE OF GRADE	DRAIN
SEWER PIPE UG	TEL COMM UG
WATER PIPE UG	WATER PIPE UG
WALL	GI BUILDING
CONCRETE	FENCE
GATE	

COORDINATE SYSTEM	
VERTICAL:	AHD
HORI. ONTAL:	GROUND PLANE ORIENTED TO: MGA 4 ONE 54
SCALE:	GROUND 1:5000 1:6438 58
ADOPTED STATION & AUTHORITY	
PSM 6628.807	RL 27.338 SDB
PSM 6628.807	E 2781 5.728 SDB
	N 6 21 22 3 SDB
SDB denotes SA Government survey data base values (Dated: 06 / 12 / 2004)	

NOTES	
Property boundaries shown hereon have been compiled from the government records and have not been verified by field survey.	
Level information shown hereon is suitable for planning purposes only & should not be used for detailed design.	
CONTOUR INTERVAL	0.5m
SURVEY:	CB 05.07.2017
CHECKED:	

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<b>DETAIL SURVEY LEADER ST FORESTVILLE</b>	
DRAWING No.	A0707 7 Det D
SHEET	2 OF 2
REVISION	D





AUS - Forestville - SA	
0 No.	0
Ver.	1
Prelim Design	
Plan Date:	26/02/2019
Contract:	Plan Overview
Kaufland only	23000 m <sup>2</sup>
<b>Space Schedule Kaufland</b>	
Supermarket	3970 m <sup>2</sup>
Back of House	1610 m <sup>2</sup>
Amenities	160 m <sup>2</sup>
First Floor Tenancy	527 m <sup>2</sup>
Cafe	75 m <sup>2</sup>
Tenancy 1	110 m <sup>2</sup>
Tenancy 2	100 m <sup>2</sup>
Tenancy 3	147 m <sup>2</sup>
<b>TOTAL RETAIL AREA</b>	<b>4934 m<sup>2</sup></b>
<b>Space Schedule Kaufland</b>	
Supermarket	3900 m <sup>2</sup>
Back of House	1630 m <sup>2</sup>
Amenities	164 m <sup>2</sup>
First Floor Tenancy	527 m <sup>2</sup>
Cafe	80 m <sup>2</sup>
Tenancy 1	114 m <sup>2</sup>
Tenancy 2	104 m <sup>2</sup>
Tenancy 3	151 m <sup>2</sup>
<b>TOTAL RETAIL AREA</b>	<b>4566 m<sup>2</sup></b>
<b>Space Schedule Kaufland</b>	
Planned Parking Kaufland	420
Senior	8
Accessible	8
Family	11
EV Charging	2
Customer Bicycle Parking	34
Staff Bicycle Parking	28
<p><b>Planning Specification:</b>          Submission of all basic building rights and restrictions. Information on product range and utilization restrictions together with a comparison with the development plan is required.</p> <p>Height survey of the local GDA and reconciliation with the stock is necessary before further processing.</p> <p>Separate turning movements in all directions required. An expert proof of the performance and functionality of the traffic connections to the traffic network is to be provided.          Planning of traffic systems for car and truck traffic, including proof of all.</p>	

01 LOCALITY PLAN 158

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

PRELIMINARY	REV	DATE	DESCRIPTION	DRN	CHKD	REV	DATE	DESCRIPTION	DRN	CHKD	
	P8	25.01.19	PRELIMINARY ISSUE	DA	CD		P12	25.02.19	PRELIMINARY ISSUE	DA	CD
	P9	01.02.19	PRELIMINARY ISSUE	DA	CD		P13	26.02.19	PRELIMINARY ISSUE	DG	CD
	P10	05.02.19	PRELIMINARY ISSUE	DA	CD		P14	28.02.19	PRELIMINARY ISSUE	DG	CD
	P11	08.02.19	PRELIMINARY ISSUE	DA	CD		P15	06.03.19	PRELIMINARY ISSUE	DG	CD

PROJECT KAUFLAND FORESTVILLE 10 ANZAC HIGHWAY FORESTVILLE, SA



DRAWING LOCALITY PLAN

PROJECT No S1171802

DATE DEC 2018

DRAWN DA

CHECKED CD

SCALE @ AO 1:500

DRAWING No TP-01

REV P15

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# APPENDIX B

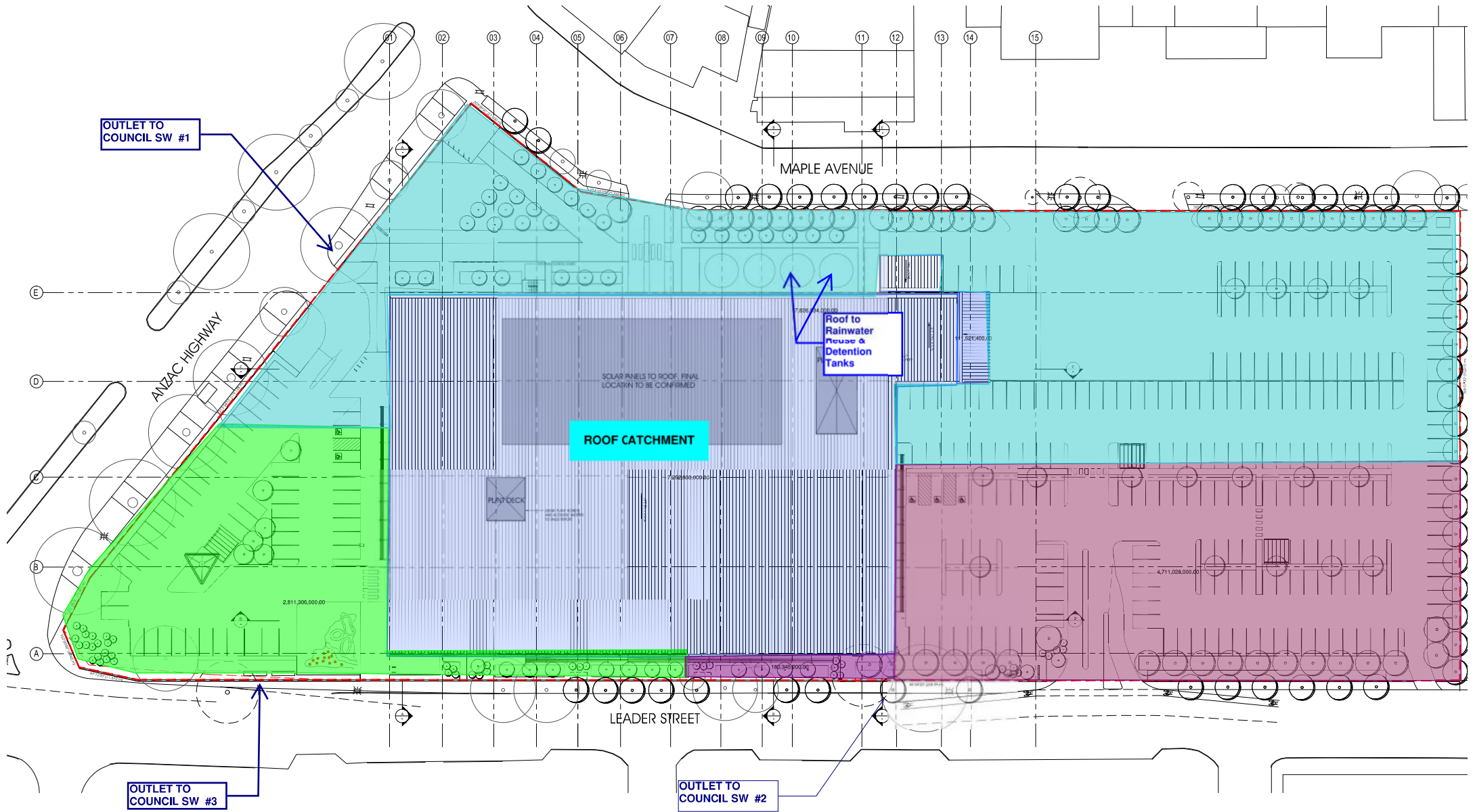
## CATCHMENT PLANS







**PROPOSED SITE CATCHMENT  
BREAKDOWN**



**B** ROOF PLAN

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

PRELIMINARY REV DATE	DESCRIPTION	DRN	CHKD	REV DATE	DESCRIPTION	DRN	CHKD
P10 01.02.19	PRELIMINARY ISSUE	DA	CD	P14 26.02.19	PRELIMINARY ISSUE	DA	CD
P11 05.02.19	PRELIMINARY ISSUE	DA	CD	P15 06.03.19	PRELIMINARY ISSUE	DA	CD
P12 08.02.19	PRELIMINARY ISSUE	DA	CD				
P13 08.02.21	PRELIMINARY ISSUE	DA	CD				

PROJECT: KAUFUND FORESTVILLE TO ANZAC HIGHWAY FORESTVILLE, SA  
 DRAWING: ROOF PLAN  
 PROJECT No: S1171802  
 DATE: DEC 2018  
 DRAWN: DA  
 CHECKED: CD  
 SCALE @ A0: 1:200  
 DRAWING No: TP-04  
 REV: P15

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 1. All boundaries, dimensions and levels are to be checked on site before construction and any discrepancies are to be reported to the Architect / Designer, & Panel Service. Any discrepancies with site or other information is to be referred to the Architect / Designer and decision or approval to be sought before the implementation of the detail, & floor and site levels should be verified by a chosen boundary survey prior to commencement on site. 4. Do not scale this drawing. 5. For the purpose of construction, all relevant parties must check the information prior to implementation and report any discrepancies to the Architect / Designer.



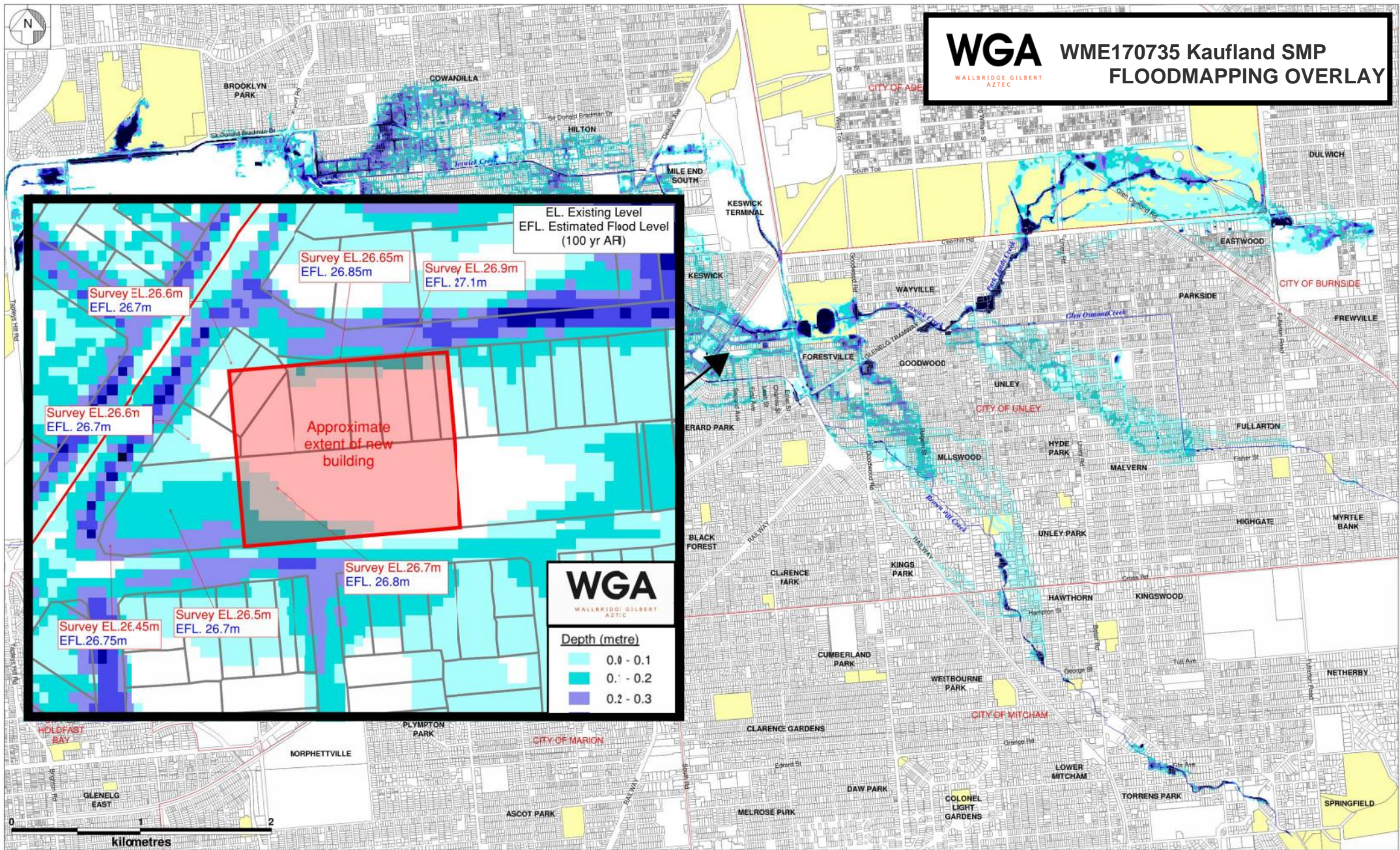

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# APPENDIX C

## FLOOD MAPPING







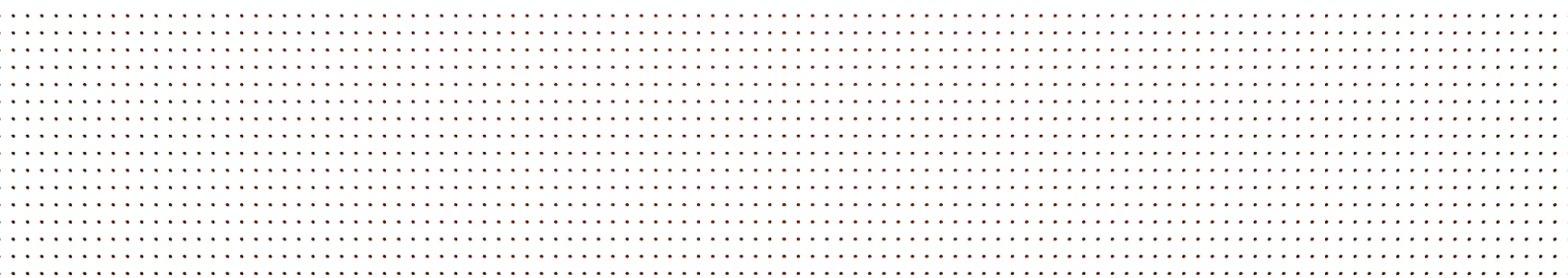
**FIGURE 1**  
**100 YEAR ARI (COMPOSITE) - BASE CASE 50a**  
**FLOOD DEPTH MAPPING**



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# APPENDIX D

## COUNCIL CORRESPONDANCE





## Emma Hendy

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**From:** Matthew Sanderson <msanderson@unley.sa.gov.au>  
**Sent:** Monday, 30 October 2017 5:03 PM  
**To:** Emma Hendy  
**Cc:** Giuseppe (Joe) LaSpina; Michael Harnack; John Devine  
**Subject:** WME170735 IN 171030 Meeting with City of Unley 10 Anzac Highway

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Emma,

It was great to discuss the site and stormwater requirements. I agree with the information provided below from our meeting Friday. A couple of comments:

- Planter rain-gardens to Leader St were discussed being within the property boundary on Leader St. The footpath width in front of the site is not large enough to be able to construct raingardens, but the current building footprint would appear to have room for planter rain-gardens between the building and property boundary.
- I fully support, in fact encourage, the concept of a slow release (leaky tank) to bio-swale and permeable paving (providing the separation distance from the building footprint is sufficient, typically 6 m but open to discussion). I would however like to see some calculations showing that subsequent rain events will not be adversely affected; i.e. that the discharge rate is sufficient to ensure the tank is empty enough to have detention capacity.
- Preference is underground drainage infrastructure connection, with flow rates to each system (Leader St and Anzac Highway) roughly matching existing configuration to ensure the stormwater systems are not overloaded with additional flow.

Regards,

**Matt Sanderson**  
**Asset/Project Engineer**  
City of Unley  
T (08) 8372 5175 | f (08) 8271 4579  
M 0407 733 715  
Email: [msanderson@unley.sa.gov.au](mailto:msanderson@unley.sa.gov.au)

[www.unley.sa.gov.au](http://www.unley.sa.gov.au)  



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**From:** Emma Hendy [mailto:EHendy@wga.com.au]  
**Sent:** Monday, 30 October 2017 3:55 PM  
**To:** Matthew Sanderson  
**Cc:** Giuseppe (Joe) LaSpina; Michael Harnack  
**Subject:** WME170735 OUT 171030 Meeting with City of Unley 10 Anzac Highway

Hi Matthew,

Thank you for meeting with us on Friday regarding the proposed development at 10 Anzac Highway, Forestville.

As discussed the stormwater management and design for the site should include;

- On site detention (OSD) based on retention of the 5 year ARI 45 minute volumetric runoff generated from the developed site, back to pre-development 80% impervious equivalent (for commercial site use).
- WSUD will be included in the open carpark and open loading dock access to treat stormwater run-off to remove 90% of gross pollutants, 80% suspended solids, 60% total phosphorous, and 45% total nitrogen of the typical urban stormwater annual load.
- Roof water where possible will be directed to rainwater harvest tanks for onsite retention/reuse. Tank sizing to be confirmed based on a water balance assessment and irrigation/toilet flushing demand.
- WSUD options include carpark raingardens, planter rain-gardens to Leader Street, rainwater harvest tanks, slow release (leaky tank) to bio-swale and permeable paving.
- Council's preference will be for underground drainage connections as kerb/water-table outlets should not exceed 4L/s.
- Council acknowledge the surrounding flood mapping and potential 100 year ARI flood levels. Habitable building space should be set 300mm about this 100 year ARI flood level. Carparking , including undercover carparking space, can however be inundated in this event and minimum floor level requirements are not imposed.

These recommendation are in-line with the City of Unley's City of Unley Development & Stormwater Management Design Guide Policy September 2016. As the site is a non-standard large development the stormwater management plan will demonstrate compliance with the requirements and achieve a tailored acceptable solution.

We also note that the recent upgrade works to Leader Street integrates WSUD on the southern side of the road but to the north side (adjacent the site boundary) there was minimal scope upgrades. Council are aware construction works will be required to the northern side (site boundary) and reconstruction of civil works may be required within the streetscape adjacent the site.

Regards,

**Emma Hendy SENIOR CIVIL ENGINEER**

BE Civil & Env, MIEAust, CPENG, NER, RBP



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# APPENDIX E

## CALCULATIONS



**SUMMARY OF CALCULATIONS - OSD**

Drainage Catchment	Existing Catchment Area (ha)	Pre-Dev C (Council) specified	Intensity 5yr ARI 45min (mm/hr)	Q max allowable (m3/s)	Ex Outlet Size (mm)	Ex Outlet Capacity (m3/s)	New Outlet Size (mm)
#1	1.65	0.8	26.1	0.096	tbc	exceeded *	300
#2	0.35	0.8	26.1	0.020	100	exceeded *	225
#3	0.3	0.8	26.1	0.017	300	exceeded *	150
<b>Total</b>	<b>2.3</b>			<b>0.13</b>			

Drainage Catchment	New Catchment Area (ha)	PSD ## Pre-development Q5	OSD Req'd# (kL)
#1	1.55	96L/s out	104
#2	0.28	20L/s out	17
#3	0.47	17L/s out	55
<b>Total</b>	<b>2.3</b>		<b>176</b>

\* New outlet connection required. Currently much of the site discharges to kerb and into SEP, new design will manage all flows on site to the outlet/SEP therefore new upsized connections required (New connections will have orifice controls to meet the PSD/Pre-development Q5 as outlined in the table)

# Assumes no WSUD

## PSD - permissible Site Discharge (based on C=0.8 Q5)

Drainage Catchment	OSD volume required (kL)	RWT Reuse/OSD Tank (kL)	50 % RWT Reuse (kL)	OSD Pipe (kL)	OSD (Raingarden) (kL)	Total (kL)	Meet Target
#1	104	145	72.5	0	40	113	Yes
#2	17	0	0	0	20	20	Yes
#3	55	0	0	18	37	55	Yes
<b>Total</b>	<b>176</b>	<b>145</b>	<b>72.5</b>	<b>18</b>	<b>97</b>	<b>188</b>	

Only 50% of RWT volume considered in OSD assessment to allow a partially full tank in storm event.

WSUD Rain-gardens will be designed with a minimum 200-250mm ponding depth to achieve the required OSD volumes.

Note: Filter Areas requirements to the raingardens are specified on the plan to meet minimum OSD volumes required



## Basic Stormwater Detention Assessment

Title Overall Site OSD

Job No

Area 15500 m<sup>2</sup>

Coeff Permeability 0.9

Location: Adelaide

Time of conc. 15 min

ARI Storm 5 Year

Max Outflow Qp 96 l/sec

Duration min	Intensity mm/hr	Inflow rate lp l/sec	Inflow Vol Vi m3	Max Storage Smax m3	
5	81	313.9	94.16	36.56	
5.5	78	302.3	99.74	40.70	
6	75	290.6	104.63	44.15	
6.5	73	282.9	110.32	48.40	
7	70	271.3	113.93	50.57	
7.5	68	263.5	118.58	53.78	
8	67	259.6	124.62	58.38	
8.5	65	251.9	128.46	60.78	
9	63	244.1	131.83	62.71	
9.5	62	240.3	136.94	66.38	
10	60	232.5	139.50	67.50	
11	57	220.9	145.78	70.90	
12	55	213.1	153.45	75.69	
13	53	205.4	160.19	79.55	
14	51	197.6	166.01	82.49	
15	49.1	190.3	171.24	84.84	
16	47.5	184.1	176.70	87.42	
17	46	178.3	181.82	89.66	
18	44.6	172.8	186.65	91.61	
19	43.3	167.8	191.28	93.36	
20	42.1	163.1	195.77	94.97	
21	41	158.9	200.18	96.50	
22	39.9	154.6	204.09	97.53	
23	38.9	150.7	208.02	98.58	
24	38	147.3	212.04	99.72	
25	37.1	143.8	215.64	100.44	
26	36.3	140.7	219.43	101.35	
27	35.5	137.6	222.85	101.89	
28	34.8	134.9	226.55	102.71	
29	34.1	132.1	229.92	103.20	
30	33.4	129.4	232.97	103.37	
32	32.1	124.4	238.82	103.46	
34	31	120.1	245.06	103.94	
36	29.9	115.9	250.26	103.38	
38	29	112.4	256.22	103.58	
40	28.1	108.9	261.33	102.93	
45	26.1	101.1	273.07	100.27	
50	24.4	94.6	283.65	96.45	
55	23	89.1	294.11	92.51	
60	21.7	84.1	302.72	86.72	
75	18.9	73.2	329.57	70.37	
1.5	16.8	65.1	351.54	49.14	
1.75	105	15.2	58.9	371.07	25.47
2	120	14	54.3	390.60	1.80
2.25	135	12.9	50.0	404.90	-27.10
2.5	150	12.1	46.9	421.99	-53.21
2.75	165	11.3	43.8	433.50	-84.90
3	180	10.7	41.5	447.80	-113.81
3.25	195	10.2	39.5	462.44	-142.36
3.5	210	9.67	37.5	472.14	-175.86
3.75	225	9.25	35.8	483.89	-207.31
4	240	8.86	34.3	494.39	-240.01
4.5	270	8.2	31.8	514.76	-306.05
5	300	7.65	29.6	533.59	-373.61
6	360	6.79	26.3	568.32	-511.68
7	420	6.14	23.8	599.57	-653.23
8	480	5.63	21.8	628.31	-797.29
9	540	5.21	20.2	654.12	-944.28
10	600	4.86	18.8	677.97	-1093.23
11	660	4.57	17.7	701.27	-1242.73
12	720	4.32	16.7	723.17	-1393.63
14	840	3.86	15.0	753.86	-1708.54
16	960	3.5	13.6	781.20	-2026.80
18	1080	3.21	12.4	806.03	-2347.57
20	1200	2.97	11.5	828.63	-2670.57
22	1320	2.76	10.7	847.04	-2997.76
24	1440	2.59	10.0	867.13	-3323.27
30	1800	2.18	8.4	912.33	-4314.87
36	2160	1.9	7.4	954.18	-5309.82
42	2520	1.68	6.5	984.31	-6316.49
48	2880	1.51	5.9	1011.10	-7326.50
54	3240	1.36	5.3	1024.49	-8349.91
60	3600	1.25	4.8	1046.25	-9364.95
66	3960	1.15	4.5	1058.81	-10389.20
72	4320	1.06	4.1	1064.66	-11420.14

(hours)

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60  
66  
72

### Basic Stormwater Detention Assessment

**Title** Overall Site OSD  
**Job No**  
**Area** 2800 m<sup>2</sup>  
**Coeff Permeability** 0.9  
**Location:** Adelaide  
**Time of conc.** 12 min  
**ARI Storm** 5 Year  
**Max Outflow Qp** 20 l/sec

Duration min	Intensity mm/hr	Inflow rate Ip l/sec	Inflow Vol Vi m3	Max Storage Smax m3	
5	81	56.7	17.01	6.81	
5.5	78	54.6	18.02	7.52	
6	75	52.5	18.90	8.10	
6.5	73	51.1	19.93	8.83	
7	70	49.0	20.58	9.18	
7.5	68	47.6	21.42	9.72	
8	67	46.9	22.51	10.51	
8.5	65	45.5	23.21	10.91	
9	63	44.1	23.81	11.21	
9.5	62	43.4	24.74	11.84	
10	60	42.0	25.20	12.00	
11	57	39.9	26.33	12.53	
12	55	38.5	27.72	13.32	
13	53	37.1	28.94	13.94	
14	51	35.7	29.99	14.39	
15	49.1	34.4	30.93	14.73	
16	47.5	33.3	31.92	15.12	
17	46	32.2	32.84	15.44	
18	44.6	31.2	33.72	15.72	
19	43.3	30.3	34.55	15.95	
20	42.1	29.5	35.36	16.16	
21	41	28.7	36.16	16.36	
22	39.9	27.9	36.87	16.47	
23	38.9	27.2	37.58	16.58	
24	38	26.6	38.30	16.70	
25	37.1	26.0	38.96	16.76	
26	36.3	25.4	39.64	16.84	
27	35.5	24.9	40.26	16.86	
28	34.8	24.4	40.92	16.92	
29	34.1	23.9	41.53	16.93	
30	33.4	23.4	42.08	16.88	
32	32.1	22.5	43.14	16.74	
34	31	21.7	44.27	16.67	
36	29.9	20.9	45.21	16.41	
38	29	20.3	46.28	16.28	
40	28.1	19.7	47.21	16.01	
45	26.1	18.3	49.33	15.13	
50	24.4	17.1	51.24	14.04	
55	23	16.1	53.13	12.93	
60	21.7	15.2	54.68	11.48	
1.25	75	18.9	13.2	59.54	7.33
1.5	90	16.8	11.8	63.50	2.30
1.75	105	15.2	10.6	67.03	-3.17
2	120	14	9.8	70.56	-8.64
2.25	135	12.9	9.0	73.14	-15.06
2.5	150	12.1	8.5	76.23	-20.97
2.75	165	11.3	7.9	78.31	-27.89
3	180	10.7	7.5	80.89	-34.31
3.25	195	10.2	7.1	83.54	-40.66
3.5	210	9.67	6.8	85.29	-47.91
3.75	225	9.25	6.5	87.41	-54.79
4	240	8.86	6.2	89.31	-61.89
4.5	270	8.2	5.7	92.99	-76.21
5	300	7.65	5.4	96.39	-90.81
6	360	6.79	4.8	102.66	-120.54
7	420	6.14	4.3	108.31	-150.89
8	480	5.63	3.9	113.50	-181.70
9	540	5.21	3.6	118.16	-213.04
10	600	4.86	3.4	122.47	-244.73
11	660	4.57	3.2	126.68	-276.52
12	720	4.32	3.0	130.64	-308.56
14	840	3.86	2.7	136.18	-375.02
16	960	3.5	2.5	141.12	-442.08
18	1080	3.21	2.2	145.61	-509.59
20	1200	2.97	2.1	149.69	-577.51
22	1320	2.76	1.9	153.01	-646.19
24	1440	2.59	1.8	156.64	-714.56
30	1800	2.18	1.5	164.81	-922.39
36	2160	1.9	1.3	172.37	-1130.83
42	2520	1.68	1.2	177.81	-1341.39
48	2880	1.51	1.1	182.65	-1552.55
54	3240	1.36	1.0	185.07	-1766.13
60	3600	1.25	0.9	189.00	-1978.20
66	3960	1.15	0.8	191.27	-2191.93
72	4320	1.06	0.7	192.33	-2406.87

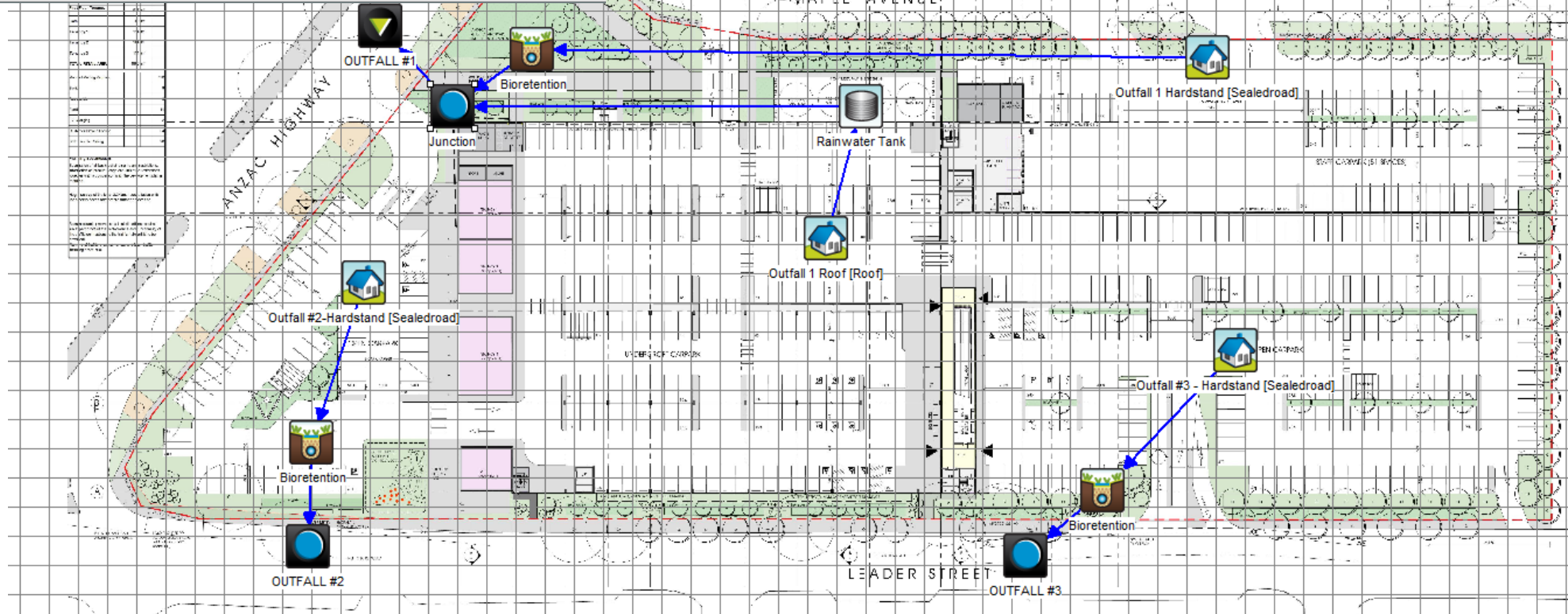
### Basic Stormwater Detention Assessment

**Title** Overall Site OSD  
**Job No**  
**Area** 4700 m<sup>2</sup>  
**Coeff Permeability** 0.9  
**Location:** Adelaide  
**Time of conc.** 12 min  
**ARI Storm** 2 Year  
**Max Outflow Qp** 17 l/sec

Duration min	Intensity mm/hr	Inflow rate Ip l/sec	Inflow Vol Vi m3	Max Storage Smax m3	
5	81	95.2	28.55	19.88	
5.5	78	91.7	30.24	21.32	
6	75	88.1	31.73	22.55	
6.5	73	85.8	33.45	24.02	
7	70	82.3	34.55	24.86	
7.5	68	79.9	35.96	26.01	
8	67	78.7	37.79	27.59	
8.5	65	76.4	38.95	28.50	
9	63	74.0	39.97	29.26	
9.5	62	72.9	41.52	30.56	
10	60	70.5	42.30	31.08	
11	57	67.0	44.20	32.47	
12	55	64.6	46.53	34.29	
13	53	62.3	48.57	35.82	
14	51	59.9	50.34	37.08	
15	49.1	57.7	51.92	38.15	
16	47.5	55.8	53.58	39.30	
17	46	54.1	55.13	40.34	
18	44.6	52.4	56.60	41.30	
19	43.3	50.9	58.00	42.19	
20	42.1	49.5	59.36	43.04	
21	41	48.2	60.70	43.87	
22	39.9	46.9	61.88	44.54	
23	38.9	45.7	63.08	45.23	
24	38	44.7	64.30	45.94	
25	37.1	43.6	65.39	46.52	
26	36.3	42.7	66.54	47.16	
27	35.5	41.7	67.57	47.68	
28	34.8	40.9	68.70	48.30	
29	34.1	40.1	69.72	48.81	
30	33.4	39.2	70.64	49.22	
32	32.1	37.7	72.42	49.98	
34	31	36.4	74.31	50.85	
36	29.9	35.1	75.89	51.41	
38	29	34.1	77.69	52.19	
40	28.1	33.0	79.24	52.72	
45	26.1	30.7	82.80	53.73	
50	24.4	28.7	86.01	54.39	
55	23	27.0	89.18	55.01	
60	21.7	25.5	91.79	55.07	
1.25	75	18.9	22.2	99.93	55.56
1.5	90	16.8	19.7	106.60	54.58
1.75	105	15.2	17.9	112.52	52.85
2	120	14	16.5	118.44	51.12
2.25	135	12.9	15.2	122.78	47.81
2.5	150	12.1	14.2	127.96	45.34
2.75	165	11.3	13.3	131.45	41.18
3	180	10.7	12.6	135.78	37.86
3.25	195	10.2	12.0	140.22	34.65
3.5	210	9.67	11.4	143.16	29.94
3.75	225	9.25	10.9	146.73	25.86
4	240	8.86	10.4	149.91	21.39
4.5	270	8.2	9.6	156.09	12.27
5	300	7.65	9.0	161.80	2.68
6	360	6.79	8.0	172.33	-17.39
7	420	6.14	7.2	181.81	-38.51
8	480	5.63	6.6	190.52	-60.40
9	540	5.21	6.1	198.34	-83.18
10	600	4.86	5.7	205.58	-106.54
11	660	4.57	5.4	212.64	-130.08
12	720	4.32	5.1	219.28	-154.04
14	840	3.86	4.5	228.59	-205.93
16	960	3.5	4.1	236.88	-258.84
18	1080	3.21	3.8	244.41	-312.51
20	1200	2.97	3.5	251.26	-366.86
22	1320	2.76	3.2	256.85	-422.47
24	1440	2.59	3.0	262.94	-477.58
30	1800	2.18	2.6	276.64	-647.48
36	2160	1.9	2.2	289.33	-818.39
42	2520	1.68	2.0	298.47	-992.85
48	2880	1.51	1.8	306.59	-1168.33
54	3240	1.36	1.6	310.65	-1347.87
60	3600	1.25	1.5	317.25	-1524.87
66	3960	1.15	1.4	321.06	-1704.66
72	4320	1.06	1.2	322.83	-1886.49

Treatment Train Effectiveness - OUTFALL #1

	Sources	Residual Load	% Reduction
Flow (ML/yr)	4.23	2.06	51.4
Total Suspended Solids (kg/yr)	764	10.2	98.7
Total Phosphorus (kg/yr)	1.63	0.271	83.4
Total Nitrogen (kg/yr)	9.64	1.7	82.4
Gross Pollutants (kg/yr)	210	0	100



Treatment Train Effectiveness - OUTFALL #2

	Sources	Residual Load	% Reduction
Flow (ML/yr)	0.769	0.665	13.5
Total Suspended Solids (kg/yr)	274	2.69	99
Total Phosphorus (kg/yr)	0.462	0.0873	81.1
Total Nitrogen (kg/yr)	1.79	0.536	70.1
Gross Pollutants (kg/yr)	37.9	0	100

Treatment Train Effectiveness - OUTFALL #3

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.29	1.1	14.7
Total Suspended Solids (kg/yr)	463	6.06	98.7
Total Phosphorus (kg/yr)	0.745	0.142	80.9
Total Nitrogen (kg/yr)	3	0.888	70.4
Gross Pollutants (kg/yr)	63.6	0	100

Legend for site plan symbols and colors.

ZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

STUDIO I17



## Monthly Water Balance

Rainwater Reuse Tanks – 145kL and 72.5kL

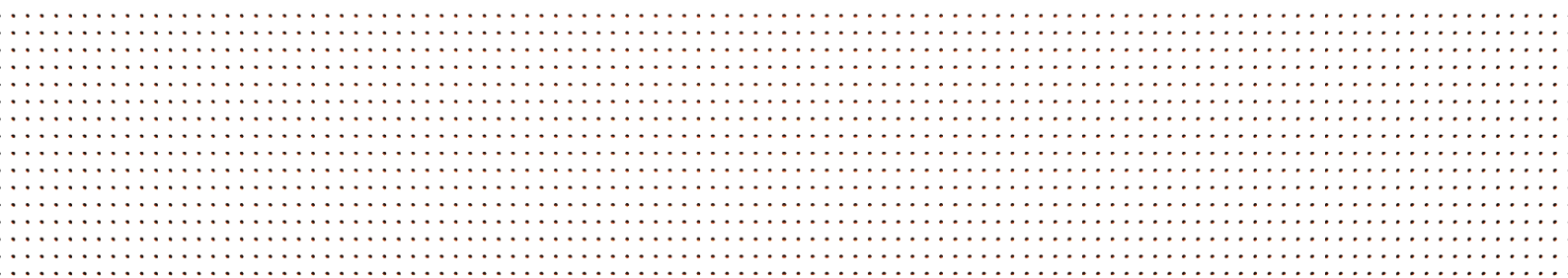
Kaufland, Forestville SMP							
<b>Mean Rainfall</b>				Roof Area	7300 m2		
Adelaide (Kent Town)				Tank Size	73 kL		
Number: 23090							
Month	Average Rainfall (mm)	C	Capture Efficiency	Volume to tank (m3)	Demand from Tank (m3)	Year 1 - Storage at end of month(m3)	% Approximate Demand Met
January	20.1	0.95	0.9	125	315	0	23
February	15.5	0.95	0.9	97	315	0	23
March	26.8	0.95	0.9	167	315	0	23
April	39	0.95	0.9	243	315	0	23
May	60.9	0.95	0.9	380	315	65	100
June	76.5	0.95	0.9	477	315	73	100
July	77.5	0.95	0.9	484	315	73	100
August	68.1	0.95	0.9	425	315	73	100
September	58.7	0.95	0.9	366	315	73	100
October	41.4	0.95	0.9	258	315	16	100
November	29.9	0.95	0.9	187	315	0	64
December	28.9	0.95	0.9	180	315	0	57
<b>Annual</b>	<b>543.3</b>			<b>3391</b>	<b>3780</b>		
x	Low rainfall month - tank empty minimal reuse			x	rainfall does not fill the tank	x	Tank spills

Kaufland, Forestville SMP							
<b>Mean Rainfall</b>				Roof Area	7300 m2		
Adelaide (Kent Town)				Tank Size	145 kL		
Number: 23090							
Month	Average Rainfall (mm)	C	Capture Efficiency	Volume to tank (m3)	Demand from Tank (m3)	Year 1 - Storage at end of month(m3)	% Approximate Demand Met
January	20.1	0.95	0.9	125	315	0	40
February	15.5	0.95	0.9	97	315	0	31
March	26.8	0.95	0.9	167	315	0	46
April	39	0.95	0.9	243	315	0	46
May	60.9	0.95	0.9	380	315	65	100
June	76.5	0.95	0.9	477	315	145	100
July	77.5	0.95	0.9	484	315	145	100
August	68.1	0.95	0.9	425	315	145	100
September	58.7	0.95	0.9	366	315	145	100
October	41.4	0.95	0.9	258	315	88	100
November	29.9	0.95	0.9	187	315	0	87
December	28.9	0.95	0.9	180	315	0	57
<b>Annual</b>	<b>543.3</b>			<b>3391</b>	<b>3780</b>		
x	Low rainfall month - tank empty minimal reuse			x	rainfall does not fill the tank	x	Tank spills

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# APPENDIX F

## STORMWATER MANAGEMENT PLAN



LC01	LANDSCAPE CONCEPT
LC02	LANDSCAPE DETAILS
LC03	LANDSCAPE CONCEPT
LC04	LANDSCAPE CONCEPT
LC05	LANDSCAPE CONCEPT
LC06	LANDSCAPE CONCEPT
LC07	LANDSCAPE CONCEPT
LC08	LANDSCAPE CONCEPT
LC09	LANDSCAPE CONCEPT
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LC47	LANDSCAPE CONCEPT
LC48	LANDSCAPE CONCEPT
LC49	LANDSCAPE CONCEPT
LC50	LANDSCAPE CONCEPT

REV. NO.	ISSUE	DATE
A	FOR REVIEW	JULY 2018
B	FOR REVIEW	OCT 2018
C	FOR REVIEW	JULY 2018
D	FOR REVIEW	JAN 2019
E	FOR REVIEW	FEB 2019
F	FOR REVIEW	FEB 2019

**OUTFALL #1**  
 WSUD Rain gardens = 250m2 total  
 (200m2 filter area) (40kL OSD @ 200mm deep)  
 Roof Water Tank Capacity 2x72.5kL  
 (145kL total)\*50% assumed for OSD  
 storage therefore 72.5kL  
 TOTAL Combined OSD for catchment=  
 112.5kL  
 Required OSD 105kL

ADVANCED HEDGE  
 Ficus 'Flash' @ 600mm CRS  
 Clip to 1.2m Even Height

CONCRETE  
 PAVING

TIMBER SCREENING  
 See Architectural Detail

STREET TREES (Alternating)  
 Eucalyptus torquata CORAL GUM  
 Ficus 'Flash' @ 600mm CRS  
 Koeberlinia paniculata GOLDEN RAIN TREE  
 @ 5m CRS

BIOSWALE  
 Concrete Edge Strips  
 Tankilla Aggregate Mulch  
 20mm Non. Size  
 Alternating Swathes of Sedges  
 between Trees  
 Ficinia nodosa (Knobby Club Rush)  
 Juncus ananthus (Green Rush)  
 Scattered @ 600mm CRS

TREE PIT  
 2m x 1m x 1m in Depth  
 Drained Structure Soil  
 Porous Resin  
 Aggregate Curcut  
 150x150mm

Humeceptor (or similar approved)  
 grease/oil/hydrocarbon capture  
 pit. Proprietary Unit to loading  
 dock.

2 x 72.5kL water tanks  
 (total volume 145kL)

ROOF TO  
 TANKS

LOADING AREA

CAR PARK

Ficus 'Capitol'  
 Capital Pear  
 @ 4m CRS

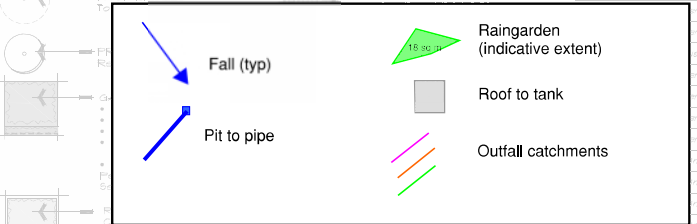
CAR PARK

CAR PARK

**OUTFALL #2**  
 WSUD Raingardens = 100m2  
 total (80m2 filter area) (20kL OSD  
 @ 250mm deep)  
 TOTAL Combined OSD for  
 catchment = 23kL  
 Required OSD 17kL

**OUTFALL #3**  
 WSUD Raingardens = 170m2  
 total (150m2 filter area)(37kL  
 OSD @ 250mm deep)  
 Oversized stormwater (600mm  
 dia. over 65m = 18kL).  
 TOTAL Combined OSDfor  
 catchment= 55kL  
 Required OSD 55kL

Oversized pipe  
 600mm dia.  
 OSD



EXISTING TREE LIST

TREE NO.	BOTANICAL NAME	COMMON NAME	STATUS
No.10	Koeleruteria paniculata	Golden Rain Tree	Remove
No.11	Eucalyptus lauroxylon	South Coast Blue Gum	Remove
No.12	Ficus paniculata	Golden Rain Tree	Remove
No.13	Eucalyptus torquata	Coral Gum	Remove
No.14	Ficus paniculata	Golden Rain Tree	Remove
No.15	Ficus paniculata	Golden Rain Tree	Remove
No.16	Ficus paniculata	Golden Rain Tree	Remove
No.17	Eucalyptus lauroxylon	South Coast Blue Gum	Remove
No.18	Ficus paniculata	Golden Rain Tree	Remove
No.19	Ficus paniculata	Golden Rain Tree	Remove
No.20	Ficus paniculata	Golden Rain Tree	Remove
No.21	Ficus paniculata	Golden Rain Tree	Remove
No.22	Ficus paniculata	Golden Rain Tree	Remove
No.23	Ficus paniculata	Golden Rain Tree	Remove
No.24	Ficus paniculata	Golden Rain Tree	Remove
No.25	Ficus paniculata	Golden Rain Tree	Remove
No.26	Ficus paniculata	Golden Rain Tree	Remove
No.27	Ficus paniculata	Golden Rain Tree	Remove
No.28	Ficus paniculata	Golden Rain Tree	Remove
No.29	Ficus paniculata	Golden Rain Tree	Remove
No.30	Ficus paniculata	Golden Rain Tree	Remove
No.31	Ficus paniculata	Golden Rain Tree	Remove
No.32	Ficus paniculata	Golden Rain Tree	Remove
No.33	Ficus paniculata	Golden Rain Tree	Remove
No.34	Ficus paniculata	Golden Rain Tree	Remove
No.35	Ficus paniculata	Golden Rain Tree	Remove
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No.39	Ficus paniculata	Golden Rain Tree	Remove
No.40	Ficus paniculata	Golden Rain Tree	Remove
No.41	Ficus paniculata	Golden Rain Tree	Remove
No.42	Ficus paniculata	Golden Rain Tree	Remove
No.43	Ficus paniculata	Golden Rain Tree	Remove
No.44	Ficus paniculata	Golden Rain Tree	Remove
No.45	Ficus paniculata	Golden Rain Tree	Remove
No.46	Ficus paniculata	Golden Rain Tree	Remove
No.47	Ficus paniculata	Golden Rain Tree	Remove
No.48	Ficus paniculata	Golden Rain Tree	Remove
No.49	Ficus paniculata	Golden Rain Tree	Remove
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No.76	Ficus paniculata	Golden Rain Tree	Remove
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No.81	Ficus paniculata	Golden Rain Tree	Remove
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No.83	Ficus paniculata	Golden Rain Tree	Remove
No.84	Ficus paniculata	Golden Rain Tree	Remove
No.85	Ficus paniculata	Golden Rain Tree	Remove
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No.94	Ficus paniculata	Golden Rain Tree	Remove
No.95	Ficus paniculata	Golden Rain Tree	Remove
No.96	Ficus paniculata	Golden Rain Tree	Remove
No.97	Ficus paniculata	Golden Rain Tree	Remove
No.98	Ficus paniculata	Golden Rain Tree	Remove
No.99	Ficus paniculata	Golden Rain Tree	Remove
No.100	Ficus paniculata	Golden Rain Tree	Remove



**STORMWATER MANAGEMENT PLAN**  
 Rev H

This plan outlines the minimum bioretention areas for water quality and OSD noting that the current landscape plan meets or exceeds this therefore at detailed design the concepts can be refined to suit site.

**AUTOMATIC IRRIGATION NOTES:**  
 Sprinkler Irrigating Trees (A Not which are show on the plan should be removed from the roof.  
 The Rain Gardens and Bioswales will be irrigated from trees area. No air filter, reduce and slow dry weather discharge for the site.

Project: KAULAND 10 ANZAC HWY  
 Title: LANDSCAPE CONCEPT  
 Date: FEB 2019  
 Project No.: 2022  
 Drawing No.: LC0  
 Scale: 1:300 @ B1  
 Revision: F



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# WGA

WALLBRIDGE GILBERT  
AZTEC

Kaufland Australia

## 10 Anzac Highway Forestville

### PEDESTRIAN MOVEMENT PLAN

Project No. 171147

Doc.No. WGA171147-RP-CV-003

Rev E

20 March 2019

# WGA

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### Revision History

Rev	Date	Issue	Originator	Checker	Approver
A	18.04.18	Draft	SSS	HB	HB
B	03.05.18	Final	SSS	HB	HB
C	12.07.18	Revised	SSS	HB	HB
D	13.03.19	Revised	JKL	SSS	JZ
E	20.03.19	Updated to include client comments	JKL	SSS	JZ

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## Appendices

### Appendix A Site Plan

# 1 INTRODUCTION

Wallbridge Gilbert Aztec (WGA) has been engaged by Kaufland Australia (Kaufland) to undertake a Pedestrian Movement Plan (PMP) for the proposed flagship Kaufland store to be located at 10 Anzac Highway, Forestville (a site previously occupied by Le Cornu). It is understood that the proposed development will primarily consist of a major supermarket, with an adjacent marketplace area providing specialty stores.

A locality plan of the proposed development is shown in Figure 1 below.



Figure 1 Proposed Development, Locality Plan

The purpose and key elements of the study are to review and assess:

- Existing pedestrian conditions and treatments on roads adjacent to the development.
- The estimated peak pedestrian demand of the development.
- Pedestrian safety, and / or operational constraints to the proposal, as well as potential measures to mitigate such constraints, where appropriate.



# 2 PROPOSED DEVELOPMENT

The proposed development is to be located on the vacant former Le Cornu site at 10 Anzac Highway Forestville, as illustrated in Figure 1 above.

The proposed development will comprise the following elements:

- 1 x Kaufland and adjacent marketplace
- 4 x Supporting Specialty Stores

The general site plan is shown below in Figure 2.

Architectural plans for the site are included Appendix A for reference.

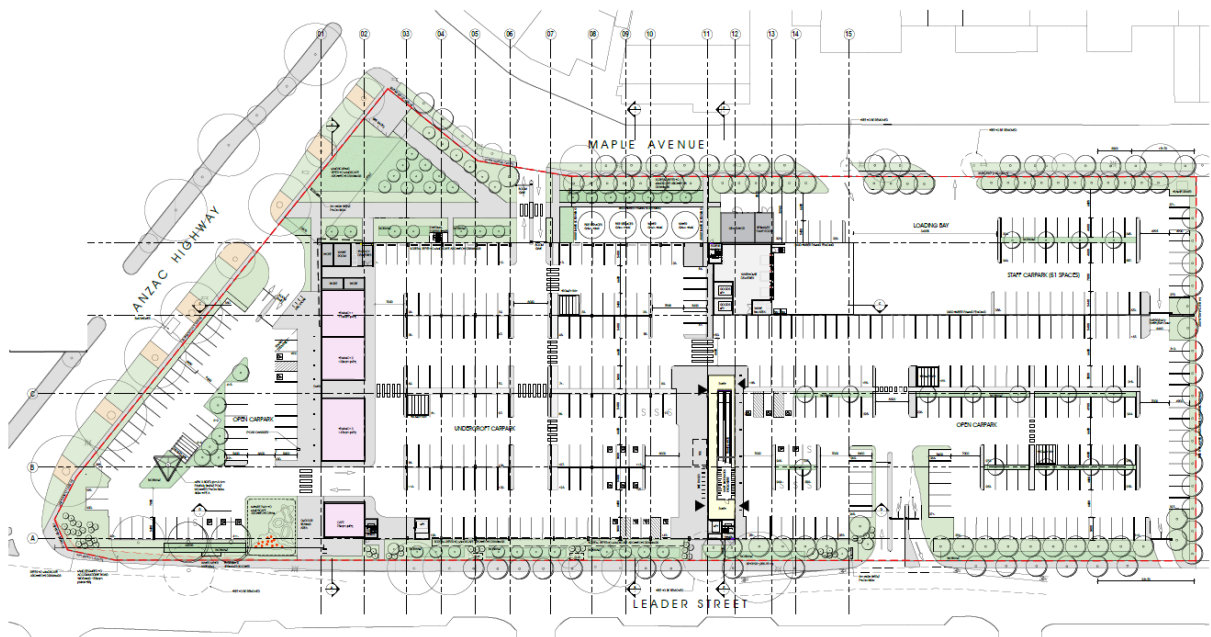


Figure 2 General Site Plan

# 3 EXISTING ROADWAY AND TRAFFIC CONDITIONS

## 3.1 CURRENT USE

The existing site is shown in Figure 3 below and consists of a currently disused furniture shop (Le Cornu), as well as associated car parks. It is understood that the car parking area is currently available to the public under a paid ticket arrangement, with Ashford Hospital staff and visitors utilising the area.

The site is bounded by Maple Avenue, Leader Street and Anzac Highway, with the surrounding development a combination of residential/light industrial. Directly opposite the proposed development site on Anzac Highway is Ashford Hospital, a 239-bed private hospital.



Figure 3 Current Site Use

## **3.2 EXISTING ROAD AND PEDESTRIAN NETWORK**

### **3.2.1 Anzac Highway**

In the vicinity of the site, Anzac Highway is a six-lane divided urban arterial road under the care and control of DPTI. Average Annual Daily Traffic (AADT) volumes on Anzac Highway are in the order of 47,100 vehicles per day (vpd), with approximately 1,650 heavy vehicles (Source: SA Viewer Website), and a posted speed limit of 60 kph. Pedestrian paths are provided on both sides of Anzac Highway, with pedestrian crossings also provided on the Leader Street and Anzac Highway South approach to the Anzac Highway/Leader Street signalised junction. The SAVIEWER website shows that from 2012 to 2016, there were a number of road crashes involving pedestrians on Anzac Highway adjacent the proposed development (including one fatality), and it is understood that signage has recently been installed to encourage pedestrians to cross at the signalised crossings.

### **3.2.2 Leader Street**

Leader Street is a two lane undivided local road, under the care and control of The City of Unley. A collector road, its key function is providing access between Anzac Highway and Goodwood Road as well as to a number of local streets. AADT volumes are in the order of 7,900 vehicles per day (vpd), with approximately 2.6% heavy vehicles (Source: DPTI Traffic Count), and it has a posted speed limit of 50 kph. It is understood that the road has recently been upgraded to include formalised parallel parking on each side of the road, as well as bicycle lanes. Pedestrian paths are provided on both sides of Leader Street.

### **3.2.3 Maple Avenue**

To the north, Maple Avenue is a two lane local road, under the care and control of The City of Unley. Based on observations by WGA during site visits, it is considered likely that the AADT volumes are in the order of 1,000 vpd (applying the same peak hour factor as Leader Street). The road provides local access to a number of light industrial properties and has a posted speed limit of 50km/hr. Pedestrian paths are provided on both sides of Maple Avenue.

## **3.3 PUBLIC TRANSPORT**

There are a number of public transport services operating within the vicinity of the proposed development, as shown in Figure 4 below, including:

- Anzac Highway Bus Stops 2 and 3 – are part of the Anzac Highway “Go Zone”, with services approximately every 15 minutes between 7.30am and 6.30pm Monday to Friday and every 30 minutes at night, Saturday, Sunday and public holidays until 10pm. Buses servicing the route provide connectivity between the Adelaide CBD and Adelaide Southern and South-Western Suburbs.
- Everard Avenue Bus Stop 2A – Buses servicing the route provide connectivity between the Marion Centre Interchange and the Adelaide CBD, via the suburbs of Edwardstown and Glandore
- Leader Street Bus Stop 6 - Buses servicing the route provide connectivity between the Marion Centre Interchange and the Adelaide CBD, via the suburb of St Marys
- Goodwood and Adelaide Showground Rail Stations – Stations are serviced by Adelaide Metro Belair and Seaford rail lines, which combined provide a high frequency of services to the Adelaide CBD and Adelaide Southern suburbs.

All of the identified bus stops and train stations are within an approximate 10 minute walk (or 800 m) of the site of the proposed development.

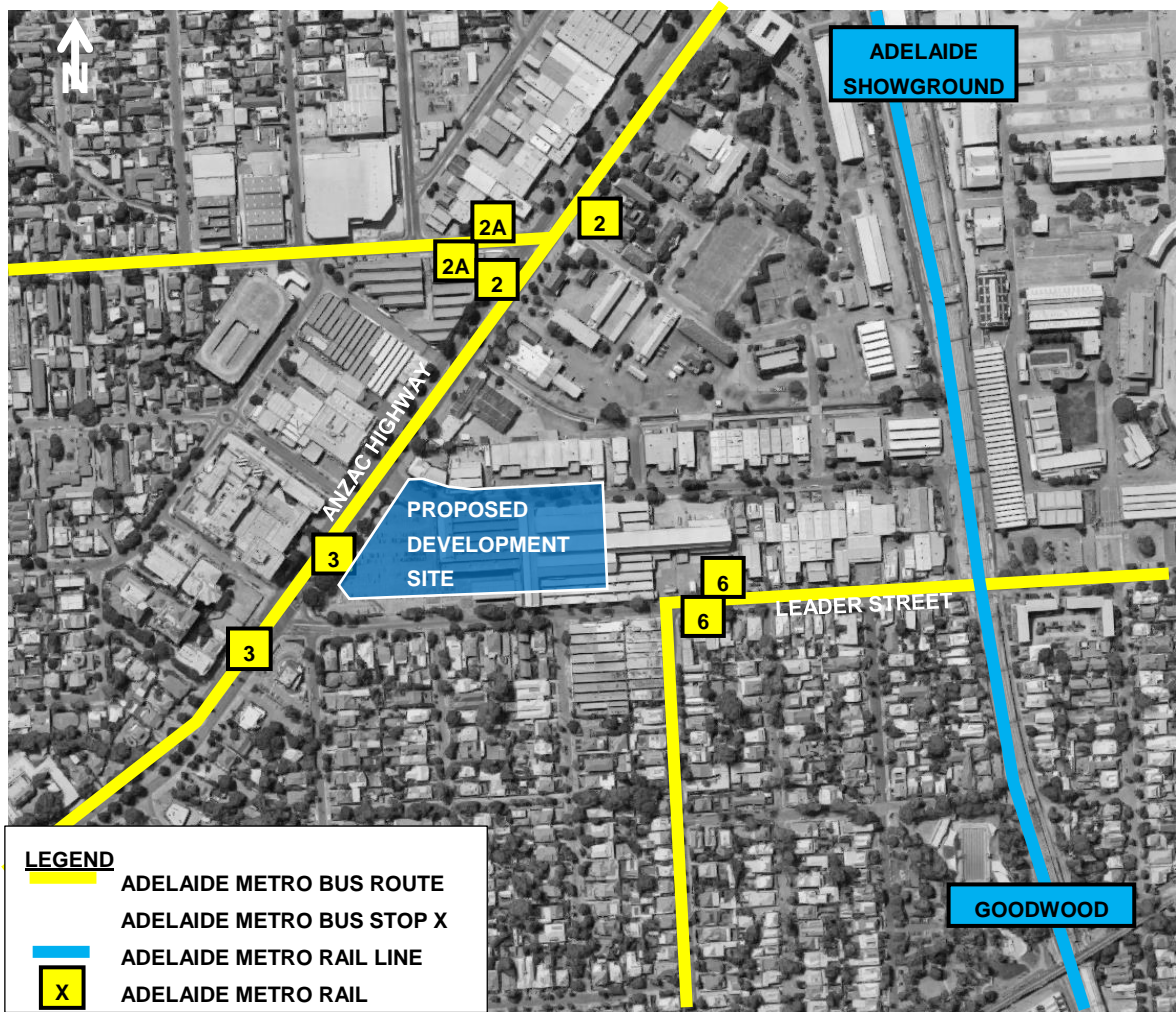


Figure 4 Public Transport Infrastructure

### 3.4 PLANNED ROADWAY IMPROVEMENTS

WGA are not aware of any major road works or pedestrian upgrades planned in the immediate vicinity of the proposed development.



# 4 PEDESTRIAN DEMAND

## 4.1 GENERAL

The majority of pedestrian demand of the new development is expected to be generated by customers travelling to/from their cars within the proposed development car park. In addition, there is expected to be a small number of customers who will travel to/from the site on foot, from either a nearby residence or business or from a public transport stop/station.

The use of the term 'Trip' represents a one-way movement from one point to another. Therefore, a pedestrian entering and leaving the proposed development will correspond to two trips.

## 4.2 VEHICLE DRIVEN PEDESTRIAN DEMAND

Vehicle trip generation rates of the proposed development have been calculated in the WGA Traffic and Parking Assessment Report and are summarised in Table 1 below. To assess the impact that this vehicle demand will have on pedestrian trip rates, it has been assumed that there would be one pedestrian movement per vehicle. Although in reality, the number of pedestrians per car is likely to be higher than one (to allow for additional passengers in the car); it has been assumed that the pedestrians would be travelling together through the car park (entering/exiting the car and the access development point at the same time) and therefore represent one singular trip. Based on this assumption, the resultant estimated pedestrian trips generated by vehicle movements are also shown in Table 1 below.

Table 1 Vehicle Peak Hour Trip Generation

	Weekday Peak Hour	Weekend Peak Hour
<b>Vehicle Trips Generated</b>	<b>760</b>	<b>1,010</b>
<b>Pedestrian Trips Generated</b>	<b>760</b>	<b>1,010</b>

## 4.3 OTHER PEDESTRIAN DEMAND

In addition to those pedestrian movements generated by vehicles, there is also expected to be a small number of customers who will travel to/from the site on foot, from either a nearby residence or business or from a public transport stop/station.

It is generally recognised that pedestrians will walk up to 400 metres to local facilities and bus stops and up to 800 metres to town centres or train stations, with the spacing of safe crossings having a major impact on walk catchments and the level of walking (WA Main Roads Transport Impact Assessment Guidelines). As shown in Figure 5 below, the 400m "walking zone" of the proposed development includes a number of light industrial businesses, the Ashford Hospital and some residential properties.



Figure 5 Pedestrian Walking Zone of Proposed Development

Given the relatively low-density walking zone, it has therefore been assumed that there would generally be less than 100 pedestrian movements an hour generated from outside the proposed development site. This rate allows for the fact that the peak pedestrian generation from the residential properties is likely to be outside that of the local businesses, with pedestrians travelling from residences considered more likely to walk to the site on weekends and pedestrians travelling from local businesses and Ashford Hospital more likely to be on a weekday. This rate also includes customers walking from nearby bus stops and train stations, which are expected to be minimal given the suburban nature of the site.

In addition, an outdoor playground facility is provided on the southern side of the site. Given that the playground will be located adjacent a proposed café and associated car parking, the number of pedestrian trips generated by this facility is expected to be moderate to high. An assumed number of pedestrian trips of 40 in the weekday peak hour and 60 in the weekend peak hour has been adopted.

#### 4.4 TOTAL PEDESTRIAN DEMAND

The total combined pedestrian demand of the proposed development during peak hours is summarised in Table 2 below.

Table 2 Pedestrian Peak Hour Trip Generation

Area	Pedestrian Trips Generated	
	Weekday Peak Hour	Weekend Peak Hour
<b>Vehicle Generated Pedestrian Trips</b>	<b>760</b>	<b>1,010</b>
<b>Other Pedestrian Trips</b>	<140	<160
<b>Total</b>	<b>900</b>	<b>1,170</b>

#### 4.5 PEDESTRIAN MOVEMENTS

It is understood that all pedestrian access to the proposed development will be through the ground floor entry point (which provides access to the upper level of the development via travellers). Based on this, key pedestrian movements considered likely to be generated by the proposed development have been developed and are shown graphically in Figure 6 below.

- Movement A – pedestrians accessing their vehicles in the south-western segment of the car park. Also includes pedestrians travelling from/to the west (likely limited to those using Bus Stop 3 on Anzac Highway)
- Movement B – pedestrians travelling from/to the north-west, including Maple Avenue and light industrial businesses
- Movement C – pedestrians traveling from/to the south-west, including those utilising the signalised pedestrian crossings at the Anzac Highway/Leader Street junction. Likely to include all Ashford Hospital pedestrians and those accessing Bus Stop 2 on the western side of Anzac Highway
- Movement D – pedestrians accessing their vehicles in the western segment of the car park
- Movement E – pedestrians accessing their vehicles in the central segment of the car park
- Movement F – pedestrians accessing their vehicles in the eastern segment of the car park
- Movement G – pedestrians accessing their vehicles in the south-eastern segment of the car park. Also includes pedestrians travelling from/to the south, including those travelling to/from residential properties and to/from Bus Stop 6 on Leader Street and Goodwood and Adelaide Showground train stations

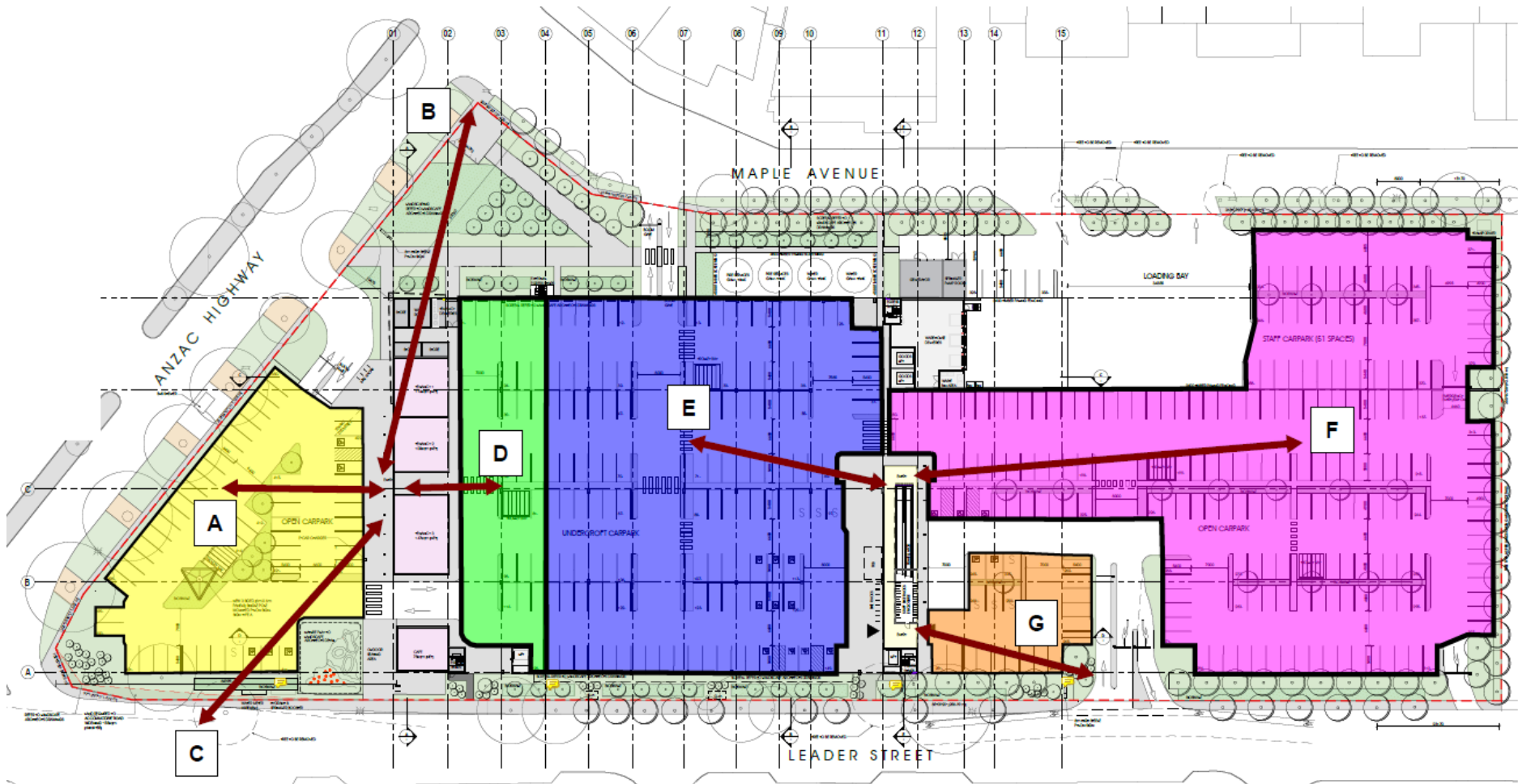


Figure 6 Key Pedestrian Movements



The number of car parks that each movement is considered likely to service, and the assumed percentage of other pedestrian movements it is considered likely to service is summarised in Table 3 below.

*Table 3 Pedestrian Trip Movements*

<b>Pedestrian Movement</b>	<b>No. of Carparks Serviced</b>	<b>% of Carparks Serviced</b>	<b>% of Other Pedestrian Movements Serviced</b>	<b>% of Playground Trips Serviced</b>
<b>A</b>	53	13	10	0
<b>B</b>	0	0	10	0
<b>C</b>	0	0	40	100
<b>D</b>	23	5	0	0
<b>E</b>	130	30	0	0
<b>F</b>	203	47	0	0
<b>G</b>	21	5	40	0
<b>Total</b>	<b>430</b>	<b>100</b>	<b>100</b>	<b>100</b>

Based on the assumptions above, and the trip generation rates summarised in Table 2, the likely number of pedestrian trips that will be generated at each movement has been calculated and is shown graphically in Figure 7 and summarised in Table 4 below.

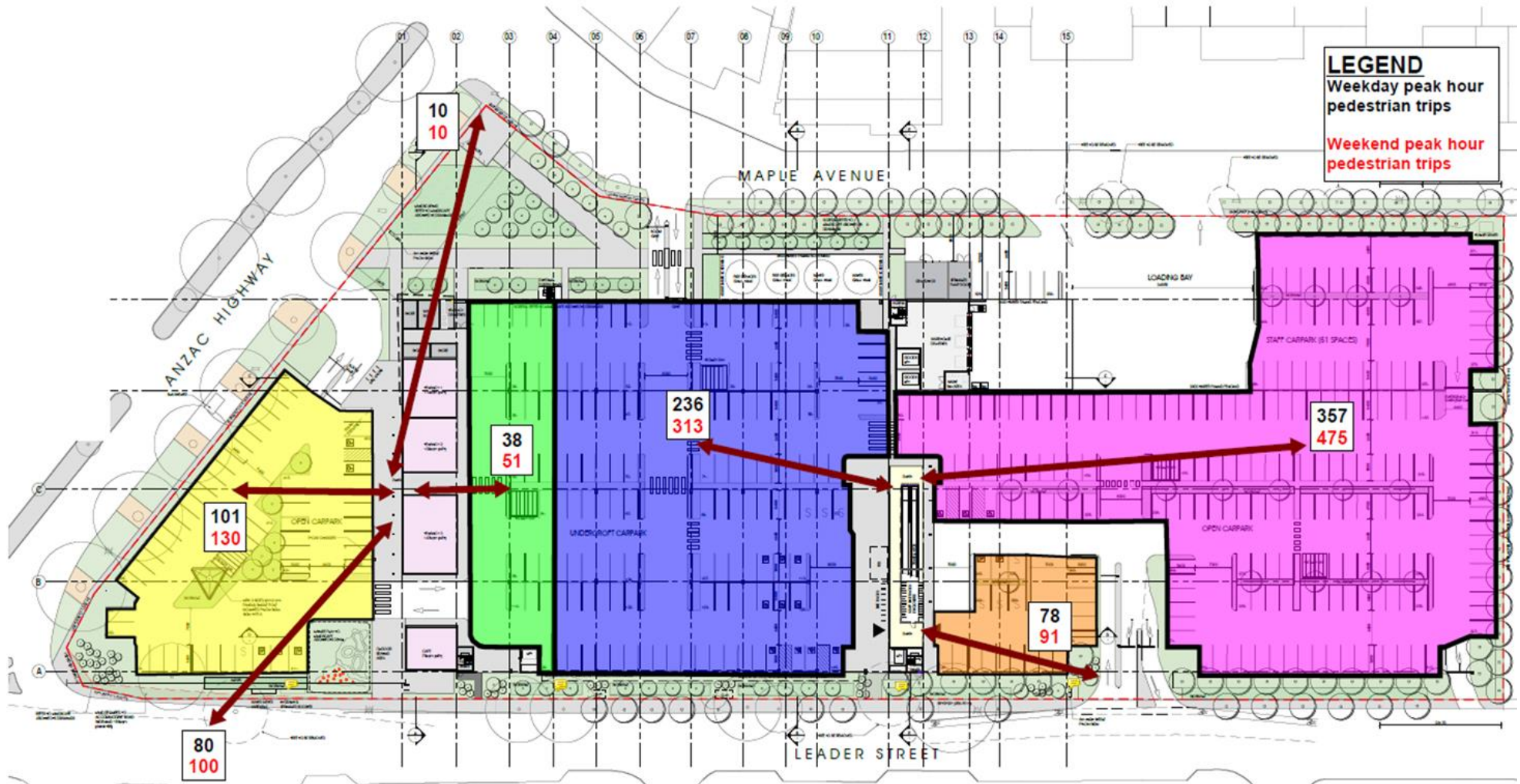


Figure 7 Pedestrian Trip Movement

Table 4 Pedestrian Trip Movements

Pedestrian Movement	Weekday Peak Hour			Weekend Peak Hour		
	Vehicle Pedestrian Trips	Other Pedestrian Trips	Total	Vehicle Pedestrian Trips	Other Pedestrian Trips	Total
<b>A</b>	91	10	101	120	10	130
<b>B</b>	0	10	10	0	10	10
<b>C</b>	0	80	80	0	100	100
<b>D</b>	38	0	38	51	0	51
<b>E</b>	236	0	236	313	0	313
<b>F</b>	357	0	357	475	0	475
<b>G</b>	38	40	78	51	40	91
<b>Total</b>	<b>760</b>	<b>140</b>	<b>900</b>	<b>1,010</b>	<b>160</b>	<b>1,170</b>

It can be seen in the table above that those movements providing access to high numbers of car parks will likely be the most utilised, with Movement F (providing access to the eastern section of the carpark) the highest utilised, primarily due to the high volume of car parking spaces accessed by this movement.

# 5 DEVELOPMENT ACCESS AND LAYOUT

## 5.1 GENERAL

The current layout of the proposed carpark area is shown in Figure 8 and currently incorporates:

- A total of 430 parking bays
- 9 disabled parking bays
- 8 senior parking bays
- 11 "Family" parking bays
- 5 motorcycle parking bays
- 34 Visitor / Shopper bicycle parks
- 28 Employee secure bicycle parks

Circulation between parking bays is provided via internal access roads which intersect the car parking area. Pedestrian access to the upper levels of the development is proposed to be via internal travelator and lifts located towards the central southern section of the car park.

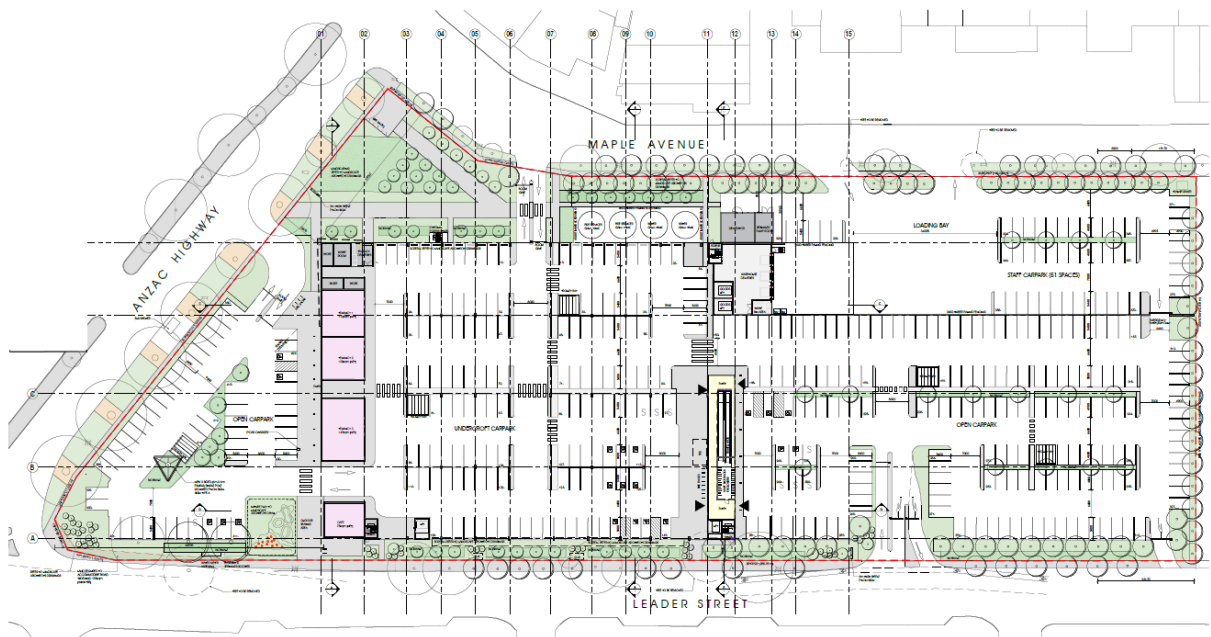


Figure 8 Car Parking Layout



## 5.2 PEDESTRIAN ENTRY AND EXIT POINTS

As previously discussed, it is understood that all public pedestrian access to the proposed development will be through the ground floor entry point (which provides access to the upper level of the development via travelator and lifts).

## 5.3 INTERNAL PEDESTRIAN ACCESS

The current proposed pedestrian access provisions within the car park are discussed further in the sections below with regard to the pedestrian movement that they service (refer to Figure 6 for locations).

### 5.3.1 Pedestrian Movement A

Pedestrian Movement A caters for pedestrians accessing their vehicles in the western segment of the car park. It additionally includes pedestrians wishing to travel to Bus Stop 3 on Anzac Highway.

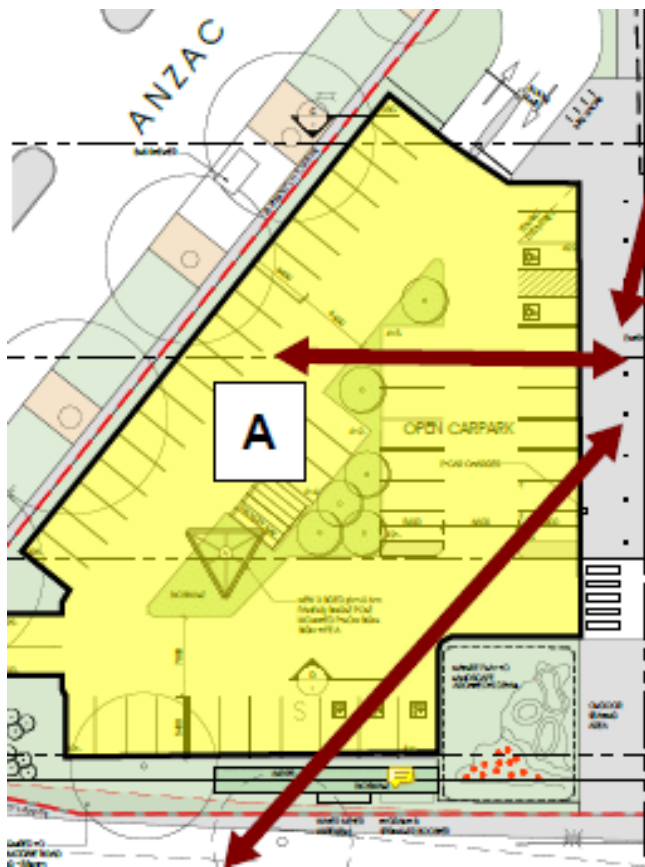


Figure 9 Pedestrian Movement A

Given the amount of expected pedestrian movements (101 on a weekday peak and 131 on a weekend peak), the wide distribution of pedestrian movements and the short distances pedestrians need to travel, it is not considered necessary to install additional pedestrian infrastructure in this area.

### 5.3.2 Pedestrian Movement B

Pedestrian movement B caters for pedestrians travelling from/to the north-east, including Maple Avenue and light industrial businesses, as shown in Figure 10 below. This movement is expected to have a low level of pedestrian movements.



Figure 10 Pedestrian Movement B

A proposed pedestrian walkway will provide adequate facilities for pedestrians wishing to access Maple Avenue.

### 5.3.3 Pedestrian Movement C

Pedestrian Movement C caters for pedestrians travelling from/to the south-west including those utilising the signalised pedestrian crossing at the Anzac Highway/Leader Street junction. Likely to include all Ashford Hospital pedestrians and those accessing Bus Stop 2 on the western side of Anzac Highway. It also caters for pedestrians accessing the playground located adjacent to the café in the south-west corner of the site. This is shown in Figure 11 below.

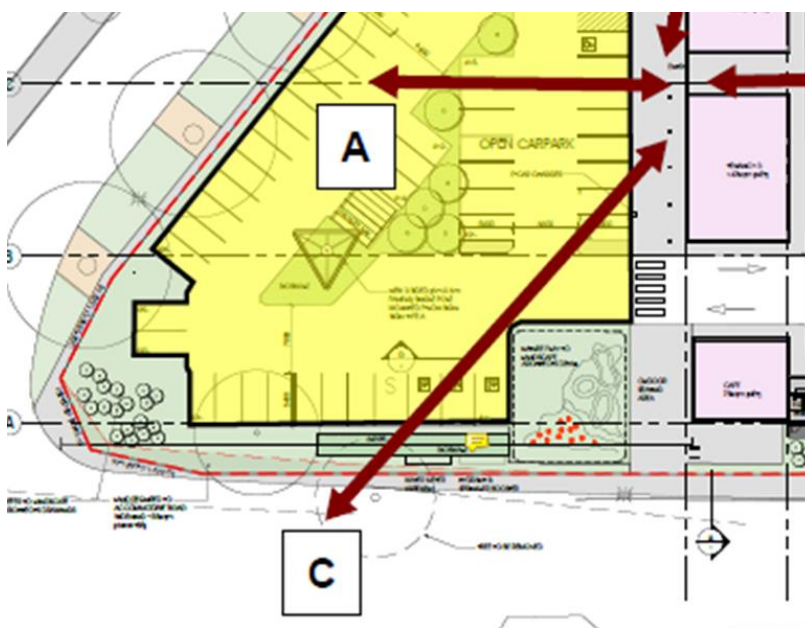


Figure 11 Pedestrian Movement C

The currently proposed zebra crossing could likely be modified to simply include pram ramps on each side. The pram ramps will still alert vehicles to the presence of pedestrians but will not impact on the flow of traffic.

#### 5.3.4 Pedestrian Movement D

Pedestrian Movement D caters for pedestrians accessing their vehicles in the western segment of the car park, as shown in Figure 12 below.

Given the relatively low volume of pedestrian movements predicted in this area (38 in the weekday peak hour and 51 in the weekend peak hour), and the fact that the opposing traffic movements are expected to be minimal, it is not considered necessary to install additional pedestrian infrastructure in this area. The currently proposed zebra crossing could likely be modified to simply include pram ramps on each side. The pram ramps will still alert vehicles to the presence of pedestrians but will not impact on the flow of traffic.

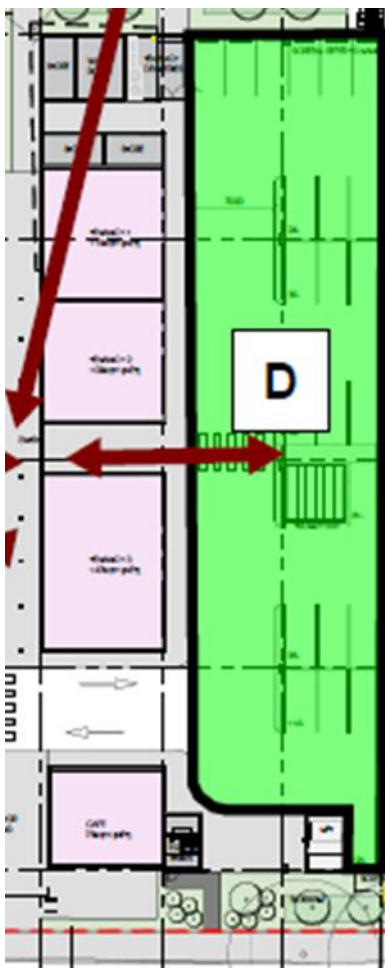


Figure 12 Pedestrian Movement D

#### 5.3.5 Pedestrian Movement E

Pedestrian Movement E caters for pedestrians accessing their vehicles in the central segment of the car park, as shown in Figure 13 below.

This movement is expected to have a high number of pedestrian movements (236 in weekday peak hours and 313 in weekend peak hours). There are currently two proposed pedestrian access paths and several zebra crossings across the internal access road.

If provided, the width of these paths should be in accordance with AS1428.2, which states that walkways should have an unobstructed width of not less than 1.2m.

Furthermore, the proposed zebra crossings could likely be modified to simply include pram ramps on each side. The pram ramps will still alert vehicles to the presence of pedestrians but will not impact on the flow of traffic.

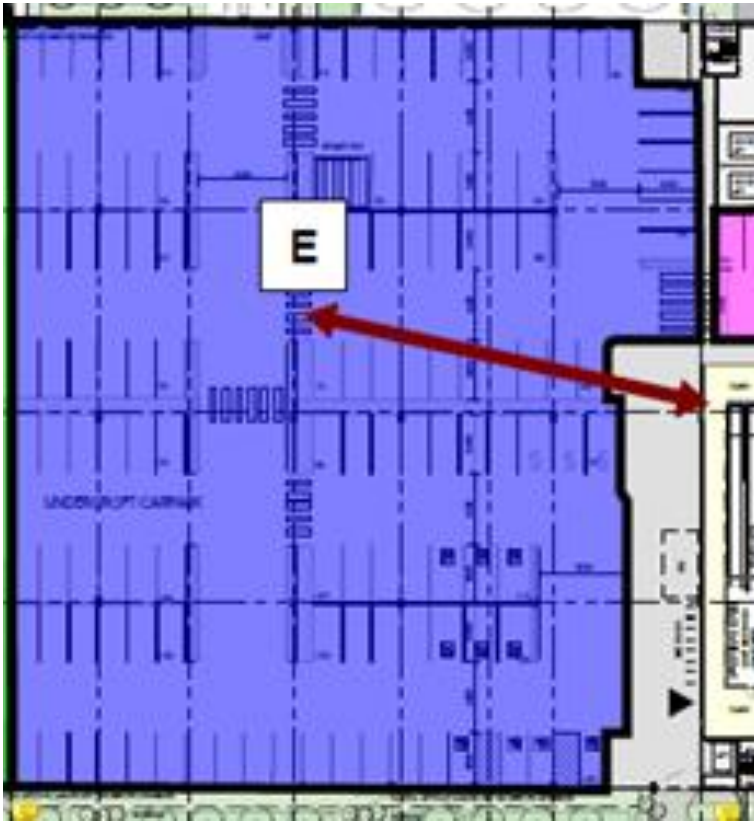


Figure 13 Pedestrian Movement E

### 5.3.6 Pedestrian Movement F

Pedestrian Movement F caters for pedestrians accessing their vehicles in the eastern segment of the car park, as shown in Figure 14 below.

This movement is expected to have a high volume of pedestrian movements (357 in weekday peak hours and 475 in weekend peak hours). There are currently two proposed pedestrian access paths and several zebra crossings across the internal access road. However, these access paths only serve the southern section of the car park. An additional pedestrian access and associated zebra crossings is recommended to provide pedestrian access to staff vehicles parked in the north-east segment of the car park.

If provided, the width of these paths should be in accordance with AS1428.2, which states that walkways should have an unobstructed width of not less than 1.2m.

Furthermore, the proposed zebra crossings could likely be modified to simply include pram ramps on each side. The pram ramps will still alert vehicles to the presence of pedestrians but will not impact on the flow of traffic.



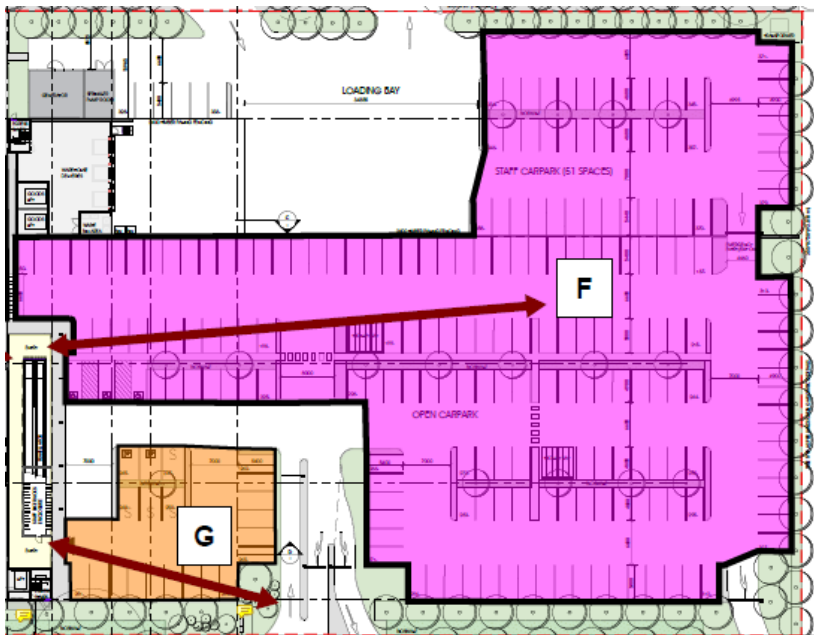


Figure 14 Pedestrian Movement F

### 5.3.7 Pedestrian Movement G

Pedestrian Movement G caters for pedestrians accessing their vehicles in the south-eastern segment of the car park. Also includes pedestrians travelling from/to the south, including those travelling to/from residential properties and to/from Bus Stop 6 on Leader Street and Goodwood and Adelaide Showground train stations. This is shown in Figure 15 below.



Figure 15 Pedestrian Movement G

Given the moderate number of expected pedestrian movements (78 on a weekday peak and 91 on a weekend peak), the wide distribution of pedestrian movements and the short distances that pedestrians need to travel, it is not considered necessary to install additional pedestrian infrastructure in this area.

Pedestrians accessing Leader Street will also be provided with an access path that runs along the western boundary of the car park, leading down to footpath along Leader Street.

## 5.4 IMPACT ON SURROUNDING ROADS

Of critical importance to the development is the ability of pedestrians to cross the surrounding roads of the development safely and efficiently, in order to access public transport infrastructure and surrounding residences/businesses. Although WGA are not aware of any guidelines developed for South Australia, guidelines contained within the WA Main Roads Transport Impact Assessment Guidelines have been utilised to assess the surrounding roads, which provides indicative maximum traffic volumes for road types based on their cross sections (after which additional safe crossing points should be provided). These traffic volumes are shown in Table 5 below.

Examples of safe crossing facilities are:

- Pedestrian refuge islands
- Zebra crossings
- Signalised pedestrian crossings
- Crossing facilities at signalised intersections
- Overpasses/underpasses

*Table 5 Traffic Volumes Affecting Pedestrian Crossing Amenity (Source: WA Main Roads Transport Impact Assessment Guidelines)*

Road cross-section	Traffic volume affecting ability of pedestrians to cross * (vehicles per hour – two-way)
2 lane undivided	1,100 vph
2 lane divided (or with pedestrian refuge islands)	2,800 vph
4 lane undivided (without pedestrian refuge islands)	700 vph
4 lane divided (or with pedestrian refuge islands)	1,600 vph

The peak hour traffic volumes of the surrounding roads with the development traffic applied have been obtained from modelling undertaken in the WGA Traffic and Parking Assessment Report and are shown in Table 6 below. Also shown in the table below are the applicable rates from the WA Main Roads Transport Impact Assessment Guidelines.

*Table 6 Surrounding Road Pedestrian Impact*

Surrounding Road	Post Development Traffic Volume (2017)		Maximum Traffic Volume Before Pedestrians are Impacted	Pedestrians Impacted?
	Weekday Peak Hour	Weekend Peak Hour		
<b>Anzac Highway</b>	4,810 vph	3,528 vph	1,600 vph	Yes
<b>Maple Avenue</b>	166 vph	186 vph	1,100 vph	No
<b>Leader Street</b>	1,156 vph	901 vph	1,100 vph	Borderline

It can be seen in the table above, that based on the WA Main Roads Transport Impact Assessment Guidelines assessment method, safe pedestrian crossing points should be provided on Anzac Highway and potentially on Leader Street.

The existing pedestrian facilities provided at the signalised intersection of Anzac Highway/Leader Street are considered to provide appropriate safe crossing facilities for pedestrians. Given the safety risks introduced with pedestrian crossing away from the signals, it is recommended that the existing signage arrangement is maintained, which directs all pedestrian movements to the signalised junction. Adherence to this could be monitored during operation of the proposed development, to ensure that pedestrians are utilising the signals to cross Anzac Highway.

Consideration could also be given to providing a pedestrian walkthrough facility on Leader Street to cater for pedestrians travelling to the South, geometry permitting.

## 5.5 SIGHT DISTANCE

In order to achieve adequate sight lines for pedestrian safety, AS2890.1, Figure 3.3, recommends that 'sight triangles' are included at access driveways in order to maximise visibility. Figure 16 below illustrates the areas required to be kept clear of obstructions to visibility.

The current plans indicate that the sight triangles at the access driveway are not obstructed, in accordance with AS2890.1 recommendations.

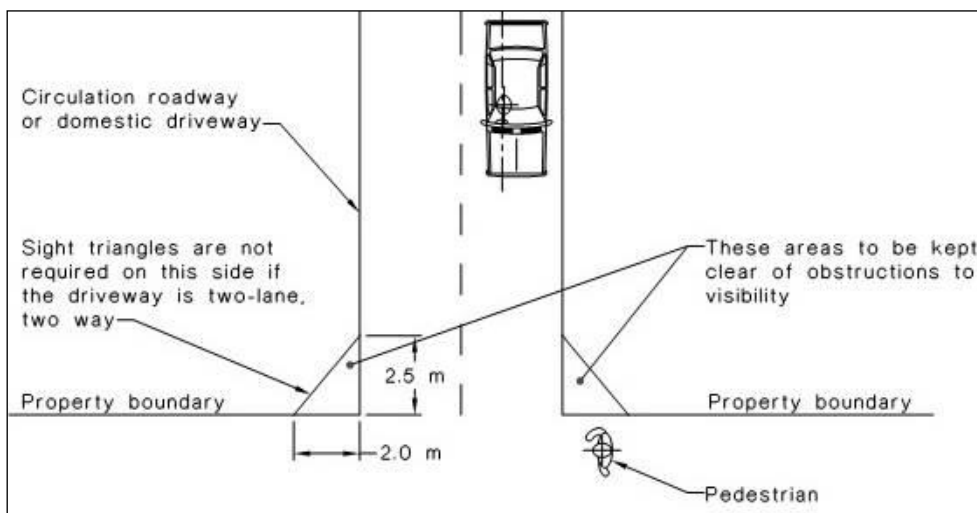


Figure 16 Minimum Sightlines for Pedestrian Safety

# 6 SUMMARY

In summary, the analysis presented in this report concludes that the pedestrian movements associated with the proposed development can be satisfactorily accommodated. The main points relating to the proposed development are as follows (refer to Figure 17 for locations):

1. General Comment for all Zebra Crossings - Ensure all crossings are minimum 3.0m wide.
2. Relocate or remove crossing from this location. Current location will create conflicts with vehicles accessing and egressing through boom gates.
3. Consider consolidating footpaths. There are two. One adjacent the road and one in the site. Recommend widening footpath adjacent roadway to direct pedestrians through central access (see 4) rather than through car park.
4. Review if improvements to this access could be achieved. Appears tight and convoluted.
5. Review location of crossing to reduce or eliminate potential for vehicles reversing from parks over the crossing.
6. Give way traffic control is required to be implemented at this location during detailed design stage. Remove crossings
7. Review pedestrian desire line and consider if a diagonal connection to the main entry is possible.



Figure 17 Proposed Development Recommendations



# 7 REFERENCES

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- City of Unley, 2017. Development Plan
- National Construction Code 2016, Volume One, Building Code of Australia Class 2 to Class 9 Buildings
- Department of Planning, Transport and Infrastructure, 2013. Trip Generation Rates for Assessment of Development Proposals
- Department of Planning, Transport and Infrastructure, Nov 2017. Traffic Signal Design - TS100
- Resonate, 7 March 2018. Kaufland – 10 Anzac Highway Forestville, Planning Stage Acoustic Report
- Roads and Traffic Authority, 2002. Guide to Traffic Generating Developments
- Roads and Traffic Authority, 2013. Guide to Traffic Generating Developments Updated Traffic Surveys, Technical Direction TDT 2013/04a
- Standards Australia, 2004. Australian Standard 2890, Part 1: Off-Street Car Parking
- Standards Australia, 2009. Australian Standard 2890, Part 3: Bicycle Parking Facilities
- Standards Australia, 2009. Australian Standard 2890, Part 6: Off-Street Parking for People with Disabilities
- WGA, 2019. Traffic and Parking Assessment, 10 Anzac Highway Forestville, H1

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# APPENDIX A

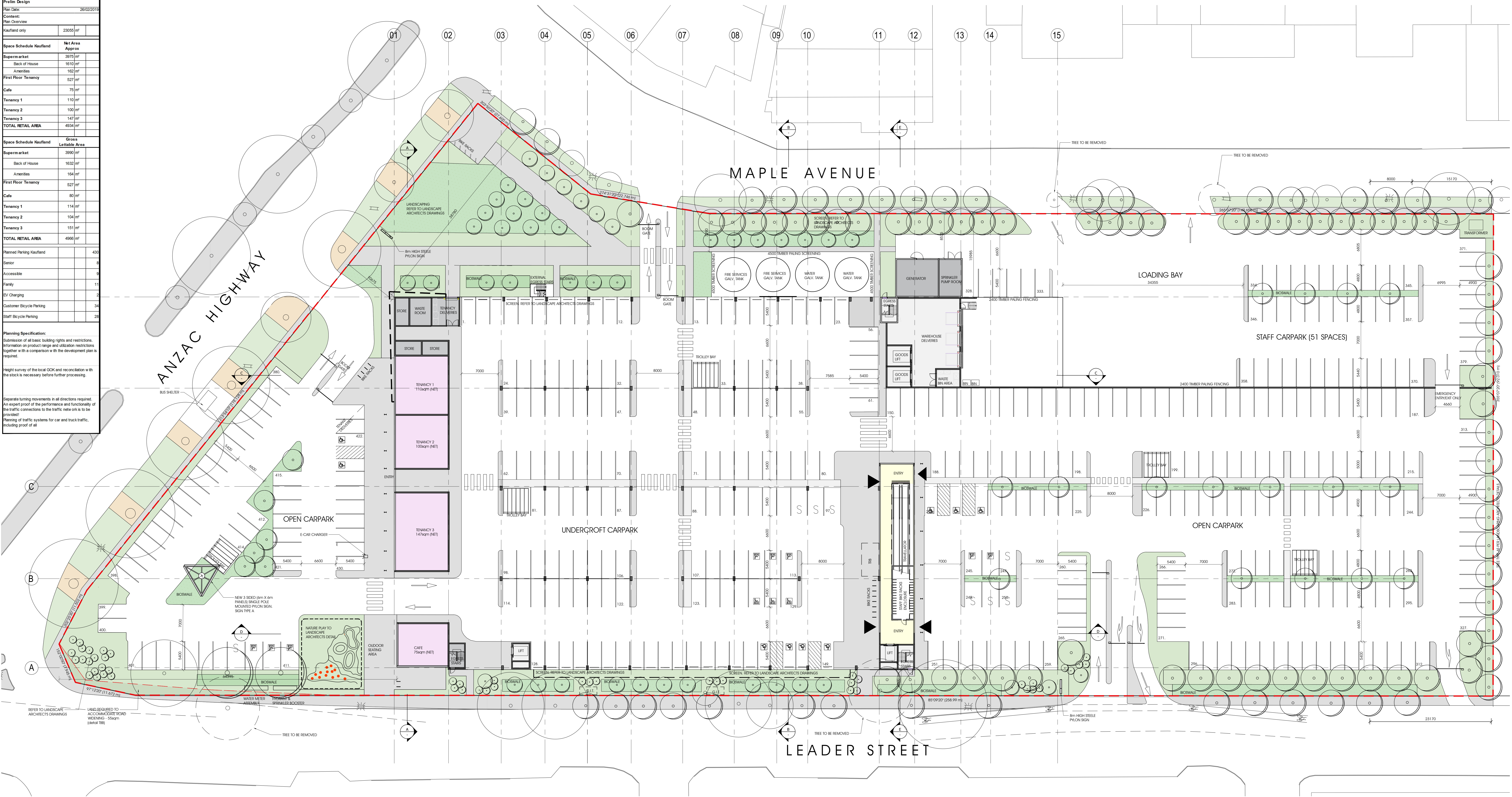
## SITE PLAN







AUS - Forestville - SA	
0 No.	0
Ver.	1
Project Design	
Plan Date:	26/02/2018
Content:	Plan Overview
Plan Overview	
Kaufland only	23005 m <sup>2</sup>
Net Area	
Supermarket	3070 m <sup>2</sup>
Back of House	1610 m <sup>2</sup>
Amenities	162 m <sup>2</sup>
First Floor Tenancy	527 m <sup>2</sup>
Cafe	79 m <sup>2</sup>
Tenancy 1	110 m <sup>2</sup>
Tenancy 2	100 m <sup>2</sup>
Tenancy 3	147 m <sup>2</sup>
TOTAL RETAIL AREA	4834 m <sup>2</sup>
Gross Lettable Area	
Supermarket	3990 m <sup>2</sup>
Back of House	1632 m <sup>2</sup>
Amenities	164 m <sup>2</sup>
First Floor Tenancy	527 m <sup>2</sup>
Cafe	80 m <sup>2</sup>
Tenancy 1	114 m <sup>2</sup>
Tenancy 2	104 m <sup>2</sup>
Tenancy 3	151 m <sup>2</sup>
TOTAL RETAIL AREA	4966 m <sup>2</sup>
Planned Parking Kaufland	430
Senior	8
Accessible	6
Family	11
EV Charging	2
Customer Bicycle Parking	34
Staff Bicycle Parking	28
Planning Specification:	
Submission of all basic building rights and restrictions. Information on product range and utilisation restrictions together with a comparison with the development plan is required.	
Height survey of the local CDK and reconciliation with the stock is necessary before further processing.	
Separate turning movements in all directions required. An expert proof of the performance and functionality of the traffic connections to the traffic network is to be provided!	
Planning of traffic systems for car and truck traffic, including proof of all	



01 GROUND FLOOR PLAN - OPTION L  
1/50

LEGEND	
	LANDSCAPE ZONE REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION
	BICSWALE REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION
	PAVING
	SERVICES AREAS
	SUPERMARKET AREAS
	SPECIALTY RETAIL
	TENANCY STORE
	BACK OF HOUSE, OFFICES AND AMENITIES
	GRAVITIC SAND REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

REV	DATE	DESCRIPTION	DRN	CHKD	REV	DATE	DESCRIPTION	DRN	CHKD
P12	01.02.19	PRELIMINARY ISSUE	DA	CD	P16	25.02.19	PRELIMINARY ISSUE	DG	CD
P13	05.02.19	PRELIMINARY ISSUE	DA	CD	P17	26.02.19	PRELIMINARY ISSUE	DG	CD
P14	08.02.19	PRELIMINARY ISSUE	DA	CD	P18	28.02.19	PRELIMINARY ISSUE	DG	CD
P15	21.02.19	PRELIMINARY ISSUE	DA	CD	P19	06.03.19	PRELIMINARY ISSUE	DA	CD
					P20	13.03.19	PRELIMINARY ISSUE	DA	CD

PROJECT KAUFMANN FORESTVILLE 10 ANZAC HIGHWAY FORESTVILLE, SA

DRAWING SITE PLAN AND GROUND FLOOR PLAN

PROJECT No S1171802

DATE DEC 2018

DRAWN DA

CHECKED CD

SCALE @ AO 1:250

DRAWING No TP-02

REV P21

Studio I17 accepts no responsibility for any costs, losses, claims whatsoever arising from these drawings, specifications and related documents unless there is full compliance with the client and any authorised user of the following: 1. All boundaries, dimensions and levels are to be checked on site before construction and any discrepancies are to be reported to the Architect / Designer. 2. Partial Service: Any discrepancies with site or other information is to be advised to the Architect / Designer and direction or approval is to be sought before the implementation of the detail. 3. Block and site plans should be verified by a check boundary survey prior to commencement on site. 4. Do not scale this drawing. 5. For the purpose of coordination, all relevant parties must check this information prior to implementation and report any discrepancies to the Architect / Designer.





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[Adelaide@wga.com.au](mailto:Adelaide@wga.com.au)

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A decorative graphic element in the bottom left corner consisting of a grid of small orange dots.



# WGA

WALLBRIDGE GILBERT  
AZTEC

Kaufland Australia

## 10 Anzac Highway Forestville

**TRAFFIC AND PARKING  
ASSESSMENT**

Project No.171147  
Doc No. WGA171147-RP-CV-0001  
Rev H1  
13 March 2019

WGA

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### Revision History

Rev	Date	Issue	Originator	Checker	Approver
A	06.12.17	Draft	SSS	JZ	HB
B	12.12.17	Draft incorporating client comments	SSS	JZ	HB
C	08.03.18	Revised to address new layout	SSS	JZ	HB
D	15.03.18	Final	SSS	HB	HB
E	18.04.18	Final	SSS	HB	HB
F	25.05.18	Updated SIDRA modelling	JZ	JZ	HB
G	12.07.18	DA Submission Updates	JZ	JZ	HB
H1	13.03.19	DA Submission Updates Revised Figures	JZ	JZ	HB

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**Appendix A** Site Plans

**Appendix B** Site Inspection Report

**Appendix C** Traffic Counts





**Appendix D** SIDRA Outputs

**Appendix E** Anzac Leader Dual Lane Option

**Appendix F** Heavy Vehicle Tracking

# 1 INTRODUCTION

Wallbridge Gilbert Aztec (WGA) has been engaged by Kaufland Australia (Kaufland) to undertake a traffic assessment for the proposed flagship Kaufland store to be located at 10 Anzac Highway, Forestville (a site previously occupied by Le Cornu). It is understood that the proposed development will primarily consist of a major supermarket, with an adjacent market place area also providing specialty stores.

A locality plan of the proposed development is shown in Figure 1 below.



Figure 1 Proposed Development, Locality Plan

The purpose and key elements of the study are to review and assess:

- Existing traffic flow conditions on roads adjacent to the development.
- The traffic impact of the proposed development, with primary focus on the peak conditions.
- The peak car parking demand and supply of the development.
- Vehicle capacity, road safety, and / or traffic operational constraints to the proposal, as well as potential measures to mitigate such constraints, where appropriate.

The methodology used in this analysis has been based on relevant Department of Planning, Transport and Infrastructure (DPTI) and Austroads guidelines.

# 2 PROPOSED DEVELOPMENT

The proposed development is to be located on the vacant Le Cornu site at 10 Anzac Highway Forestville, as illustrated in Figure 1 above.

The proposed development will comprise the following elements:

- 1 x Kaufland and 5 x Supporting Specialty Stores                      6,150m<sup>2</sup> Gross Leasable Floor Area (GLFA)

The development is proposed to be accessed via three un-signalised access points (located on Maple Avenue, Leader Street and Anzac Highway) as illustrated in Figure 2 below. Architectural plans for the site are also included in Appendix A for reference.

Note that the GLFA is taken as 75% of the Gross Floor Area (GFA) in accordance with the NSW Road and Traffic Authority (RTA) publication Guide to Traffic Generating Developments – Section 3.6.1 Shopping Centres. This approximates the sum of the area of each floor of a building where the area of each floor is taken to be the area within the internal faces of the walls, excluding stairs, amenities, lifts, corridors and other public areas but including stock storage area.



Figure 2                      General Site Plan



# 3 EXISTING ROADWAY AND TRAFFIC CONDITIONS

## 3.1 CURRENT USE

The existing undeveloped site is shown in Figure 3 below and consists of a currently disused furniture shop (Le Cornu), as well as associated car parks. Access to car parking and loading dock areas of the site are provided via access/egress points on Maple Avenue, Leader Street and Anzac Highway.

The site is bounded by Maple Avenue, Leader Street and Anzac Highway, with the surrounding development a combination of residential/light industrial. Directly opposite the proposed development site on Anzac Highway is Ashford Hospital, a 239 bed private hospital.



Figure 3 Current Site Use

## 3.2 EXISTING ROAD NETWORK

### 3.2.1 Anzac Highway

In the vicinity of the site, Anzac Highway is a six-lane divided urban arterial road under the care and control of DPTI. Average Annual Daily Traffic (AADT) volumes on Anzac Highway are in the order of

47,100 vehicles per day (vpd), with approximately 1,650 heavy vehicles (Source: SA Viewer Website), and a posted speed limit of 60 kph.

### **3.2.2 Leader Street**

Leader Street is a two lane undivided local road, under the care and control of The City of Unley. A collection road, its key function is providing access between Anzac Highway and Goodwood Road as well as to a number of local streets. AADT volumes are in the order of 7,900 vehicles per day (vpd), with approximately 2.6% heavy vehicles (Source: DPTI Traffic Count), and it has a posted speed limit of 50 kph. It is understood that the road has recently been upgraded to include formalised parallel parking on each side of the road, as well as bicycle lanes.

### **3.2.3 Maple Avenue**

In the vicinity of the site, Maple Avenue is a two lane local road, under the care and control of The City of Unley. Based on observations by WGA during site visits, it is considered likely that the AADT volumes are in the order of 1,000 vpd (applying the same peak hour factor as Leader Street). The road provides local access to a number of light industrial properties and has a posted speed limit of 50km/hr.

## **3.3 PLANNED ROADWAY IMPROVEMENTS**

WGA are not aware of any major road works planned in the immediate vicinity of the proposed development.

# 4

## PARKING DEMAND AND SUPPLY

### 4.1 PARKING DEMAND

#### 4.1.1 General

Applicable vehicle parking rates provided in the City of Unley Development Plan (Council Development Plan) include a rate for shops and a rate for office spaces, as shown in Table 1 below.

Table 1 Council Development Plan Vehicle Parking Rates

Area	Number of Vehicle Parks Required
Urban Corridor Zone	Minimum 3 spaces per 100 square metres of GLFA
	Maximum 5 spaces per 100 square metres of GLFA

Based on this parking a maximum of 308 car parks are required for this development.

#### 4.1.2 Disabled Parking

The Council Development Plan states that the disabled parking provision should be as follows:

- If a car park has more than 25 spaces then 1 space per 25 car parks must be provided for disabled car parking up to a maximum of 5 car parks.

Whilst the Building Code of Australia (BCA) states that for a Class 6 development (“a shop or other building for the sale of goods by retail or the supply of services direct to the public”) the disabled parking requirement shall be:

- 1 space for every 50 car parking spaces up to 1,000 car parking spaces or part thereof; and
- 1 space for every 100 car parking spaces or part thereof above 1,000 spaces

In accordance with the BCA rates, a total of 9 disabled parking bays should be provided within the proposed development. This rate also meets the requirement of the Council Development Plan (minimum 5 car parks).

### 4.1.3 Bicycle Parking

The Council Development Plan includes bicycle parking rates for shops, as shown in Table 2 below.

Table 2 Council Development Plan Bicycle Parking Rates

Area	Bicycle Parking Rates	
	Employee/Residents	Visitor/Shopper
Shop	1 for every 300 square metres of GLFA	1 for every 600 square metres of GLFA

The required number of bicycle parks for the proposed development based on the above rates are summarised in Table 3.

Table 3 Bicycle Parking Demand

Area	GLFA	Required Bicycle Parks	
		Employee/Residents	Visitor/Shopper
Shops	6,150 m <sup>2</sup>	21	11
<b>Total</b>	<b>6,150 m<sup>2</sup></b>	<b>21</b>	<b>11</b>

## 4.2 PARKING SUPPLY

The current proposed development provides 430 parking spaces, including a total of 8 senior parking spaces, 9 disabled parking spaces, 11 'family' parking spaces and 2 electric vehicle charging spaces.

## 4.3 PARKING DEMAND VS PARKING SUPPLY

### 4.3.1 General

The 430 parking spaces provided exceed the parking demand rate (308 spaces). However, given the lack of available on street parking and public transport provisions to the site, the provided number of parking spaces is considered reasonable.

### 4.3.2 Disabled Parking

The 9 disabled parking bays provided meets the BCA and Council Development Plan requirements (which call for a total of 9 disabled parking bays to be provided).

### 4.3.3 Bicycle Parking

A total of 34 visitor/shopper bicycle racks and secure storage for approximately 28 employee bicycles are provided within the ground level car parking area. This exceeds the minimum requirement.



# 5

## TRAFFIC GENERATION

### 5.1 TRIP GENERATION AND PEAK PERIOD

The RTA publication Guide to Traffic Generating Developments – Updated Traffic Surveys has been used to determine the anticipated peak period traffic generation for the proposed development. Based on review of the RTA and AITPM research data we believe the following traffic generation rates are applicable for the proposed development:

- Shopping Centre
  - Weekday Peak Afternoon Hour, 12.3 Trips per 100m<sup>2</sup> Gross Leasable Floor Area (GLFA)
  - Weekend Peak Hour, 16.3 Trips per 100m<sup>2</sup> GLFA

A passing traffic discount of 20 percent has also been applied to the traffic generation rates for the shopping centre component of the development. Passing traffic is a principle that applies to higher volume roads where a new development may not increase traffic within the external road network by the entire trip generation rate that is predicted to occur. This is due to a proportion of customers that would use any new retail facility would currently already be travelling along the local roads (i.e. Anzac Highway). The 20 percent discount is based on recommendations included in the RTA Guide to Traffic Generating Developments. The passing trade discount has been applied to traffic from Anzac Highway only.

The total trips expected to be generated by the proposed development is summarised in Table 4 below.

Table 4 Peak Hour Trip Generation

Area	GLFA	Total Trips Generated	
		Weekday Peak Hour	Weekend Peak Hour
Shopping Centre	6,150 m <sup>2</sup>	760	1,010
<b>Total</b>	<b>6,150 m<sup>2</sup></b>	<b>760</b>	<b>1,010</b>

In accordance with the above, a total of approximately 760 trips are expected to be generated in the weekday peak hour, and 1,010 trips generated in the weekend peak hour and these values have been adopted for assessment.

### 5.2 TURNING MOVEMENTS

The proposed development site can be accessed from four directions - Maple Avenue, Leader Street, Anzac Highway South and Anzac Highway North and three access points – Southern Access Point (Leader Street), Northern Access Point (Maple Avenue) and Western Access Point (Anzac Highway), as shown in Figure 4 below.



Figure 4 Proposed Development Access Roads and Access Points

As the current site is not operational, no information is able to be obtained on the proportion of motorists accessing the site from each direction. Therefore, WGA have assumed the proportion of traffic that will enter and exit from each road and each access point, and these assumptions are summarised in Figure 5 below for the weekday peak hour and in Figure 6 for the weekend peak hour.

For example, it has been assumed that in the weekday peak hour, 30% of all trips will originate from Leader Street. 50% of these trips will be motorists accessing the facility, and 50% of these motorists exiting the facility, resulting in 15% of the total trips respectively. As the Southern Access Point is the most readily available for these motorists, it has been assumed that they will all utilise this access point. A nominal 10% has been assumed for the Maple Street access as it is expected that repeat customers may use this access due to its underutilisation.

During the weekday peak hour, it has been assumed that a higher number of motorists will access the proposed development from Anzac Highway North than during the weekend peak hour to cater for motorists accessing the development on their way home from work in the CBD. The fact that these motorists will then likely continue on to Anzac Highway South to continue home rather than return to Anzac Highway North has been taken into account in the proportioning.

In order to understand what the impact of additional traffic on the junction of Leader Street/Anzac Highway junction would be if the majority of traffic was to utilise this junction, it has been assumed a percentage of motorists who entered the proposed development from the Northern Access Point will instead exit at the Southern Access Point.

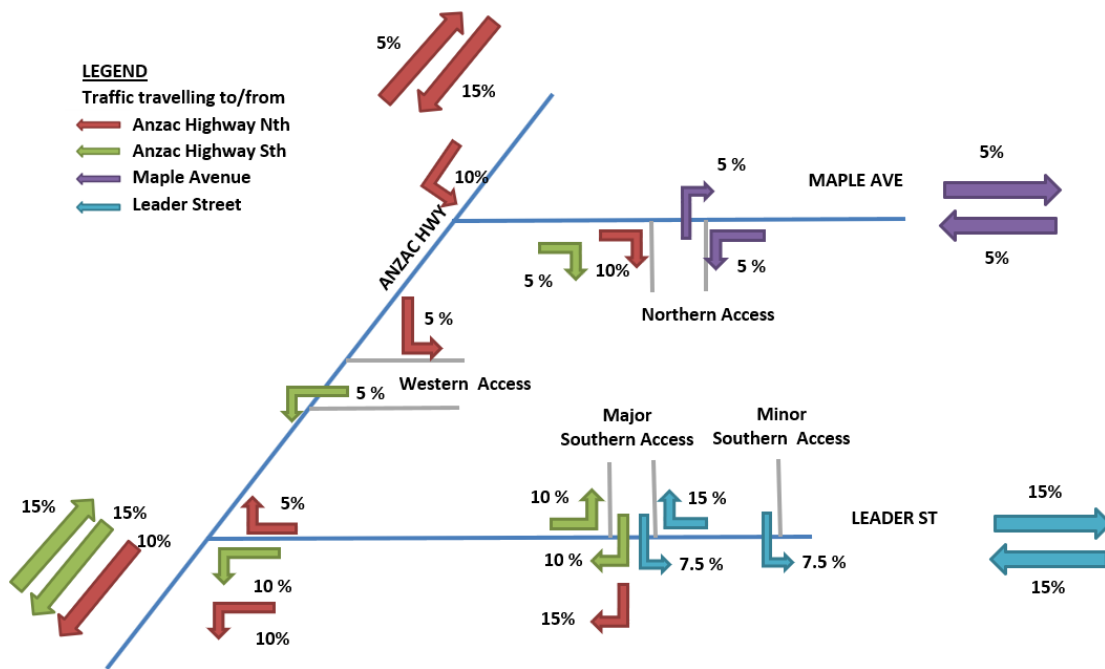


Figure 5 Adopted Trip Proportions – Weekday Peak Hour

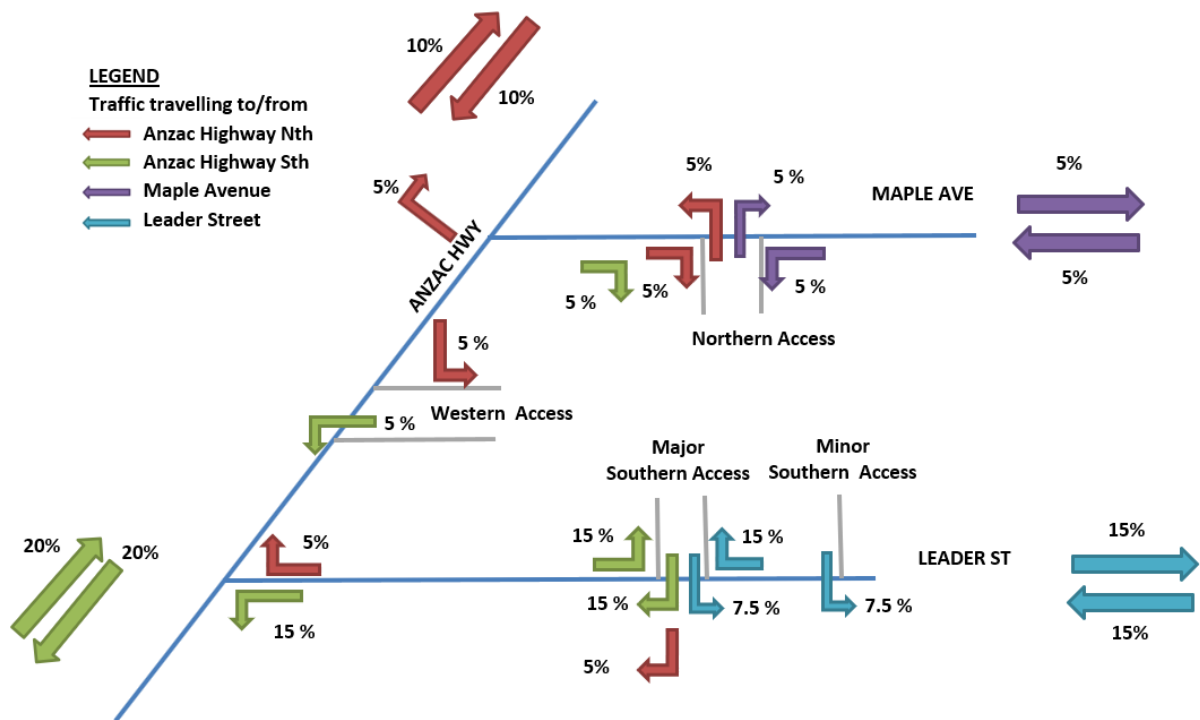


Figure 6 Adopted Trip Proportions – Weekend Peak Hour

These proportions have then been applied to the trip generation rates determined in the weekday and weekend peak hours (refer to Section 5.1) in order to determine the generated traffic turning movements for the proposed development. The resultant trip generation movements in the weekday peak are shown in Figure 7 and the weekend peak in Figure 8.

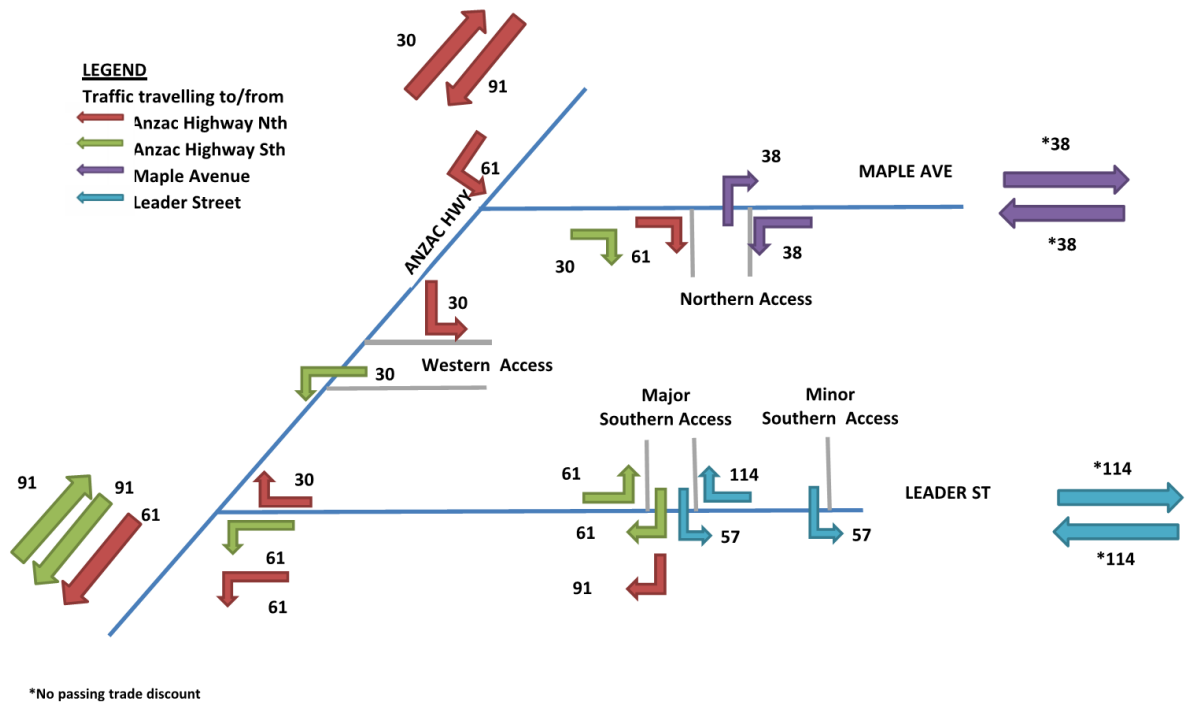


Figure 7 Weekday Peak Hour Trip Generation Movements

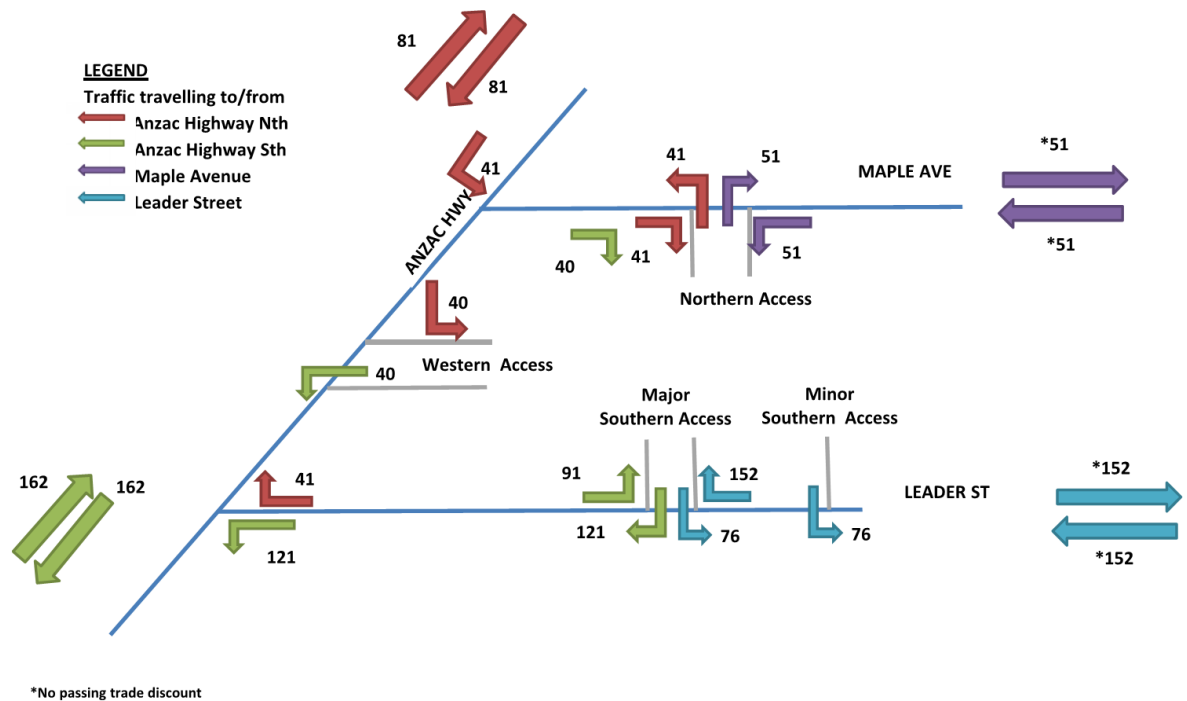


Figure 8 Weekend Peak Hour Trip Generation Movements



# 6 TRAFFIC GENERATION ANALYSIS

## 6.1 GENERAL

In order to assess the impact of the proposed development traffic on the adjacent road network, the following junctions/access points have been assessed using SIDRA traffic analysis software, Version 7.0:

- Anzac Highway/Leader Street Junction
- Anzac Highway/Maple Avenue Junction
- Southern Access Point
- Northern Access Point
- Western Access Point

The locations of these junctions and access points are illustrated in Figure 9 below.



Figure 9 Location of Junctions/Access Points Assessed

Four scenarios have been modelled for each junction:

- Base Case (2017) – Weekday PM peak
- Base Case (2017) – Weekend AM peak
- Base Case (2017) + Development Traffic – Weekday PM peak
- Base Case (2017) + Development Traffic – Weekend AM peak

As the proposed access points are not in use at the time of assessment, the following two scenarios were modelled for each access point:

- Base Case (2017) + Development Traffic – Weekday PM peak
- Base Case (2017) + Development Traffic – Weekend AM peak

As no future traffic volumes have been provided by DPTI, analysis has not been undertaken for any future scenarios.

An analysis of the impact on the road network has also been undertaken using AIMSUN modelling (discussed further in Section 6.8).

## 6.2 ASSESSMENT CRITERIA

Each intersection/ scenario has been assessed against the below criteria.

### 6.2.1 Level of Service

Level of Service (LOS) is defined as a qualitative measure describing operating conditions within a traffic stream and the perception by motorists. A level of service definition generally describes these conditions in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience and safety.

In general, there are six levels of service designated from A to F, with level of service A representing the best operating conditions ( i.e. free flow) and level of service F the worst (i.e. forced or breakdown flow). Further definition of level of services designations is shown in Table 5 for signalised junctions.

Table 5 Intersection Level of Service

Level of Service	Description
A	Good operation
B	Good with acceptable delays and spare capacity
C	Satisfactory
D	Operating near capacity
E	At capacity, at signals incidents will cause excessive delays
F	Unsatisfactory and requires additional capacity, roundabouts require other control mode

### 6.2.2 Degree of Saturation

The Degree of Saturation (DOS) is a ratio between the demand traffic flow and the capacity of an intersection. DOS over 1.0 represent oversaturated conditions, and degrees of saturations below 1.0 represent unsaturated conditions. As a junction reaches a degree of saturation of 1.0, the operating conditions deteriorate and delays increase. A DOS of between 0.9 and 1.0 is considered very poor. DPTI TS100 states that any modification to a site must operate within a DOS of 0.9.

## 6.3 ANZAC HIGHWAY/LEADER STREET JUNCTION

### 6.3.1 General

The junction of Anzac Highway/Leader Street is located approximately 150m to the west of the proposed development Southern Access Point on Leader Street. It is a signalised junction comprising three approaches – Leader Street to the east, Anzac Highway South to the south and Anzac Highway North to the north, as shown in Figure 10 below. Reid Avenue, a one-way local street also has an egress only point just to the north of the junction.



Figure 10 Anzac Highway/Leader Street Junction

### 6.3.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Stop line saturation flows utilised within the model have been obtained via observation utilising the JCT Traffic Tools data collection app. These recorded saturations flows are included within the attached site visit report.
- Existing traffic data for the weekday PM peak was provided by 2017 DPTI turning movement count data (provided in Appendix C)

- Existing traffic data on Leader Street for the weekend AM peak was obtained from 2017 DPTI SCATS data with turning movements apportioned from the turning counts
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5
- The cycle time for the weekday and weekend peak hour was based on a user given phase time of 120 seconds based on WGA site observations and DPTI provided SCATS summary.
- Proposed Scenario assumes upgrade of Anzac Highway (SE) from one right turn lane into Leader Street to two right turn lanes. A technical note providing further information into this option is included within Appendix E.
- DPTI have requested the pedestrian phase that runs in C phase to be assumed that it is called in every phase. This was observed on site therefore results of the analysis below are higher than what is expected and observed, particularly queue lengths.
- DPTI have requested the results of analysis of assuming all traffic turning into the site from the south is undertaken from Leader Street rather than assuming a small percentage at Maple. This has been included within the SIDRA summary within Appendix D as information only. We do not consider this accurate as even public submissions have observed some traffic bypassing the queue at Leader Street to turn into Maple Avenue.

### 6.3.3 Results of Analysis

The existing operating performance of the junction has been assessed in order to provide a base case for assessment, as shown in Table 6 below. In addition, the operating performance of the junction with the addition of the development traffic for has also been assessed, with the results shown in Table 7 below. The detailed SIDRA outputs are contained within Appendix D.

Table 6 Junction of Anzac Highway/Leader Street Operating Performance – Base Case (2017)

Peak Hour	Traffic Movement	95 <sup>th</sup> ile Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Leader Street	48	49	0.45	D
	Anzac Highway North	660	61	1.0	E
	Anzac Highway South	87	14	0.9	B
	<b>All Movements</b>	<b>660</b>	<b>44</b>	<b>1.0</b>	<b>D</b>
<b>Weekend AM</b>	Leader Street	41	52	0.51	D
	Anzac Highway North	95	11	0.53	B
	Anzac Highway South	75	9	0.53	A
	<b>All Movements</b>	<b>95</b>	<b>14</b>	<b>0.53</b>	<b>B</b>



Table 7 Junction of Anzac Highway/Leader Street Operating Performance – Base Case (2017) + Development Traffic – assuming 150 second cycle time and extended right turn lane

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Leader Street	93	47	0.53	D
	Anzac Highway North	727	78	1.0	E
	Anzac Highway South	98	17	0.97	B
	<b>All Movements</b>	<b>727</b>	<b>54</b>	<b>1.0</b>	<b>D</b>
<b>Weekend AM</b>	Leader Street	8	48	0.1	D
	Anzac Highway North	196	24	0.66	C
	Anzac Highway South	94	13	0.67	B
	<b>All Movements</b>	<b>196</b>	<b>19</b>	<b>0.67</b>	<b>B</b>

#### 6.3.4 Summary

The analysis shows that during the weekday PM peak period whilst the intersection appears to operate near capacity and LOS D.

With the addition of the development traffic incorporating the proposed right turn lane extension on Anzac Highway (S) the overall LOS of the junction is proposed to remain as it is currently.

## 6.4 ANZAC HIGHWAY/MAPLE AVENUE JUNCTION

### 6.4.1 General

The junction of Anzac Highway/Maple Street is located approximately 60m to the north of the proposed development Western Access Point on Anzac Highway. It is an un-signalised junction comprising three approaches – Maple Avenue to the east, Anzac Highway South to the south and Anzac Highway North to the north, as shown in Figure 11 below. Anzac Highway traffic has priority at the junction.



Figure 11 Anzac Highway/Maple Avenue Junction

#### 6.4.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Existing traffic data on Anzac Highway for the weekday PM peak was provided by 2017 DPTI turning movement count data (provided in Appendix B)
- Existing traffic data on Leader Street for the weekend AM peak was obtained from 2017 DPTI SCATS data with turning movements apportioned from the turning counts from the downstream signalised junction
- Existing traffic data on Maple Avenue for the weekday PM peak was determined from WGA undertaken traffic counts (provided in Appendix C)
- Existing traffic data on Maple Avenue for the weekend AM peak was determined from WGA observed traffic counts undertaken on a weekday, reduced by a 70% factor to allow for the reduced traffic loading on Maple Street during the weekend. The 70% reduction has been applied on the basis that as Maple Avenue primarily provides access to industrial properties the amount of traffic on Maple Avenue would be significantly reduced outside of standard working hours.
- The Maple Avenue right turn out movement was modelled as a two-stage crossing
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5

#### 6.4.3 Results of Analysis

The existing operating performance of the junction has been assessed in order to provide a base case for assessment, as shown in Table 8 below. In addition, the operating performance of the junction with the addition of the development traffic has also been assessed, with the results shown in Table 9 below. The detailed SIDRA outputs are contained within Appendix D.

Table 8 Junction of Anzac Highway/Maple Avenue Operating Performance – Base Case (2017)

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Maple Avenue - Left Out	9	54*	0.38	F
	Maple Avenue - Right Out	3	179*	0.19	F
	Anzac Highway - Left In	0	6.5	0.46	A
	Anzac Highway - Right In	3	22	0.19	C
	<b>All Movements</b>	<b>9</b>	<b>1</b>	<b>0.46</b>	<b>NA</b>
<b>Weekend AM</b>	Maple Avenue - Left Out	1	14	0.03	B
	Maple Avenue - Right Out	1	47	0.02	C
	Anzac Highway - Left In	0	7	0.27	A
	Anzac Highway - Right In	2	35	0.10	D
	<b>All Movements</b>	<b>2</b>	<b>0.3</b>	<b>0.27</b>	<b>NA</b>

\*Isolated SIDRA Junction Delay. Observed delay and expected delay would be considerably less given the proximity of downstream signals in Leader Street which would provide gaps into the stream for vehicle to exit.

Table 9 Junction of Anzac Highway/Maple Avenue Operating Performance – Base Case (2017) + Development Traffic

<b>Weekday PM</b>	<b>Maple Avenue - Left Out</b>	<b>19</b>	<b>179*</b>	<b>0.77</b>	<b>F</b>
<b>Weekday PM</b>	Maple Avenue - Right Out	8	562*	0.51	F
<b>Weekend AM</b>	Anzac Highway - Left In	0	6.6	0.53	A
	Anzac Highway - Right In	11	48	0.61	E
	<b>All Movements</b>	<b>19</b>	<b>2.7</b>	<b>0.77</b>	<b>NA</b>
	Maple Avenue - Left Out	1	17.5	0.04	D
<b>Weekend</b>	Maple Avenue - Right Out	7	18	0.33	D

<b>Weekday PM</b>	<b>Maple Avenue - Left Out</b>	<b>19</b>	<b>179*</b>	<b>0.77</b>	<b>F</b>
<b>AM</b>	Anzac Highway - Left In	0	6.5	0.3	A
<b>Weekday PM</b>	Anzac Highway - Right In	11	72	0.59	F
	<b>All Movements</b>	<b>11</b>	<b>2.2</b>	<b>0.59</b>	<b>NA</b>
	Maple Avenue - Left Out	19	179*	0.77	F

\*Isolated SIDRA Junction Delay. Observed delay and expected delay would be considerably less given the proximity of downstream signals in Leader Street which would provide gaps into the stream for vehicle to exit.

#### 6.4.4 Summary

The modelling results show that currently during the weekday peak hour, the level of service provided to vehicles turning left and right out of Maple Avenue is unsatisfactory, with vehicles turning right experiencing average delays in the order of 3 minutes. These delays are not experienced in the weekend peak hour, with motorists experiencing greatly reduced delays and queue lengths when compared to the weekday peak hour.

Following addition of the development generated traffic, the delays to motorists turning left and right out of Maple Avenue is expected to remain at unacceptable levels during the weekday peak hour, with right turning motorists experiencing an average delay of 10 minutes. However, during the weekend peak hour, the level of service of all legs is considered acceptable, with the exception of the right turning motorists from Anzac Highway, who will experience additional delays and additional maximum queue lengths. Although longer than the base case, the maximum queue length of 16 m will still be contained within the separated turning lane in the centre median.

It should be noted that, although not taken into account in modelling, motorists queuing on Anzac Highway due to the Anzac Highway/Leader Street junction are likely to provide gaps to motorists turning right from and into Maple Street. This is in accordance with observations during WGA's site inspection, where approximately 80% of the time, motorists queuing on Anzac Highway were observed to leave a gap for Maple Street motorists. This is evidence by the delays demonstrated within the base SIDRA not being which is considered to also be the case for the proposed model.

Due to delays and queues motorists will face entering and exiting the facility via Maple Avenue, it is assumed that the majority of motorists will instead travel to the signalised junction of Anzac Highway/Leader Street, which will have spare capacity following the development and will result in lower delays to motorists.

## 6.5 SOUTHERN ACCESS POINT

### 6.5.1 General

The Southern Access Point is located on the southern side of the proposed development, and provides access and egress to Maple Avenue, as shown in Figure 12 below. It is proposed to be an un-signalised junction, with both left and right turning provisions provided. To improve access and egress within the vicinity parking is proposed to be removed on both sides to accommodate a 'widened' westbound lane. This allows several right turning vehicles to store and still enough width for a vehicle to pass without encroaching upon the bike lane. This treatment was preferred over a dedicated right turn bay as this is difficult to accommodate without impacting the right turn into First Avenue. This provides the best balanced outcome.





Table 10 Southern Access Point – Base Case (2017) + Development Traffic

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Southern Access - Left Out	1.6	5	0.06	A
	Southern Access - Right Out	20	24	0.59	C
	Leader Street- Left In	0	4.6	0.31	A
	Leader Street - Right In	4	7	0.13	A
	<b>All Movements</b>	<b>20</b>	<b>4.1</b>	<b>0.40</b>	<b>NA</b>
<b>Weekend AM</b>	Southern Access - Left Out	1.7	4	0.06	A
	Southern Access - Right Out	14	13	0.4	B
	Leader Street- Left In	0	4.6	0.20	A
	Leader Street - Right In	4	2	0.18	A
	<b>All Movements</b>	<b>14</b>	<b>3.6</b>	<b>0.404</b>	<b>NA</b>

#### 6.5.4 Summary

Modelling of the Southern Access Point shows that during both the weekday peak hour and the weekend peak hour, the junction will have a good level of service with acceptable delays and spare capacity. The maximum queue length of right turning motorists from Leader Street of 11 m in both the weekday peak and the weekend peak is equivalent to approximately 2 cars and is not expected to introduce significant delays to through traffic.

## 6.6 NORTHERN ACCESS POINT

### 6.6.1 General

The Northern Access Point is located on the northern side of the proposed development, and provides access and egress to Maple Avenue, as shown in Figure 13 below. It is proposed to be an un-signalised junction, with both left and right turning provisions provided.

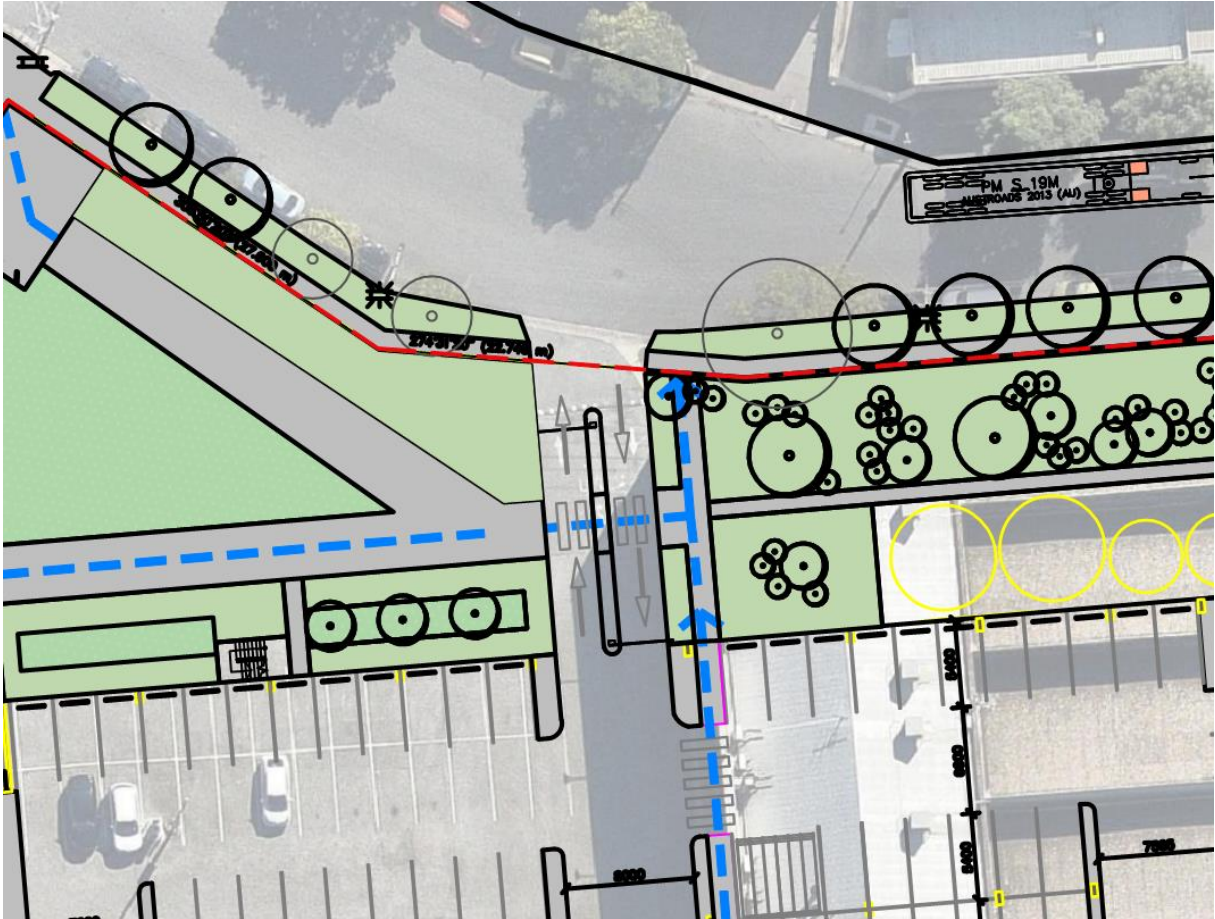


Figure 13 Northern Access Point

### 6.6.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Existing traffic data on Maple Avenue for the weekday PM peak was determined from WGA undertaken traffic counts (provided in Appendix C)
- Existing traffic data on Maple Avenue for the weekend AM peak was determined from WGA undertaken traffic counts undertaken on a weekday, reduced by a 70% factor to allow for the reduced traffic loading on Maple Street during the weekend. The 70% reduction has been applied on the basis that as Maple Avenue primarily provides access to industrial properties, the amount of traffic on Maple Avenue would be significantly reduced outside of standard working hours.
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5

### 6.6.3 Results of Analysis

The operating performance of the junction with the addition of development traffic for has been assessed, with the results shown in Table 11 below. The detailed SIDRA outputs are contained within Appendix D.

Table 11 Northern Access Point – Base Case (2017) + Development Traffic

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Northern Access - Left Out	1	3.2	0.03	A
	Northern Access - Right Out	1	3.6	0.03	A
	Maple Avenue - Left In	0	5.5	0.04	A
	Maple Avenue - Right In	3	3	0.08	A
	<b>All Movements</b>	<b>3</b>	<b>2.8</b>	<b>0.08</b>	<b>NA</b>
<b>Weekend AM</b>	Northern Access - Left Out	2.1	3.1	0.09	A
	Northern Access - Right Out	2.1	4.5	0.09	A
	Maple Avenue - Left In	0	5.5	0.03	A
	Maple Avenue - Right In	4	1	0.18	A
	<b>All Movements</b>	<b>4</b>	<b>2</b>	<b>0.18</b>	<b>NA</b>

#### 6.6.4 Summary

The results of the modelling show that the Northern Access Point will have a good level of service during both the weekday peak hour and the weekend peak hour.

## 6.7 WESTERN ACCESS POINT

### 6.7.1 General

The Western Access Point is located on the western side of the proposed development, and provides access and egress to Anzac Highway, as shown in Figure 14 below. It is proposed to be an un-signalised junction, with only left in and left out provisions provided. Note that median works are also proposed on Anzac Highway (refer to Section 7.3.3 for more information).



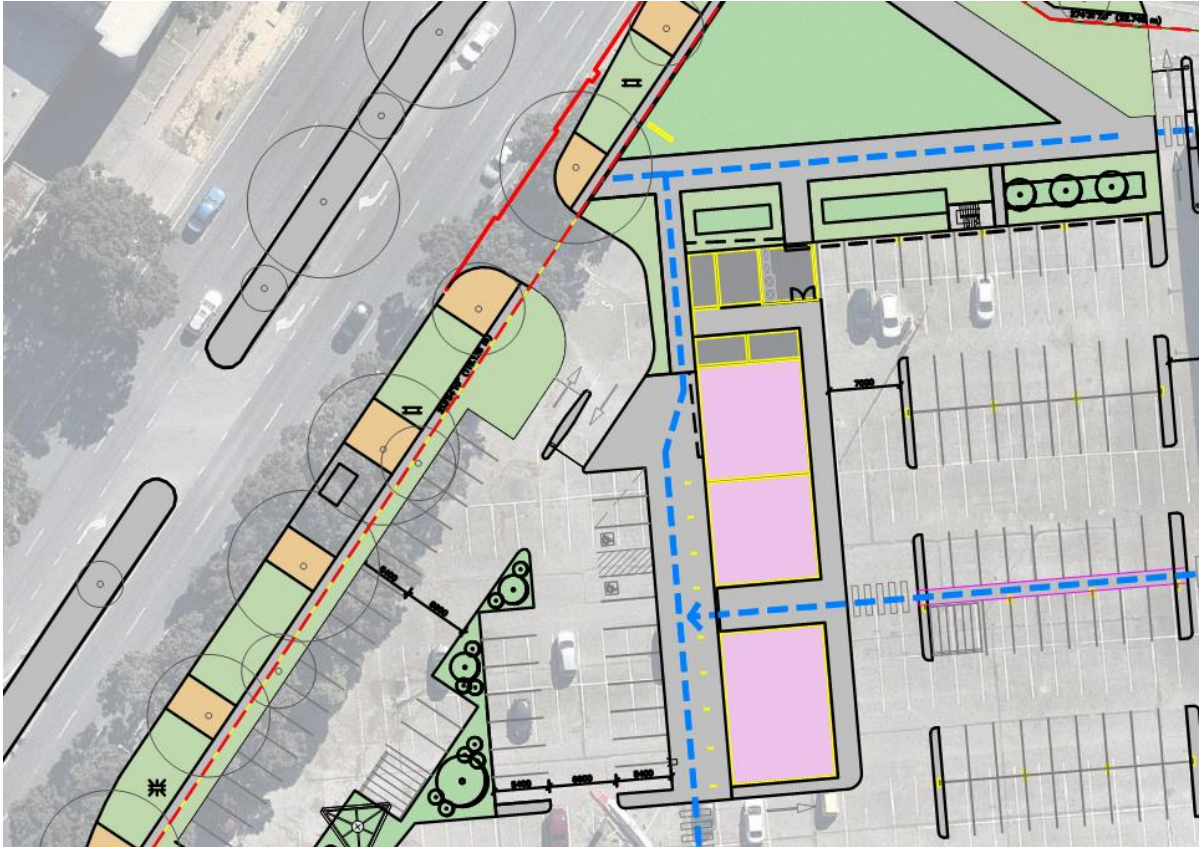


Figure 14 Western Access Point

### 6.7.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Existing traffic data on Anzac Highway for the weekday PM peak was provided by 2017 DPTI turning movement count data (provided in Appendix C)
- Existing traffic data on Anzac Highway for the weekend AM peak was provided by 2017 DPTI SCATS data
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5

### 6.7.3 Results of Analysis

The operating performance of the junction with the addition of development traffic for has been assessed, with the results shown in Table 12 below. The detailed SIDRA outputs are contained within Appendix D.

Table 12 Western Access Point – Base Case (2017) + Development Traffic

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Western Access - Left Out	2	12.6	0.1	B
	Anzac Hwy - Left In	0	5.6	0.54	A
	<b>All Movements</b>	2	<b>0.2</b>	<b>0.54</b>	<b>NA</b>
<b>Weekend AM</b>	Western Access - Left Out	1.3	5.6	0.06	A
	Anzac Hwy - Left In	0	5.6	0.30	A
	<b>All Movements</b>	1.3	<b>0.2</b>	<b>0.33</b>	<b>NA</b>

#### 6.7.4 Summary

The results of the modelling show that the Western Access Point will have a good level of service during both the weekday peak hour and the weekend peak hour.

## 6.8 AIMSUN MODELLING

### 6.8.1 General

An AIMSUN microsimulation model has been used to analyse the performance of the surrounding road network during the weekday PM peak hour and Saturday AM before and after the development. AIMSUN V8.2.1 R49393 has been used for the analysis. The microsimulation modelling has been developed in accordance with the DPTI AIMSUN Model Development Manual.

### 6.8.2 Assessment Criteria

Key performance indicators provided by the model include:

- overall network delay time
- queue lengths
- number of stops per vehicle
- average speed
- travel time – average and for key routes
- intersection delay

### 6.8.3 Results of Analysis

A summary of the existing performance of road network, as well as the performance of the network following the proposed development is shown in Table 13 below.

Table 13 Key Performance Indicators

Performance Indicator	Existing AM Weekend Peak	+Development AM Weekend Peak	Existing PM Weekday Peak	+Development PM Weekday Peak
Delay time (sec/km)	19	33	25	33
Flow (veh/h)	3734	4591	4904	5573
Mean Queue (veh)	14	26	22	31
Number of stops #/veh/km	0.05	0.1	0.07	0.1
Speed km/h	45	41	43	41
Travel time sec/km	85	105	91	103
Vehicles waiting to enter (veh)	0	0	0	0

For analysis and summary of the AIMSUN modelling a separate AIMSUN Modelling Report can be provided upon request.

## 6.9 SUMMARY

Analysis of the Anzac Highway/Leader Street junction shows that the junction is currently operating at a good level of service with acceptable delays and spare capacity. Following application of the development traffic, the junction still performs at a satisfactory level of service.

The current level of service of the Anzac Highway/Maple Avenue junction is considered unsatisfactory, with vehicles turning right experiencing average delays in the order of 3 minutes in the weekday peak hour. Following addition of the development generated traffic, the delays to motorists turning left and right out of Maple Avenue is expected to remain at unacceptable levels during the weekday peak hour, with right turning motorists experiencing an average delay of 10 minutes. However, during the weekend peak hour, the level of service of all legs is considered acceptable, with the exception of the right turning motorists from Anzac Highway, who will experience additional delays and additional maximum queue lengths. It should be noted that, although not taken into account in modelling, motorists queuing on Anzac Highway due to the Anzac Highway/Leader Street junction are likely to give way to motorists turning right from Maple Street. Due to this, the delays shown by modelling for these movements are likely to be less in reality.

Due to delays and queues motorists will face entering and exiting the facility via Maple Avenue, it is assumed that the majority of motorists will instead travel to the signalised junction of Anzac Highway/Leader Street, which will have spare capacity following the development and will result in lower delays to motorists.

All three proposed access points are expected to perform to a good level of service during both the weekday and weekend peak hour.

# 7 DEVELOPMENT ACCESS AND LAYOUT

## 7.1 GENERAL

As discussed in Section 2, it is understood that the existing access points to the site will be slightly modified to provide three access points to the site via Maple Avenue, Leader Street and Anzac Highway. The carpark area is shown in Figure 15 and currently incorporates:

- A total of 430 parking bays
- 9 disabled parking bays
- 8 senior parking bays
- 11 “Family” parking bays
- 5 motorcycle parking bays
- 34 Visitor / Shopper bicycle parks
- 28 Employee secure bicycle parks

Pedestrian access to the upper levels of the development is proposed to be via internal travelators and lifts located within the eastern portion of the car park.

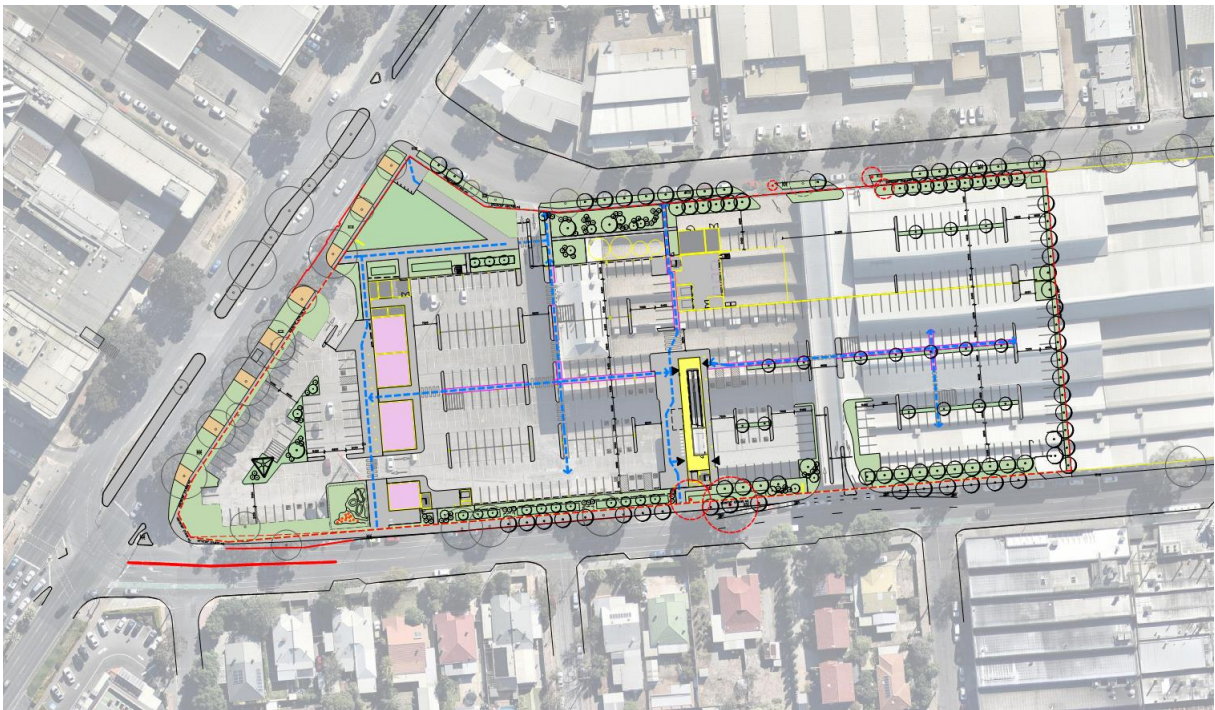


Figure 15 Car Parking Layout



Circulation between parking bays is provided via internal access roads which intersect the car parking area. Pavement marking and signage shall be in accordance with AS2890.1.

## **7.2 LAYOUT**

### **7.2.1 Parking Bays**

In accordance with AS2890.1 for a Class 3A facility (short, high turnover parking at shopping centres), the size of the parking bays provided should be a minimum of 2.7m wide by 5.4m long, separated by a 6.5m aisle width. Wider than standard aisles have been incorporated to improve pedestrian safety throughout the car park. Wider aisles were considered a better treatment than specific pathways within the car park and they provide improved access to all parks. Pathways cannot be provided on all aisles therefore they would improve safety for only those pedestrians that pathway aligns with their desire line.

### **7.2.2 Disabled Parking Bays**

In accordance with AS2890.6, the disabled parking bays should be a minimum of 2.4 m wide by 5.4 m long with a 2.4 m wide clear zone provided adjacent each space. The current design appears to meet these requirements.

It is recommended that if possible, the disabled access bays are re-located such that clear access is provided from the disabled bays to the entrance point ramps. It is envisaged that this could be achieved by placing some disabled bays at the location of the current 'pram' parking bays.

### **7.2.3 Bicycle Parking**

The bicycle parking facilities to be provided within the proposed development should meet the requirements of AS2890.3.

## **7.3 ENTRY AND EXIT POINTS**

As discussed in Section 2, the proposed development will be accessed by three access points – the Northern Access Point, Southern Access Point and Western Access Point.

### **7.3.1 Northern Access Point**

The Northern Access Point is considered a Class 3 access driveway in accordance with AS2890.1 and should therefore be provided with an entry width of at least 6.0 m and an exit width of at least 4.0 to 6.0 m, separated by a 1 m to 3 m median.

The Access Point will include one entry lane and one exit lane, with vehicles able to turn left and right to enter and exit the proposed development.

### **7.3.2 Southern Access Point**

The Southern Access Point is considered a Class 3 access driveway in accordance with AS2890.1 and should therefore be provided with an entry width of at least 6.0 m and an exit width of at least 4.0 to 6.0 m, separated by a 1 m to 3 m median.

The Access Point will include one entry lane and two exit lanes, with vehicles able to turn left and right to enter and exit the proposed development.

### 7.3.3 Western Access Point

The Western Access Point is considered a Class 4 access driveway in accordance with AS2890.1 and should therefore be provided with an entry width of at 6.0 m to 8.0 m and an exit width of at least 6.0 to 8.0 m, separated by a 1 m to 3 m median.

The Access Point will include one entry lane and one exit lane, with vehicles restricted from turning right into and out of the proposed development. The left out is considered a low impact movement and adequate sight distance is available for motorists to safely enter Anzac Highway traffic. The current layout of the Access Point will be improved by the installation of a new tapered Anzac Highway kerb that enables left turning vehicles to clear the through traffic as they turn in.

An existing right turn facility exists adjacent the Western Access Point which could potentially create a hazardous manoeuvre for drivers attempting to cross Anzac Highway and it is considered a safer alternative for staff and customers to turn right instead at either the Anzac Highway / Leader Street Junction or the Anzac Highway / Maple Avenue Junction. Therefore, to eliminate the risk of motorists undertaking this manoeuvre, it is recommended that a raised concrete separator be provided, as shown in Figure 16 below. Provision of this treatment will still retain access to the Ashford Hospital U-turn facility.

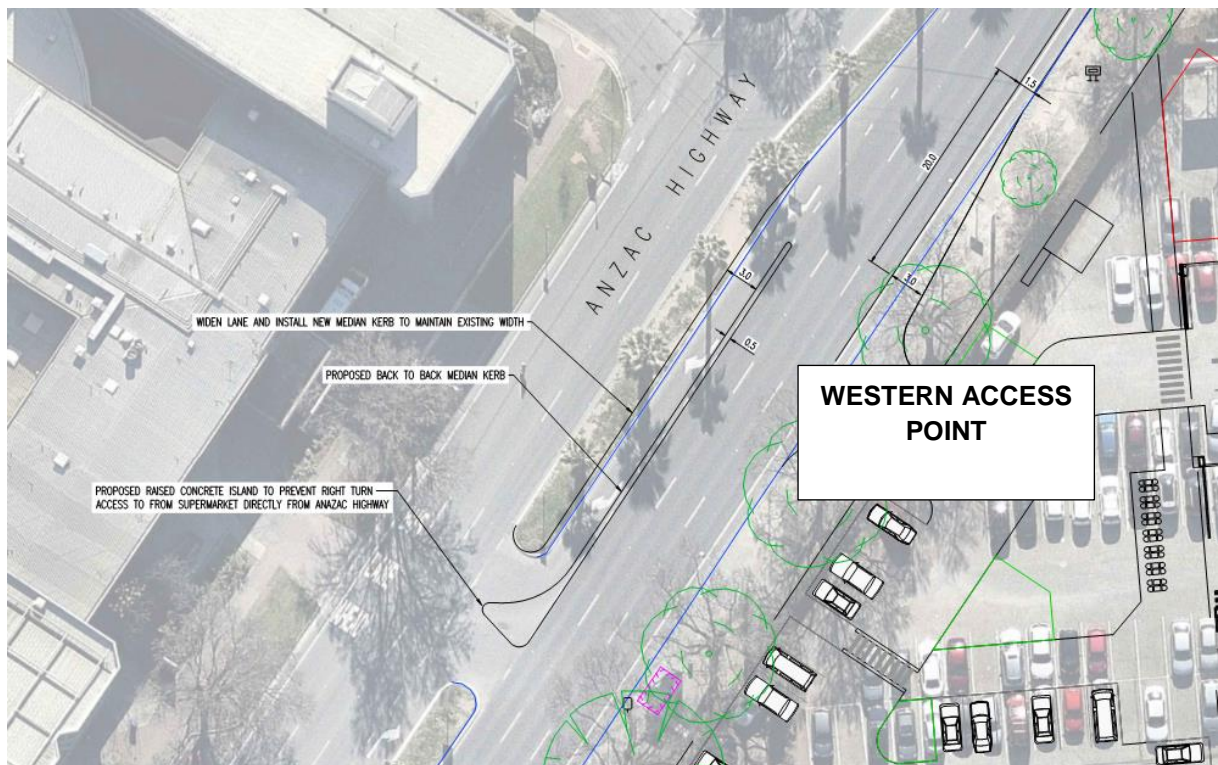


Figure 16 Proposed Modifications to Median adjacent Western Access Point

### 7.3.4 Access Controls

It is understood that the latest generation ticketless parking technology is to be used to control access to and from the proposed development at all car park access points. The technology incorporates automatic number plate recognition and boom gates for vehicles entering and exiting the facility.

Traditional boom gates systems typically result in queuing on their approach during peak periods which in this case may result in queues extending to the adjacent road network. To eliminate this risk the proposed system during peak periods runs in gate open mode with a speed hump at the number plate recognition point to provide separation between vehicles.

Current sites in operation are achieving flows of up to 1600 veh/hour per gate. This effectively operates as a free flow arrangement. Likewise, the failsafe operation function results in the boom gates automatically opening if any fault or power loss is detected within the system. The adoption of these functions is expected to result in no queues extending past the site boundaries, eliminating impact on the surrounding road network.

## 7.4 HEAVY VEHICLE ACCESS

### 7.4.1 General

Heavy vehicle access to the site is required to service the refuse area and the loading dock area, as shown in Figure 17 below. All vehicles will enter and exit the site in a forward direction and access points for the loading docks are positioned on sections of road that provide sufficient sight distances.

Maple Avenue is an industrial area and the locating of the loading dock and refuse area on this street is expected to alleviate any impact on nearby residents located adjacent Leader Street.

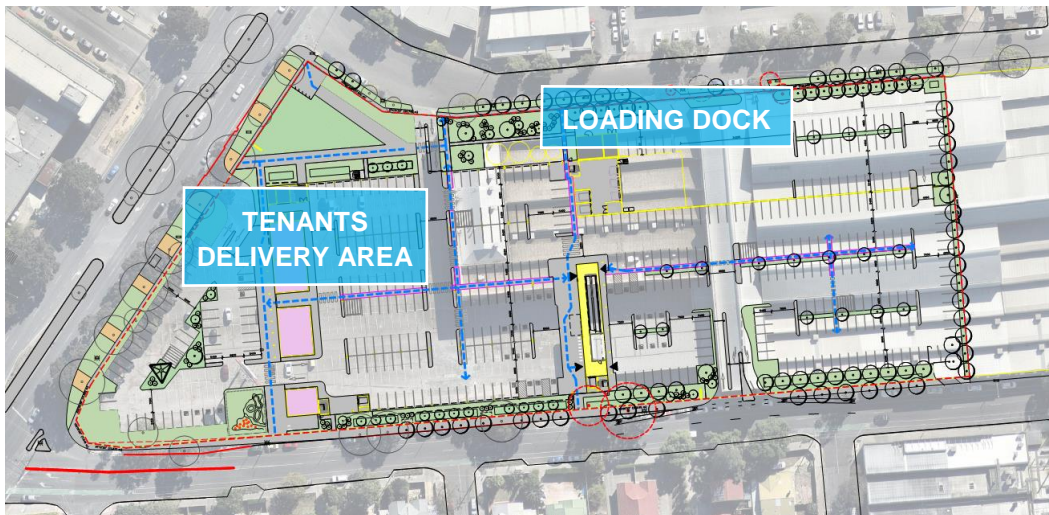


Figure 17 Heavy Vehicle Access Areas

### 7.4.2 Arrangement of Loading Docks

The current arrangement of the loading docks is:

- Maple Avenue Loading Dock
  - Maximum modelled vehicle length is a 19m long semi-trailer
  - All deliveries and refuse vehicles to turn right in from Maple Avenue
  - Delivery vehicles and refuse vehicles will exit to Maple Avenue
- Tenancy Delivery Area
  - Maximum vehicle length of 6.6m Small Rigid Vehicle
  - Vehicles to enter and exit via Anzac Highway
  - Deliveries to only occur during periods that the supermarket is closed to the general public

Tracking has been undertaken on each access area, to ensure that the areas are accessible to the required heavy vehicles (refer to Appendix F). The sketches indicate there is sufficient manoeuvring area to accommodate the largest vehicles that will be accommodated by the two separate loading docks.

### **7.4.3 Delivery Volumes and Timing**

It is understood that deliveries to the development will be 24 hours per day with delivery vehicles ranging from small trucks to 19m articulated trucks with refrigeration plant. It is expected that there will be one delivery vehicle in a 15 minute period and there will be one delivery using a 19m articulated truck with refrigeration plant during the night time period (Resonate Kaufland Report, March 2018).

### **7.4.4 Operational Restrictions**

WGA understand that the logistics company that will be engaged will operate their heavy vehicles with broadband/white noise reversing alarms instead of pulsed tonal “beeper” alarms as the pulsed tonal alarms can lead to considerable annoyance in the surrounding community due to their high frequency.

All deliveries are proposed to be via Maple Avenue to ensure no impact to Leader or Leah Street residents.

### **7.4.5 Summary**

Based on our review we also consider the location and dimensions of the loading docks to be sufficient to accommodate the required vehicles for the two proposed loading docks.

## **7.5 EMERGENCY VEHICLE ACCESS**

An emergency vehicle access is provided on the north eastern corner of the car park via a dedicated access point, as shown in Appendix F. WGA have undertaken tracking to confirm that a typical fire truck can utilise the access point when accessed from Maple Avenue. This is shown within Appendix. All clearance requirements in accordance with AS2890.2 have been achieved.

## **7.6 PEDESTRIAN ACCESS**

Clearly defined pedestrian crossings are provided to the north and west of the carpark, allowing pedestrians to safely access surrounding local roads (and associated public transport).

It is recommended that pedestrian access is provided to the eastern side of the car park from the entrance point via a clearly defined pedestrian pathway, with pedestrian crossings provided across internal access roads. The width of this path should be in accordance with AS1428.2, which states that walkways should have an unobstructed width of not less than 1.2m.

## **7.7 SIGHT DISTANCE**

### **7.7.1 Safe Intersection Sight Distance**

A sight distance assessment has been undertaken of the proposed access points based on sight distance requirements specified in AS2890.1, Section 3.2.4, as shown in Table 14 below.



Table 14 Access Point Sight Distance Assessment

Access Point	Required Sight Distance Along Frontage Road		Approximate Available Sight Distance Provided	Required Sight Distance Achieved?
	Desirable (5 sec gap)	Minimum		
<b>Northern Access Point</b>	69 m	45 m	60 m (West)	Yes (West)
			250 m (East)	Yes (East)
<b>Southern Access Point</b>	69 m	45 m	150 m (West)	Yes (West)
			250 m (East)	Yes (East)
<b>Western Access Point</b>	83 m	65 m	250 m (North)	Yes (North)
			250 m (South)	Yes (South)

It can be seen in Table 14 above that the minimum sight distance is expected to be achieved at all access points. However, this should be further assessed in detailed design to ensure that existing and proposed vegetation is not impacting required sight lines.

### 7.7.2 Pedestrian Sight Distance

In order to achieve adequate sight lines for pedestrian safety, AS2890.1, Figure 3.3, recommends that 'sight triangles' are included at access driveways in order to maximise visibility. Figure 18 below illustrates the areas required to be kept clear of obstructions to visibility.

The current plans indicate that the sight triangles at the access driveway are not obstructed, in accordance with AS2890.1 recommendations.

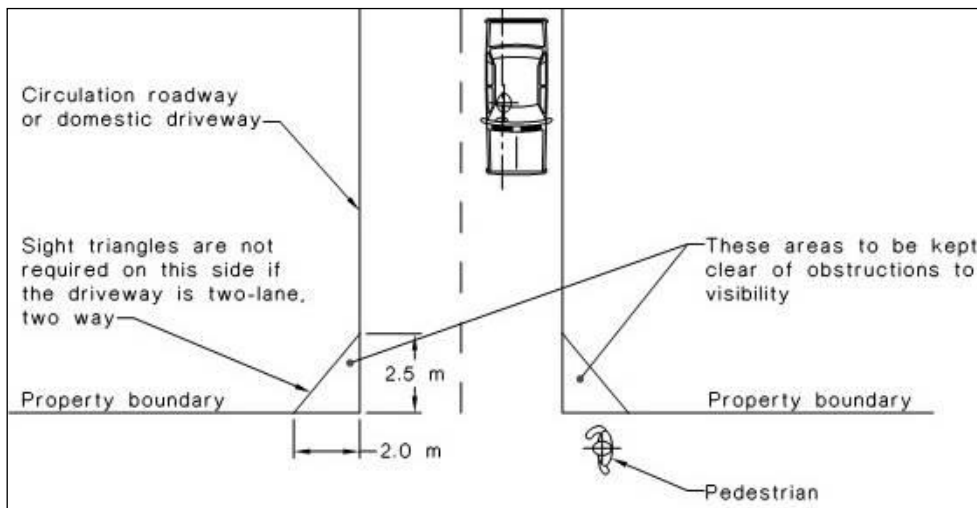


Figure 18 Minimum Sightlines for Pedestrian Safety



# 8

## SUMMARY

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The main points relating to the proposed development are as follows:

- The proposed development will be on the site of the former “Le-Cornu” retail showroom
- Parking provision, disabled parking and bicycle parking provisions exceeds Development Plan requirements.
- All three proposed access points are expected to perform to a good level of service during both the weekday peak hour and the weekend peak hour.
- Delivery vehicles accessing the proposed development will do so via Maple Avenue and are anticipated to have a minimal impact on surrounding road networks.

In summary, the analysis presented in this report concludes that the traffic generation and parking requirements associated with the proposed development can be satisfactorily accommodated.

# 9 REFERENCES

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- City of Unley, 2017. Development Plan
- National Construction Code 2016, Volume One, Building Code of Australia Class 2 to Class 9 Buildings
- Department of Planning, Transport and Infrastructure, 2013. Trip Generation Rates for Assessment of Development Proposals
- Department of Planning, Transport and Infrastructure, Nov 2017. Traffic Signal Design - TS100
- Resonate, 7 March 2018. Kaufland – 10 Anzac Highway Forestville, Planning Stage Acoustic Report
- Roads and Traffic Authority, 2002. Guide to Traffic Generating Developments
- Roads and Traffic Authority, 2013. Guide to Traffic Generating Developments Updated Traffic Surveys, Technical Direction TDT 2013/04a
- Standards Australia, 2004. Australian Standard 2890, Part 1: Off-Street Car Parking
- Standards Australia, 2009. Australian Standard 2890, Part 3: Bicycle Parking Facilities
- Standards Australia, 2009. Australian Standard 2890, Part 6: Off-Street Parking for People with Disabilities

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# APPENDIX A

## SITE PLANS







AUS - Forestville - SA

0 No. 0 Ver. 1  
Prelim Design  
Rev. Date: 26/02/2019  
Content:  
Plan Overview

Kaufland only 23055 m<sup>2</sup>

Space Schedule Kaufland Net Area Approx

Supermarket	3970 m <sup>2</sup>
Back of House	1610 m <sup>2</sup>
Amenities	162 m <sup>2</sup>
First Floor Tenancy	527 m <sup>2</sup>
Cafe	75 m <sup>2</sup>
Tenancy 1	110 m <sup>2</sup>
Tenancy 2	100 m <sup>2</sup>
Tenancy 3	147 m <sup>2</sup>
<b>TOTAL RETAIL AREA</b>	<b>4834 m<sup>2</sup></b>

Space Schedule Kaufland Gross Lettable Area

Supermarket	3990 m <sup>2</sup>
Back of House	1632 m <sup>2</sup>
Amenities	164 m <sup>2</sup>
First Floor Tenancy	527 m <sup>2</sup>
Cafe	80 m <sup>2</sup>
Tenancy 1	114 m <sup>2</sup>
Tenancy 2	104 m <sup>2</sup>
Tenancy 3	151 m <sup>2</sup>
<b>TOTAL RETAIL AREA</b>	<b>4966 m<sup>2</sup></b>

Planned Parking Kaufland 430

Senior	8
Accessible	9
Family	11
EV Charging	2

Planning Specification:

Submission of all basic building rights and restrictions. Information on product range and utilization restrictions together with a comparison with the development plan is required.

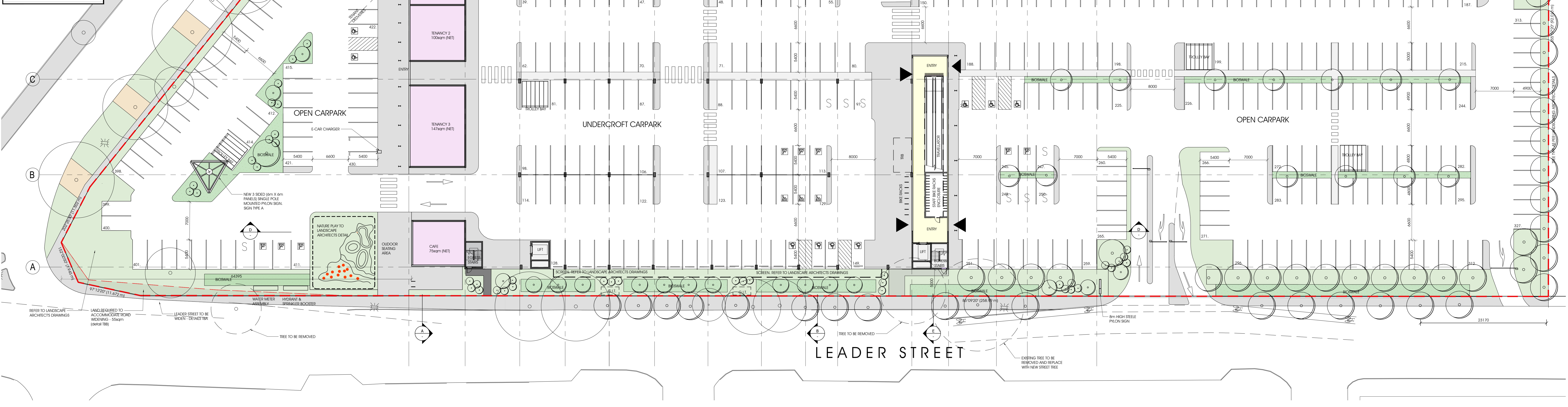
Height survey of the local GOK and reconciliation with the stock is necessary before further processing.

Separate turning movements in all directions required. An expert proof of the performance and functionality of the traffic connections to the traffic meter on is to be provided.

Planning of traffic systems for car and truck traffic, including proof of all

01 GROUND FLOOR PLAN - OPTION A

156



LANDSCAPE ZONE	REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION
BICSWALE	REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION
PAVING	REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION
SERVICES AREAS	
SUPERMARKET AREAS	
SPECIALTY RETAIL	
TENANCY STORE	
BACK OF HOUSE, OFFICES AND AMENITIES	
GRAVITIC SAND	REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

REV	DATE	DESCRIPTION	DRN	CHKD
P12	01.02.19	PRELIMINARY ISSUE	DA	CD
P13	05.02.19	PRELIMINARY ISSUE	DA	CD
P14	08.02.19	PRELIMINARY ISSUE	DA	CD
P15	21.02.19	PRELIMINARY ISSUE	DA	CD

REV	DATE	DESCRIPTION	DRN	CHKD
P16	25.02.19	PRELIMINARY ISSUE	DG	CD
P17	26.02.19	PRELIMINARY ISSUE	DG	CD
P18	28.02.19	PRELIMINARY ISSUE	DG	CD

DRN	CHKD
DG	CD
DG	CD
DG	CD

PROJECT  
KAUFLAND FORESTVILLE  
10 ANZAC HIGHWAY  
FORESTVILLE, SA

DRAWING  
SITE PLAN AND  
GROUND FLOOR PLAN

PROJECT No  
S1171802

DATE  
DEC 2018

DRAWN  
DA

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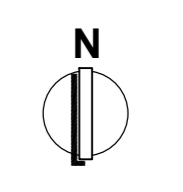
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DRAWING No  
TP-02

REV  
P18



Studio I17 accepts no responsibility for any costs, losses, claims or damages arising from these drawings, specifications and related documents unless there is full compliance with the client and any authorised user of the following. 1. All boundaries, dimensions and levels are to be checked on site before construction and any discrepancies are to be reported to the Architect / Designer. 2. Partial Service: Any discrepancies with site or other information is to be advised to the Architect / Designer and direction or approval is to be sought before the implementation of the detail. 3. Block and site plans should be verified by a check boundary survey prior to commencement on site. 4. Do not scale this drawing. 5. For the purpose of coordination, all relevant parties must check this information prior to implementation and report any discrepancies to the Architect / Designer.





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# APPENDIX B

## SITE INSPECTION REPORT



**Project No:** ADL 171147

**Subject:** Anzac Highway/ Leader Street Junction Traffic Survey – AM/PM

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**Traffic surveys conducted by:** Huy Le

**Location:**

- Anzac Highway/ Leader Street Junction
- Anzac Highway/ Maple Avenue Junction

**Time of Traffic Surveys:** Monday 16/10/2017 (5:00 PM – 6:00 PM), Tuesday 17/10/2017 (8:00 AM – 9:00 AM), Wednesday 10/05/2018 (5:00 PM to 6:00 PM)

**Weather:**

16/10/2017 – PM period: ~23°, sunny, warm, no rain during survey

17/10/2017 – AM period: ~28°, sunny, hot, no rain during survey

10/05/2018 – PM period: ~17°, dull sky, cold, no rain during survey

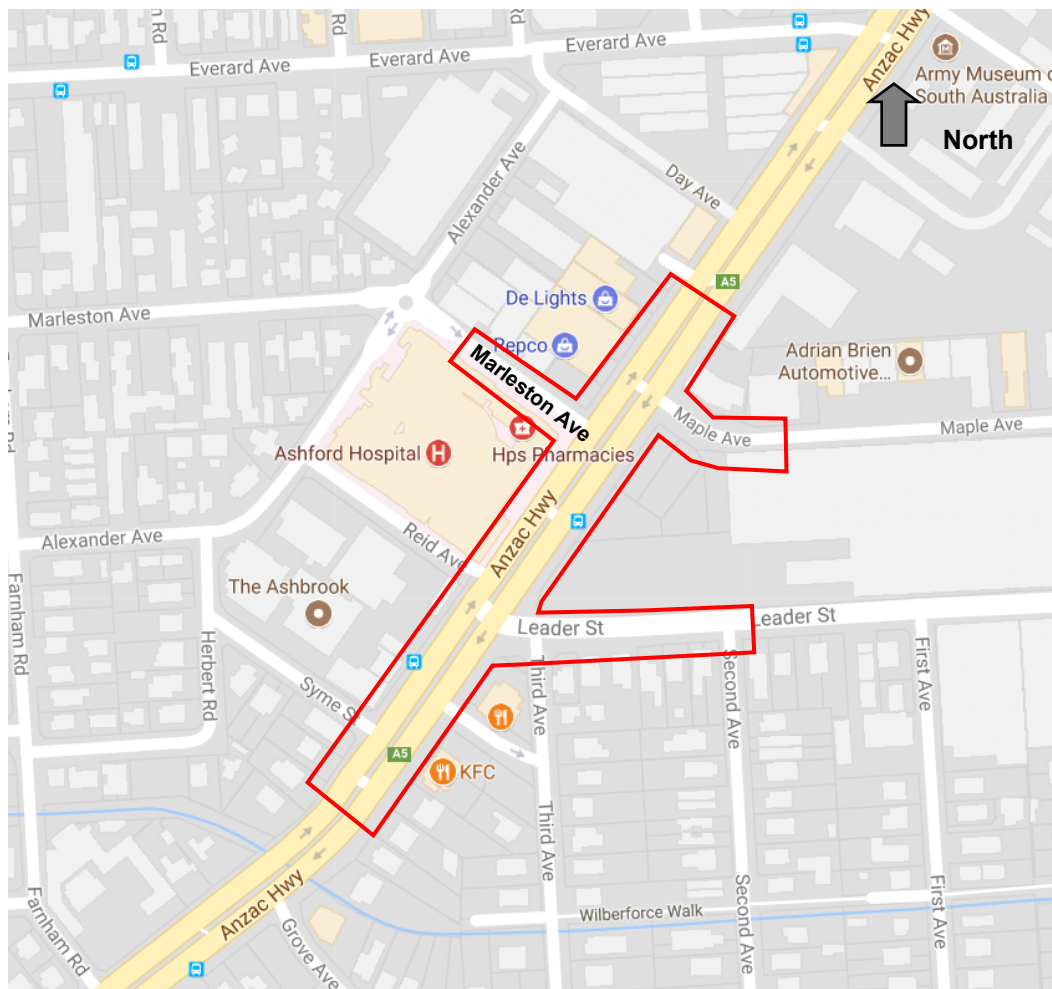


Figure 1: Locality Plan

## INTERSECTION SITE LAYOUT



Figure 2: Junction Layout- Anzac Highway/Leader Street Junction

The junction of Anzac Highway and Leader Street is currently a signalized junction with an average cycle time of 120 seconds. The junction is in close proximity to a private hospital, a large-size furniture shop, fast-food stores and bus stops, thereby giving high level of pedestrian activity.





Figure 3: Junction layout- Maple Avenue/ Anzac Highway junction and Marlestone Ave/ Anzac Highway junction

The junction of Maple Avenue and Anzac Highway is a T junction with Anzac Highway forming the major road. Outgoing vehicles from Maple Avenue are required to give way to incoming traffic on Anzac Highway before proceeding. The median island opening allows vehicles from Maple Avenue to perform staged crossing, as well as vehicles from Anzac Highway citybound to undertake U-turn manoeuvres.



Figure 4: The median island opening in front of Ashford Hospital

Table 1 below represents speed limits applied to the subject roads/ streets.

Speed limit on roads/streets within the study area		
Name	Applied speed limit	Comment
Anzac Highway	60 km/h	As signed Assumed as default speed limit for built-up area
Leader Street	50 km/h	
Maple Avenue	40 km/h	40 km/h area
Marleston Avenue	40 km/h	40 km/h area
Reid Avenue	40 km/h	40 km/h area

Table 1: Speed limit on roads/streets within the study area

## GENERAL OBSERVATION

Observed traffic counts were recorded for the following locations where turning movement surveys were not provided by DPTI:

- The junction of Maple Avenue and Anzac Highway
- The junction of Marleston Avenue and Anzac Highway
- The open median island in front of Ashford Hospital
- The intersection of Anzac Highway and Leader Street

Maple Avenue / Anzac Highway Junction				
Peak Period	Maple Avenue		Anzac Highway	
	Left Out	Right Out	Left In	Right In
AM	8	4	20	44
PM	36	4	4	36

Table 2: Traffic counts - Maple Avenue/ Anzac Highway Junction

Marleston Avenue / Anzac Highway Junction		
Peak Period	Marleston Avenue	Anzac Highway
	Left Out	Left In
AM	80	72
PM	60	68

Table 3: Traffic counts – Marleston Avenue

Anzac Highway/Ashford Hospital Open Median, U-turn count		
Peak Period	U-turn	U-turn
	from city bound traffic	from outbound traffic
AM	20	12
PM	4	16

Table 4: Traffic counts – Marleston Avenue

The number of vehicles turning left from Anzac Highway to Leader Street using the slip lane on Anzac Highway (NE) approach was also recorded during both AM peak hour and PM peak hour.

Left-turning vehicles from Anzac Hwy to Leader St	
AM	PM
44	240

Table 5: Counts for vehicles turning left from Anzac Hwy to Leader St at the junction.

The SCATS information for TS 207 Anzac Highway/ Leader Street junction was provided by DPTI, and this was observed during site visit. The average cycle time is 120s with left turn from Anzac Highway (NE) approach to Leader Street filtering fulltime. The table below summaries signal phasing information for TS 207.

Phase	Movement description	AM green time allocation (seconds)	PM green time allocation (seconds)
A	<ul style="list-style-type: none"> <li>Anzac Highway (SW) through movement</li> <li>Anzac Highway (NE) through movement</li> <li>Pedestrian movement across Leader Street</li> </ul>	55	57
C	<ul style="list-style-type: none"> <li>Leader Street right turn movement</li> <li>Pedestrian movement across Anzac Highway south-western approach</li> <li>Leader Street left turn movement begins 14 s after the start of the phase when pedestrian movement has been closed down.</li> </ul>	28	24
D	<ul style="list-style-type: none"> <li>Anzac Highway (SW) through movement</li> <li>Anzac Highway (SW) right turn movement</li> <li>Leader Street left turn movement</li> </ul>	17	17

Table 6: Phasing summary- TS 207

Maximum queue lengths at each approach were also recorded, and are presented in tables 7 to 10.

Approach	Maximum length (m)	Time of occurrence
Anzac Highway (NE)	135	8:19 AM
Anzac Highway (SW) (thr)	180	8:38 AM
Anzac Highway (SW) (right turn)	50	8:35 AM
Leader St (right turn)	210	8:37 AM
Leader St (left turn)	30	8:35 AM

Table 7: AM peak period- queue length- Anzac Highway/ Leader Street junction

Approach	Maximum length (m)	Time of occurrence
Anzac Highway (NE)	230	5:08 PM
Anzac Highway (SW) (thr)	100	5:34 PM
Anzac Highway (SW) (right turn)	50	5:40 PM
Leader St (right turn)	42	5:45 PM
Leader St (left turn)	50	5:45 PM

Table 8: PM peak period- queue length- Anzac Highway/ Leader Street junction





Figure 5: Observed maximum queue length during AM peak- TS 207



Figure 6: Observed maximum queue length during PM peak- TS 207

<b>Movement</b>	<b>Observed Period</b>	<b>Maximum queue length (veh)</b>
Maple Avenue - left turn	AM peak hour	1
	PM peak hour	2
Maple Avenue – right turn	AM peak hour	1
	PM peak hour	1
Anzac Highway – right turn	AM peak hour	3
	PM peak hour	3
Anzac Highway – U turn	AM peak hour	3
	PM peak hour	3
Anzac Highway – left turn	AM peak hour	1
	PM peak hour	1

Table 9: Recorded maximum queue length at the Maple Avenue/ Anzac Highway junction.

<b>Movement</b>	<b>Observed Period</b>	<b>Maximum queue length (veh)</b>
Marlestone Avenue - left turn	AM peak hour	4
	PM peak hour	3
Anzac Highway – left turn	AM peak hour	1
	PM peak hour	1

Table 10: Recorded maximum queue length at the Marlestone Avenue/ Anzac Highway junction.

## MEASURED SATURATION FLOWS

Saturation flows of all traffic lanes at the intersection of Anzac Highway and Leader Street were measured during period from 17:00 to 18:00 on Wednesday 9th May 2018 utilising JCT Traffic Tools as recommended by DPTI Traffic Modelling Guidelines. Measured saturation flows are presented in Table 11 below.

Measured Saturation Flows - Average	
Leader Street	
Lane 1	1673
Lane 2	1948
Lane 3	1839
Anzac Highway (NE)	
Lane 1	1299
Lane 2	1959
Lane 3	1968
Anzac Highway (SW)	
Lane 1	1788
Lane 2	1837
Lane 3	2016
Lane 4	2051

Table 11: Measured Saturation Flows

## ADDITIONAL OBSERVATIONS

- There is a private hospital, fast-food stores, a large-size furniture shop and bus stops within the study area.
- Reid Avenue is a one-way street, only allows vehicles to turn left from Reid Avenue to Anzac Highway to travel towards CBD.
- High level of pedestrian activity was observed during both AM peak and PM peak.
- Unlimited on-street parking is provided along both sides of Leader Street whereas Marlestone Avenue and Maple Avenue only facilitate timed parking as short as half an hour. Furthermore, Reid Avenue is a private parking area. These parking areas were observed to be at least half-full during PM peak and almost fully-packed during AM peak.

### 1. Anzac Highway/ Leader Street junction

AM Peak period:

- Generally, during AM peak period there were more vehicles travelling citybound than travelling outbound.
- Pedestrian crossing activity across Anzac Highway, primarily from and to Hungry Jack's fast-food store, was observed to be very frequent, as many as 6 pedestrians per signal cycle.



PM Peak period:

- Generally, during PM peak period there were more vehicles travelling outbound than travelling citybound.
- A considerable number of left-turn movements from Anzac Highway (NE) to Leader St were seen during PM peak compared to AM peak (almost 6 times higher).
- A higher number of buses stopping at stop 3 Anzac Highway SE side were observed during PM peak. A maximum queue of 3 busses at the bus stop was recorded.
- A higher number of pedestrians that crossed Leader Street at the junction were observed during PM peak compared to AM peak. They were observed to be mainly public transport users who were stopping at bus stop 3 Anzac Highway SE side.

2. The junction of Maple Avenue and Anzac Highway:

- Average delay time for vehicles on Maple Avenue is one minute.
- Almost 50% of vehicles that were observed to turn right into Maple Avenue and 30% of vehicles that were observed to make a U-turn from the median island opening were travelling from Marlestone Avenue.

3. The junction of Marlestone Avenue and Anzac Highway:

- Almost 70% of outgoing vehicles from Marlestone Avenue were observed to perform two-stage crossing via the Maple Avenue median opening to either make a U-turn or turn right to Maple Avenue.

4. The median island opening in front of Ashford Hospital

- The hospital entrance in front of the subject median island opening is reserved only for emergency services.
- Pedestrian crossing across this section of Anzac Highway via the median island was non-existent.



Figure 7: Observed queue length on Anzac Highway (NE)





Figure 8: Observed queue length on Leader Street



Figure 9: Observed queue length on Anzac Highway (SW)





Figure 10: A vehicle making a U-turn at the median island opening in front of Ashford Hospital



Figure 11: Ashford hospital - Entrance for emergency services



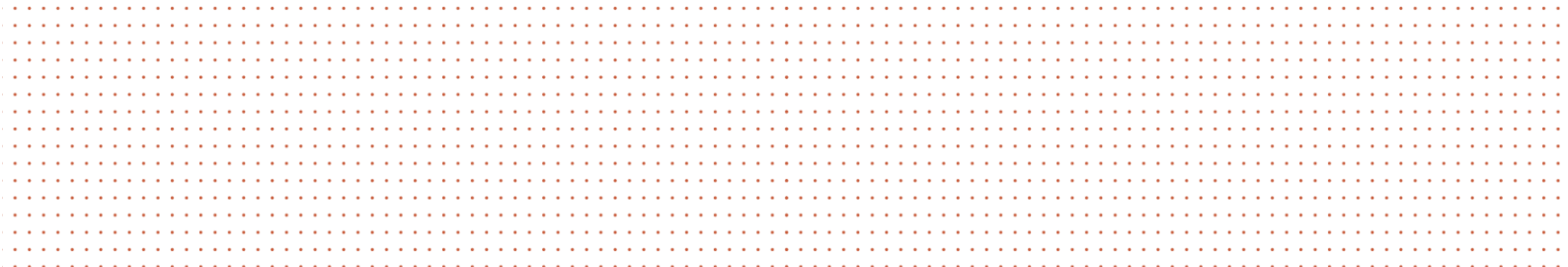


Figure 12: On-street parking spaces along Leader Street were observed to be fully occupied during AM peak hour

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# APPENDIX C

## TRAFFIC COUNTS



Intersection of: ANZAC HIGHWAY / LEADER STREET

Locality: FORESTVILLE

AMG Reference: TG786297

Date of Count: 25/05/2017

Day: Thursday

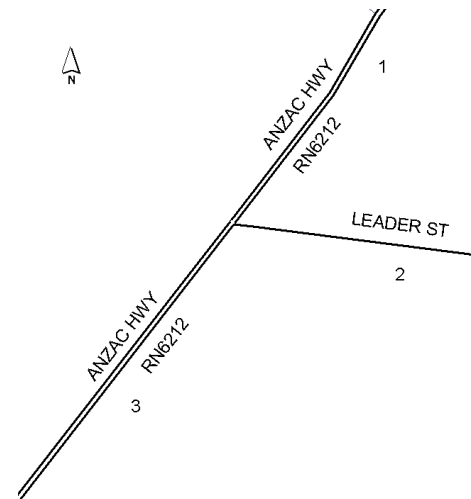
Weather: Dry

Control: SIGNALS

Survey Status:

Arm Road Number - Name

- 1 6212 - ANZAC HIGHWAY
- 2 6197 - LEADER STREET
- 3 6212 - ANZAC HIGHWAY



	Arm Exit Arm	1		2		3	
		2 (L)	3	3 (L)	1 (R)	1	2 (R)
11 hour totals	Cars	1373	15570	919	2605	16121	1176
	CV	28	575	37	57	544	43
	Total	1401	16145	956	2662	16665	1219
AM Peak hour (08:00)	Cars	60	946	65	506	2646	116
	CV	2	73	8	4	53	8
	Total	62	1019	73	510	2699	124
PM Peak hour (17:00)	Cars	316	2437	134	232	1402	170
	CV	3	59	2	1	44	2
	Total	319	2496	136	233	1446	172

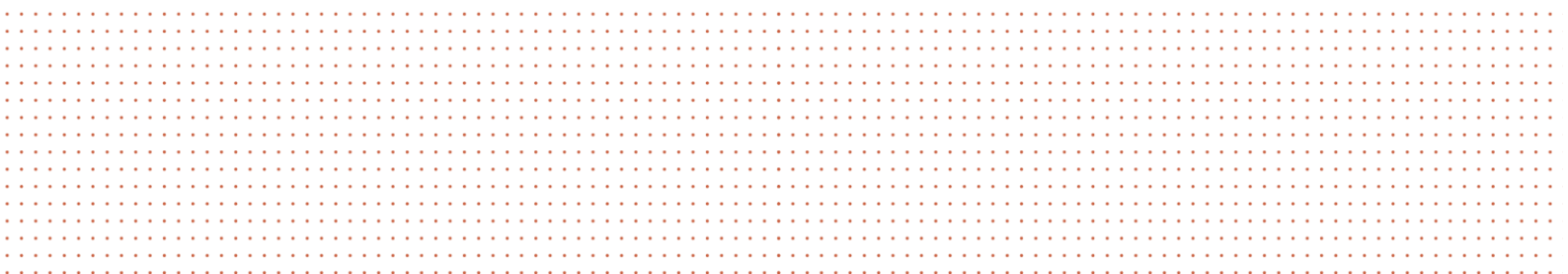
		1		2		3	
One-way Flows	11 Hour Totals	(IN) 17546	(OUT) 19327	(IN) 3618	(OUT) 2620	(IN) 17884	(OUT) 17101
	AM Peak Hour	11:45 1334	08:00 3209	08:00 583	08:15 220	08:15 2829	11:45 1326
	PM Peak Hour	17:00 2815	17:00 1679	17:15 374	16:45 504	17:00 1618	17:00 2632
Two-way Flows	AM Peak Hour	08:00 4290	08:15 787	08:15 3917			
	PM Peak Hour	17:00 4494	17:00 860	17:00 4250			
All Vehicles	11 Hour Totals	36873	3.3% CV	6238	2.6% CV	34985	3.4% CV
	Estimated AADT	46800 SF( 1.00) ZF( 1.27)		7900 SF( 1.00) ZF( 1.27)		44400 SF( 1.00) ZF( 1.27)	

AADT - Annual Average Daily Traffic SF - Seasonal Factor ZF - Zone Factor CV - Commercial Vehicles

---

# APPENDIX D

## SIDRA OUTPUTS

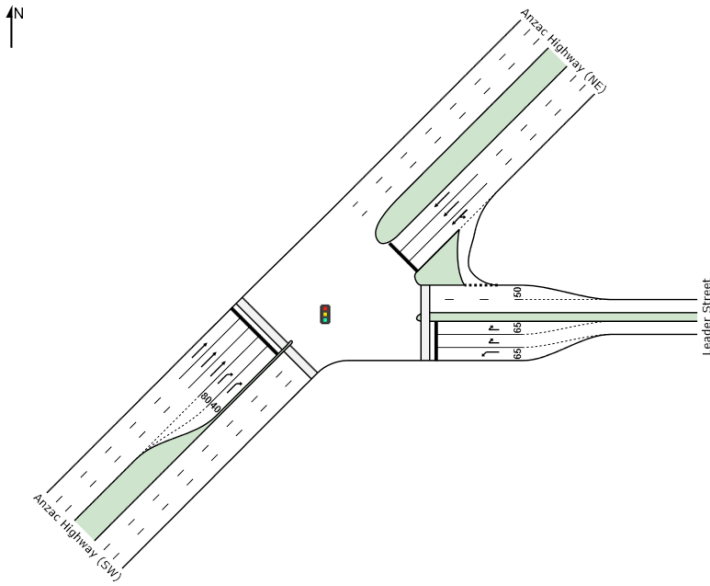




## SITE LAYOUT

Site: [Leader/Anzac\_Thursday PM proposed]

New Site  
Signals - Fixed Time Coordinated



## LANE SUMMARY

Site: [Leader/Anzac\_Thursday PM proposed]

New Site  
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Phase Times)

Lane Use and Performance													
	Total veh/h	Demand Flows HV %	Cap. veh/h	Req. Sats u/c	Lane Util %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj %	Prob. Block %
<b>East Leader Street</b>													
Lane 1	272	0.6	509	0.534	100	39.8	LOS D	13.1	92.6	Short	65	0.0	NA
Lane 2	142	0.4	279	0.510	100	54.8	LOS D	7.7	54.4	Full	500	0.0	0.0
Lane 3	134	0.4	263	0.510	100	55.0	LOS D	7.3	51.5	Short	65	0.0	NA
Approach	548	0.6	1051	0.534		47.4	LOS D	13.1	92.6				
<b>NorthEast Anzac Highway (NE)</b>													
Lane 1	749	1.7	730	1.026	100	81.5	LOS F	59.3	421.5	Full	500	0.0	0.0
Lane 2	1121	2.3	1092	1.026	100	78.6	LOS E	101.4	724.3	Full	500	0.0	39.9
Lane 3	1126	2.3	1097	1.026	100	76.5	LOS E	101.8	727.2	Full	500	0.0	39.2
Approach	2995	2.2	2919	1.026		77.8	LOS E	101.8	727.2				
<b>SouthWest Anzac Highway (SW)</b>													
Lane 1	492	3.0	1252	0.393	100	6.7	LOS A	10.9	78.0	Full	500	0.0	0.0
Lane 2	506	3.0	1286	0.393	100	6.7	LOS A	11.2	80.1	Full	500	0.0	0.0
Lane 3	555	3.0	1411	0.393	100	6.7	LOS A	12.2	87.7	Full	500	0.0	0.0
Lane 4	66	0.9	197	0.334	34 <sup>o</sup>	60.1	LOS E	3.7	26.1	Short	80	0.0	NA
Lane 5	180	0.9	184	0.977	100	94.3	LOS F	13.9	97.8	Short	40	0.0	NA
Approach	1799	2.7	4710	0.977		17.4	LOS B	13.9	97.8				
Intersection	5342	2.2	5166	1.026		54.3	LOS D	101.8	727.2				

## LANE SUMMARY

Site: [Leader/Anzac\_Saturday AM proposed]

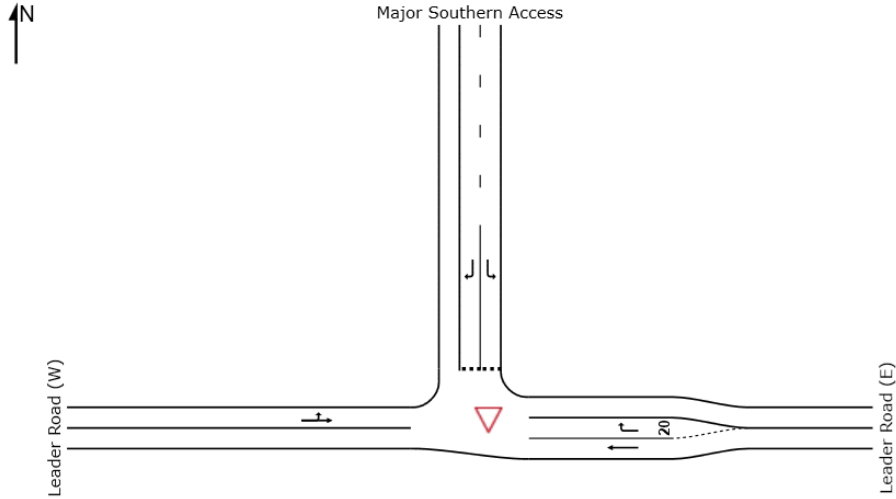
New Site  
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance													
	Total veh/h	Demand Flows HV %	Cap. veh/h	Req. Sats u/c	Lane Util %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj %	Prob. Block %
<b>East Leader Street</b>													
Lane 1	8	0.0	565	0.015	100	30.2	LOS C	0.3	2.2	Short	65	0.0	NA
Lane 2	24	0.0	266	0.089	100	51.4	LOS D	1.2	8.4	Full	500	0.0	0.0
Lane 3	22	0.0	251	0.089	100	51.5	LOS D	1.1	7.9	Short	65	0.0	NA
Approach	55	0.0	1082	0.089		48.2	LOS D	1.2	8.4				
<b>NorthEast Anzac Highway (NE)</b>													
Lane 1	429	3.0	653	0.657	100	26.2	LOS C	17.0	122.4	Full	500	0.0	0.0
Lane 2	641	3.3	976	0.657	100	22.6	LOS C	27.1	195.1	Full	500	0.0	0.0
Lane 3	644	3.3	980	0.657	100	22.6	LOS C	27.2	196.0	Full	500	0.0	0.0
Approach	1714	3.2	2609	0.657		23.5	LOS C	27.2	196.0				
<b>SouthWest Anzac Highway (SW)</b>													
Lane 1	528	3.3	1264	0.418	100	6.5	LOS A	11.7	83.9	Full	500	0.0	0.0
Lane 2	543	3.3	1298	0.418	100	6.5	LOS A	12.0	86.1	Full	500	0.0	0.0
Lane 3	596	3.3	1425	0.418	100	6.5	LOS A	13.1	94.3	Full	500	0.0	0.0
Lane 4	74	1.9	326	0.227	34 <sup>o</sup>	51.4	LOS D	3.8	27.0	Short	80	0.0	NA
Lane 5	207	1.9	311	0.665	100	55.7	LOS E	11.6	82.4	Short	40	0.0	NA
Approach	1947	3.1	4839	0.665		13.4	LOS B	13.1	94.3				
Intersection	3716	3.1	4653	0.665		18.6	LOS B	27.2	196.0				

## SITE LAYOUT

▽ Site: [Major Southern Access\_Thursday PM]

New Site  
Giveaway / Yield (Two-Way)



## LANE SUMMARY

▽ Site: [Major Southern Access\_Thursday PM]

New Site  
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Sat'n v/c	Lane Util %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj %	Prob. Block %
<b>East Leader Road (E)</b>													
Lane 1	388	3.5	1907	0.204	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	120	0.0	961	0.125	100	7.2	LOS A	0.5	3.6	Short	20	0.0	NA
Approach	508	2.7		0.204		1.7	NA	0.5	3.6				
<b>North Major Southern Access</b>													
Lane 1	60	0.0	966	0.062	100	5.1	LOS A	0.2	1.6	Full	30	0.0	0.0
Lane 2	160	0.0	273	0.585	100	24.0	LOS C	2.9	20.2	Full	30	0.0	0.0
Approach	220	0.0		0.585		18.8	LOS C	2.9	20.2				
<b>West Leader Road (W)</b>													
Lane 1	581	3.1	1901	0.306	100	0.5	LOS A	0.0	0.0	Full	200	0.0	0.0
Approach	581	3.1		0.306		0.5	NA	0.0	0.0				
Intersection	1309	2.4		0.585		4.1	NA	2.9	20.2				

## LANE SUMMARY

▽ Site: [Major Southern Access\_Saturday AM]

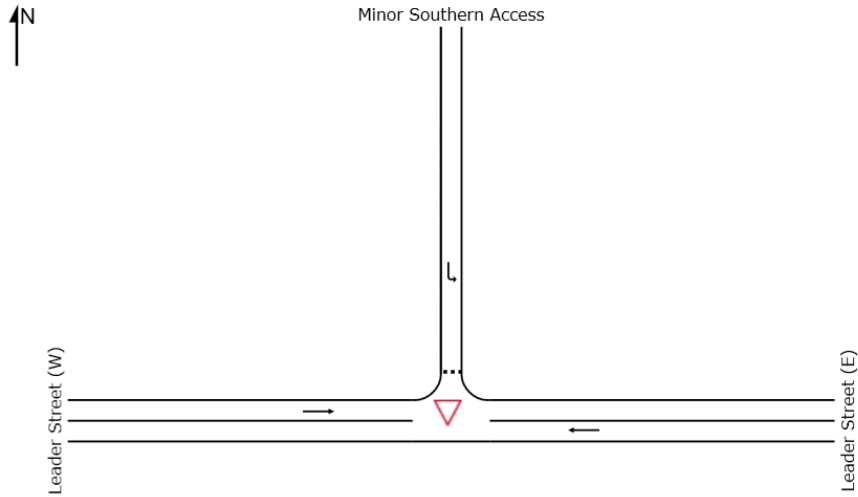
New Site  
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Sat'n v/c	Lane Util %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj %	Prob. Block %
<b>East Leader Road (E)</b>													
Lane 1	346	3.5	1907	0.182	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	160	0.0	1250	0.128	100	6.0	LOS A	0.6	4.0	Short	20	0.0	NA
Approach	506	2.4		0.182		1.9	NA	0.6	4.0				
<b>North Major Southern Access</b>													
Lane 1	80	0.0	1310	0.061	100	3.8	LOS A	0.2	1.7	Full	30	0.0	0.0
Lane 2	171	0.0	422	0.404	100	13.1	LOS B	1.9	13.5	Full	30	0.0	0.0
Approach	251	0.0		0.404		10.2	LOS B	1.9	13.5				
<b>West Leader Road (W)</b>													
Lane 1	374	2.3	1889	0.198	100	1.6	LOS A	0.0	0.0	Full	200	0.0	0.0
Approach	374	2.3		0.198		1.6	NA	0.0	0.0				
Intersection	1131	1.8		0.404		3.6	NA	1.9	13.5				

## SITE LAYOUT

Site: [Minor Southern Access\_Thursday PM]

New Site  
Giveaway / Yield (Two-Way)



## LANE SUMMARY

Site: [Minor Southern Access\_Thursday PM]

New Site  
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Sat'n v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block %
	Total veh/h	HV %						95% Veh	Dist m				
<b>East: Leader Street (E)</b>													
Lane 1	388	1.0	1105	0.351	100	0.6	LOS A	2.2	15.6	Full	500	0.0	0.0
Approach	388	1.0		0.351		0.6	NA	2.2	15.6				
<b>North: Minor Southern Access</b>													
Lane 1	60	0.0	974	0.062	100	4.6	LOS A	0.2	1.6	Full	20	0.0	0.0
Approach	60	0.0		0.062		4.6	LOS A	0.2	1.6				
<b>West: Leader Street (W)</b>													
Lane 1	517	1.0	1937	0.267	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	517	1.0		0.267		0.0	NA	0.0	0.0				
Intersection	965	0.9		0.351		0.5	NA	2.2	15.6				

## LANE SUMMARY

Site: [Minor Southern Access\_Saturday AM]

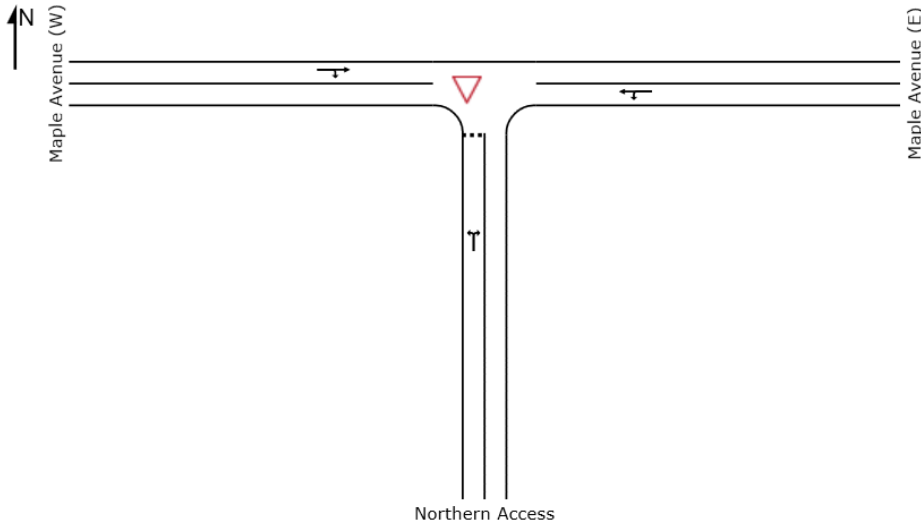
New Site  
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Sat'n v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block %
	Total veh/h	HV %						95% Veh	Dist m				
<b>East: Leader Street (E)</b>													
Lane 1	346	3.5	1062	0.326	100	0.8	LOS A	2.0	14.2	Full	500	0.0	0.0
Approach	346	3.5		0.326		0.8	NA	2.0	14.2				
<b>North: Minor Southern Access</b>													
Lane 1	80	0.0	1310	0.061	100	3.4	LOS A	0.2	1.7	Full	20	0.0	0.0
Approach	80	0.0		0.061		3.4	LOS A	0.2	1.7				
<b>West: Leader Street (W)</b>													
Lane 1	246	3.5	1907	0.129	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	246	3.5		0.129		0.0	NA	0.0	0.0				
Intersection	673	3.1		0.326		0.8	NA	2.0	14.2				

## SITE LAYOUT

Site: [Northern Access\_Thursday PM]

New Site  
Giveaway / Yield (Two-Way)



## LANE SUMMARY

Site: [Northern Access\_Thursday PM]

New Site  
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Northern Access													
Lane 1	41	0.0	1092	0.038	100	3.6	LOS A	0.1	0.8	Full	30	0.0	0.0
Approach	41	0.0		0.038		3.6	LOS A	0.1	0.8				
East: Maple Avenue (E)													
Lane 1	82	0.0	1904	0.043	100	2.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	82	0.0		0.043		2.7	NA	0.0	0.0				
West: Maple Avenue (W)													
Lane 1	138	0.0	1736	0.079	100	2.5	LOS A	0.4	2.6	Full	40	0.0	0.0
Approach	138	0.0		0.079		2.5	NA	0.4	2.6				
Intersection	261	0.0		0.079		2.6	NA	0.4	2.6				

## LANE SUMMARY

Site: [Northern Access\_Saturday AM]

New Site  
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Northern Access													
Lane 1	96	0.0	1126	0.085	100	3.9	LOS A	0.3	2.1	Full	30	0.0	0.0
Approach	96	0.0		0.085		3.9	LOS A	0.3	2.1				
East: Maple Avenue (E)													
Lane 1	66	0.0	1874	0.035	100	4.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	66	0.0		0.035		4.5	NA	0.0	0.0				
West: Maple Avenue (W)													
Lane 1	332	2.6	1840	0.180	100	1.0	LOS A	0.5	3.9	Full	40	0.0	0.0
Approach	332	2.6		0.180		1.0	NA	0.5	3.9				
Intersection	494	1.7		0.180		2.0	NA	0.5	3.9				

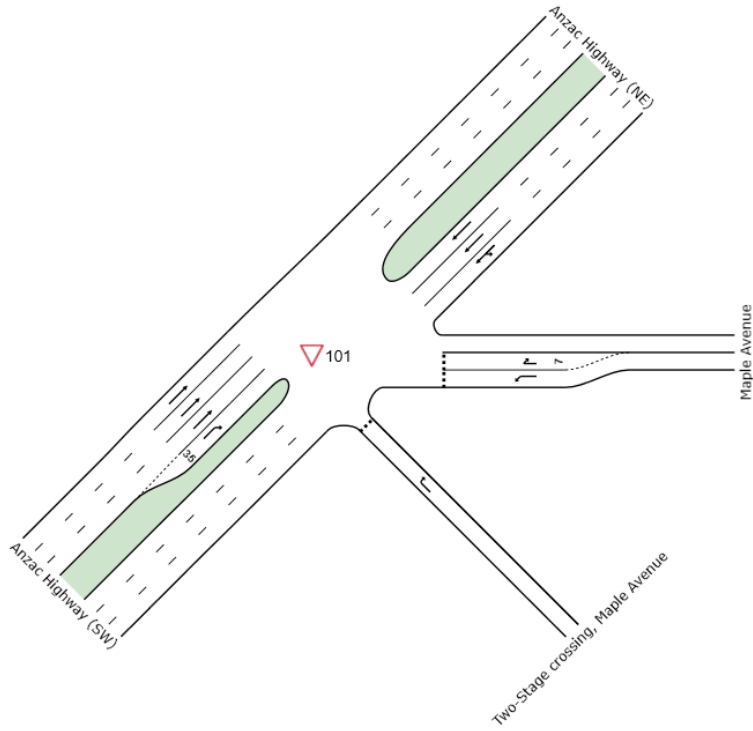




## SITE LAYOUT

▽ Site: 101 [Anzac / Maple\_Thursday PM proposed]

New Site  
Giveaway / Yield (Two-Way)



## LANE SUMMARY

▽ Site: 101 [Anzac / Maple\_Thursday PM proposed]

New Site  
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
<b>SouthEast: Two-Stage crossing, Maple Avenue</b>													
Lane 1	4	0.0	103	0.041	100	36.8	LOS E	0.1	0.9	Full	7	0.0	0.0
Approach	4	0.0		0.041		36.8	LOS E	0.1	0.9				
<b>East: Maple Avenue</b>													
Lane 1	38	0.0	49	0.770	100	179.5	LOS F	2.7	19.2	Full	500	0.0	0.0
Lane 2	4	0.0	8	0.512	100	562.5	LOS F	1.2	8.4	Short	7	0.0	NA
Approach	42	0.0		0.770		217.6	LOS F	2.7	19.2				
<b>NorthEast: Anzac Highway (NE)</b>													
Lane 1	1011	2.0	1899	0.532	100	0.5	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1024	2.2	1923	0.532	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1024	2.2	1923	0.532	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	3059	2.1		0.532		0.2	NA	0.0	0.0				
<b>SouthWest: Anzac Highway (SW)</b>													
Lane 1	585	2.7	1916	0.305	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	585	2.7	1916	0.305	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	585	2.7	1916	0.305	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	69	0.0	114	0.608	100	48.0	LOS E	1.6	11.0	Short	35	0.0	NA
Approach	1825	2.6		0.608		1.9	NA	1.6	11.0				
Intersection	4931	2.3		0.770		2.7	NA	2.7	19.2				

## LANE SUMMARY

▽ Site: 101 [Anzac / Maple\_Saturday AM proposed]

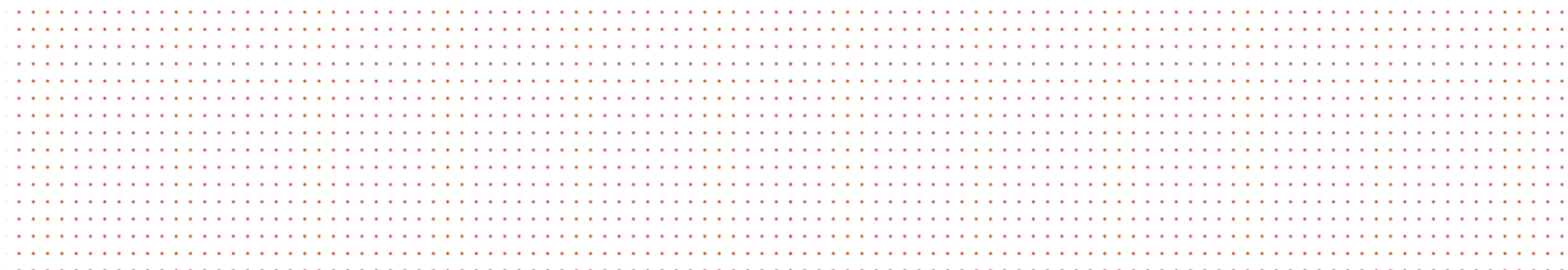
New Site  
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
<b>SouthEast: Two-Stage crossing, Maple Avenue</b>													
Lane 1	46	0.0	119	0.388	100	42.8	LOS E	1.4	9.9	Full	7	0.0	16.5
Approach	46	0.0		0.388		42.8	LOS E	1.4	9.9				
<b>East: Maple Avenue</b>													
Lane 1	8	0.0	215	0.039	100	17.5	LOS C	0.1	0.8	Full	500	0.0	0.0
Lane 2	46	0.0	141	0.328	100	33.0	LOS D	1.0	7.3	Short	7	0.0	NA
Approach	55	0.0		0.328		30.6	LOS D	1.0	7.3				
<b>NorthEast: Anzac Highway (NE)</b>													
Lane 1	554	3.0	1824	0.304	100	1.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	580	3.3	1909	0.304	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	580	3.3	1909	0.304	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1714	3.2		0.304		0.5	NA	0.0	0.0				
<b>SouthWest: Anzac Highway (SW)</b>													
Lane 1	555	3.3	1909	0.291	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	555	3.3	1909	0.291	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	555	3.3	1909	0.291	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	42	0.0	72	0.588	100	72.1	LOS F	1.6	11.0	Short	35	0.0	NA
Approach	1708	3.2		0.588		1.8	NA	1.6	11.0				
Intersection	3523	3.1		0.588		2.2	NA	1.6	11.0				

---

# APPENDIX E

## ANZAC LEADER DUAL LANE OPTION



## TECHNICAL NOTE

PROJECT: KAUF LAND AUSTRALIA – 10 ANZAC HIGHWAY FORESTVILLE

DATE: 28/09/2018

JOB NUMBER: 171147

TO: Samuel Russell-McLeod

AUTHOR: Jason Zafry

SUBJECT: UPGRADE OF ANZAC HIGHWAY AND LEADER STREET JUNCTION

### 1. BACKGROUND

DPTI have expressed concerns with the potential for increased congestion at the intersection of Anzac Highway and Leader Street post the development of the Kaufland Store on the old Le Cornu site.

The existing junction is already operating at or near capacity with the critical period occurring during the PM peak. The volume of traffic exiting from the CBD is such that any reduction in available green time has the potential to increase delays. This technical note provides a summary of a proposal to offset additional delay attributed to the increase in traffic from the development.

### 2. PROPOSAL

The proposal includes an additional right turn lane from Anzac Highway (S) into Leader Street. The additional lane minimises the amount of green time required to accommodate this movement which currently conflicts with the critical Anzac Highway southbound movement. This subsequently improves capacity and overall performance of the intersection offsetting the potential traffic impact from the development.

Our Design assumptions include:

- Length of auxiliary exit lane to accommodate 4 secs of travel at expected design speed of 40 km/h in accordance Austroads GRD 4A Section 5.5
- Traffic Signal Design compliant with AS1742.14 and DPTI Traffic Signal Faces
- Design vehicle – 19.0m Articulated Semi

To accommodate this upgrade the following modifications to the junction are required:

- Removal of existing median to accommodate new pavement for right turn lane
- Removal of existing 5 x Palm trees within median
- Modifications to NE high entry island
- Modification of median on Leader Street
- Widening of Leader Street exit
- Removal of some on street parking
- Land from Kaufland to accommodate new footpath
- Modifications to traffic signals and upgrade to road lighting



A concept plan of this proposal is included within Attachment A and turn path analysis within Attachment B. SIDRA performance summaries are included within Attachment C.

There is an existing HV stobie pole located within the north east left turn island. This is a 'cross' pole (pole that carries HV and LV lines in two directions), removing it would also impact four other up and down line poles as they would be required to be upgrade to 'end poles' (poles that transition overhead lines to underground). The extent of undergrounding and impacted overhead poles is shown below in Figure 1. Effectively all the overhead lines currently shown below in cyan would now be required to be undergrounded to be able to remove the central pole. This would require trenching across both Anzac Highway and Leader Street.

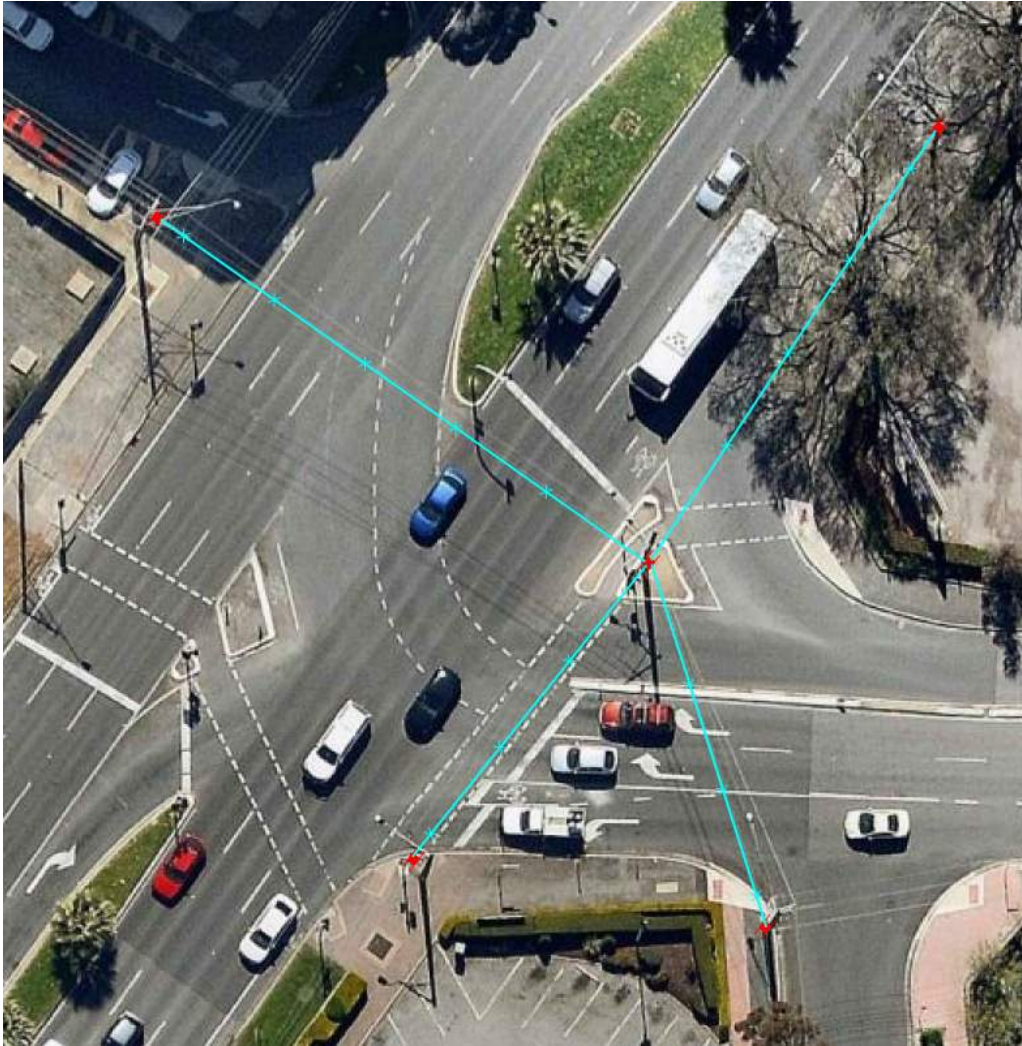


Figure 1 – SAPN Stobie Poles and overhead cables

Considering this impact, it is not recommended to consider removal of this stobie pole. Even with the reduced island size the stobie pole is still located a minimum of 1.2 m from the carriageway. This is still further than DPTI Mast Arm poles which also are a rigid structure located only 1.0 m from the edge of carriageway.

### 3. RECOMMENDATION

In summary we recommend the attached proposal to ameliorate DPTI's concerns regarding the potential increase in delay imposed by the proposed development.

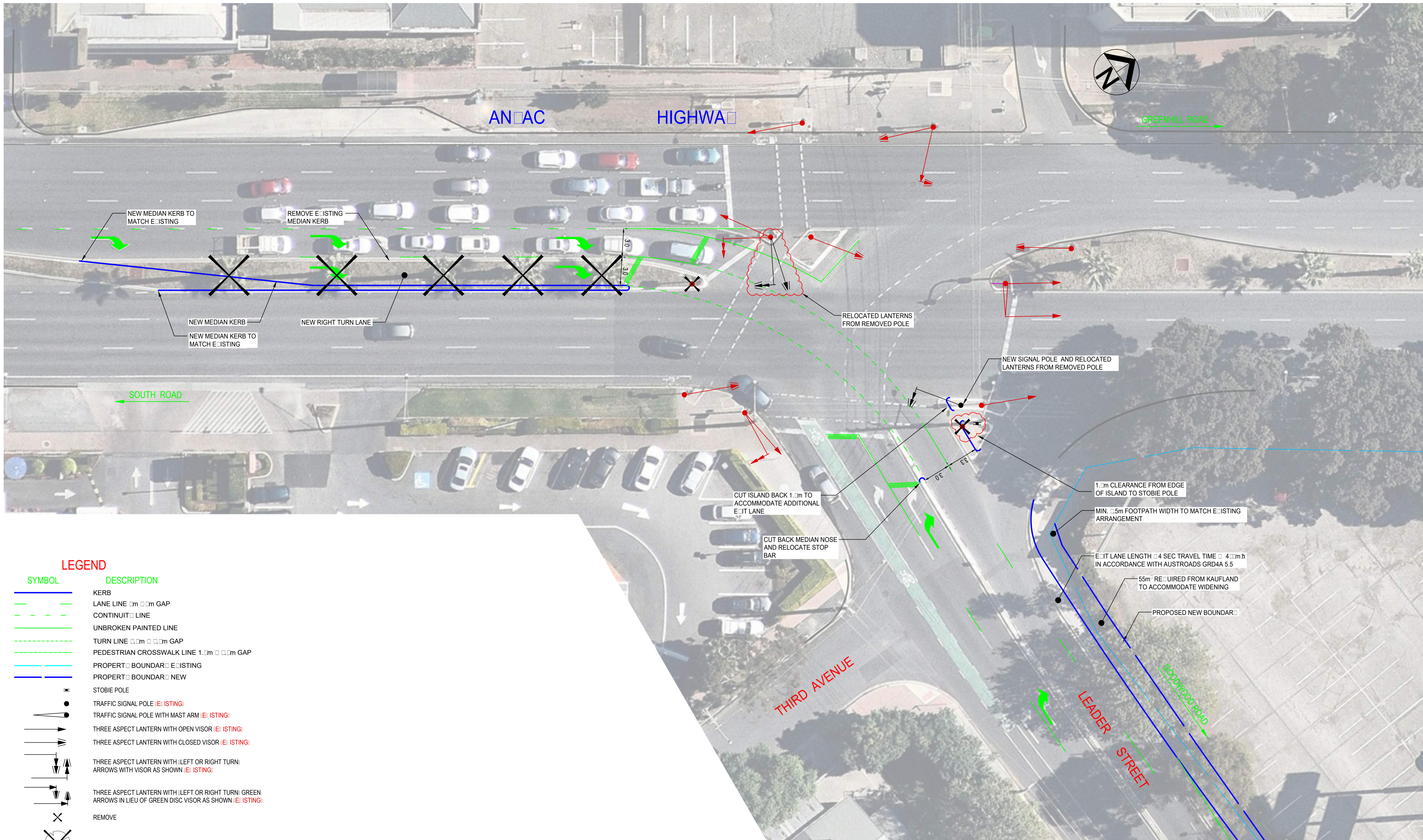
The attached concept design demonstrates that two right turns can be accommodated by narrowing the median on the southern approach along with some minor signals modifications without relocation of the aforementioned stobie pole.

---

**ATTACHMENT A**  
**CONCEPT PLAN**





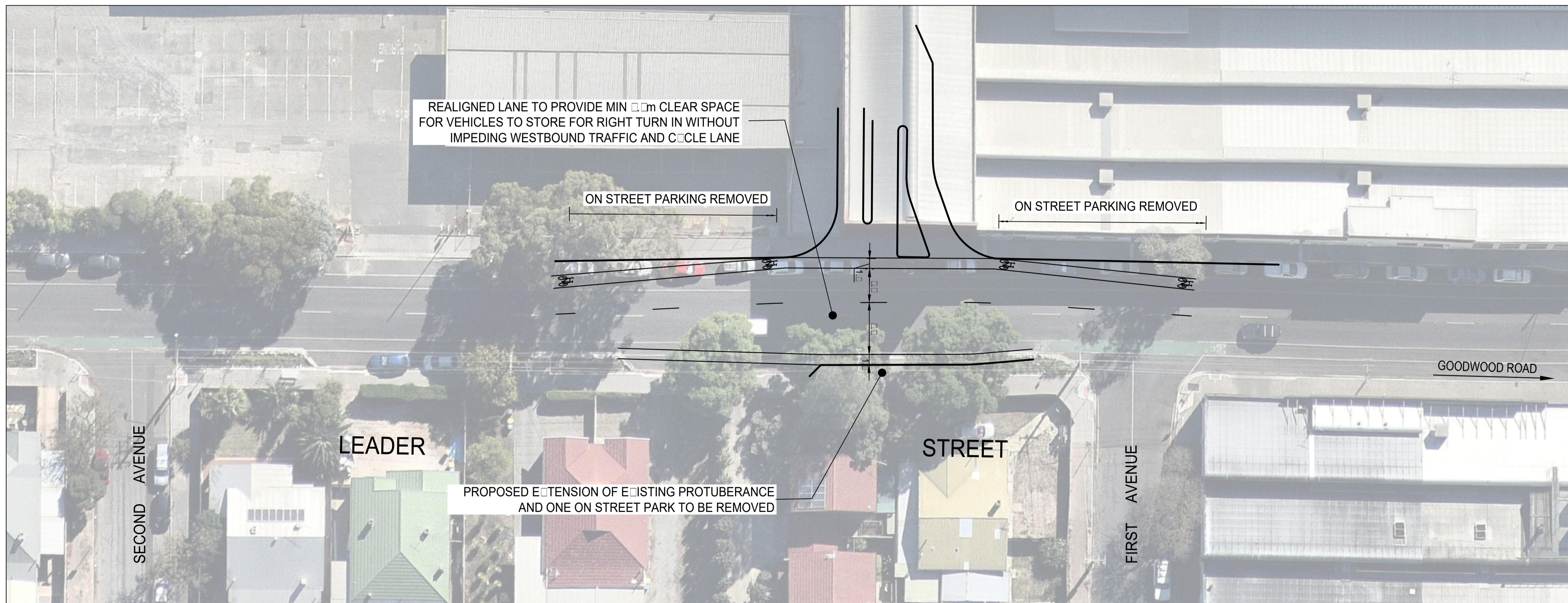
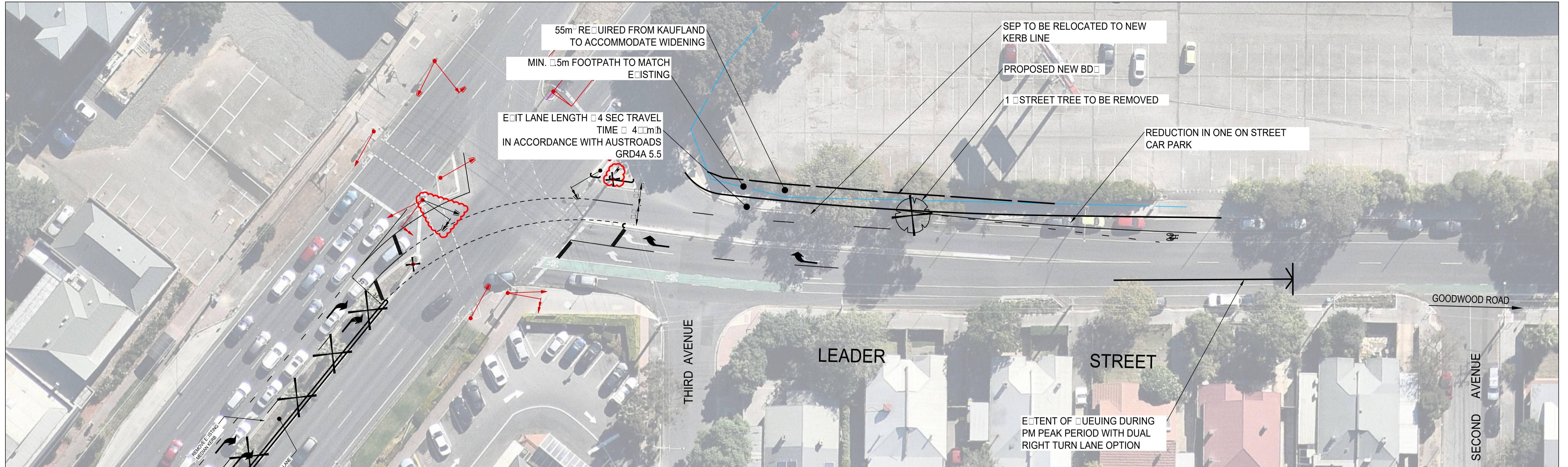


**LEGEND**

SYMBOL	DESCRIPTION
	KERB
	LANE LINE 0.5m GAP
	CONTINUITY LINE
	UNBROKEN PAINTED LINE
	TURN LINE 0.5m GAP
	PEDESTRIAN CROSSWALK LINE 1.0m GAP
	PROPERTY BOUNDARY EXISTING
	PROPERTY BOUNDARY NEW
	STOBIE POLE
	TRAFFIC SIGNAL POLE (EXISTING)
	TRAFFIC SIGNAL POLE WITH MAST ARM (EXISTING)
	THREE ASPECT LANTERN WITH OPEN VISOR (EXISTING)
	THREE ASPECT LANTERN WITH CLOSED VISOR (EXISTING)
	THREE ASPECT LANTERN WITH LEFT OR RIGHT TURN ARROWS WITH VISOR AS SHOWN (EXISTING)
	THREE ASPECT LANTERN WITH LEFT OR RIGHT TURN GREEN ARROWS IN LIEU OF GREEN DISC VISOR AS SHOWN (EXISTING)
	REMOVE
	TREES TO BE REMOVED

<p>INDEX SHEET REFERENCE: SHEET</p> <p style="color: blue; font-weight: bold;">CONCEPT ONLY NOT FOR CONSTRUCTION</p>		 60 Wyatt Street, Adelaide, SA 5000 Telephone 08 8223 7433 Email adelaide@wga.com.au		 Department of Planning Transport and Infrastructure		PROJECT No.:      FILE No.: DESIGN No.:      SURVEY No.: PROJECT START ROAD RUNNING DISTANCE: PROJECT END ROAD RUNNING DISTANCE:		<p style="color: blue; font-weight: bold;">ROAD No. 10107 ANAC HIGHWAY JUNCTION LEADER STREET TRAFFIC SIGNALS</p> <p style="text-align: right;">SIGNAL No.: TS07</p>									
A PRELIMINARY CONCEPT		SC 03.08.18		WGA JOB NUMBER: ADL71147		SCALES: 		DESIGNED: WGA CHECKED: WGA		DRAFTED: WGA CHECKED: WGA		ACCEPTED FOR USE:		ACCEPTANCE FORM KNET No.:      DRAWING No.: 171147		SHEET No.:      AMEND No.: B	
No. AMENDMENT DESCRIPTION		B CHECK ACCEPTANCE DATE		UNCONTROLLED COPY WHEN PRINTED		1 MILLIMETRES ON ORIGINAL DRAWING		ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE		IN ACCORDANCE WITH DP013 SHEET LATITUDE -34.4062 SHEET LONGITUDE 138.577027		CAD FILE NAME: Y1147-5K26.DWG					





**LEGEND**

SYMBOL	DESCRIPTION
—	KERB
---	LANE LINE 1.0m GAP
- - -	CONTINUITY LINE
—	UNBROKEN PAINTED LINE
- - -	TURN LINE 1.0m GAP
- - -	PEDESTRIAN CROSSWALK LINE 1.0m GAP
---	PROPERTY BOUNDARY EXISTING
---	PROPERTY BOUNDARY NEW
•	STOBIE POLE
•	TRAFFIC SIGNAL POLE EXISTING
•	TRAFFIC SIGNAL POLE WITH MAST ARM EXISTING
▶	THREE ASPECT LANTERN WITH OPEN VISOR EXISTING
▶	THREE ASPECT LANTERN WITH CLOSED VISOR EXISTING
▶	THREE ASPECT LANTERN WITH LEFT OR RIGHT TURN ARROWS WITH VISOR AS SHOWN EXISTING
▶	THREE ASPECT LANTERN WITH LEFT OR RIGHT TURN GREEN ARROWS IN LIEU OF GREEN DISC VISOR AS SHOWN EXISTING
×	REMOVE
⊗	TREES TO BE REMOVED

PROJECT DOCUMENT REFERENCE

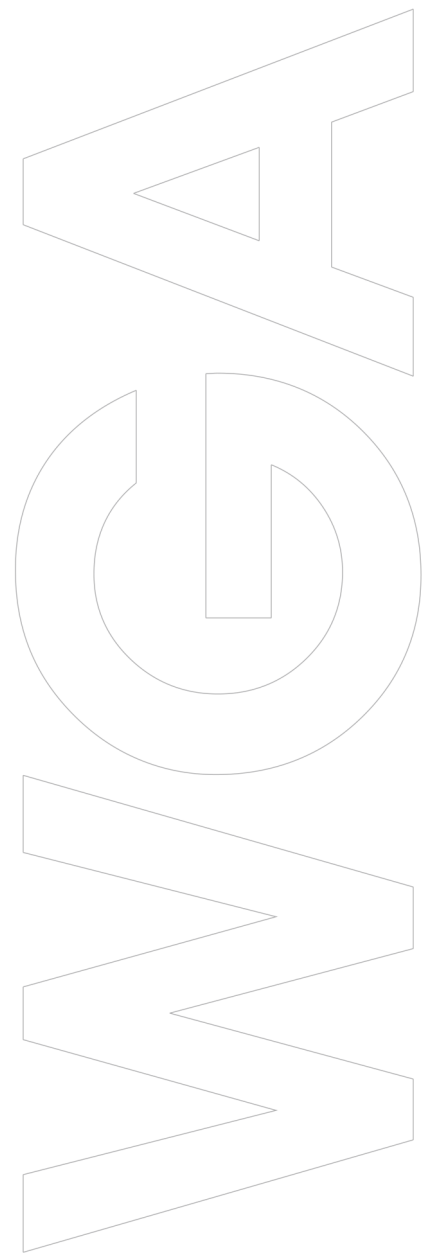
CONCEPT ONLY NOT FOR CONSTRUCTION		<b>WGA</b> WALLBRIDGE GILBERT AZTEC 60 Wyatt Street, Adelaide, SA 5000 Telephone 08 8223 7433 Email adelaide@wga.com.au	 <b>Government of South Australia</b> Department of Planning Transport and Infrastructure	PROJECT No.: DESIGN No.: PROJECT START ROAD RUNNING DISTANCE: PROJECT END ROAD RUNNING DISTANCE:	FILE No.: SURVEY No.:	ROAD No. 1117 <b>AN AC HIGHWAY</b> JUNCTION <b>LEADER STREET</b> TRAFFIC SIGNALS	SIGNAL No.: <b>TS17</b>
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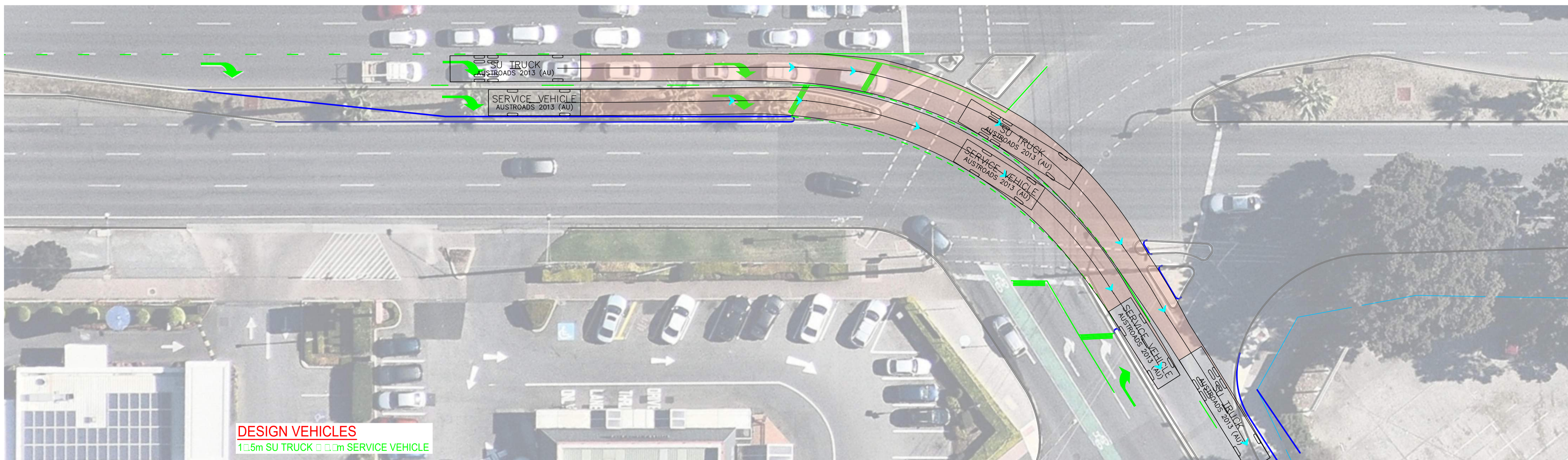
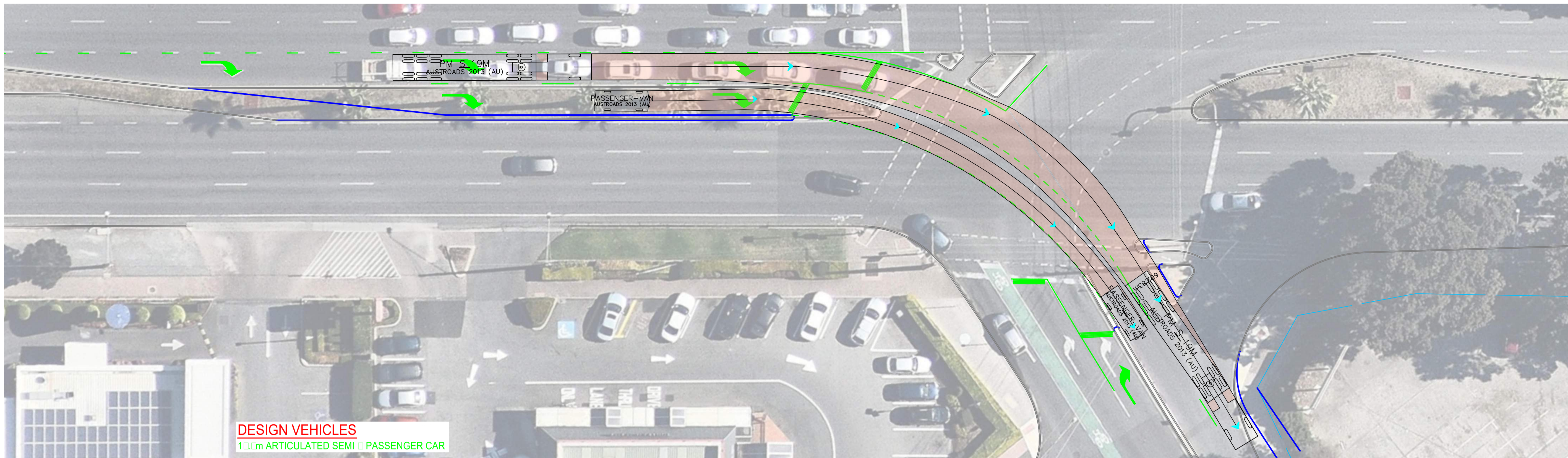


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**ATTACHMENT B**  
**TURN PATHS**





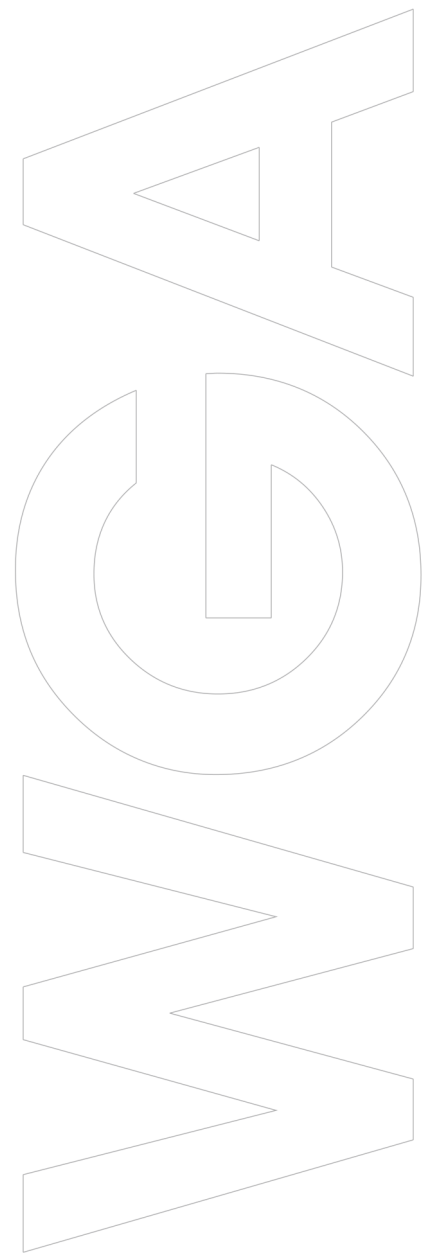


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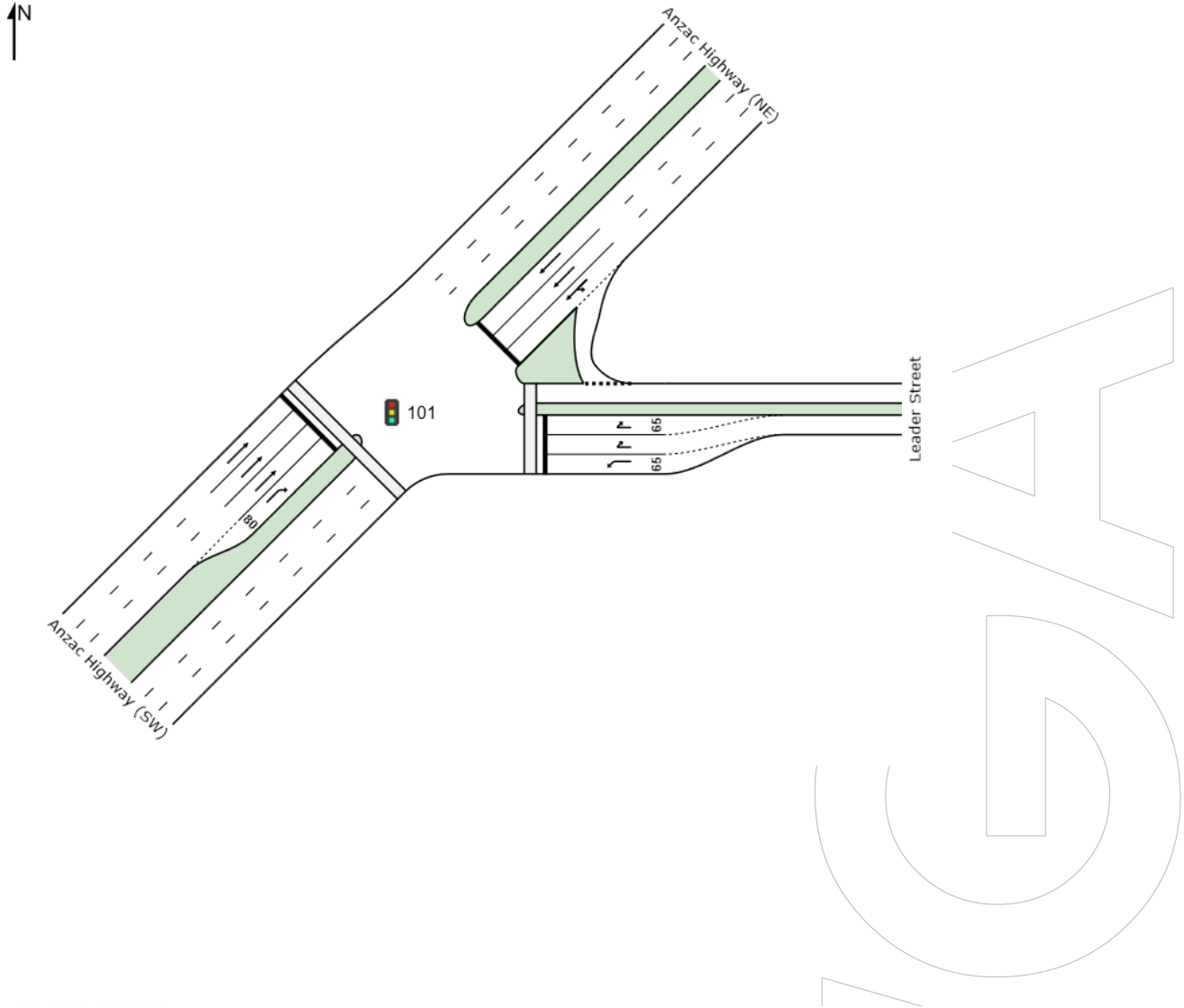


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**ATTACHMENT C**  
**SIDRA OUTPUTS**



# EXISTING



## LANE SUMMARY

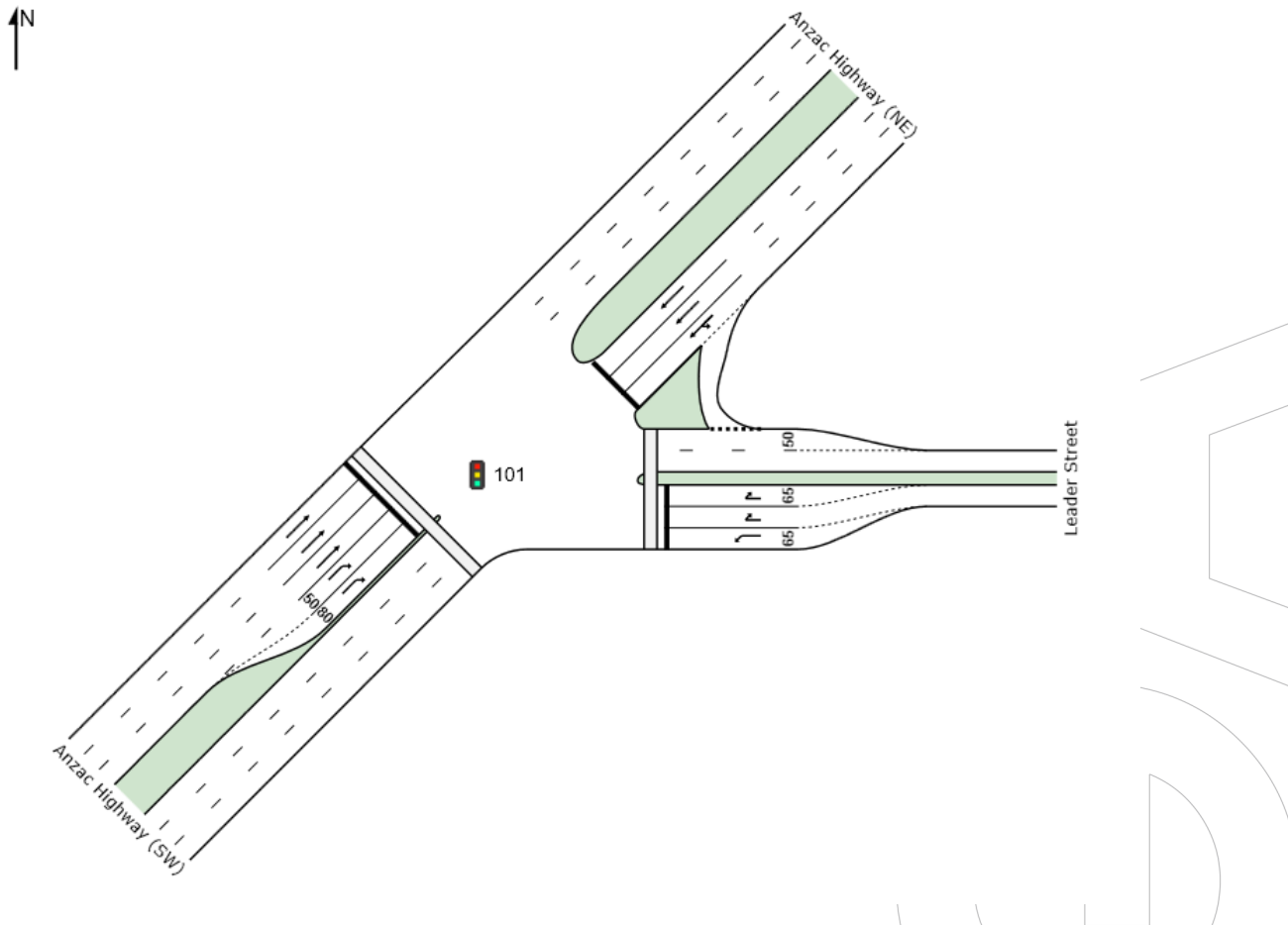
Site: 101 [EXISTING LAYOUT - TS207 - PM]

New Site  
 Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance													
	Demand	Flows											
	Total	HV	Cap.	Deg.	Lane	Average	Level	95% Back	Dist	Lane	Lane	Cap.	Prob.
	veh/h	%	veh/h	Satn	Util	Delay	of	of Queue	m	Contig	Length	Adj.	Block.
				v/c	%	sec	Service	Veh			m	%	%
<b>East: Leader Street</b>													
Lane 1	143	1.5	379	0.378	100	45.4	LOS D	7.1	50.5	Short	65	0.0	NA
Lane 2	167	0.4	283	0.588	100	55.6	LOS E	9.2	64.6	Full	500	0.0	0.0
Lane 3	79	0.4	267	0.294	50 <sup>7</sup>	52.7	LOS D	4.1	28.7	Short	65	0.0	NA
Approach	388	0.8		0.588		51.2	LOS D	9.2	64.6				
<b>NorthEast: Anzac Highway (NE)</b>													
Lane 1	567	1.5	763	0.743	70 <sup>7</sup>	16.8	LOS B	17.0	120.7	Full	500	0.0	0.0
Lane 2	1195	2.4	1125	1.062	100	101.6	LOS F	120.4	859.9	Full	500	0.0	54.9
Lane 3	1201	2.4	1131	1.062	100	101.5	LOS F	120.9	863.4	Full	800	0.0	11.9
Approach	2963	2.2		1.062		85.3	LOS F	120.9	863.4				
<b>SouthWest: Anzac Highway (SW)</b>													
Lane 1	238	3.0	1271	0.187	40 <sup>7</sup>	5.5	LOS A	4.3	31.1	Full	500	0.0	0.0
Lane 2	612	3.0	1306	0.469	100	7.2	LOS A	14.6	105.0	Full	500	0.0	0.0
Lane 3	672	3.0	1433	0.469	100	7.2	LOS A	16.0	115.0	Full	500	0.0	0.0
Lane 4	181	1.2	183	0.990	100	99.3	LOS F	14.3	101.3	Short	80	0.0	NA
Approach	1703	2.8		0.990		16.8	LOS B	16.0	115.0				
Intersection	5055	2.3		1.062		59.6	LOS E	120.9	863.4				



# PROPOSED DUAL RIGHT TURN OPTION



## LANE SUMMARY

Site: 101 [PROPOSED - TS207 - PM - POST DEV]

New Site  
 Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Dep. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap Adj. %	Prob. Block. %
<b>East Leader Street</b>													
Lane 1	279	0.8	381	0.733	100	51.3	LOS D	15.7	110.8	Short	65	0.0	NA
Lane 2	189	0.4	283	0.669	100	57.0	LOS E	10.7	75.4	Full	500	0.0	0.0
Lane 3	89	0.4	268	0.334	50	53.1	LOS D	4.7	33.0	Short	65	0.0	NA
Approach	558	0.6		0.733		53.6	LOS D	15.7	110.8				
<b>NorthEast: Anzac Highway (NE)</b>													
Lane 1	572	1.5	761	0.752	70	17.1	LOS B	17.6	124.6	Full	500	0.0	0.0
Lane 2	1210	2.3	1126	1.074	100	111.4	LOS F	126.4	902.2	Full	500	0.0	59.5
Lane 3	1215	2.3	1131	1.074	100	111.3	LOS F	126.9	905.8	Full	800	0.0	16.2
Approach	2997	2.2		1.074		93.3	LOS F	126.9	905.8				
<b>SouthWest: Anzac Highway (SW)</b>													
Lane 1	244	3.0	1272	0.192	40	5.5	LOS A	4.4	31.9	Full	500	0.0	0.0
Lane 2	626	3.0	1307	0.479	100	7.3	LOS A	15.1	108.5	Full	500	0.0	0.0
Lane 3	687	3.0	1434	0.479	100	7.3	LOS A	16.6	118.8	Full	500	0.0	0.0
Lane 4	102	0.8	171	0.596	70	63.3	LOS E	6.0	42.5	Short	50	0.0	NA
Lane 5	146	0.8	171	0.852	100	71.0	LOS E	9.5	66.7	Short	80	0.0	NA
Approach	1804	2.7		0.852		15.4	LOS B	16.6	118.8				
Intersection	5359	2.2		1.074		63.0	LOS E	126.9	905.8				

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# APPENDIX F

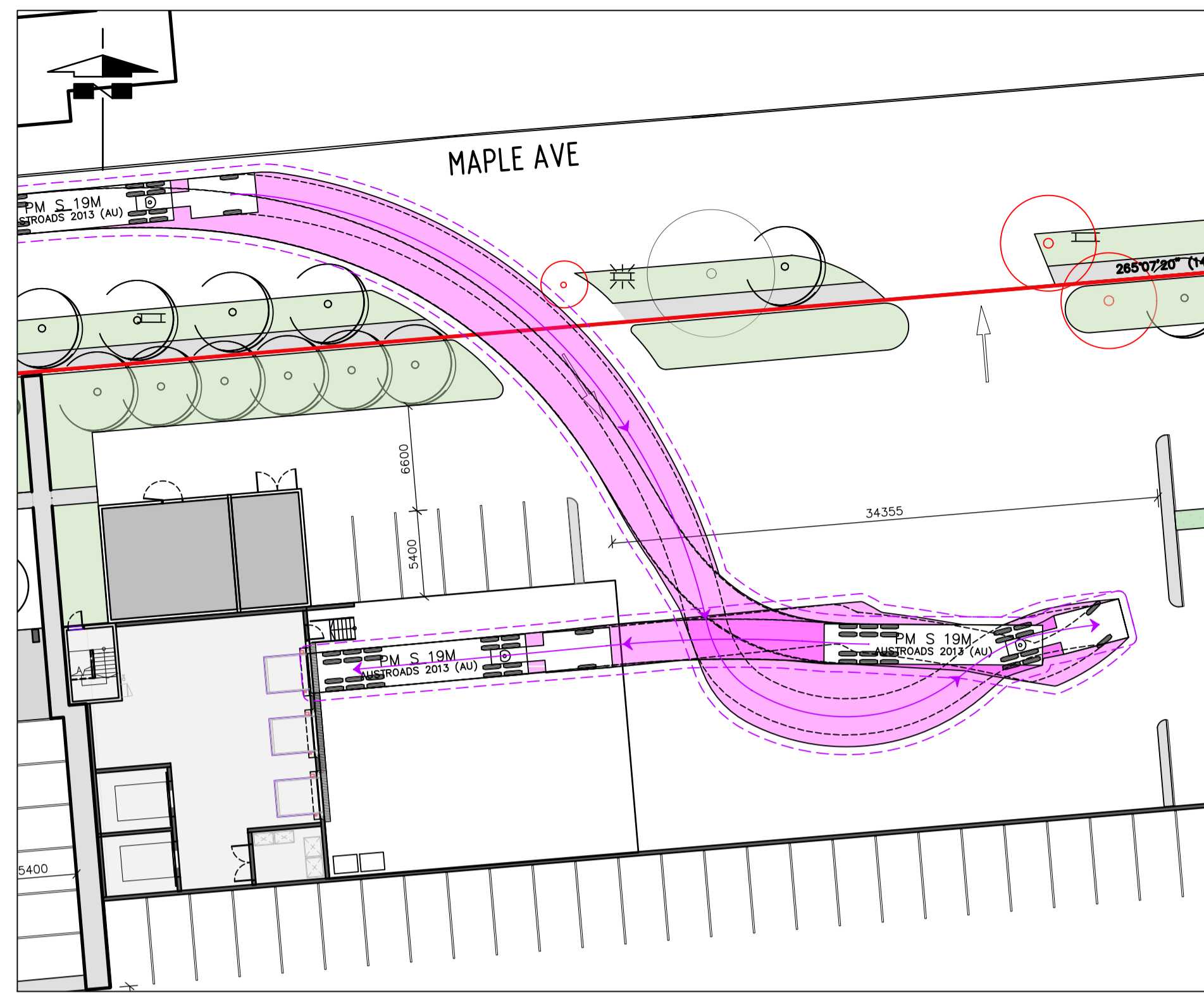
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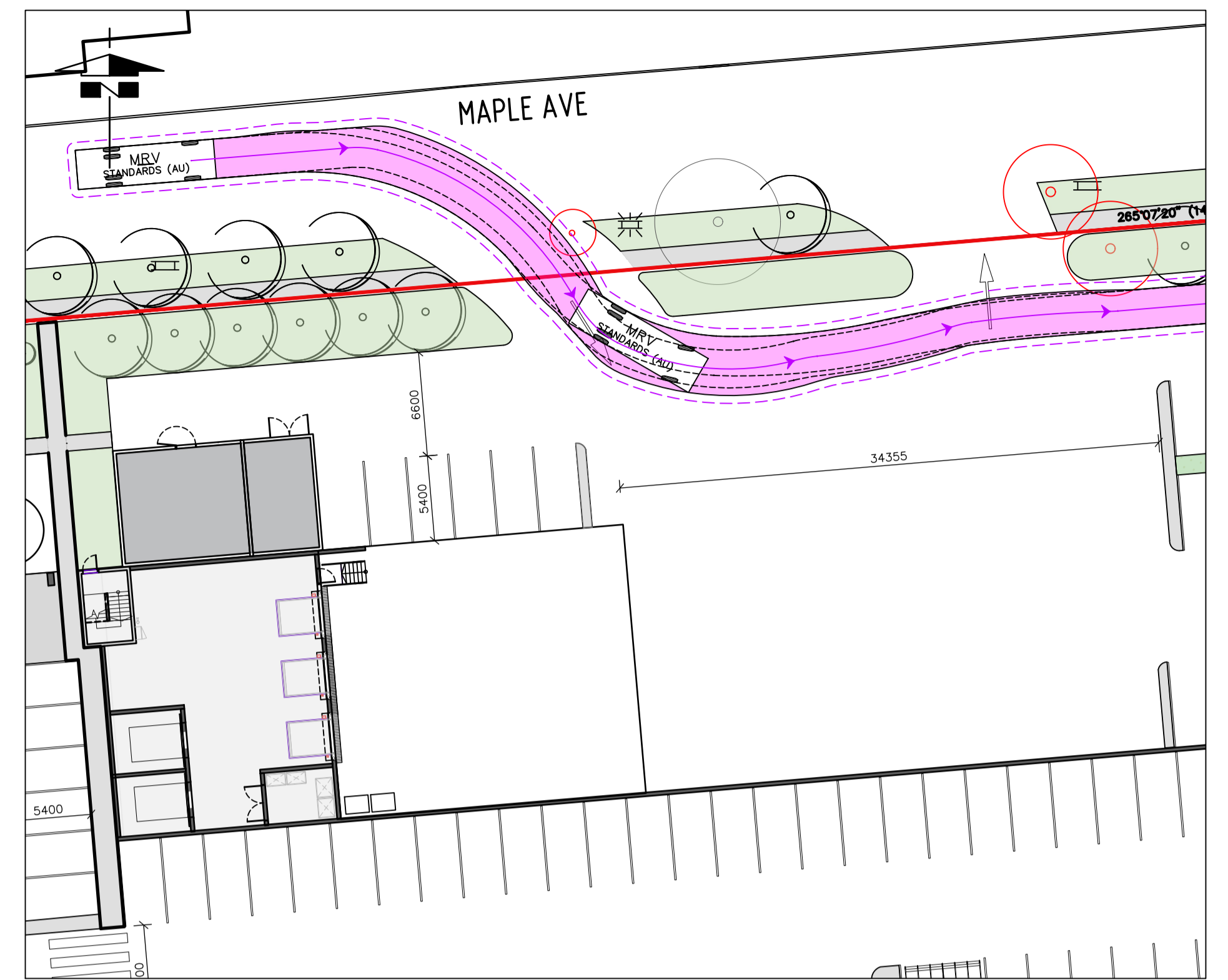




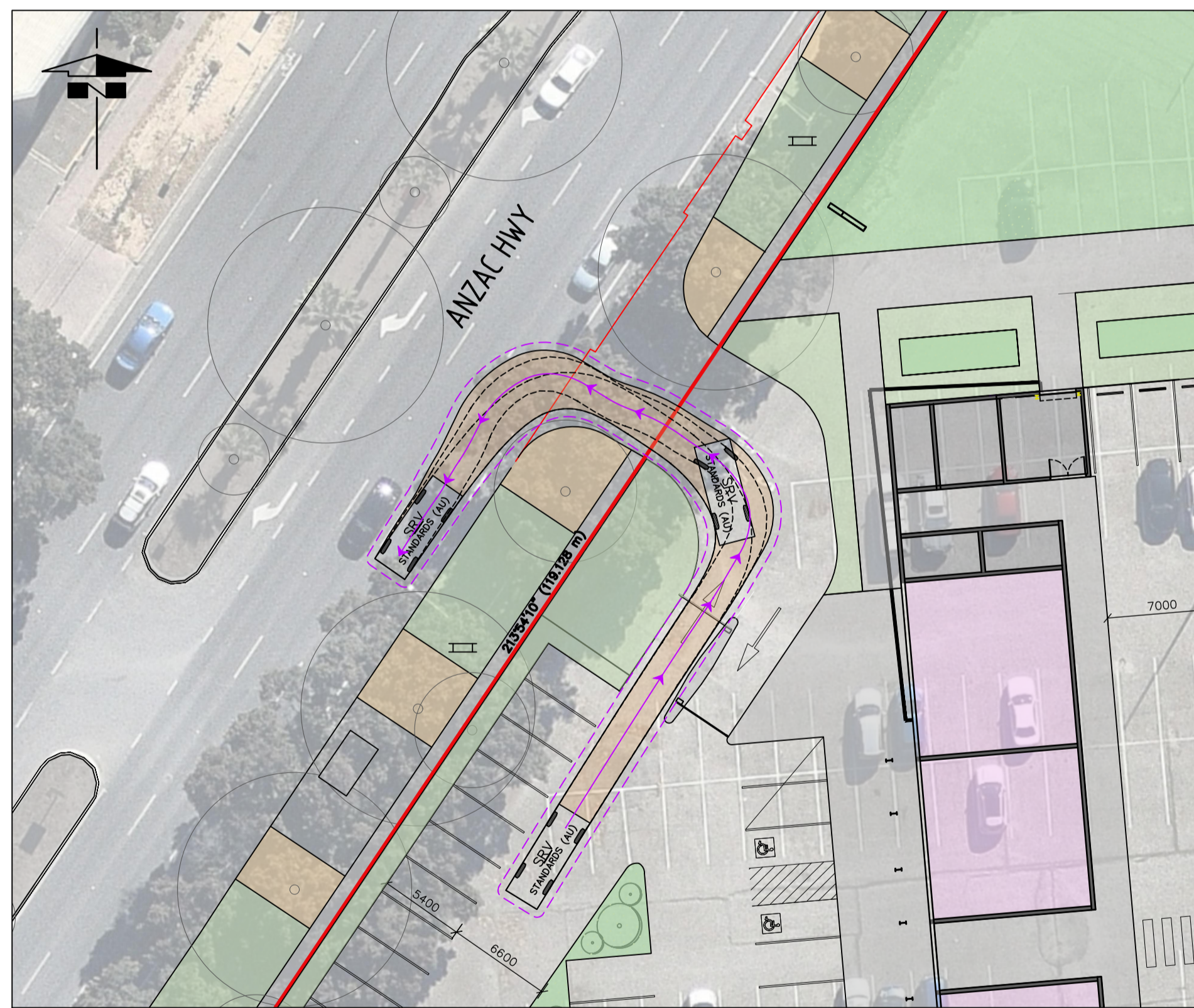
SRV - LOADING - "ENTERING"



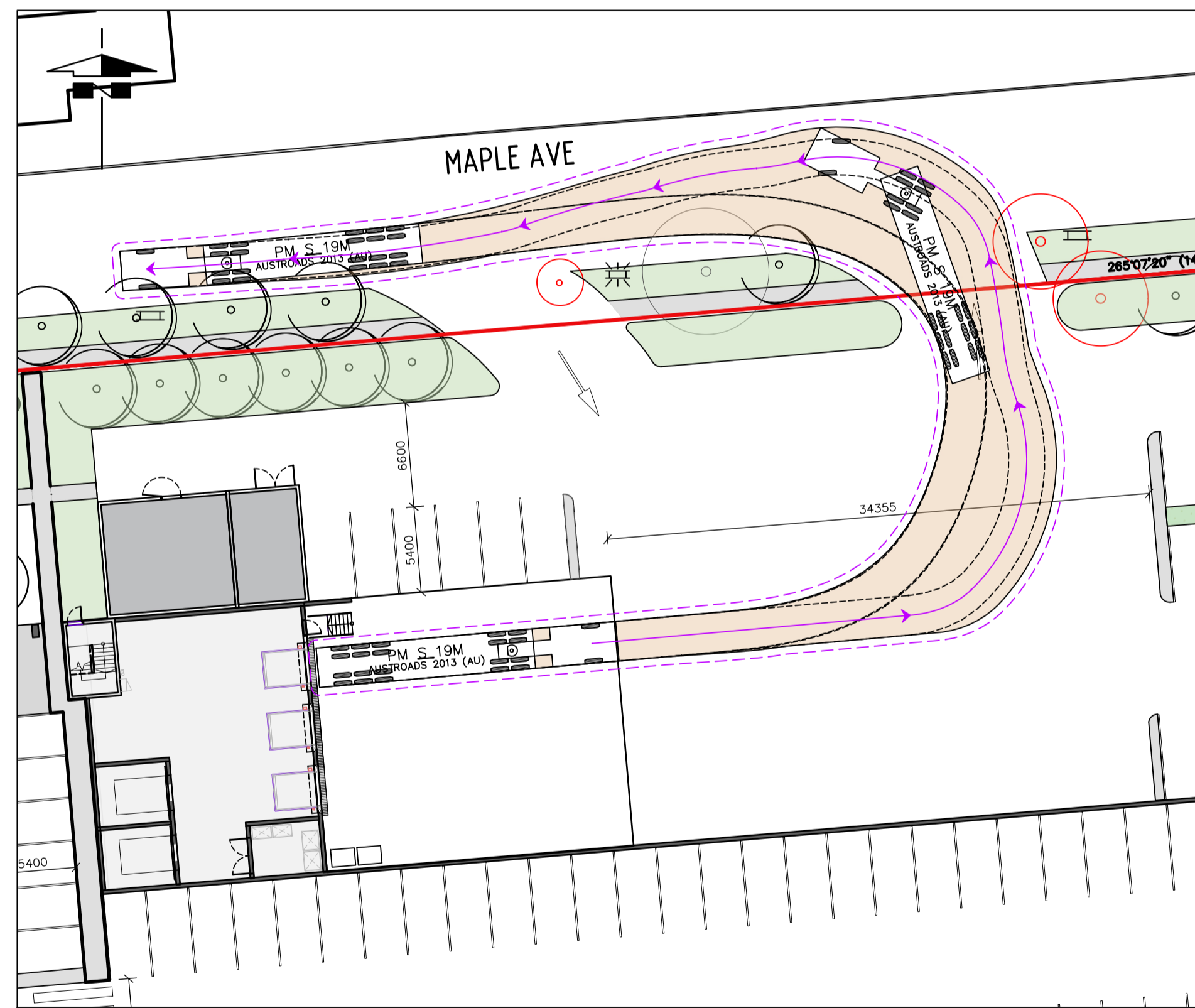
19m SEMI TRAILER - LOADING DOCK 1 - "ENTERING"



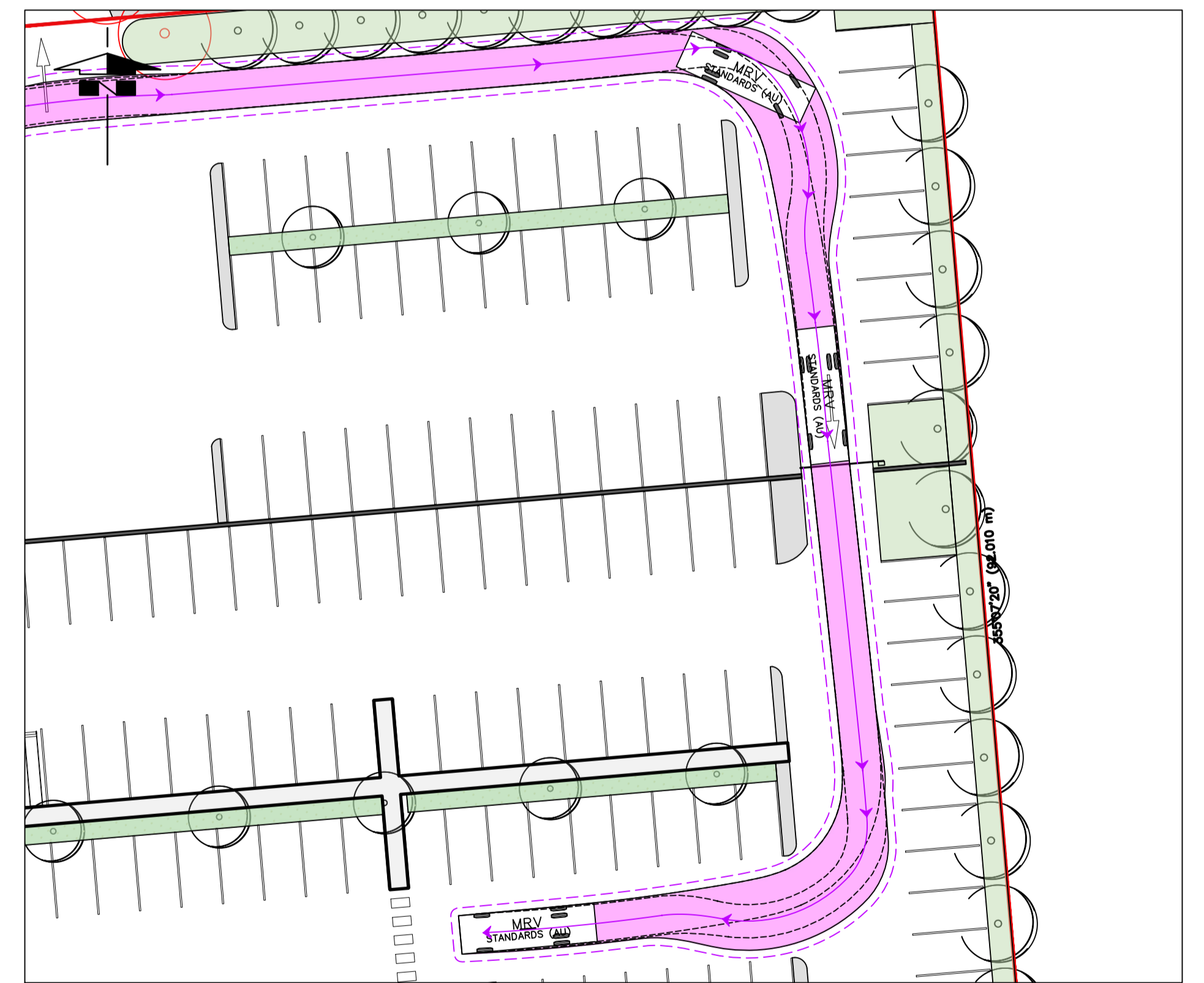
MRV - FIRE TRUCK - "ENTERING"



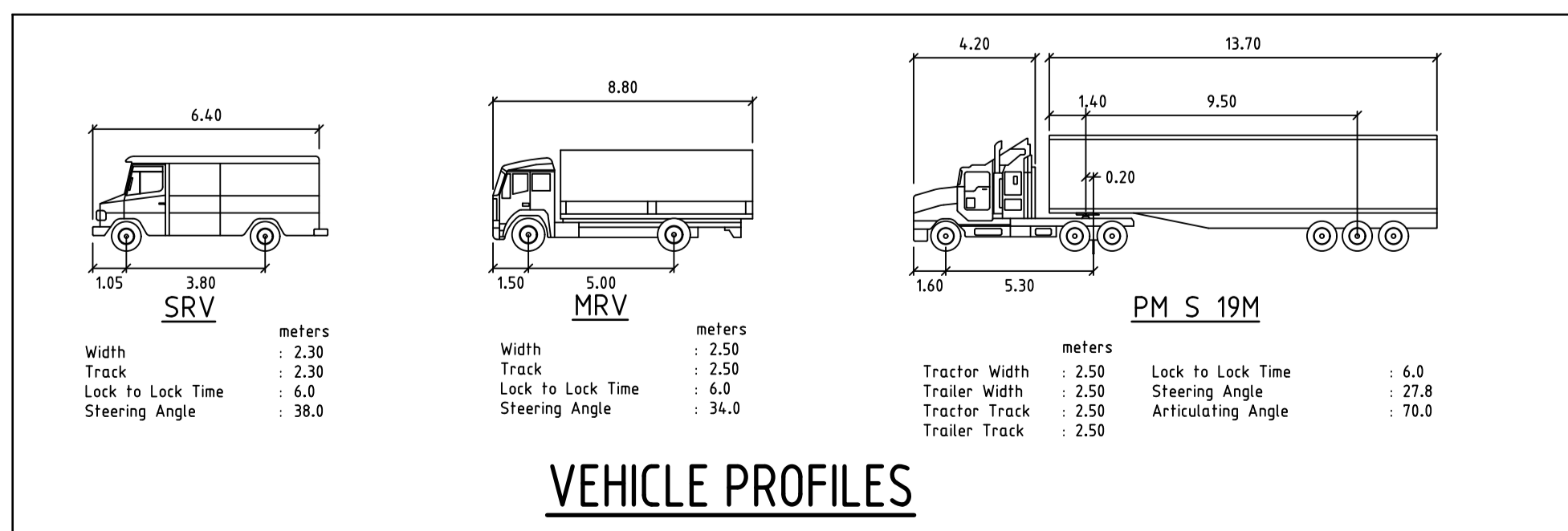
SRV - LOADING - "EXITING"



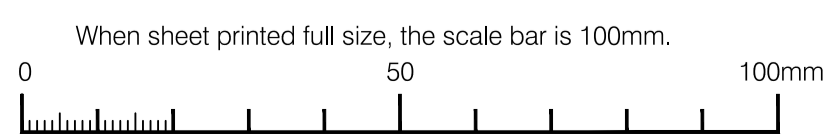
19m SEMI TRAILER - LOADING DOCK 1 - "EXITING"



MRV - FIRE TRUCK - "CIRCULATING"



VEHICLE PROFILES



PRELIMINARY ISSUE  
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	DRAFT	ENG.	CHKD

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**KAUFLAND FORESTVILLE**

**TURNPATHS**

A1  
Design TB Drawn TB

DRAWING NUMBER  
Job Number ADL171147 Sheet No. SK45 Rev. A

W:\g58\1\adelaide\2017\171101-171200\171147 - Kaufland\171147-SK45.dwg, A, 4/20/2019 2:54 PM, AlWalther





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Resonate |


## **Kaufland - 10 Anzac Highway Forestville**

### **Planning Stage Acoustic Report**

A17983RP1 Revision E

Monday, 1 April 19

## Document Information

<b>Project</b>	Kaufland - 10 Anzac Highway Forestville	
<b>Client</b>	Kaufland Australia	
<b>Report title</b>	Planning Stage Acoustic Report	
<b>Project Number</b>	A17983	
<b>Author</b>	Nick Henrys Team Leader—Acoustics SA p+61 8 8155 5888 m+61 481 882 689 nick.henrys@resonate-consultants.com	
<b>Reviewed by</b>	Matthew Stead	

## Revision Table

Report revision	Date	Comments
0	07 December 2017	First Issue
A	15 December 2017	Minor update following feedback
B	7 March 2018	Relocated loading dock
C	14 August 2018	Mechanical plant screen/barrier
D	7 March 2019	Revised Layout
E	1 April 2019	Revised Truck Movements

## Glossary

A-weighting	A spectrum adaption that is applied to measured noise levels to represent human hearing. A-weighted levels are used as human hearing does not respond equally at all frequencies.
Characteristic	Associated with a noise source, means a tonal, impulsive, low frequency or modulating characteristic of the noise that is determined in accordance with the Guidelines for the use of the Environment Protection (Noise) Policy (Noise EPP) to be fundamental to the nature and impact of the noise.
Continuous noise level	A-weighted noise level of a continuous steady sound that, for the period over which the measurement is taken using fast time weighting, has the same mean square sound pressure as the noise level which varies over time when measured in relation to a noise source and noise-affected premises in accordance with the Noise EPP
Day	Between 7 am and 10 pm as defined in the Noise EPP
dB	Decibel—a unit of measurement used to express sound level. It is based on a logarithmic scale which means a sound that is 3 dB higher has twice as much energy. We typically perceive a 10 dB increase in sound as a doubling of that sound level.
dB(A)	Units of the A-weighted sound level.
Frequency (Hz)	The number of times a vibrating object oscillates (moves back and forth) in one second. Fast movements produce high frequency sound (high pitch/tone), but slow movements mean the frequency (pitch/tone) is low. 1 Hz is equal to 1 cycle per second.
Indicative noise level	Indicative noise level determined under clause 5 of the Noise EPP.
L <sub>90</sub>	Noise level exceeded for 90 % of the measurement time. The L <sub>90</sub> level is commonly referred to as the background noise level.
L <sub>eq</sub>	Equivalent Noise Level—Energy averaged noise level over the measurement time.
L <sub>max</sub>	The maximum instantaneous noise level.
Night	Between 10.00 p.m. on one day and 7.00 a.m. on the following day as defined in the Noise EPP
Noise source	Premises or a place at which an activity is undertaken, or a machine or device is operated, resulting in the emission of noise
Quiet locality	A locality is a quiet locality if the Development Plan provisions that make land use rules for the locality principally promote land uses that all fall within either or both of the following land use categories: (a) Residential; (b) Rural Living;



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## 1 Introduction

This report outlines the details of our planning stage acoustic report for the proposed commercial development at 10 Anzac Highway, Forestville SA 5035. The proposal comprises a supermarket at first floor level with associated car parking and facilities including deliveries at ground floor level at the rear of the site.

The closest noise sensitive receivers are the residences along Leader Street which will be located opposite the car park area. The potential noise emissions from the development have been assessed against the requirements of the South Australian Environment Protection (Noise) Policy 2007 and the Unley (City) Development Plan.

## 2 Proposed development

### 2.1 Location

The proposed development is located at 10 Anzac Highway, Forrester SA 5035, and comprises a supermarket on first floor and associated car park at ground floor. The site is surrounded by a mixture of single and multi-storey developments including residential and commercial premises. Anzac Highway is located to the west of the site and runs from north east to south west with Leader Street located to the south and Maple Avenue located to the north. The closest existing residences are located to the south of the site on Leader Street. Resonate understands that the neighbouring site to the east may be redeveloped for residential development in the future.



Figure 1: Proposed development location

### 2.2 Operation

We have been advised that the proposed supermarket is seeking to have opening hours of midnight to 9 pm, however refrigeration plant will operate 24 hours per day. Deliveries to the development are 24 hours per day with delivery vehicle ranging from small trucks to 19m articulated trucks with refrigeration plant. It is expected that there will be no more than one delivery vehicle in a 15 minute period during the night time period.

### 2.3 Anticipated noise sources

The principal sources of noise emissions from the proposed development will be noise from cars moving (including door slams) within the car park, noise from delivery vehicles (including refrigeration plant) and fixed mechanical services plant. Given the location of the loading dock, it is anticipated that the car park will be the dominant noise source impacting on the residential noise receivers. A compactor, located within the deliveries area, will be used to compact general waste. The noise sources are discussed in detail in Section 5.

The proposed ground level site layout is shown below in Figure 2. We note that the loading dock and heavy vehicle entrance is located as far as practicable from existing residences.

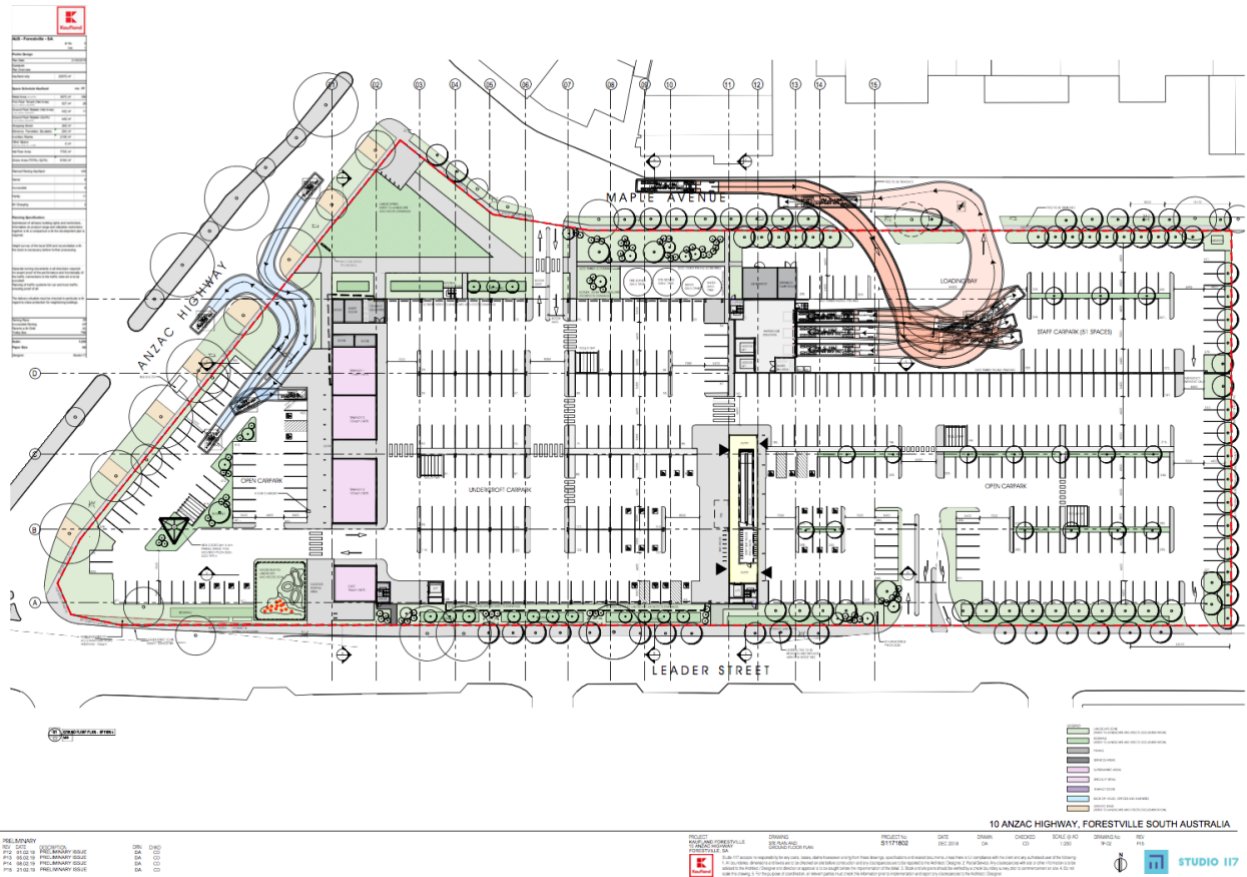


Figure 2: Proposed site layout



## 3 Existing noise environment

The site was inspected on two occasions and noise measurements were carried out at the location indicated in Figure 1. The measurements are representative of the noise environment at the nearest noise sensitive receivers. It was observed during site visits carried out on Monday 4 December 2017 (between 12 pm and 2 pm and again between 9 pm and 12 am) that the noise environment around the site is controlled by road traffic on Anzac Highway and on Leader Street. It was also noted during the measurement period that there are typically around 400 vehicle movements per hour (approx. 2% commercial vehicles) on Leader Street during the day time period with measured  $L_{eq,15min}$  of around 60 dB(A). The number of cars was noted to reduce to around 30 – 50 vehicles per hour during the night time period (10pm – 12am, with one 19 m articulated truck passing on Leader Street in this time frame) with  $L_{eq,15min}$  reducing to around 55 dB(A). The measured noise levels are presented in Table 1. Note that the  $L_{max}$  noise levels presented have been corrected to account for the difference in distance between the measurement location and the nearest noise sensitive receiver.

**Table 1 Measured noise levels**

Time period	Typical $L_{eq,15min}$ dB(A)	$L_{max}$ dB(A)	Lowest $L_{90}$ dB(A)
12 pm – 2 pm (Day Time)	60	73 – 82	49
9 pm – 10pm (Day Time)	58	69 – 81	47
10 pm – 12am (Night Time)	55	69 – 74	43

## 4 Noise Criteria

### 4.1 Development Plan

The proposed development is located within the Unley (City) Council area and should conform to the Principles of Development Control (PDCs) within the Unley (City) Development Plan (DP), and in particular the council wide provisions for noise emission control

The relevant Principles of Development Control for noise sources are:

#### PRINCIPLES OF DEVELOPMENT CONTROL

96 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:

(a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants

(b) noise

(c) vibration

.....

97 Development should be sited and designed to minimise negative impacts on existing and potential future land uses desired in the locality.

99 Residential development adjacent to non-residential zones and land uses should be located, designed and/or sited to protect residents from potential adverse impacts from non-residential activities.

100 Sensitive uses likely to conflict with the continuation of lawfully existing developments and land uses desired for the zone should be designed to minimise negative impacts.

101 Non-residential development on land abutting a residential zone should be designed to minimise noise impacts to achieve adequate levels of compatibility between existing and proposed uses.

#### Noise Generating Activities

102 Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant Environment Protection (Noise) Policy criteria when assessed at the nearest existing noise sensitive premises.

103 Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.

Further to the above council wide PDCs, the proposed development and nearest noise sensitive commercial receiver is to be located in the Urban Corridor Zone which has the following objectives:

#### OBJECTIVES

Objective 1: A mixed use zone accommodating a range of compatible non-residential and medium and high density residential land uses orientated towards a high frequency public transport corridor.

Objective 2: Integrated, mixed use, medium and high rise buildings with ground floor uses that create active and vibrant streets with residential development above.

Objective 3: A mix of land uses that enable people to work, shop and access a range of services close to home.

Objective 4: Adaptable and flexible building designs that can accommodate changes in land use and respond to changing economic and social conditions.

Objective 5: A built form that provides a transition down in scale and intensity at the zone boundary to maintain the amenity of residential properties located within adjoining zones.

Objective 6: A safe, comfortable and appealing street environment for pedestrians that is sheltered from weather extremes, is of a pedestrian scale and optimises views or any outlook onto spaces of interest.

Objective 7: Noise and air quality impacts mitigated through appropriate building design and orientation.

Objective 8: Development that contributes to the desired character of the zone.

The above objectives demonstrate that the land use generally promoted by the zone is a mixture of commercial and residential.

The closest residential noise sensitive receivers are located in the Residential Streetscape (Built Form) Zone (Policy Area 9 – Spacious) which has the following objectives:

## OBJECTIVES

**Objective 1:** Enhancement of the desired character of areas of distinctive and primarily coherent streetscapes by retaining and complementing the siting, form and key elements as expressed in the respective policy areas and precincts.

**Objective 2:** A residential zone for primarily street-fronting dwellings, together with the use of existing non-residential buildings and sites for small-scale local businesses and community facilities.

**Objective 3:** Retention and refurbishment of buildings including the sensitive adaptation of large and non-residential buildings as appropriate for supported care or small households.

**Objective 4:** Replacement of buildings and sites at variance with the desired character to contribute positively to the streetscape.

The above objectives demonstrate that the land use generally promoted by the zone is residential.

Compliance with all of the above requirements is normally demonstrated through an assessment of a proposed development against the requirements of the *Environment Protection (Noise) Policy 2007* (Noise EPP).

## 4.2 Environmental noise policy

Environmental noise emissions from the proposed development should comply with the *Environment Protection (Noise) Policy 2007* (Noise EPP) and this is the most relevant guideline to address the requirements of the Development Plan.

The noise goals in the Noise EPP are based on the zoning of the development and the closest noise affected premises in the relevant development plan. The land uses primarily promoted by the zones are used to determine the environmental noise criteria with the indicative noise factors shown in Table 2.

**Table 2 Excerpt from Noise EPP—Table 2(subclause(1)(b))**

Land use category	Indicative noise factor dB(A)	
	Day (7 am to 10 pm)	Night (10 pm to 7 am)
Rural living	47	40
Residential	52	45
Rural industry	57	50
Light industry	57	50
Commercial	62	55
General industry	65	55
Special industry	70	60

The proposed retail development, adjacent future residential development land to the east, and the nearest noise sensitive commercial receivers to the north are located in the Urban Corridor Zone for which a mixture of residential and commercial land uses is promoted. The nearest noise sensitive residential receivers are located in a residential zone for which a residential land use is principally promoted. In cases that more than one land use is promoted in a zone then the indicative noise factor for that zone is determined as the average of the land use categories that are promoted.

Where the source and receivers are located in different zones then the relevant criteria are based on the average of the indicative noise factors for the source and receiver.

In accordance with Part 5 of the Noise EPP, the relevant criteria at the nearest noise sensitive receivers for the proposed development will be the average of the indicative noise factors for the source and receiver less 5 dB(A). The application of Noise EPP Part 5 results in the following environmental noise criteria:

- Urban Corridor Zone
  - Daytime: 52 dB(A) continuous
  - Night time: 45 dB(A) continuous
- Residential Zone
  - Daytime: 50 dB(A) continuous
  - Night time: 43 dB(A) continuous and 60 dB(A) maximum

Penalties can also be applied to a noise source for a variety of characteristics, such as impulsive, low frequency, modulating or tonal characters. For a characteristic penalty to be applied to a noise source it must be fundamental to the impact of the noise and dominate the overall noise impact. Application of the characteristic penalty is discussed in the noise emission assessment.

We note that under Part 5, Clause 20(6) of the Noise EPP, exceedance of the recommended criterion does not necessarily mean that the development will be non-compliant. Some of the following matters should be considered when considering compliance:

- the amount by which the criterion is exceeded (in dB(A))
- the frequency and duration for which the criterion is exceeded
- the ambient noise that has a noise level similar to the predicted noise level
- the times of occurrence of the noise source
- the number of persons likely to be adversely affected by the noise source and whether there is any special need for quiet.



## 4.3 Future residential development

In accordance with the *Guidelines of use of the Noise EPP*, noise at future dwellings should only be assessed where an approved development application exists. Whilst we understand that this is not the case for future residential development adjoining the eastern boundary of the site; given the likelihood that residential development will occur, we recommend that noise is assessed at this location.

We note that the site of future residential development is located within a *Noise and Air Emissions Designated Area* in the Unley (City) Development Plan. *Minister's Specification SA 78B – Construction requirements for the control of external sound* must therefore be applied to residential development regardless of any noise emissions from the Kaufland site.

The future residential development is within a 'mixed land use area'. All dwellings within the site must therefore have a minimum level of facade sound attenuation (external to internal sound level difference) of 24 dB(A) or more. The application of SA 78B is intended to result in noise levels of no more than 35 dB(A)  $L_{eq}$  within bedrooms during the night time, and 40 dB(A)  $L_{eq}$  within other habitable rooms during the daytime, with the objective of minimising sleep disturbance and annoyance.

This is of particular relevance to this assessment, as the sound attenuation measures required by SA 78B are also expected to provide significant mitigation for any Kaufland noise emissions. Noise levels of up to 59 dB(A)  $L_{eq}$  during the night time, and 64 dB(A)  $L_{eq}$  during the daytime would not be expected to result in unacceptable internal noise levels within future dwellings subject to SA 78B. These levels are significantly higher than Noise EPP criteria.

We note that the application of SA 78B does not provide any additional noise mitigation for noise received in outdoor living areas.

## 5 Assessment

This section presents the results of the noise modelling carried out for the proposed development and the assumed operating conditions of the vehicles and plant to determine the noise emissions from the proposed development.

### 5.1 Noise modelling

#### 5.1.1 Modelling parameters

Noise emissions from site have been modelled in SoundPLAN Environmental Software v7.4 program, using the general prediction method. The model takes into consideration:

- attenuation of noise source due to distance
- barrier effects from buildings, topography and the like
- air absorption
- ground effects
- neutral meteorological conditions (zero wind and temperature gradients).

#### 5.1.2 Peak car park usage with no delivery vehicles

For car park noise during a peak 15 minute period, the following has been assumed for the assessment of the supermarket car park:

- 207 car movements within a peak 15 minute period (based on advice provided by WGA Consultants).
- Sound power of  $L_{eq}$  82 dB(A) for cars moving through the car park
- Sound power of  $L_{eq}$  85 dB(A) for cars idling in car parking spaces (including doors opening/ closing)
- No delivery trucks
- Sound power level of 90 dB(A) for the compactor (day time only)
- Electric operated forklifts and support machinery

#### 5.1.3 Typical car park usage including a delivery vehicle

For car park and loading dock noise during a typical 15 minute period, the following has been assumed for the assessment:

- 100 car movements within a 15 minute period. During the night time this reduces to approximately 33 within a peak 15 minute period.
- Sound power of  $L_{eq}$  82 dB(A) for cars moving through the car park
- Sound power of  $L_{eq}$  85 dB(A) for cars idling in car parking spaces (including doors opening/ closing)
- 1 delivery truck movement in a 15 minute period (including 1 refrigeration truck during the night time period)
- Sound power of  $L_{eq}$  101 dB(A) for refrigeration or delivery truck moving through the loading area
- Sound power of  $L_{eq}$  97 dB(A) for refrigeration or delivery truck idling in the loading dock
- The entry gate will be closed as soon as the truck enters the delivery area
- Truck and refrigeration plant will be switched off whilst in loading dock
- Sound power of  $L_{eq}$  111 dB(A) for truck accelerating out of loading dock
- Tonal reversing beepers will not be used (either a broadband reversing alarm or spotter will be used instead)
- Sound power level of 90 dB(A) for the compactor
- Electric operated forklifts and support machinery

## 5.1.4 Night time (10 pm to 7 am)

For car park noise during the night time period, the following has been assumed for the assessment:

- 33 car movements within a 15 minute period.
- Sound power of  $L_{eq}$  82 dB(A) for cars moving through the car park
- Sound power of  $L_{eq}$  85 dB(A) for cars idling in car parking spaces (including doors opening/ closing)
- 1 delivery truck within a 15 minute period.

## 5.2 Characteristic noise penalties

Penalties to the source level should be applied in accordance with the Noise EPP to recognise annoyance associated with noise that is dominated by tonal, modulating, low frequency, or impulsive characteristics. A 5 dB(A) penalty is applied for one characteristic, an 8 dB(A) penalty is applied for two characteristics, and a 10 dB(A) penalty is applied for three or more characteristics.

For a characteristic penalty to be applied to a noise source it must be fundamental to the impact of the noise and dominate the overall noise impact.

Application of a characteristic penalty will depend on the received noise levels compared with the background noise levels to determine whether or not the character(s) are fundamental to the impact of the noise and dominate the overall noise impact.

In this situation it is not considered appropriate to apply a characteristic penalty for the loading dock noise nor for the noise emissions from the car park. In both cases the activity noise is considered to be similar in nature to the existing noise environment given the roadway between the sources and existing houses.

## 5.3 Mechanical Services

At this stage the detailed design and selection of mechanical plant has not been undertaken. Mechanical services noise emissions from the development will be designed to satisfy the requirements of the development plan through appropriate design measures such as selection of quiet plant, use of in-line attenuators and/or noise barriers.

In the absence of specific equipment selections at this stage of the project, Kaufland propose to take a precautionary approach to mechanical plant noise mitigation through the installation of a 2.8m high acoustic barrier around the rooftop plant platform. To provide effective noise mitigation the barrier should be constructed of solid material (minimum 10kg/m<sup>2</sup>) without gaps between panels or at the base.

## 6 Predicted noise levels and discussion

The results of the noise model for each of the scenarios described in Section 4 are presented in the following Table 3.

**Table 3 Predicted noise levels**

Scenario	Sensitive Receptor Location	Predicted noise level dB(A)	Target Noise Criteria dB(A)
Peak daytime (car park)	105A – 127 Leader Street	52 $L_{eq,15mins}$	50 dB(A) $L_{eq,15mins}$
Typical daytime (car park)	105A – 127 Leader Street	47 $L_{eq,15mins}$	50 dB(A) $L_{eq,15mins}$
Typical daytime (loading dock)	Future residential land	55 $L_{eq,15mins}$	52 dB(A) $L_{eq,15mins}$
Night time	105 A – 107 Leader Street	43 $L_{eq,15mins}$ / 56 $L_{max}$	43 $L_{eq}$ / 60 $L_{max}$
Night time	Future residential land	54 $L_{eq,15mins}$	45 dB(A) $L_{eq,15mins}$

It may be seen from the above Table 3 that the peak volume daytime scenario is predicted to exceed the criteria by 2 dB at the nearest existing residences on Leader Street. However, as mentioned in Section 2, the ambient noise levels on Leader Street are around 60 dB(A)  $L_{eq,15mins}$  during quieter periods of the day. The existing noise is around 2 – 3 dB higher during busy periods. On this basis, the predicted noise levels are expected to be at least 5 dB less than the existing ambient noise levels.

With no mitigation, noise from use of the loading dock is predicted to exceed the daytime criteria (by 3 dB) and night time criteria (by 9 dB) at adjacent future residential development land to the east. The predicted noise levels are similar or less than existing ambient noise levels as described in Section 3.

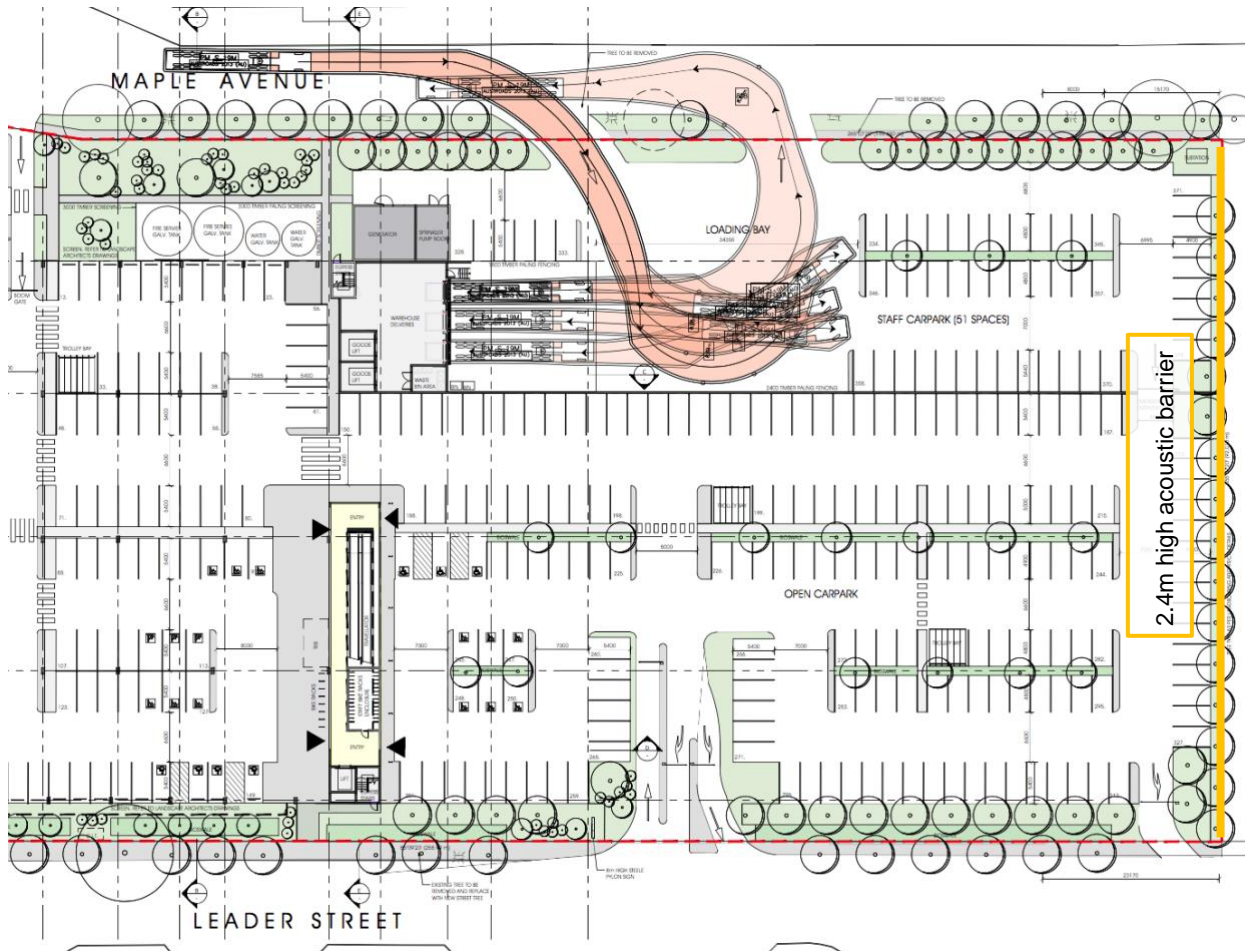
We recommend that a 2.4m high acoustic barrier is constructed in the location shown in Figure 3. The barrier should be minimum 12 kg/m<sup>2</sup> (for example 12mm fibre cement sheet, 19mm plywood, or a double layer of standard colorbond fencing), and constructed without gaps between panels or at the base.

The proposed barrier is expected to mitigate noise levels received at the ground floor level of future residential dwellings to 46 dB(A)  $L_{eq}$  or less. This complies with daytime Noise EPP criteria, and exceeds the night time criteria by 1 dB. This exceedance is considered to be negligible in the context of existing noise levels.

We note that the proposed mitigation is not expected to mitigate noise received at the upper floors of future residential dwellings. However as noted in Section 4.3, this is not expected to result in unacceptable internal noise levels based on sound attenuation which would be required by SA 78B, irrespective of Kaufland noise emissions. A minimum 5m high barrier would be required to provide noticeable noise mitigation to the first floor and above. Generally this height of barrier can have adverse visual impacts in a residential setting.

On balance an acoustic barrier providing mitigation to the ground floor only is considered the most reasonable and practicable option for mitigation. This is expected to result in acceptable noise levels within ground floor outdoor living areas, while avoiding visual, shading and other adverse effects that may be associated with a higher barrier.





**Figure 3: Recommended noise barrier location**

## 7 Conclusion

An environmental noise impact assessment has been undertaken for the proposed development of the site at 10 Anzac Highway, Forestville, SA 5035.

Noise levels from typical and worst-case vehicle movements were considered, along with noise from the loading dock and mechanical plant. Noise from peak daytime car park use is expected to exceed the daytime noise criteria by 2 dB at the nearest existing residences, but would be less than existing ambient traffic noise. Noise from typical daytime and night time operation of the car park is expected to comply with the relevant criteria at the nearest existing residences.

Without mitigation, noise operation of the loading dock, including heavy vehicle movements, is expected to exceed Noise EPP criteria at future residential dwellings to the east of the site, and comply at all other locations.

A 2.4m high acoustic barrier is recommended to mitigate noise emissions received at the ground floor level (including any ground floor outdoor living areas) of receivers to the east. A considerably higher barrier (5m or more) would be required to provide mitigation to upper floors. This is not considered reasonable or practicable, given the following:

- Future residential dwellings in this location will have sound attenuation measures as required by SA 78B, are expected to result in acceptable internal noise levels without a noise barrier.
- A barrier of 5m or more is likely to have significant adverse visual and shading effects
- Predicted noise levels are similar or less than existing ambient traffic noise levels.

On this basis of this assessment, the proposed development is expected to operate within the Development Plan requirements and suitably addresses the Noise EPP noise requirements. Noise from the proposed development is not considered to be significant given the existing noise environment.



4 March 2019

Kaufland Australia Pty Ltd  
Level 2  
327 Ferntree Gully Road  
Mount Waverley VIC 3149  
AU

**Attention: Brianna Johnson**

## **Kaufland - External Lighting Design - Forrestville External Lighting**

Further to discussions, and Town planning conditions for this project, NDY understand that the layout for the Forrestville store has changed from our original lighting calculations, and that additional information is required regarding the compliance of lighting through proposed façade windows. This advice outlines the compliance requirements for the external lighting for the project, and the internal lighting adjacent to windows.

In accordance with the previous lighting plan, a Lighting Plan including relevant calculations shall be re-submitted for approval prior to the completion of the project.

The lighting plan shall address the following:

- Confirmation that external lighting is compliant with the requirements of AS 4282:1997, including the following levels affecting nearby residential areas:
- A maximum vertical illuminance of 4 lux
- A maximum luminous intensity of 2500cd
- A maximum threshold increment of 20%
- Efforts will be made to minimise and light spill into other industrial/commercial zoned areas adjacent the site, in accordance with the intent of the previous Lighting Plan submitted.
- Lighting within the store will also be assessed in accordance with the external lighting, in order to achieve the same performance levels at nearby residential sites from light spill from the:
  - High level glazed windows along Maple avenue
  - Entry area windows/entry doors along Anzac Avenue
  - High level window areas, and shaded large glazing extend along Leader street.
- This would be typically achieved via one or more of the following design solutions:
  - Installation of full cut-off fittings, that provide no direct light to the residential areas

MELBOURNE  
SYDNEY  
BRISBANE  
PERTH  
CANBERRA  
ADELAIDE  
GOLD COAST  
  
AUCKLAND  
WELLINGTON  
  
LONDON  
  
VANCOUVER  
  
HONG KONG



- Lighting control systems, to automatically shut-off any entry lighting that cannot be viewed
- Installation of darker glazing, and shading to the façade (along Leader Street) to limit light output from the windows
- In addition to the above, blinds will be installed in BOH window areas that are provided at high level, with staff instructed to shut these at night.

Further to the above, NDY note that the internal lighting will likely be compliant with the requirements of AS 4284:1997 with minimal modifications in most areas, however the trading floor glazing along Leader street may require more treatment.

## **NORMAN DISNEY & YOUNG**

Anthony Norton  
Senior Associate



Kaufland Australia Pty Ltd  
ABN 866 165 91667

Contact : Brianna Johnson  
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Ref. : Forestville-DA-1  
Level 7 / 431 King William Street,  
Adelaide SA 5000



**Lauren Talbot**  
Senior Planning Officer

Planning and Development Directorate  
Department of Planning, Transport and Infrastructure

Dear Lauren,

**APPLICATION NO. 090/E004/18**  
**NO. 10 ANZAC HIGHWAY, FORESTVILLE**

We write in regards to additional information we have received in reference to 'Tree 33', which is noted as being a Regulated Tree.

Within the previously provided 'Arboriculturalist Impact Assessment and Development Impact Report', dated 28 March 2019, Kaufland was advised that removal of the tree would be recommended as the tree would be subject to substantial photosynthetic changes, which would compromise the tree condition (and long term viability).

We have held subsequent discussions with the City of Unley, whereby David Brown advised that the Council Arborist has reviewed the abovementioned Arboriculturalist Report, together with completing a site inspection and noted that trees 32 and 32 are able to be retained, following pruning and care.

It is Kauflands' preference that trees 32 and 33 be retained with pruning and ongoing maintenance, should this be a viable option. Kaufland is willing to investigate further.

Should you have any queries please do not hesitate to contact the undersigned.

Yours sincerely,



**Brianna Johnson**  
Property Developer  
Kaufland Australia  
Brianna.johnson@kaufland.com  
0404 045 339

**Kaufland Australia  
Proposed store  
Forestville, Adelaide**

**Economic Impact Assessment**

**May 2018**

**Dimasi**  
& CO



Prepared by:

Tony Dimasi, Managing Director – Dimasi & Co

dimasi@bigpond.com

Prepared for

**Kaufland Australia**

# TONY DIMASI

Managing Director, Dimasi & Co.




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## Qualifications

- Bachelor of Arts (Hons.), University of Melbourne
- Master of Arts, University of Melbourne

Tony graduated with Honours and Masters Degrees in Economics and Mathematics from the University of Melbourne, where he also taught Economics and Statistical Methods for a number of years.

In 1982 he commenced work as a consultant in the then emerging field of retail and property economics, and for the past 35 years he has provided independent analysis and advice to shopping centre owners and developers, retailers, service providers and public authorities. Over that time Tony has had the opportunity to work extensively with most of Australia's shopping centres and retail precincts, and also most of the country's major retailers, participating first hand in the development and evolution of the Australian retail sector, and particularly the shopping centre industry.

As a micro-economist, Tony's emphasis in his work over the past four decades has been on the ever changing needs and wants of the consumer, which philosophically he has always regarded as being the essential underpinning of economic analysis for the retail sector.

Tony has worked across all parts of Australia and New Zealand, and has provided advice in relation to virtually every significant activity centre location in both countries. The range of projects has included CBD properties; super regional centres; regional and sub-regional centres; district and neighbourhood centres; homemaker retail facilities; freestanding stores; and all other retail formats, as well as commercial and industrial precincts.

Tony has also advised extensively on optimal retail and related services provisions to support major education and health facilities, including universities and hospital/health precincts. He has also advised widely on non-retail development projects, including residential and industrial projects, dairy processing, cattle export facilities, and poultry farming.

Tony appears regularly as an independent expert in state planning courts and tribunals across all states of Australia and in New Zealand, including:

- The Administrative Appeals Tribunal (AAT) of Australia;
- Independent Ministerial Panels and VCAT in Victoria;
- The Land and Environment Court of New South Wales;
- The Planning and Environment Court of Queensland;
- The State Administrative Tribunal in Western Australia;
- The Environment, Resources and Development Court of South Australia;
- The Liquor Licensing Court of South Australia;
- The Petroleum Products Retail Outlets Board of South Australia;
- The Resource Development Planning Commission in Tasmania; and
- The Environment Court of New Zealand.

He has also appeared regularly as an independent expert in federal parliamentary inquiries, including the Joint Parliamentary Inquiry into the Australian Retail Sector (Baird Inquiry); in ACCC hearings, including the Inquiry into the Competitiveness of Retail Prices for Standard Groceries in 2008; as well as Federal and County Court hearings.

He is also a regular conference speaker and columnist in retail industry publications.



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## Executive summary

The Supermarkets & Grocery Stores category is by far the most important retail category in Australia. Total sales recorded by Supermarkets & Grocery Stores as measured by the Australian Bureau of Statistics have increased from \$64.5 billion at 2007 to \$103.7 billion at 2017, recording average annual growth of 4.9% per annum – despite the impacts of the global financial crisis (GFC). Over this past decade the category has also increased its share of total Australian retail sales from 31.3% to 33.7%.

For South Australia, similar trends are evident, though with an even greater emphasis on the importance of this category. The trends for South Australia show that Supermarkets and Grocery Stores sales have increased over the past decade at a similar rate to the national average – 4.8% versus 4.9%. The share of total retail sales directed to supermarkets and grocery stores by South Australians has increased over this period from 33.1% at 2007 to 38.2% at 2017. **Thus, nearly 40 cents in every retail dollar spent by South Australians is now directed to supermarkets and grocery stores.**

Given the importance of the Supermarkets & Grocery Stores category to both the Australian retail sector and Australian consumers, the imminent entry of Kaufland into Australia, with the group's first Australian store proposed to be built at Forestville in Adelaide, brings with it enormous potential for significant consumer, as well as broader economic, benefits.

Kaufland is the primary retail brand of the Schwarz Gruppe, which is headquartered in Germany but operates in 20 European countries, across 11,000 stores, employing more than 375,000 people. The store format which Schwarz Gruppe will operate in Australia, under the Kaufland banner, will be a very large footprint, full-line supermarket – noticeably bigger than the largest Woolworths and Coles supermarkets which currently operate in the country.

Kaufland will offer its customers a wide range of products with an uncompromising focus on quality and freshness. Given their size, Kaufland supermarkets are able to offer very extensive ranges of fresh food and groceries, complemented by supporting

ranges of non-food goods, including household items, electrical goods, textiles, stationery, toys, as well as seasonal products and weekly promotional items.

Kaufland's approach to customer service is reflected in the large store footprint, which is designed in that way so that it is able to not only provide the most extensive range of goods, but also enable an easy and comfortable shopping experience.

At present, Australia is generally served by a high standard of supermarkets, however, Kaufland's offer will bring significant new features and attributes for the benefit of Australian consumers, in particular :

- i. Regional sourcing – Kaufland aims to source fresh produce, meat and seafood from the surrounding region wherever possible, as it believes that a short supply chain means maximum freshness and best product quality for customers. While in South Australia the exact sourcing arrangements are still to be finalised, the Kaufland philosophy will be to source as many items as possible from the state and from the regions surrounding the Adelaide metropolitan area. Thus, Kaufland's intention is that the store will source items such as regional wines, cheeses, charcuterie and other products from the various South Australian regions.
- ii. A new focus on fresh food departments – Kaufland will bring a distinctly new focus to the fresh food departments. Residents of South Australia, with a strong German heritage, particularly in the Barossa Valley and the Adelaide Hills, will relate particularly well to Kaufland's approach in departments such as bakery, meat, seafood and delicatessen.
- iii. A new tier of labels – most Australian supermarkets currently provide a range of labels including own brand labels, with Aldi's offer being almost exclusively own brand. Kaufland will add significantly to that range by introducing additional national brands which are not currently available in Australia as well as very popular and very extensive ranges of private label products. The private label products will offer high quality at modest prices, and will also cater to special dietary requirements such as vegetarians, vegans, lactose or gluten intolerant customers.

In addition to the clearly substantial consumer and supplier benefits which will result from the introduction of the Kaufland store, there are significant broader economic benefits that will be generated for the Adelaide economy and for both the South Australian and Australian economies more broadly, initially as a direct result of the first Kaufland store at Forestville, but then increasingly as a result of the expansion of Kaufland's business throughout the rest of Adelaide and the balance of Australia.

The new Kaufland Forestville store will create a large number of additional jobs, initially as a result of its construction and the consequent multiplier effects in related supplier industries, and then as a result of its ongoing operation. The number of new jobs created directly by the Kaufland store will be 80 - 100, while the total number of jobs created by its development, both directly and indirectly, will be much greater. The new jobs will be created initially from construction of the project plus consequent multiplier effects through supplier and related industries to the construction sector, and then from the direct store employment and a further round of multiplier effects through related industries to the supermarket sector.

The analysis presented in this report shows that, on average, existing supermarket operators within the main trade area that is expected to be served by a new Kaufland store at Forestville in Adelaide would expect to see a modest trading impact (of around 4% -5%) following the introduction of the Kaufland store. This would be a one-off impact – after which all businesses will compete equally for future growth – and would be experienced within the context of a retail sector which in South Australia has reported statewide average annual growth of 4.8% over the past decade, and around 5% annual growth in Adelaide.

The trading impacts that are likely to be experienced by existing supermarket and grocery store operators will therefore not be of such a magnitude as to imperil the continued operation of any existing store, and are highly likely to be experienced primarily by the two largest supermarket and grocery store chains in Australia – Woolworths and Coles. Both of these groups are very large, highly successful and very well placed to counter any competitive intensity that will result from the entry of Kaufland into the Australian market.



Having regard to the very substantial consumer and economic benefits that will result from the development of the new Kaufland store at Forestville, and also having regard for the likelihood of some trading impacts on the existing network of supermarkets and grocery stores throughout the inner south-western suburbs of Adelaide, it can reasonably be concluded that there will be a clear **net community benefit** that will result from the project's development. The consumer benefits plus the significant broader economic benefits, in particular construction investment and employment creation, that will result from the project are indisputable, and will be very substantial.

In assessing the likely net community benefit that will result from the development of a new Kaufland Forestville store, weighting should also be given to longer term considerations. While development of the Forestville store alone will generate a large number new jobs, both directly and as a result of consequent multiplier induced effects, clearly Kaufland does not intend to open just one store in Adelaide, with three sites already identified. In due course Kaufland is expected to open numerous large footprint supermarkets throughout metropolitan Adelaide.

On this basis, the eventual level of new job creation from Kaufland's entry into South Australia is expected to be in the thousands.

# Introduction

This report presents an independent assessment of the anticipated economic impacts of the proposed Kaufland Australia supermarket development at 10 Anzac Highway, Forestville, in the inner south-western suburbs of Adelaide.

The report is set out in three sections as follows:

- **Section 1** presents a review of the supermarket sector as it operates both in Australia and in Adelaide. This section provides important background information against which the entry of Kaufland into the Australian market can be considered.
- **Section 2** provides details on Kaufland Australia, setting out the nature of the store format and retail offer which Kaufland will bring to Australia, as well as the various attributes of the Kaufland offer from a customer perspective.
- Against the background outlined in the previous two sections, **Section 3** then focuses on the proposed Kaufland store at Forestville. This section examines the relevant trade area or catchment for the proposed store, as well as the network of existing supermarket facilities currently servicing that trade area. Based on that analysis, the specific economic impacts of Kaufland's proposed new store at Forestville are then considered, and relevant conclusions drawn.

## Section 1: The supermarket sector – Australia and Adelaide

Table 1.1 below provides a bird's eye view of the supermarket sector as it currently exists and operates in Australia, detailing the following key parameters:

- The number of supermarkets, for each of the key operators and in total;
- The approximate floorspace, measured as square metres of gross leasable area or GLA, occupied by Australian supermarkets, and the average store sizes;
- The estimates sales performance of Australian supermarkets, in total; in sales per sq.m terms; and as average sales per store;
- The total amounts spent by Australian consumers on take-home food & groceries (F&G), as well as the total amount measured by the Australian Bureau of Statistics (ABS) as sales recorded by Supermarkets & Grocery Stores, a store category utilised by the ABS for the purpose of monitoring the performance of the Australian retail sector;
- The approximate market shares of available expenditure, and of reported supermarket/grocery store sales, held by each of the existing supermarket operators; and
- The average provision of supermarket floorspace relative to population.

Table 1.2 provides similar information for the Adelaide metropolitan area.

For the purposes of this analysis supermarkets are defined as food & grocery stores which are greater than 500 sq.m in size. Smaller food & grocery stores, such as convenience stores and corner stores, also contribute to the total retail turnover of the Supermarkets & Grocery Stores category as measured by the ABS. However, those very small stores are not considered to be competitive in a direct sense to larger supermarkets, as they operate in a quite different manner to a full range supermarket, and are not, for the great majority of the population, considered to be a viable destination for the typical weekly food & grocery shopping trip.

**Table 1.1**  
**Australia Supermarket Sector, FY 2017**

Factor	WOW	Coles	Aldi	Indep.	Total
<b><u>Stores</u></b>					
No. of Stores *	995	801	469	1,350	<b>3,615</b>
Est. Gross Leasable Area (GLA, sq.m.)	3,233,750	2,622,490	656,600	1,687,500	<b>8,200,340</b>
Avg. Store Size (GLA, sq.m.)	3,250	3,300	1,400	1,250	<b>2,268</b>
<b><u>Sales **</u></b>					
Total sales (\$m.)	35,800	28,600	8,100	12,960	<b>85,460</b>
Avg. Sales per Store (\$m.)	36.0	35.7	17.3	9.6	<b>23.6</b>
Avg. Sales per Sq.m. (\$)	11,070	10,820	12,340	7,680	<b>10,422</b>
<b><u>Market Share of</u></b>					
Total ABS Smkts & Grocery Stores Sales	34.5%	27.6%	7.8%	12.5%	<b>82.4%</b>
Total Est. Food & Groceries Expenditure	27.0%	21.6%	6.1%	9.8%	<b>64.5%</b>
<b><u>Market Size</u></b>					
Population (June 2017, millions)					<b>24.6</b>
Total ABS Smkts & Grocery Stores Sales (\$m.)					<b>103,723</b>
Total Est. Food & Groceries Expenditure (\$m.)					<b>132,500</b>
Food & Groceries Exp. Per Capita (\$)					<b>5,386</b>
<b><u>Population Metrics</u></b>					
Smkt Space per 1,000 (sq.m.)	131	107	27	69	<b>333</b>

\*Stores greater than 500 sq.m. Gross Leasable Area (GLA); Liquor stores not included.

\*\* Sales estimates exclusive of GST

Sources : FY 2017 Annual Reports for Woolworths Ltd. And Wesfarmers Ltd.; MarketInfo; ABS Retail Trade Australia Cat. 8501.0 Dimasi & Co. fieldwork and estimates.



**Table 1.2**  
**Adelaide Supermarket Sector, FY 2017**

Factor	WOW	Coles	Aldi	Indep.	Total
<b><u>Stores</u></b>					
No. of Stores *	47	46	17	100	<b>210</b>
Est. Gross Leasable Area (GLA, sq.m.)	164,500	151,800	25,500	160,000	<b>501,800</b>
Avg. Store Size (GLA, sq.m.)	3,500	3,300	1,500	1,600	<b>2,390</b>
<b><u>Sales**</u></b>					
Total sales (\$m.)	1,563	1,594	306	1,600	<b>5,063</b>
Avg. Sales per Store (\$m.)	33.3	34.7	18.0	16.0	<b>24.1</b>
Avg. Sales per Sq.m. (\$)	9,500	10,500	12,000	10,000	<b>10,089</b>
<b><u>Market Share of</u></b>					
Total ABS Smkts & Grocery Stores Sales (\$m.)	26.4%	26.9%	5.2%	27.0%	<b>85.5%</b>
Total Est. Food & Groceries Expenditure (\$m.)	22.4%	22.9%	4.4%	23.0%	<b>72.7%</b>
<b><u>Market Size</u></b>					
Population (June 2017, millions)	1.33	1.33	1.33	1.33	<b>1.33</b>
Total ABS Smkts & Grocery Stores Sales (\$m.)					<b>5,923</b>
Total Est. Food & Groceries Expenditure (\$m.)					<b>6,968</b>
Food & Groceries Exp. Per Capita (\$)					<b>5,220</b>
<b><u>Population Metrics</u></b>					
Smkt Space per 1,000 (sq.m.)	123	114	19	120	<b>376</b>

\*Stores greater than 500 sq.m. Gross Leasable Area (GLA); Liquor stores not included

\*\* Sales estimates exclusive of GST

Sources: FY 2017 Annual Reports for Woolworths Ltd. And Wesfarmers Ltd.; MarketInfo; ABS Retail Trade Australia Cat. 8501.0 Dimasi & Co. fieldwork and estimates.

Having regard to the information set out in Table 1.1 and Table 1.2, the evident features of the supermarket sector as it operates both in Australia and within the Adelaide metropolitan area, can be summarised as follows:

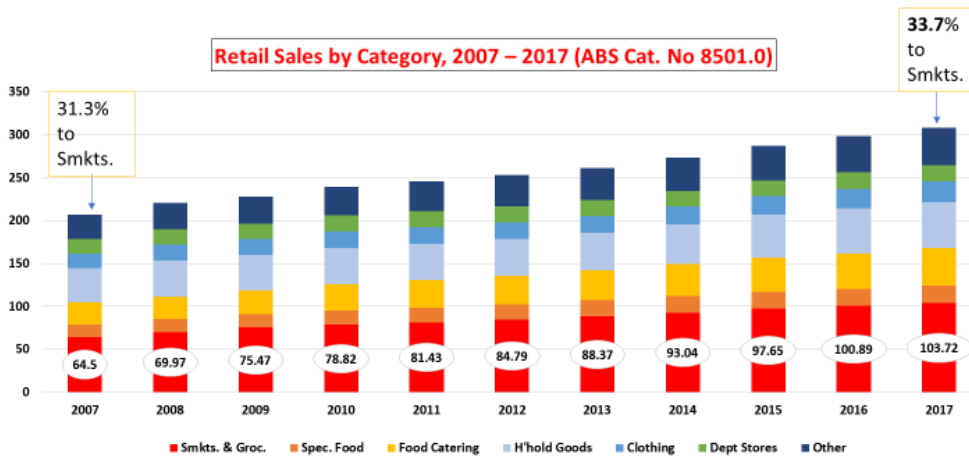
- The ABS measured the total recorded turnover, nationally, of supermarkets and grocery stores at \$103.7 billion for the 2016/17 financial year.
- Given Australia's population of 24.6 million at June 2017, as also recorded by the ABS, it can be calculated that supermarkets and grocery stores sales per person throughout Australia were \$4,216 for 2016/17. For Adelaide, the equivalent figure was an estimated \$4,437.

- Supermarkets and grocery stores account for the lion's share of total take-home food & grocery (F&G) expenditure by Australian residents, but not for the total amount. Other specialist food stores (butchers, bakeries, poultry stores, seafood operators, fresh produce stores, health food stores, etc) as well as other retail channels, including fresh food markets and, to a lesser extent, non-food stores such as pharmacies and discount department stores, also account for a component of total food & groceries spending. At a national level, total food & grocery expenditure by the Australian population at 2016/17 was an estimated \$132.5 billion, at an average of \$5,386 per person.
- For Adelaide, the respective figures for 2017 were \$7 billion in total F&G expenditure, at \$5,220 per capita.
- The two largest national chains, Coles and Woolworths, are clearly the dominant players within the Australian supermarket sector, as they are also within the supermarket sector in metropolitan Adelaide.
- On a national basis, Woolworths in 2016/17 operated some 995 stores, each at an average store size of approximately 3,250 sq.m GLA. Coles operated some 801 stores at a similar average store size – estimated at 3,300 sq.m. The measure of store size utilised in this report is gross leasable area (GLA), not to be confused with selling area, which in turn is often utilised by the chain supermarket operators when reporting their sales performance levels per sq.m. That approach is considered to be an inaccurate measure of floorspace for the purposes of planning/economic impact analysis, since the measure of store size which is adopted in such reporting is essentially arbitrary – i.e. whatever proportion of the total area of the store the operator in question chooses to allocate to 'selling' area. That measure also does not accurately reflect the provision of supermarket floorspace, because it does not include the total store.
- Aldi, the third national chain, in FY17 operated 469 stores, and although Aldi does not report its sales performance, it can reasonably be estimated that total sales for Aldi were approximately \$8.1 billion at an average of \$17.3 million per store. Aldi stores are approximately half the size of typical Woolworths/Coles stores, thus the level of sales per sq.m of gross leasable area achieved by Aldi is estimated to be comparable to the levels recorded by both Woolworths and Coles.

- The independent sector operates primarily under the banner of IGA, particularly for larger independent stores which can be classified as supermarkets. However, there is also a small number of FoodWorks branded stores which are large enough to be considered as supermarkets. Between them independent stores are estimated to operate some 1,350 supermarkets, which in FY17 accounted for an estimated \$13 billion in sales. The independent supermarkets are estimated on average to be approximately 1,250 sq.m in size, and to have traded at around \$7,700 per sq.m.
- In Adelaide, generally the independent supermarkets are more widely represented than is the case throughout the rest of Australia, and trade at higher levels.
- The total provision of supermarket floorspace relative to population is detailed in the last row of both Table 1.1 and Table 1.2, for total Australia and for the Adelaide metropolitan area respectively. This information shows that on average there is at present a provision of approximately 333 sq.m per 1,000 people (or 3,330 sq.m per 10,000) of supermarket floorspace throughout Australia, as compared with a slightly higher estimated provision of 376 sq.m per 1,000 residents across metropolitan Adelaide.
- Measures of market share held by each of the various supermarket operators will vary depending on the definition of 'market' which one adopts. Measured as a proportion of total expenditure by Australian consumers directed to take-home food & groceries, which for 2016/17 was \$132.5 billion as noted previously, the market shares held by Woolworths Limited and Coles respectively are approximately 27% and 21.6%, compared with much lower shares of 6.1% held by Aldi and 9.8% held by independent supermarkets.
- Measured as shares of the total volume of sales of the Supermarkets & Grocery Stores category, as reported by the ABS, the market shares held by each operator are considerably higher, being 34.5 % for Woolworths; 27.6 % for Coles; 7.8 % for Aldi and 12.5 % for the combined independent supermarkets.

Within the context of the total Australian retail sector, the Supermarkets & Grocery Stores category is by far the most important. Chart 1.1 below shows the trends in retail sales by category for Australia over the past decade. Over this period, total sales recorded by the Supermarkets & Grocery Stores category has increased from \$64.5 billion at 2007 to \$103.7 billion at 2017, recording average annual growth of 4.9% per annum – despite the impacts of the global financial crisis (GFC) which were experienced between 2010 and 2013. Over this period the Supermarkets & Grocery Stores category has also increased its share of total Australian retail sales from 31.3% to 33.7%.

**Chart 1.1**  
Australia : Retail Trends, 2007 - 2017



For South Australia, similar trends are evident as shown in Chart 1.2, though with an even greater emphasis on the importance of the Supermarkets & Grocery Stores category. The trends for South Australia show that supermarket and grocery store sales have increased over the past decade at a similar rate to the national average – 4.8% versus 4.9%. The share of total retail sales directed to supermarkets and grocery stores by South Australians has increased over this period from 33.1% at 2007 to 38.2% at 2017. Thus, nearly 40 cents in every retail dollar spent by South Australians is now directed to supermarkets and grocery stores.



**Chart 1.2**  
**South Australia : Retail Trends, 2007 - 2017**



Given the importance of the Supermarkets & Grocery Stores sector to Australian consumers, the imminent entry of Kaufland into Australia brings with it enormous potential for the creation of significant consumer, as well as broader economic, benefits. The likely nature and extent of those benefits is detailed further in the remainder of this report.

## Section 2: Kaufland Australia – Store format and offer

Kaufland is the primary retail brand of the German based Schwarz Gruppe. The Schwarz Gruppe is headquartered in Germany but operates in 20 European countries, across 11,000 stores, employing more than 375,000 people. The group's second retail brand is Lidl, a small format discount supermarket operation, with similarities to Aldi.

The store format which Schwarz Gruppe will operate in Australia, under the Kaufland banner, will be a very large footprint, full range supermarket – noticeably bigger than the largest Woolworths and Coles supermarkets which currently operate in the country. In broad terms, the Kaufland stores to be built in Australia will range in size from 4,000 – 7,000 sq.m GLA, of which approximately 75% - 80% will be utilised as selling area, with the balance as back of house area.

The Schwarz Gruppe's annual turnover is approximately AUD\$150.9 billion, making it the fourth largest retailer in the world (behind WalMart, Costco and Kroger) and by far the largest in Europe – the second-placed retailer in Europe is the French Group, Carrefour, with annual retail sales of approximately AUD\$97.4 billion.

Kaufland aims to offer its customers a wide range of products with an uncompromising focus on quality and freshness. Given their size, Kaufland supermarkets are able to offer very extensive ranges of fresh food and groceries, complemented by supporting ranges of non-food goods, including household items, electrical goods, textiles, stationery, toys, as well as seasonal products and weekly promotional items.

Kaufland's value proposition to its customers is simple but effective:

*Simplicity. Quality. Price. Variety.*

Kaufland's ranging is distinguished by broad coverages of both national brands (including new brands which Kaufland will bring into Australia) and highly successful own-brands.

In recent independent surveys of customer views in the countries in which it operates at present Kaufland is ranked by consumers as the No. 1 brand on product variety in five of the seven countries, and is also ranked as the No. 1 brand on price in four of those seven countries. In each of the other countries where it is not ranked No. 1 on either feature it is ranked either No. 2 or, in Germany where there are 10 significant operators, No. 3.

Kaufland's approach to customer service is reflected in the large store footprint, which is designed in that way so that it is able to not only provide the most extensive range of goods, but also enable an easy and comfortable shopping experience.

The series of photos from existing Kaufland stores presented on the following pages provides an impression of the Kaufland offer and of the look and feel of Kaufland stores which will be delivered in Australia.

**KAUFLAND**  
**WE PROUDLY SOURCE FROM THE REGION**



- We are proud to source our fresh produce, meat and seafood from the region wherever possible, as we believe that a short supply chain means maximum freshness and best product quality for our customers
- Supporting the region we are located in is a matter close to our heart – which we show throughout our stores with our "From our Region" logo



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**KAUFLAND**  
**WE ARE ALL ABOUT VALUE**

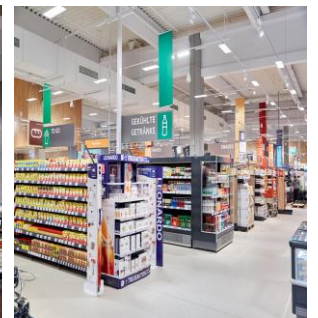
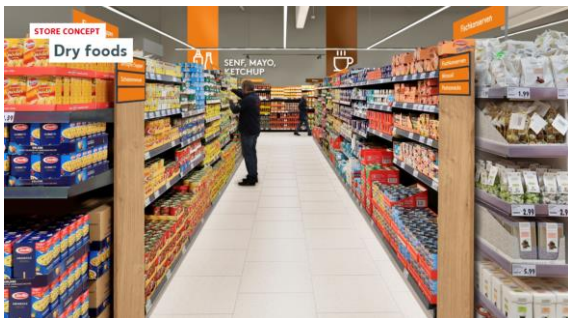
- We define ourselves as one-stop shopping destination which not only means offering a variety of different products but also a choice for different budgets.
- Our Private Label products offer high quality at economical prices and our different Brands cater to special dietary requirements such as vegetarian, vegan, lactose or gluten intolerant customers.
- Our K-Bio Brand is certified organic while our cosmetic brand Bevola offers independently tested and certified products for the entire family.
- Our Non Food Brands are all sourced through our own supply chain, enabling us to control quality and influence sustainability from the raw material to the finished product in store.



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**KAUFLAND**  
**SOME IMPRESSIONS FROM OUR STORES**

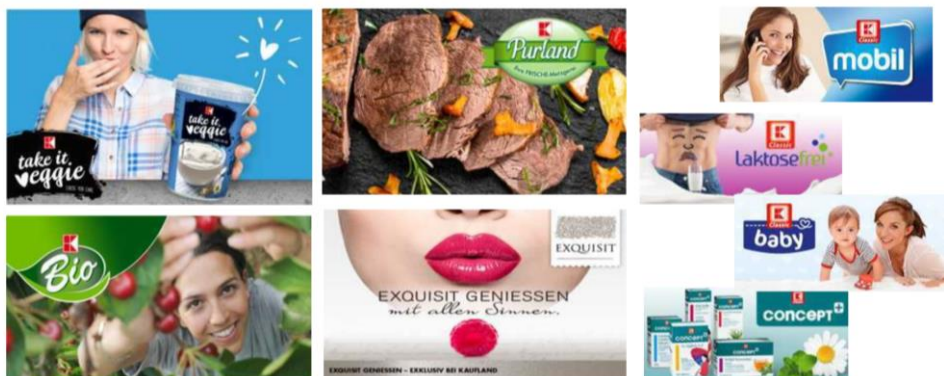




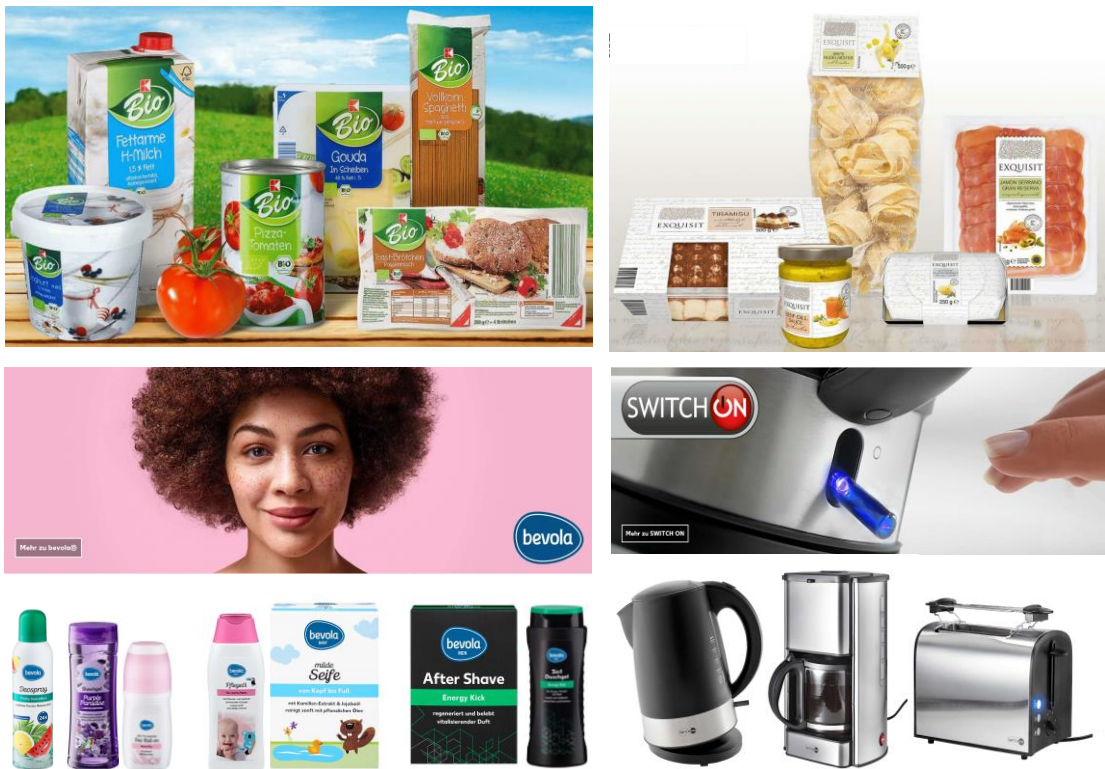
At present, Australia is generally served by a high standard of supermarkets, however, Kaufland's offer will clearly bring significant new features and attributes for the benefit of Australian consumers, in particular :

- iv. Regional sourcing – Kaufland aims to source fresh produce, meat and seafood from the surrounding region wherever possible, as it believes that a short supply chain means maximum freshness and best product quality for customers. While in South Australia the exact sourcing arrangements are still to be finalised, the Kaufland philosophy will be to source as many items as possible from the state and from the regions surrounding the Adelaide metropolitan area. Thus Kaufland's intention is that the store will source items such as regional wines, cheeses, charcuterie and other products from the various South Australian regions.
- v. A new focus on fresh food departments – Kaufland will bring a distinctly new focus to the fresh food departments. Residents of South Australia, with a strong German heritage, particularly in the Barossa Valley and the Adelaide Hills, will relate particularly well to Kaufland's approach in departments such as bakery, meat, seafood and delicatessen.
- vi. A new tier of labels – most Australian supermarkets currently provide a range of labels including own-brands, with Aldi's offer being almost exclusively own brand. Kaufland will add significantly to that range by introducing additional national brands which are not currently available in Australia as well as very popular and very extensive ranges of private label products. The private label products will offer high quality at modest prices, and will also cater to special dietary requirements such as vegetarians, vegans, lactose or gluten intolerant customers.

## KAUFLAND BRANDS



Kaufland's own brand labels cover all segments of the market, with particular emphasis on its certified organic brand (K-Bio); premium private label (EXQUISIT); private brand cosmetics range (bevola); and private label home electronics range (SWITCH ON). Kaufland's entry into Australia means these will all be additional options from which Australian consumers will be able to select when doing their food and grocery shopping.



- vii. Special buys – Kaufland's special buys department offers a new selection of products every week offering customers the opportunity to buy an ever changing range of very low-priced items for a limited time.

## Section 3: Economic Impact Assessment

The final section of this report now details the economic impact considerations for the proposed development of a new Kaufland supermarket at 10 Anzac Highway, Forestville, in the inner south-western suburbs of Adelaide. In order to arrive at an assessment as to the net community benefit resulting from the proposed development, this section of the report examines:

- the site location and context;
- the development proposed;
- the trade area which it will serve;
- the competitive network within which the new Kaufland store will operate;
- the estimated sales potential for the store;
- the estimated trading impact resulting from the store's development;
- other economic impacts, including economic benefits and any likely disbenefits;  
and
- longer term considerations.

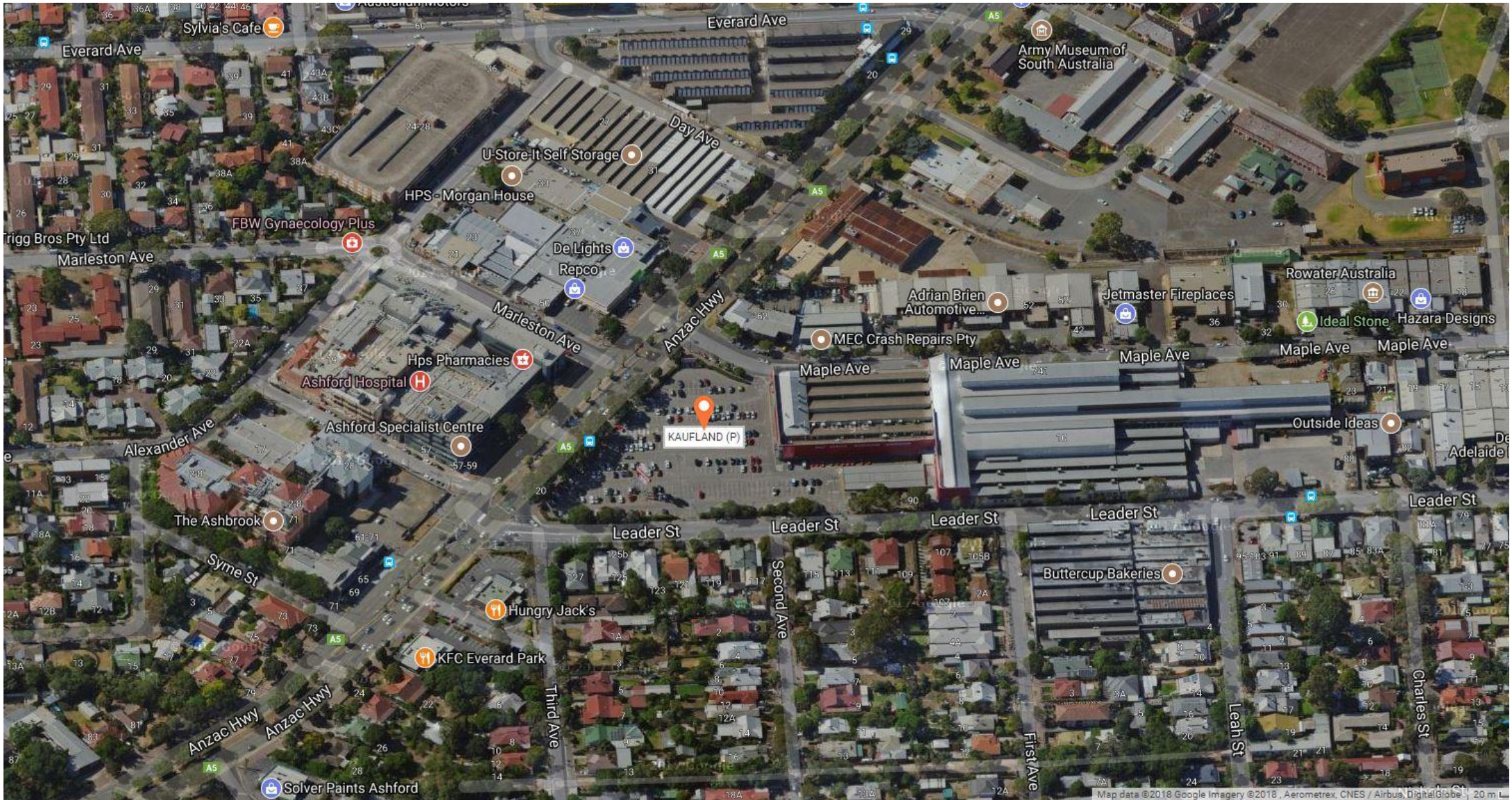
### 3.1 Site location and context

The subject site is situated on the southern side of Anzac Highway between Maple Avenue and Leader Street, in the suburb of Forestville. Map 3.1 shows the site location, highlighting the fact that it was formerly occupied as a large footprint retail premises (a furniture store), with extensive grade carparking fronting Anzac Highway and Leader Street.

The site is ideally situated to accommodate a Kaufland store. As detailed in Section 2 of this report, the Kaufland Australia offer is a very large footprint supermarket. Store sizes will vary, depending on the circumstances of each location chosen, but will generally fall within 4,000 – 7,000 sq.m GLA. In addition, supporting specialty space will add a small but important component of the total Kaufland offer, while appropriate levels of highly convenient carparking need to be able to be provided to service the store. As a consequence, a large site is required for any Kaufland development. Such sites are difficult to find in any already developed urban area.

In addition to being sufficiently large to accommodate a new Kaufland store, the Forestville site also offers extensive frontage to Anzac Highway (approximately 135 metres) and is easily accessible for residents of the surrounding suburbs.





## Map 3.1: Kaufland Forestville

Site location



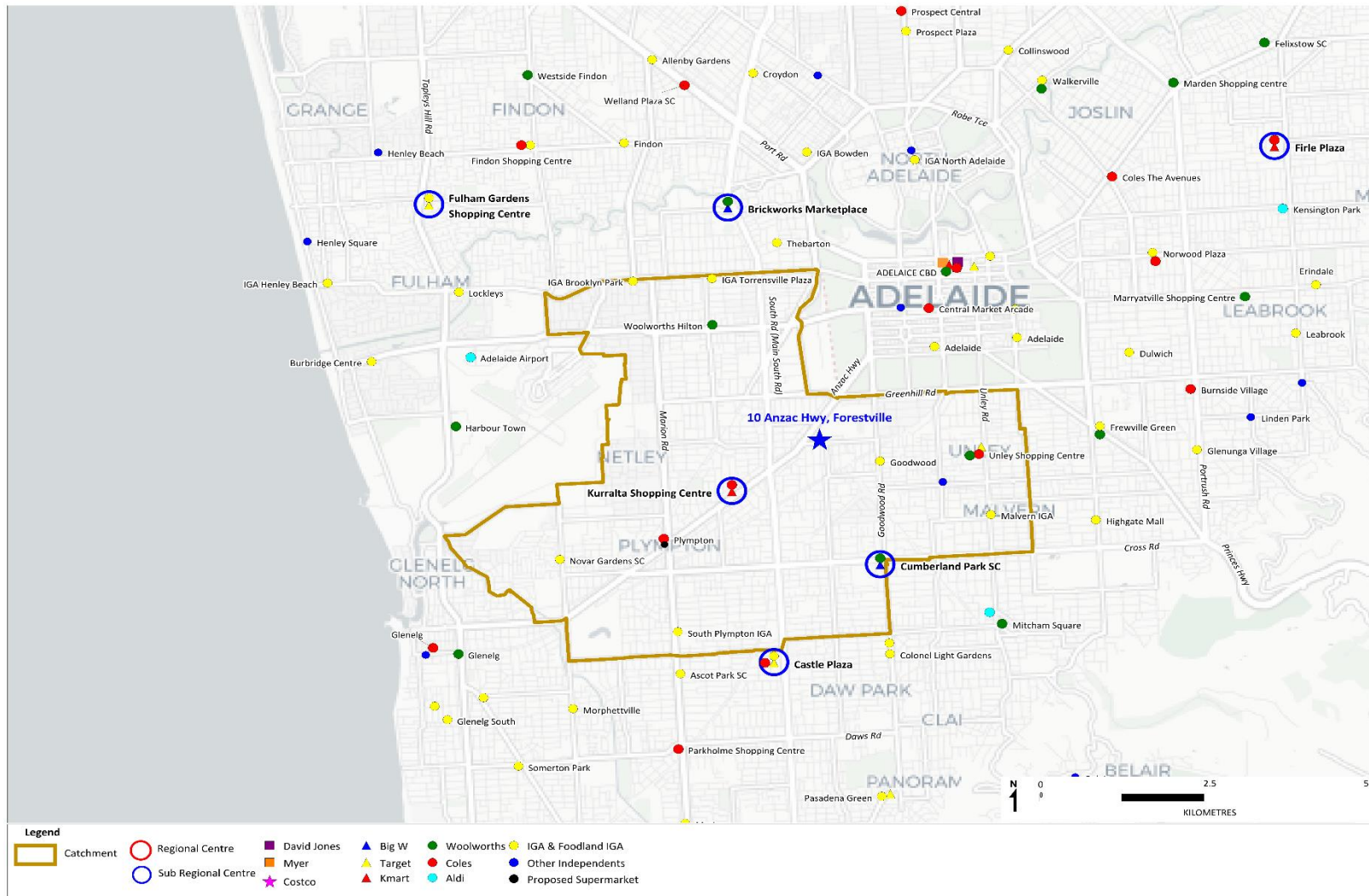
### 3.2 Trade area analysis

The extent of the trade area or catchment that is served by any shopping centre, or retail facility, is shaped by the interplay of a number of critical factors. These factors include:

- i. The relative attraction of the retail facility or centre, in comparison with alternative competitive retail facilities. The factors that determine the strength and attraction of any particular centre are primarily its scale and composition (in particular the major trader or traders that anchor the centre); its layout and ambience; and car-parking, including access and ease of use.
- ii. The proximity and attractiveness of competitive retail tenants, or centres. The locations, compositions, quality and scale of competitive retail facilities all serve to define the extent of the trade area which a shopping centre or retail facility is effectively able to serve.
- iii. The available road network and public transport infrastructure, which determine the ease (or difficulty) with which customers are able to access a shopping centre, or retail facility.
- iv. Significant physical barriers which are difficult to negotiate, and can act as delineating boundaries to the trade area served by an individual shopping centre, or retail facility.

The Kaufland store at Forestville will be 5,600 square metres in size (GLA), to be built at first floor level. The store will be supported by approximately 1,000 square metres of complementary specialty uses in eight small premises, seven of which will be at first floor level plus a café at ground level of the development, with carparking also to be provided at ground level.

Having regard to the scale, features and attributes of the proposed Kaufland development, and bearing in mind that at present there is no similar development either in Adelaide or in Australia, the trade area which is expected to be served by Kaufland at Forestville has been defined for the purpose of this economic impact assessment as shown on the attached Map 3.2.



## Map 3.2: Kaufland Forestville

Trade area and competition

The key factors which lead to the trade area definition as outlined on the attached map are the following:

- The site location and its accessibility, as previously noted. The entire main trade area shown on Map 3.2 falls comfortably within a 10-minute drivetime of the site, and the majority of the residents within the area can access the Kaufland site within a drivetime of 5 minutes.
- The scale and nature of the proposed Kaufland store and its offer, including the many new attributes which the store will bring to food & grocery shopping for residents of Adelaide.
- The surrounding competitive network of supermarkets.

In broad terms, the defined main trade area is relatively extensive, and is larger in extent than would be the case for most typical Australian supermarkets, such as those operated by Woolworths or Coles. It is evident that this is the case from the simple observation that within the defined main trade area for this Kaufland store there are three Coles supermarkets and also three Woolworths supermarkets.

The Kaufland business model, and the Kaufland value proposition, differ from both Coles and Woolworths in that respect, i.e. Kaufland stores are larger footprint stores designed to serve relatively extensive trade areas. As noted in the previous section of this report, the stores will provide very extensive ranges of both fresh food and packaged groceries, but also supported by significant non-food ranges of items.

Having regard to all the above, the trade area for the store has been reasonably defined. However, Kaufland does not yet operate any stores in Australia, so unavoidably at this point any view of the trade area which each store will serve remains just that – an expectation. The outcome will depend on the preferences of consumers, and the extent to which residents of Adelaide will choose the new Kaufland store.

Table 3.1 provides a socio-demographic snapshot of the resident population within the defined main trade area (MTA), comparing the relevant features of that population with benchmarks for the Adelaide metropolitan area and also Australia overall.



**Table 3.1**  
**Forestville MTA socio-demographic profile, 2016**

<b>Factor</b>	<b>Forestville MTA</b>	<b>Adelaide Metro. Area</b>	<b>Australia</b>
<b><u>Population</u></b>			
Estimated Resident population (2016)	83,727	1,324,000	24,210,800
Avge. Annual Growth Rate, 2011-2016	0.70%	0.96%	1.67%
% of Population aged 0 - 4	5.51%	5.97%	6.37%
% of Population aged 65+	16.16%	16.82%	15.24%
Average age (years)	39.55	39.63	38.44
<b><u>Households</u></b>			
No. of Households	32,992	492,390	8,285,829
Average household size	2.33	2.46	2.60
<b><u>Income</u></b>			
Average annual income per capita	\$42,002	\$36,770	\$39,620
Average annual income per household	\$97,874	\$91,200	\$103,664
<b><u>Generational Cohorts (% of Popn.)</u></b>			
Pre-Boomers	10.72%	10.62%	9.36%
Baby Boomers	20.54%	22.54%	21.70%
Gen X	19.81%	19.85%	20.14%
Gen Y	25.08%	20.61%	21.34%
Gen Z	16.23%	18.13%	18.60%
Gen Alpha	7.63%	8.26%	8.86%
<b><u>Country of Birth (% of Population)</u></b>			
Australia	66.81%	68.24%	66.73%
China	3.48%	1.81%	2.15%
India	3.65%	2.00%	1.92%
Asia - balance	4.24%	3.96%	5.33%
Europe	7.68%	10.04%	6.72%
Elsewhere	14.14%	13.94%	17.16%
<b><u>Housing (% of Households)</u></b>			
Own/buying home	62.33%	69.28%	67.79%
Renting	36.32%	29.26%	31.42%
Average monthly mortgage payment	\$1,999	\$1,736	\$2,071
Average weekly rental payment	\$293	\$285	\$358
<b><u>Employment</u></b>			
% of Workforce White Collar	76.90%	71.05%	70.21%
% of Workforce Blue Collar	23.10%	28.95%	29.79%
Unemployment rate at Census date	7.34%	7.72%	6.86%
<b><u>Vehicle Ownership</u></b>			
Average No. of motor vehicles per Household	1.58	1.74	1.80

Sources : Census of Population & Housing, 2016 (ABS); GapMaps

The table highlights the following key attributes of the main trade area population:

- The estimated resident population within the main trade area is substantial, at 83,727 at Census date in 2016, and has been growing at approximately 0.7% per annum.
- The age distribution of the population is broadly comparable with the Adelaide metropolitan area average, and slightly older than the Australian national average.
- The residents of the main trade area are relatively affluent, with per capita income levels which are well above the Adelaide metropolitan average, and also above the Australian national average.
- The area is steadily 'gentrifying' with a relatively high proportion of Gen-Y residents, compared to both the Adelaide metropolitan area overall and Australian national benchmarks.
- The area has a high representation of white-collar workers (76.9% of the workforce, compared with 71% for Adelaide and 70% for Australia overall), and average monthly mortgage payments are in line with the Australian national average, but well above the Adelaide metropolitan average.
- Overall, this area can be characterised as being an economically solid, steadily growing area with above average levels of income and affluence.

### 3.3 Competition analysis

The various competitive supermarkets situated both within the defined main trade area and in the immediately surrounding areas are shown on Map 3.1 previously, and are summarised as follows:

- There are three Woolworths supermarkets, at Cumberland Park, Unley and Hilton, all of which are full-sized stores and which between them total an estimated 10,500 sq.m of gross leasable area.
- There are also three Coles supermarkets, at Kurralt Park, Plympton and Unley, each of which is a relatively small store as compared with the average size of Coles supermarkets. In total, the three Coles stores are estimated to contribute

approximately 6,300 sq.m to supermarket floorspace within the defined main trade area.

- There are six IGA stores within the trade area which are defined as supermarkets, and which between them account for approximately 8,000 sq.m of supermarket floorspace.

In total, the provision of supermarket floorspace within the trade area is an estimated 24,500 sq.m. There are also a number of supermarkets situated in close proximity to the trade area which would also be expected to draw some business from residents of the defined main trade area, however, equally many of the existing supermarkets situated within the defined trade area are located either on or close to the trade area boundary, meaning that they will draw much of their business from beyond the defined main trade area.

There is also an approved mixed-use development for the Highway Hotel site, at the corner of Anzac Highway and Marion Road, which proposes to include a supermarket. However, the intended operator of the store, if built, is not known.

### **3.4 Estimated sales potential**

Kaufland supermarkets do not yet exist in Australia, and their trading levels, when introduced, will clearly depend on the extent to which Australian consumers embrace the Kaufland offer. Estimation of the likely sales performance for the initial Kaufland stores therefore needs to be considered in that context. However, drawing on all available information, a reasonable estimate of the likely order of sales for the store can be made, for the purposes of economic impact assessment.

In estimating the sales potential of the store for this purpose, I have taken into account the demonstrated sales performances of existing supermarkets in Australia, particularly Woolworths, Coles and Aldi stores, as well as the known experience of Aldi, a new entrant to Australian supermarket retailing in 2001.

An important additional factor which needs to be taken into account in assessing the sales potential of new Kaufland stores is the size of the store, which in most cases will be

roughly twice the size of a typical Woolworths or Coles supermarket, and approximately four times the size of a typical Aldi store.

The fact the store will carry a significant range of non-food items, including household goods, electrical items, some limited apparel, as well as general household items, is yet another important factor to take into account. This type of retailing generates much lower sales per square metre than food & grocery retailing, as is readily evident from the demonstrated sales performances of the discount department stores, for example, versus supermarkets in Australia. Typically, sales per square metre levels for discount department stores (K mart, Target, Big W) are approximately one-third or less of the levels generated by supermarkets.

Having regard to all of these factors, and depending in each case on the size of the proposed store, the extent and nature of the trade area which the store will serve, and the extent of competition, the anticipated sales performance for the Kaufland store at Forestville is expected to fall within the range \$35 - \$40 million. Approximately 80% of store sales are expected to be in food & grocery items, with the remaining 20% comprising sales of non-food items, being 10% - 12% of store sales in non-food items and 8% - 10% in packaged liquor.

With a large store footprint, average sales volumes per store are expected to generally be greater, in most instances, than the levels achieved by existing Australian supermarkets, while sales per square metre levels are expected to be lower.

The sales performance would be expected to grow steadily over time, so that in approximately 5 – 8 years' time, the gap in sales per sq.m performance between Kaufland stores and Woolworths/Coles/Aldi stores would be expected to be narrowed, although it would not be expected to be completely eliminated due to significant differences in respective store sizes and offers.

In this regard, it can be noted that Aldi stores, when Aldi first entered the Australian market, generally traded at levels noticeably lower than either Woolworths or Coles supermarkets at that time, despite the fact that the Aldi store footprint is much smaller. Aldi took a number of years to achieve established store sales potential, in line with the levels achieved by the long established Australian operators.



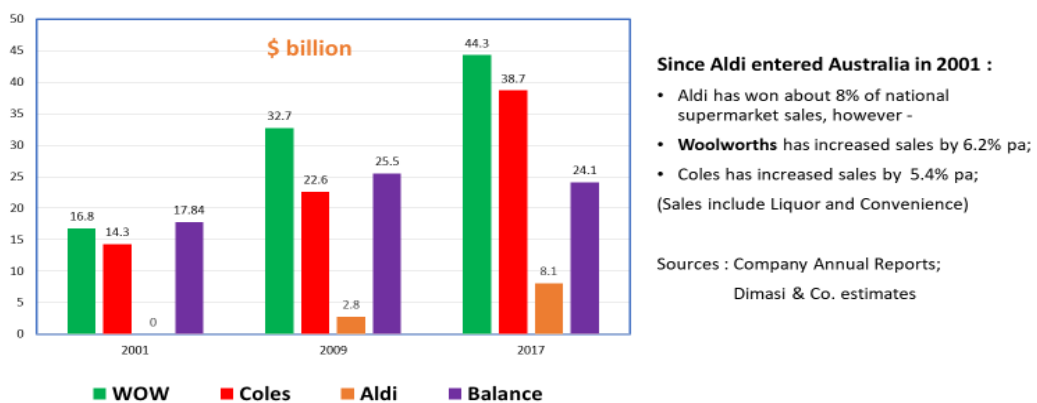
### 3.5 Economic impacts

The purpose of an Economic Impact Assessment is to provide guidance as to whether or not there is likely to be net community benefit or disbenefit resulting from any proposed development. In particular, if there is a real possibility of existing facilities potentially being impacted to such a degree that they might be lost to the community, and if the service or services provided by those facilities are not at the very least replaced by the proposed new facilities, then a community disbenefit could result.

Kaufland is a new retail format to be introduced to Australia, and Kaufland's first store is proposed to be at Forestville in Adelaide. The introduction of a new supermarket alternative for Adelaide residents will bring many benefits, as noted throughout this report. At the same time, it must be expected that there will be some additional competitive tension within the food & grocery market as a result of the introduction of such a new competitor – indeed, it is the additional competitive tension that generates the new benefits for consumers, because things will change.

It is instructive in this regard to consider the track record within Australia of general supermarket trading performance following the entry of Aldi into the Australian market, in 2001. Chart 3.1 below shows the growth in sales performance over the period 2001 to 2017, for Woolworths, Coles and all other supermarkets/packaged liquor stores in combination, as well as the estimated trading performance of Aldi over this period.

**Chart 3.1**  
**Australian supermarket/liquor store sales : 2001 - 2017**



Over the 17 years since Aldi entered the Australian market, the group has rolled out more than 500 stores, and now accounts for approximately 8% of total Australian sales reported by supermarkets, grocery stores plus packaged liquor stores.

However, over that same period Woolworths Limited has increased its sales by an average 6.2% annually, while Coles has similarly increased its sales at an average of 5.4% annually. The balance, comprising primarily independent supermarkets, food stores and packaged liquor stores, also saw a significant increase in total sales between 2001 and 2009, while in the post-GFC period sales for these other operators have seen some decline. There are many reasons why that has been the case, and they cannot by any means be attributed solely to the entry of Aldi.

The first step in estimating the likely market share for the proposed new Kaufland store, once the sales potential of the store has been established, is to assess the total size of the market, i.e. the total expenditure on take-home food & groceries by the defined trade area population.

Details of the level of average expenditure on fresh food and groceries by the Australian population, and by the Adelaide metropolitan area population, were presented in Section 1 previously, showing that in 2016/17 Australians on average spent \$5,386 per capita on take-home food & groceries, while Adelaide metropolitan area residents spent on average \$5,220 per capita.

Residents of the main trade area population, as detailed in Table 3.1 above, are generally more affluent than the Adelaide metropolitan average, thus their total retail expenditure per capita is higher. However, the higher incomes generally tend to be spent on more discretionary items, including packaged liquor and food catering (i.e. dining out and take-away food), whilst the level of expenditure on take-home food & groceries is in line with the Adelaide benchmark.

The levels of retail expenditure per capita for 2015/16 are shown in Table 3.2 below for the Kaufland store main trade area; the Adelaide metropolitan area; and total Australia.

**Table 3.2**  
**Forestville MTA retail expenditure per capita, 2016 (\$)**

Category	Forestville MTA	Adelaide Metro. Area	Australia
Food & Groceries	\$5,049	\$5,068	\$5,297
Packaged Liquor	\$620	\$590	\$680
Food Catering	\$1,740	\$1,528	\$1,722
Apparel	\$1,377	\$1,236	\$1,341
Household Goods	\$2,488	\$2,345	\$2,468
Leisure Retail	\$595	\$555	\$573
General Retail	\$966	\$956	\$1,017
Retail Services	<u>\$536</u>	<u>\$481</u>	<u>\$511</u>
<b>Total Retail</b>	<b>\$13,371</b>	<b>\$12,759</b>	<b>\$13,609</b>

Sources : MarketInfo; Dimasi & Co

**Retail expenditure category definitions:**

- FLG: take-home food and groceries, as well as packaged liquor.
- Food catering: expenditure at cafes, take-away food outlets and restaurants.
- Apparel: clothing, footwear, fashion accessories and jewellery.
- Household goods: giftware, electrical, computers, furniture, homewares and hardware goods.
- Leisure: sporting goods, music, DVDs, computer games, books, newspapers & magazines, stationery and photography equipment.
- General retail: pharmaceutical goods, cosmetics, toys, florists, mobile phones and pets.
- Retail services: hair & beauty, optical goods, dry cleaning, key cutting and shoe repairs.

The estimates of retail expenditure capacity for the main trade area population presented above are based on data sourced from MarketInfo, which is independently developed by Market Data Systems (MDS) and utilises a detailed micro-simulation model of household expenditure behaviour for all residents of Australia. The model takes into account information from a wide variety of sources including the regular ABS Household Expenditure Surveys, national accounts data, Census data and other information. The MarketInfo estimates for spending behaviour prepared independently by MDS are used by a majority of retail/property consultants, and are generally considered to be the most accurate available in Australia.

Table 3.3 below shows the total expenditure by the Forestville main trade area population for each of the retail categories, at 2016.

**Table 3.3**  
**Forestville MTA total retail expenditure, 2016**

Category	Expenditure per cap. (\$)	Population	Expenditure (\$ million)
Food & Groceries	5,051	83,727	422.9
Packaged Liquor	630	83,727	52.7
Food Catering	1,808	83,727	151.4
Apparel	1,429	83,727	119.6
Household Goods	2,556	83,727	214.0
Leisure Retail	621	83,727	52.0
General Retail	971	83,727	81.3
Retail Services	<u>559</u>	<u>83,727</u>	<u>46.8</u>
<b>Total Retail</b>	<b>13,625</b>	<b>83,727</b>	<b>1,140.8</b>

Sources : MarketInfo; Dimasi & Co

As a result of continuing population growth, estimated to average 1% per annum, and some continued real growth in retail expenditure per capita, estimated to average 1.2% annually, Table 3.4 below sets out the projected growth in available retail expenditure, by category, within the Forestville main trade area. The projections from 2017 are presented in constant 2017 dollar terms, i.e. inflationary growth is not included.

The key retail category of relevance for the purposes of assessing the likely impact of the new Kaufland store at Forestville is Food & Groceries (F&G). As is shown in Table 3.4, at 2018 the main trade area population is estimated to spend \$449 million on food & groceries, a figure which is projected to grow to in excess of \$480 million by 2021. For the purposes of this impact assessment, the first full year of trading of the Kaufland store at Forestville is assumed to be FY2020, and the estimated expenditure on food & groceries by the main trade area population in that year will be \$471.8 million.



**Table 3.4**  
**Forestville MTA total retail expenditure, 2016 - 2021 (\$m.; Constant 2017 \$)**

Category	2016	2017	2018	2019	2020	2021
<b>Food &amp; Groceries</b>	<b>422.9</b>	<b>437.9</b>	<b>448.9</b>	<b>460.2</b>	<b>471.8</b>	<b>483.6</b>
Packaged Liquor	52.7	55.2	56.5	58.0	59.4	60.9
Food Catering	151.4	159.1	163.1	167.2	171.4	175.7
Apparel	119.6	122.1	123.9	125.8	127.6	129.6
Household Goods	214.0	222.7	227.1	231.7	236.4	241.1
Leisure Retail	52.0	54.1	55.2	56.3	57.4	58.6
General Retail	81.3	84.6	86.3	88.0	89.8	91.6
Retail Services	<u>46.8</u>	48.7	<u>49.7</u>	<u>50.7</u>	<u>51.7</u>	<u>52.7</u>
<b>Total Retail</b>	<b>1,140.8</b>	<b>1,184.2</b>	<b>1,210.7</b>	<b>1,237.8</b>	<b>1,265.5</b>	<b>1,293.8</b>
<b>% Change</b>		<b>3.8%</b>	<b>2.2%</b>	<b>2.2%</b>	<b>2.2%</b>	<b>2.2%</b>

Sources : MarketInfo; Dimasi & Co

For the purpose of assessing the likely order of trading impacts on existing supermarkets and other retailers, Table 3.5 below sets out the estimated market shares of total available spending on take-home food & groceries and each of the other retail categories which the proposed new Kaufland store at Forestville would be expected to achieve based on anticipated store sales of \$35 million, 80% of which will be fresh food and groceries sales as detailed previously. Table 3.6 presents the same information assuming a store sales volume of \$40 million, thus the range of outcomes considered likely to eventuate is covered by the information in the two tables.

**Table 3.5**  
**Kaufland Forestville - MTA Market Shares at store sales of \$35 mill., 2020**

Category	MTA Exp. (\$m.)	Kaufland Sales (\$m.)	% of Total	Kaufland Mkt Share
Food & Groceries	471.8	21.0	60.0%	4.5%
Packaged Liquor	59.4	2.4	6.8%	4.0%
Food Catering	171.4	-	0.0%	0.0%
Apparel	127.6	0.7	1.9%	0.5%
Household Goods	236.4	1.1	3.0%	0.4%
Leisure Retail	57.4	0.7	1.9%	1.1%
General Retail	89.8	0.5	1.5%	0.6%
Retail Services	<u>51.7</u>	-	<u>0.0%</u>	<u>0.0%</u>
<b>Total MTA</b>	<b>1,265.5</b>	<b>26.3</b>	<b>75.0%</b>	<b>2.1%</b>
Beyond MTA	n.a.	8.8	<b>25.0%</b>	n.a.
<b>Total</b>		<b>35.0</b>	<b>100%</b>	

**Table 3.6**  
**Kaufland Forestville - MTA Market Shares at store sales of \$40 mill., 2020**

Category	MTA Exp. (\$m.)	Kaufland Sales (\$m.)	% of Total	Kaufland Mkt Share
Food & Groceries	471.8	24.0	60.0%	5.1%
Packaged Liquor	59.4	2.7	6.8%	4.5%
Food Catering	171.4	-	0.0%	0.0%
Apparel	127.6	0.8	1.9%	0.6%
Household Goods	236.4	1.2	3.0%	0.5%
Leisure Retail	57.4	0.8	1.9%	1.3%
General Retail	89.8	0.6	1.5%	0.7%
Retail Services	<u>51.7</u>	-	<u>0.0%</u>	<u>0.0%</u>
<b>Total MTA</b>	<b>1,265.5</b>	<b>30.0</b>	<b>75.0%</b>	<b>2.4%</b>
Beyond MTA	n.a.	10.0	<b>25.0%</b>	n.a.
<b>Total</b>		<b>40.0</b>	<b>100%</b>	

The key steps in deriving the estimates presented in Tables 3.5 and 3.6 above are as follows:

- 75% of store sales are expected to be drawn from the defined main trade area, with 25% of store sales attracted from beyond the main trade area, reflecting the regional accessibility of the location on Anzac Highway as well as the regional attraction of the new to Adelaide, large footprint Kaufland offer.
- 20% of store sales are expected to be in non-food categories, primarily in packaged liquor (an estimated 9%) and in the various other non-food categories previously noted, including household goods, apparel, leisure retail and general retail.

Given all of the above, the Kaufland store is estimated to achieve a market share of total retail expenditure across the main trade area which it is expected to serve ranging from 2.1% - 2.4%. In food & groceries, the store is expected to achieve a market share of 4.5% - 5.1%, while in packaged liquor its estimated market share is in the range 4% - 4.5%. In all other retail categories the store's market share will be minimal.

A number of factors need to be taken into account in determining the likely trading impacts and subsequent consequences arising from the arrival of a new entrant, not least the possible action which existing competitors might take that can mitigate the extent of the impact. For example, expansions and improvements might be undertaken at other stores or centres throughout the region, and those actions can in turn change the nature of the impact of the new facilities.

Given the above, it is not realistic to expect that one can project with certainty the precise impact of a new entrant on each and every existing individual operator which might compete with the new entrant. It is strongly arguable in any case that such detailed, prescriptive assessment is not required, since it should be the question of net community benefit that sits at the forefront of economic impact considerations, rather than questions of likely commercial outcomes for individual businesses.

Based on all of the analysis presented in this report, what can reasonably be stated is that, on average, existing supermarket operators within the main trade area that is expected to be served by a new Kaufland store at Forestville would expect to see a modest trading impact (of around 4% - 5%) following the introduction of the Kaufland

store. This would be a one-off impact – after which all businesses will compete equally for future growth – and would be experienced within the context of a retail sector which in South Australia has reported average annual growth of 4.8% over the past decade.

Official ABS statistics on the retail turnover generated by the Supermarkets & Grocery Stores category are not available for Adelaide (the ABS only reports at state level on this factor) however, population growth in Adelaide is stronger than is the case across the balance of the state, thus it can reasonably be imputed that average annual growth for the Supermarkets & Grocery Stores category in Adelaide has been a little higher than the total state average over the past decade, and thus a figure of 5% per annum appears to be a reasonable estimate.

In broad terms, therefore, across the main trade area which it will serve, introduction of the Kaufland Forestville store is likely to result in an average impact which would see little or no growth for one year for existing operators on average.

The extent to which individual operators will experience impacts that are more or less than this average will then depend on the myriad factors which determine the year to year trading performance of any business, most of which are within the control of that business.

In relation to the new Kaufland store at Forestville, it is not unreasonable to conclude that:

- the stores situated closer to the new Kaufland store are generally likely to be impacted to a greater degree than those which are situated further away; and
- the stores which most closely resemble the offer of the new entrant are more likely to be impacted to a greater extent than other stores.

That being the case, and having regard to the information presented in Section 3.3, it can reasonably be concluded that the stores likely to experience an impact greater than the average are:

- the Coles stores at Kurralt Park, Unley and Plympton;



- the Woolworths stores at Unley and Cumberland Park.

On the other hand, the stores likely to experience impacts lower than the average are considered to be:

- the Woolworths store at Hilton;
- the IGA stores at Novar Gardens, South Plympton, Malvern, Wayville and Torrensville.

Importantly, this analysis also demonstrates that there is no reason to believe that any existing operator will be impacted to an extent which would imperil its continuing operation, assuming reasonably competent management.

In addition, while some trading impacts can reasonably be expected for the existing network of supermarkets and grocery stores within the main trade area to be served by the new Kaufland Forestville store, development of the store will clearly deliver a range of consumer and economic benefits, which will serve to more than offset any negative consequences from those trading impacts.

Section 1 of this report set out the importance of the Supermarket & Grocery Stores sector for Adelaide residents, while Section 2 provided details of the offer for consumers which Kaufland will bring to Adelaide.

Having regard to that information, it is apparent that, as a minimum, Kaufland's entry to the Adelaide food & groceries market will result in the following benefits for consumers:

1. Substantially improved shopping choice and convenience

The new, large footprint Kaufland store will bring a new dimension to food and grocery shopping within the inner south-western suburbs of Adelaide. The range of products and brands available for consumers will be greatly expanded, while the quality of the shopping experience available for those who choose to use Kaufland Forestville will be a significant enhancement on what is currently available to them.

## 2. Downward pressure on grocery prices

Clearly, the addition of another operator, which will need to fight to achieve a market share of food & grocery sales, can reasonably be expected to continue to drive down food & grocery prices, again for the benefit of consumers. The Aldi experience in Australia has shown that the introduction of Aldi into new markets provided those consumers with a much cheaper grocery shopping alternative than was previously available to them. Kaufland will add further to the range of alternatives, with an offer that is much more extensive than that available in Aldi stores.

## 3. An additional avenue for retail sales for local suppliers

Kaufland has a stated regional sourcing policy, as detailed in Section 2 of this report. This policy will be beneficial for local South Australian suppliers.

In addition to the very substantial consumer and supplier benefits which will result from the introduction of the Kaufland store, there are significant broader economic benefits that will be generated for the Adelaide economy and for both the South Australian and Australian economies more broadly, initially as a direct result of the first Kaufland store at Forestville, but then increasingly as a result of the expansion of Kaufland's business throughout the rest of Adelaide and the balance of Australia.

The new Kaufland Forestville store will create a substantial number of additional jobs, initially as a result of its construction and the consequent multiplier effects in related supplier industries, and then as a result of its ongoing operation. Kaufland will employ between 80 – 100 persons directly in each new store, and Kaufland's employment policy is focused on full-time and permanent part-time jobs, rather than casual jobs.

The multiplier induced additional employment that will result from the 80 – 100 new jobs in each Kaufland store will then add a significant number of additional jobs in supplier and related industries..

Substantial further employment will be created by construction of the store. The estimated capital cost for the construction of the Kaufland Forestville store is in the order of \$30 million, which will therefore generate a large number of direct construction jobs. Additional jobs will then be created as a result of multiplier induced employment through supplier industries to the construction industry. Therefore, the total level of job

creation that will result from the various economic stimuli will be many times the number of jobs created directly within the Kaufland store.

### **3.6 Net community benefit assessment**

Having regard to the very significant and substantial consumer and economic benefits that will result from the development of the new Kaufland store at Forestville, and also having regard for the likelihood of some trading impacts on the existing network of supermarkets and grocery stores throughout the inner south-western suburbs of Adelaide, it can reasonably be concluded that there will be a clear net community benefit that will result from the project's development. The consumer benefits plus the significant broader economic benefits, in particular construction investment and employment creation, that will result from the project are indisputable, and will be very substantial.

The trading impacts that are likely to be experienced by existing supermarket and grocery store operators will not be of such a magnitude as to imperil the continued operation of any existing store, and are highly likely to be experienced primarily by the two largest supermarket and grocery store chains in Australia – Woolworths and Coles. Both of these groups are very large, highly successful and very well placed to counter any competitive intensity that will result from the entry of Kaufland into the Australian market.

In assessing the likely net community benefit that will result from the development of a new Kaufland Forestville store, weighting should also be given to longer term considerations. As detailed in this report, development of the store will generate a large number of new jobs, both directly and as a result of consequent multiplier induced effects, in the South Australian economy. Clearly, Kaufland does not intend to open just one store in Adelaide, with three sites already identified. In due course, Kaufland is likely to open numerous large footprint supermarkets throughout metropolitan Adelaide.

On this basis, the eventual level of new job creation from Kaufland's entry into South Australia will be likely to be in the thousands.

Further, the eventual delivery of such a number of new stores would also, most likely, necessitate the construction of a distribution facility within South Australia, which would itself generate significant additional employment, over and above the figures attributable directly to construction of the retail stores.

These longer-term considerations add greater weight to the conclusion that there will be a very significant net community benefit to Adelaide and to South Australia more broadly resulting from the development of the Kaufland Forestville store.



J154055

27 February 2018

Sam Russell-McLeod  
Kaufland Australia  
Level 8, 80 Dorcas Street  
South Melbourne, VIC 3205

Dear Sam,

**Re: 10 Anzac Highway, Forestville, SA**

This letter has been prepared to provide an overview of the potential environmental issues associated with the proposed redevelopment of the western portion of the above site for commercial purposes and specifically relating to the potential risk to future site occupants.

The redevelopment of the western portion of the site will include: -

- Demolition of existing site infrastructure; (including the removal of any underground infrastructure, where and if identified).
- Establishment of a paved carpark across the entire site. This carpark will be at ground level and will not contain any basement areas.
- Construction of a supermarket above the carpark.

Previous works conducted at the site have included a Site History (Mott MacDonald, 2015) and Due Diligence Assessments, with a focussing on preliminary vapour investigations (EP Risk, March and June 2017). The preliminary screening conducted by EP Risk in 2017 did not identify significant concentrations of volatile compounds in soil vapour underlying the site.

Greencap was engaged by Kaufland to conduct a soil investigation at the site which comprised the drilling of 30 soil bores in an approximate grid pattern across the site. The purpose of the investigation was to assess the contamination status of soils at the site, and also provide information relating to offsite soil disposal requirements.

The soil investigation identified elevated lead concentrations exceeding the adopted health investigation level for commercial/industrial land use in portion of the proposed commercial development site, in the upper metre of the soil profile. No other contaminants were identified that exceeded guidelines for commercial/industrial land use.

In terms of the proposed redevelopment, the entire ground level of the site will be covered with car parking and existing soils will be capped by either paved carpark, or a minimum of 0.5m of imported clean material that will be placed in garden beds as a growing medium. This will minimise the potential for exposure to existing site soils to future occupants (including retail staff and customers)

Given the above, the only complete exposure pathway associated with soil contamination will be to construction workers during the redevelopment works which will be managed through a Construction Environment Management Plan (CEMP). This will be prepared for the construction phase of the redevelopment and any additional works relating to the identified lead impacts will inform this CEMP. The document will be designed to ensure all works associated with the site development are managed appropriately to avoid, minimise and effectively mitigate potential impacts to human health and the environment. As long as soil to be excavated from the site is managed in accordance with relevant SA EPA

guidelines, and construction environmental management measures (to be further informed through additional investigations) are implemented during demolition and construction, there will not be any access to contaminated soils as part of the development.

It is noted chemicals used on the site during former manufacturing activities (pre 1970's) could potentially have caused volatile contamination. To the best of Greencap's knowledge, no groundwater investigations or direct soil vapour measurements have been undertaken at the site to date, however, in terms of the potential risk to future site occupants in terms of the proposed development, there are unlikely to be complete pathways that result in an unacceptable risk to human health to on-site occupants (of the retail development) on the basis of the following: -

- Groundwater is located at depth (available information suggests groundwater underlying the site is likely to be at depths greater than 10 metres below ground level). Proposed construction works and any future works at the site would not extend to these depths. Furthermore, groundwater will not be used for any purpose (i.e. irrigation, etc) following development.
- Previous reports (mentioned above) indicated there was considered to be a low likelihood of significant soil vapour impacts being present at the site in terms of the proposed future commercial redevelopment. Furthermore the proposed development, which incorporates a carpark at grade under the majority of the proposed commercial building, with open sides, reduces the likelihood of any accumulation of vapours that may pose any risk to human health through inhalation.

There is generally considered to be a low risk to the health of future site occupants (of the retail development) from exposure to any impacted soils that might remain on site, or from inhalation from vapours that may potentially be present under the site.

Please feel free to contact the undersigned if you have any queries.

Yours sincerely,



**Andrew Durand**  
**Regional Practice Manager - Environment**



# Kaufland Australia's Sustainability Commitment

**Kaufland Australia | 10 Anzac Highway, Forestville SA**

Kaufland Australia stores will set a new benchmark for energy efficient and environmentally conscious retail development. By utilizing sustainable construction, intelligent waste management and renewable energy systems in order to minimize our environmental impact, we have accounted for every last detail – and we are proud to be implementing them all.

## **Solar Photovoltaics | Power supply**

Wherever the environment permits, our stores will be equipped with a solar photovoltaic plant spanning up to 3,000m<sup>2</sup> across our roof. This substantial investment in renewable energy combined with future proofing our services spaces to allow for commercial batteries to be utilized in-lieu of diesel generators for back-up power supply, means that our stores will be at the forefront of environmentally sustainable design.

## **LED Lighting | Lower electricity consumption**

Lights with efficient LED technology will be used in all of Kaufland Australia's stores. This enables pleasant and optimal illumination of our fresh and yummy food whilst reducing our electricity consumption.

## **E-charging Stations | Applicable to electric cars and e-bikes**

During store opening hours, Kaufland customers can charge their electric car with green electricity quickly and free of charge. Our 50 kW quick charging stations, equipped with plugs for all common vehicle types make this possible. We also plan to make this service available for e-bikes.

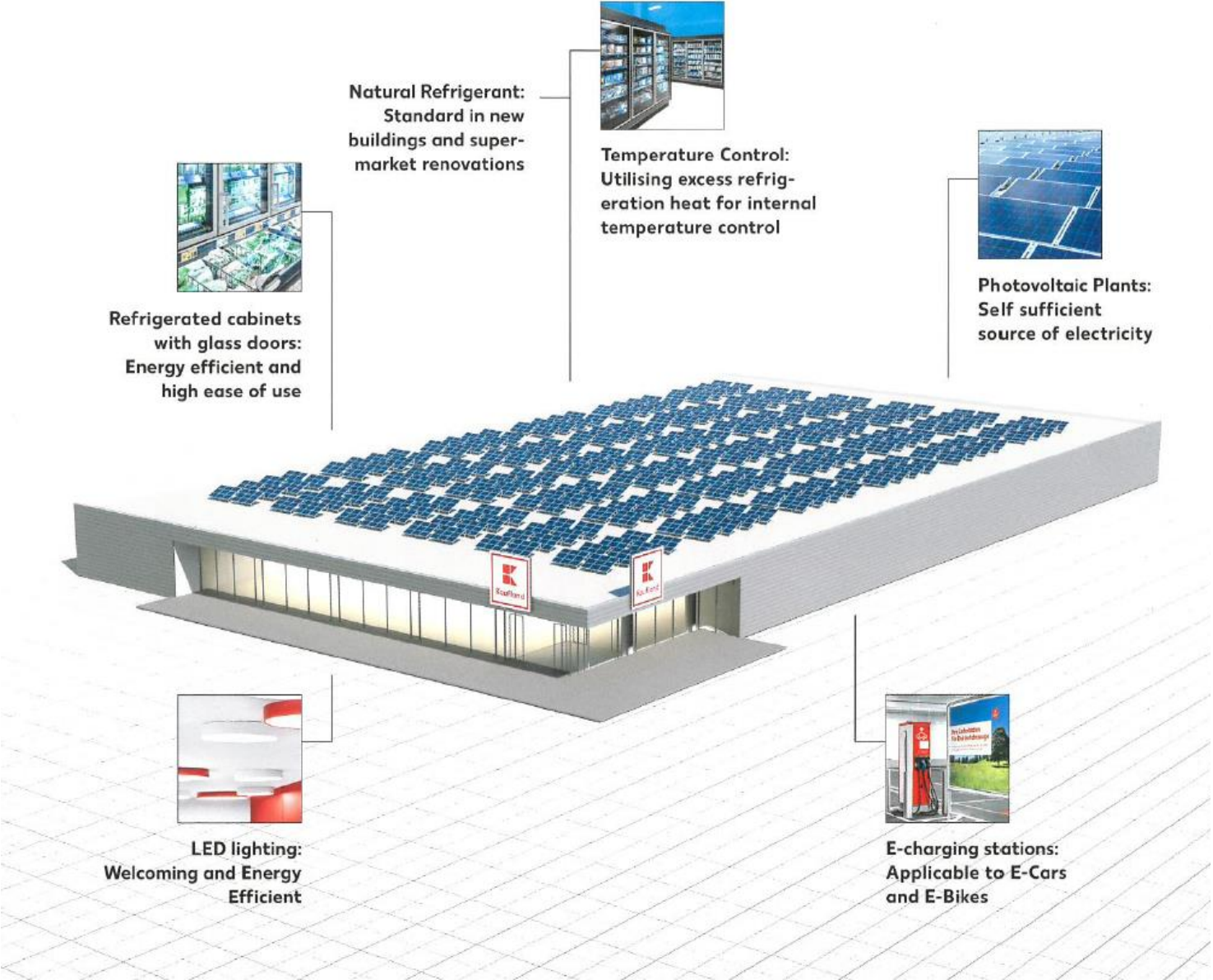
## **Refrigeration | Combining refrigeration and temperature control**

Kaufland Australia stores will feature the latest in sustainable energy re-use to keep our carbon footprint to a minimum. Excess heat generated by the operation of our refrigeration systems will be used to assist in optimizing the efficiency of our climate control – minimizing energy usage for internal heating by collecting the used hot water from the refrigeration plant and reticulating it back throughout the store for other purposes.



### Efficient Refrigeration Units | The result – optimal store climate

The use of improved glass doors keeps the cold where it belongs. This will save about 10 percent of the refrigeration plant's energy requirements and creates a pleasant room and shopping climate for our customers and employees.





4 April 2019

The Secretary  
State Commission Assessment Panel  
GPO Box 1815  
ADELAIDE SA 5001

**Attention:** *Lauren Talbot* - [Lauren.Talbot@sa.gov.au](mailto:Lauren.Talbot@sa.gov.au) and [scapadmin@sa.gov.au](mailto:scapadmin@sa.gov.au)  
Development Assessment, Planning and Development Directorate  
Department of Planning, Transport and Infrastructure

Dear Sir/Madam

**SCAP REFERRAL – AMENDMENT – DA 090/E004/18  
COUNCIL FURTHER COMMENTS  
RETAIL DEVELOPMENT - 10 ANZAC HIGHWAY EVERARD PARK**

Thank you for referral of the amended application, received on the 14 March 2019 and further full information supplied on 19 March 2019, in relation to the above-mentioned application and response to issues raised by the State Commission Assessment Panel (SCPA) in its deferral in August 2018.

The invitation for further comment is appreciated. The 4 April 2019 (3 weeks) is a short turn-a-round but it is trusted the comments able to be provided will assist the improvement of the proposal and planning assessment process by SCAP.

These further comments supplement the original and post consultation revision comments and detailed submissions and focus on addressing the amended elements and highlighting the remaining areas of concern.

The applicant, and design team, are commended for being responsive with the amended proposal, which addresses many of the areas of concern previously raised. It is generally a beneficial refinement of the proposal and detailed design.

However, a number of areas of concern remain which require review by SCAP:

- Development solely comprises a large-scale retail use rather than an integrated primarily residential development with limited local commercial/retail uses in accord with the Urban Living Policy Area of the Urban Corridor Zone;
- Large-scale potential primarily residential development on the rear portion of the site (37%) is noted, and while not changing the contrary nature of the primary portion of the site (63%), it is recognised as a positive off-set in the

context of the overall Transit Living Policy Area desired character.

Further assurance is afforded through the applicant's agreement to a Land Management Agreement for the rear portion to be 'predominately' for residential purposes and 'ancillary' commercial or retail components. It is conceded this will help address the overall land use balance and the nature of the outcome for what is the largest and most prominent site in the remainder of the Policy Area;

- The series of speciality tenancies at ground level along the western (Anzac Highway) frontage and relocation of café and integrated playground and outdoor dining to the south west corner adjacent to Leader Street is positive. The separation from the main first floor level entry and escalators, at the eastern side of building, and separation of potential concentration of pedestrian activity may impact upon viability of small tenancies. It is trusted the nature of these tenancies and ability to create their own destination attraction will support their long-term success;
- A large scale simple low-rise 'warehouse' type building results in a sub-optimal building scale not capitalising on 6 storey zoning potential and an integrated mixed use and built form contrary to the Policy Area desired character. The forward re-positioning, increased side road setbacks, increased landscaping and more interesting elevations, eg Leader Street glazing and feature timber battens, are positive. It is noted there is a small increase in building height from 11.9 to 13.1 metres (14.6 in north west corner), but interestingly an indicated reduced extent of overshadowing rather than increase, not that there is an excess;
- In addition to traffic issues raised below, the existing and reinforced movement of pedestrians across Leader Street and particularly Anzac Highway from adjacent Ashford Hospital, to new major development, café and other tenancies, needs to be recognised and addressed. Pedestrian crossing with appropriate refuge in centre island, similar to others on Anzac Highway and Greenhill Road, convenient to the main entry point to the site and shops should be seriously encouraged to DPTI. Further, an identified and protected crossing point should be considered for Leader Street adjacent to the main supermarket entry;



- A comprehensive traffic and parking management assessment, in so far as supplied information allowed, has been undertaken and is attached.

Generally the design and arrangements are appropriate, albeit there are a range of remaining matters warranting attention:

- in-principle there is support for the modified signalised intersection of Anzac Highway and dual northern right turn lanes into Leader Street, acknowledging this is a balanced network solution to cater for increased traffic in but also out of the local area while maintaining flow on Anzac Highway;
- the development and associated infrastructure alterations are likely to pose notable traffic impacts on local road network. A review of traffic impacts will be undertaken 6 months following the commencement of operation of the main tenant of the site with a view towards assessing any necessary adjustments and improvements that should be made to the design and arrangements for traffic;
- turn movements at the southern access point on Leader Street currently meet the warrant for traffic signals.  
Additionally, the removal of on-street car parking has not been quantified nor the undesirable potential impact upon recently installed infrastructure on the southern side of Leader Street from creating space for right turns. Maintenance of cycling path is positive.  
A condition is requested that detailed design of the accessways to Leader Street, without impacting infrastructure on southern side and minimising on-street parking loss, be undertaken to the satisfaction of Council with a view for signals not to be required;
- a central raised island should be installed in the vehicle access point off Anzac Highway to ensure entry is facilitated and not compromised by exiting vehicles;
- based on expected future additional pedestrian demand generated by the proposal, pedestrian crossing infrastructure across Anzac Highway should be further seriously considered by the relevant authorities;
- public footpaths be reinstated and incorporated into public realm with a minimum width of 1.8-2.0 metres (minimum pinch points of 1.5);

#### *Conditions*

*Following 6 months of operation of the subject development a Local Area Parking and Traffic Management review be supported to assess and implement any adjustments necessary to address identified traffic issues;*

*The detailed design of the accessways to Leader Street and provision for right turns in; while avoiding impacting infrastructure on the southern side, minimising on-street parking loss and maintaining designated bicycle path; be undertaken to the satisfaction of Council and with a view for signals not to be required;*

*A central raised island be installed in the vehicle access point off Anzac Highway to ensure entry is facilitated and not compromised by exiting vehicles;*

*Public footpaths be reinstated and incorporated into public realm with a minimum width of 1.8-2.0 metres (minimum pinch points of 1.5) and be resolved with, and approved by, the City of Unley at the expense of the applicant;*

- The on-site vehicle parking layout is generally effective, efficient, appropriate for safe pedestrian movement and provision generous at over 8 spaces per 100m<sup>2</sup>. Policy criteria for retail / mixed-use development in the Urban Corridor Zone is between 3 to 5 spaces per 100m<sup>2</sup>.  
A balance is necessary to provide enough but not too much to attract further vehicle movement.  
A higher rate for such a stand-alone regional retail complex which is necessarily primarily a vehicle dependent destination is appreciated, including potential for accommodating future floor space expansion;
- Trading hours from 12:00am (midnight) to 9:00pm Monday to Friday, to 5:00pm Saturday and from 11:00 am to 5:00 pm Sunday have the potential to unreasonably impact overnight adjacent existing (Leader Street in particular) and potential (to east and Maple Ave) residential properties amenity and the broader neighbourhood. The scope of trading hours and/or the nature of operation at overnight hours should be mitigated to avoid undue loss of existing and desired residential use and amenity beyond and within the Policy area as a consequence of the development.  
Standard limits encompass 7:00am to 9:00pm Monday to Saturday and 10:00am to 5:00pm Sunday by planning condition;

*Condition*

*The commercial activities trading hours be limited to 7:00am to 9:00pm Monday to Saturday and 10:00am to 5:00pm Sunday;*

- Servicing hours and potential greater noise disruptions, noting there is an undefined proposal for “night fill deliveries”, should be separately limited and noise controls and cancelling treatments incorporated to mitigate unreasonable impacts upon adjacent existing and particularly planned (to east and Maple Ave) residential properties amenity and the broader neighbourhood.  
Standard limits encompass 7:00am to 7:00pm Monday to Saturday and 9:00 to 5:00pm Sunday by planning condition;

*Condition*

*The delivery and servicing hours be limited to 7:00am to 7:00pm Monday to Saturday and 9:00 to 5:00pm Sunday, with all noise control measures and large service vehicle noise minimisation be incorporated to mitigate emissions and noise impacts beyond the site;*

- The consolidated waste and delivery servicing area at the western end of Maple Avenue and limited access openings, movements, screening gates, fences and landscaping is positive.  
The deletion and exclusion of heavy and emergency vehicle access to Leader Street is positive.  
The tenancies waste management and delivery arrangements as part of vehicle entry off Anzac Highway, use of smaller trucks and loading in normal parking spaces area is effective;
- Main waste and delivery area on Maple Avenue have limited as far as possible the extent of crossovers relative to size of trucks and provided for extensive borders of screening landscaping and fences.  
It is unclear if there are matching fence sliding gates to Maple Avenue to close-off and secure the area from visibility and access when area is not being



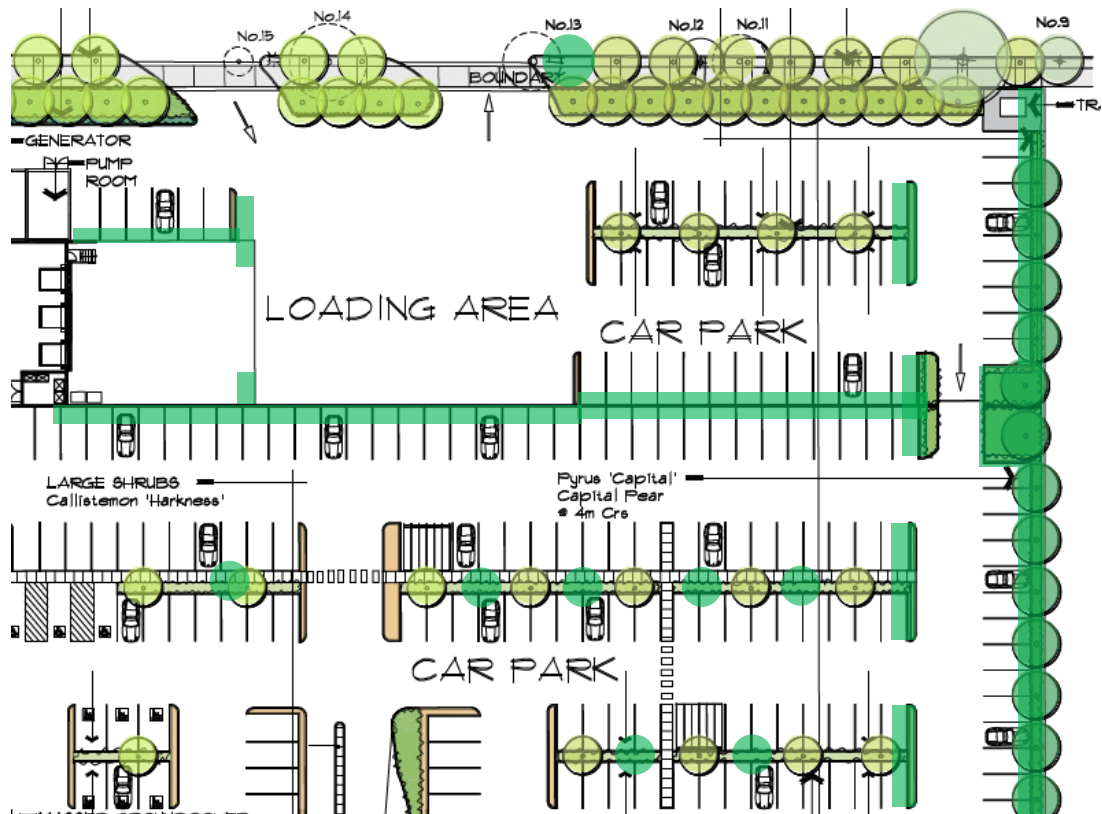
accessed and after hours.

Further, fence returns on loading dock area, increased landscaping could aid screening and containment of noise. See below;

*Condition*

*The rear service and delivery area off Maple Avenue accommodate vehicles up to a maximum length of 16 metres and access openings be secured and closed-off from view by sliding gates (noiseless system) matching the boundary fencing adjacent to Maple Avenue;*

- Appropriate building setbacks, particularly more generous to Maple Avenue, and quantity and quality increase and refinement of landscaping, including retention and supplementary street trees, more trees in and around carparks, perimeter areas, under building screening to car parking and use of locally successful species is all positive. The design, siting and landscaping generally enhances the quality of the overall development, future streetscapes and amenity for anticipated future adjacent mixed use and residential development in accord with the Desired Character of the Policy Area;
- However, further trees (at least 1 per 6 car spaces rather than 1 per 8 spaces), and additional landscaped areas and swale strips, should be included in front to Anzac Highway to enhance open exposed carpark area and in open rear carpark area car space end islands where possible and in particular north side of Loading Area internal screen fence, and adjacent to car spaces either side of screen fence between staff and public carparks an to replace street trees. See below;



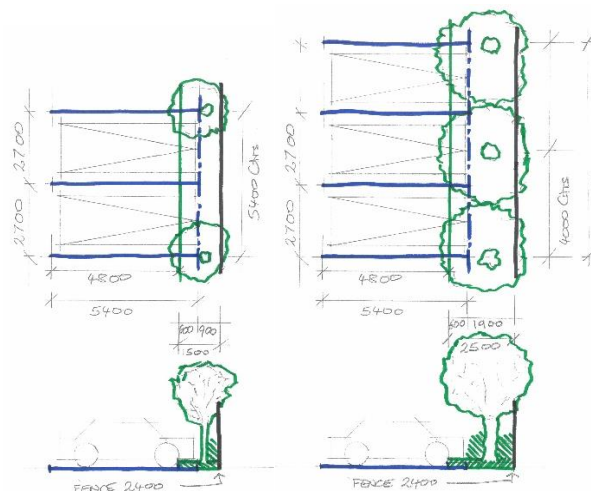
**Condition**

The landscaping to the rear portion of the site be improved by:

- removed street trees #13 be replaced with species consistent with those others proposed;
  - additional trees at ratio of 1 per 6 car spaces be provided in open carpark areas;
  - carpark row island ends be widened to accommodate further trees and landscaping;
  - landscaped areas, swales and trees be incorporated along northern edge of public carpark and southern edge of staff carpark;
  - landscaped areas and trees be incorporated along northern side of fence screen to loading area and to eastern side of loading area north and south wings to further enclose and screen area beyond space for 3 trucks access and parking needs;
- The rear eastern boundary landscaping annotation indicates trees (*Pyrus 'Capital' Pear*) at 4 metre centres but are shown at junction per 2 car spaces which would be 5.4 metres centres. Further, the width of the planting strip, including under car wheel stop area, is only 1.5 metres wide, and only 0.8 metres wide clear of nominal vehicle in parking position. This landscape strip should be increased in width to at least 2.5 metres (and 1.8 metres clear of vehicles) to afford space for trees at 4 metre centres and substantial under planting to create an attractive and effective continuous buffer and soft screen to the property to the east.

No indication is given on site/landscaping plans of fencing along the rear eastern boundary, but the Acoustic Report nominates a 2.4 metre high acoustic barrier.

These refinements should be reinforced by condition and refined detailing included on final plans.



**Condition**

The rear eastern boundary be fenced with a compatible appropriate quality finish continuous 2.4 metre high acoustic barrier, and the associated landscape strip be increased in length to the road boundaries (including past transformer

*location) and in width to at least 2.5 metres (and minimum 1.8 metres clear of vehicles) to accommodate the proposed row of trees at 4 metre centres and appropriate substantial under planting to form an attractive and effective acoustic and continuous landscape buffer and soft screen to the property to the east;*

- Retention of key street trees on Anzac Highway and Leader Street, and supplementary planting, is positive.  
Generally, the approach to street trees is reasonable in the context of the overall scope of street trees and supplementary planting. See above.  
The removal of the mature tree (#32) to Leader Street to accommodate the apparent main pedestrian access point is queried. The access point could potentially be moved and/or split to include the western side of column support and the mature tree retained.  
The removed Maple Avenue street tree #13 should be replaced;

*Conditions*

*The mature tree (#32) to Leader Street be retained and pedestrian access point moved and/or split to the western side of column support to assist with this;*

*The removed Maple Avenue street tree (#13) be replaced;*

*Public realm configuration, damage, alterations and improvements in relation to water-tables, footpaths, verges and street trees (removals and replacements) be resolved with, and approved by, the City of Unley at the expense of the applicant;*

- On-going maintenance will be critical to maintain screening and should be reinforced by suitable planning condition to enforce suitable species, design detail, implementation and ongoing maintenance, for endorsement by SCAP and City of Unley before Development Approval and commencement;

*Condition*

*Full landscaping details and species, including additional trees at 1 per 6 vehicle spaces in open carparks and along loading and staff area screen fencing, be incorporated prior to occupation.*

*Ongoing maintenance of all landscaping be undertaken to ensure all plants remain in sound and thriving condition, and be promptly replaced if and when die;*

- Outdoor advertising signs number and area, while relative to context of building scale, exceeds normal policy and in particular the sensitivity to adjacent residential properties in Leader Street and general nature of the Transit Living Policy Area Desired Character.  
Building elevation signs number, location and size could be reduced, and in particular internally illuminated signs.  
The pylon sign adjacent to Leader Street entry should be reduced to a maximum of 6.0 metres high in accord with normal policy.  
Replacement of main pylon sign (double sided to triple sided 6x6 metres panels albeit matching existing height at 20.6 metres) and relocation within the front western carpark closer to Anzac Highway is excessive. As a new and relocated sign its scale and height should be reduced to relate to the scale of building, the nature of the area and desired character of the Policy Area;

*Condition*

*Outdoor advertising signs be reduced in number and scale, including internally illuminated signs on building elevations, the pylon adjacent to Leader Street vehicle entry to 6.0 metres high and the pylon sign in the front carpark adjacent to Anzac Highway from 20.6 to 12-15 metres in height and total area to better relate to the building scale and Transit Living Policy Area Desired Character;*

- Flood and stormwater management details as submitted are noted and generally acceptable. Final details be addressed by condition and confirmed prior to Development Approval.

The undercover carpark surface should be carefully graded (as part of site works and drainage plans) to ensure that any surface water can flow away; All stormwater connections from site to Council's drainage infrastructure in the road reserve should be Reinforced Concrete Pipe (PVC connections not acceptable) into Council's stormwater drainage network;

*Condition*

*The final floor, site and grading (for appropriate water flow) levels and appropriate stormwater management (final specifications and maintenance regimes of on-site detention depressions (carparks) and tanks, retention tanks, water reuse, bio-retention/swales and limitation of discharge outflow (to be below equivalent of 80% site impervious area) and use of only Reinforced Concrete Pipe to Council's stormwater infrastructure be confirmed and endorsed before final Development Approval is granted;*

- A comprehensive Construction Management Plan is required prior to Development Approval and commencement of works on-site to avoid undue external impacts during construction;

*Condition:*

*Construction Management Plan be developed and agreed with the City of Unley and SCPA prior to Development Approval being issued to mitigate undue impacts upon the locality; and include:*

- *Staging to contain activity to the site;*
- *Traffic requirements including construction access/egress and heavy vehicle routes;*
- *Tradesperson vehicle parking;*
- *Work in the public realm;*
- *Hoardings;*
- *Operating hours, noise, dust and emissions control.*

**Conclusion**

The development proposal is of great interest to Unley residents, particularly those in close proximity to the site.

The Council is not the assessing authority, and only a referral agency able to make comments. It is therefore appropriate that Council concentrate on the specific



areas of direct control while raising its concerns regarding the most significant divergences from the planning policy parameters.

It is trusted this information, and prior comprehensive analysis, will be duly considered by the Planning Assessment Officers, Department of Planning Transport and Infrastructure, and the State Commission Assessment Panel in their deliberations.

***ENQUIRIES***

If there are any queries or need for further explanation or information please contact David Brown, Principal Planner.

Yours sincerely



**Peter Tsokas**  
**CHIEF EXECUTIVE OFFICER**

March 29, 2019

Mr David Brown  
Principal Policy Planner - City of Unley  
PO Box 1  
**UNLEY SA 5061**

**RE: Updated Review of Traffic and Parking Assessment for the Proposed Kaufland Store at 10 Anzac Highway Forestville**

Dear David

In light of our previous review, we have subsequently reviewed the following documents and plans relating to the Kaufland Store development proposed at 10 Anzac Highway, Forestville:

- Traffic and Parking Assessment, WGA, Rev H1 – 13 March 2019
- Pedestrian Movement Plan, WGA, Rev E – 20 March 2019
- Drawings by Studio 117 TP-00 to TP-15 – 18 March 2019

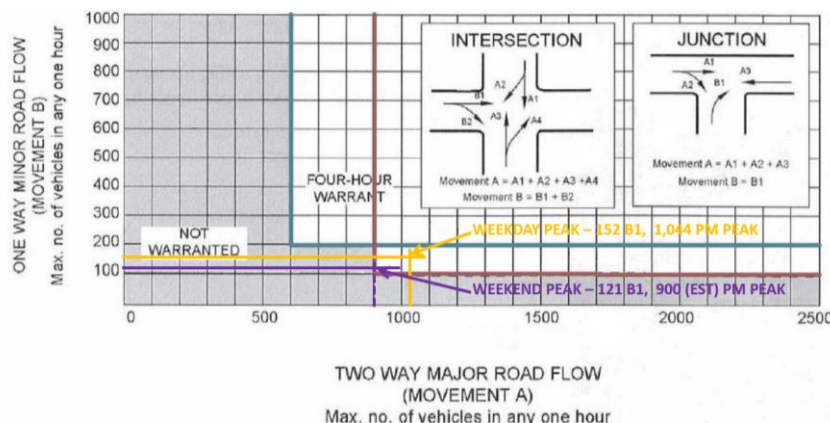
In our detailed assessment of these, we have summarised key traffic and transport related issues herein for consideration by Council. Our original review for comparison can be seen in Appendix A.

**Key Issues Summary**

The following dot points list issues that require further information or design from a transport and movement perspective.

- **Major Concern** - The proposed accessway onto Leader Street will likely warrant a signalised intersection. Further consideration should be given to infrastructure provision for an appropriate traffic control device to facilitate safe and efficient access with minimal delay along Leader Street.

This is based on the trip generation estimated in the WGA Report, the warrant stems from the peak hour traffic volumes plotted on the below graph. While peak volumes on weekends are not known, based on a weekday PM volume the warrant is triggered and as such traffic signals may be appropriate. While this is only guidance and should be considered with regard to other factors, it indicates that certain movements (the right turn out movement in particular) may be difficult to undertake.



- A false discount is applied to the number of trips utilising the accessways. This should be revised and each accessway tested for appropriate control or infrastructure provision with a view to providing a safe and efficient interface.
- The impact to on-street car parking is not quantified nor discussed.
- Crash frequency and locations on the surrounding streets is not discussed and road safety is not addressed.

These are detailed in Appendix B and include:

- Table 1: Review of WGA Traffic & Parking Report, Rev
- Table 2: Review of Pedestrian Movement Report, Rev
- Table 3: General comments in review of plans
- Table 4: Comments in review of Development Plan

Additionally, we have used the 'Technical Completeness Checklist' from AUSTRROADS, Guide to Traffic Management Part 12: Traffic Impacts of Development as a cross reference for completeness, which is provided in Appendix C for information.

### **Recommended Comments**

In consideration of these key issues and other points raised through the preliminary lodgement process, we recommend that the following comments could be provided for consideration by any approving body:

1. Council provides in-principle support for modified signalised intersection of Anzac Highway and Leader Street acknowledging this is a balanced network solution to cater for increased traffic.
2. It is noted that the development and associated infrastructure alterations is likely to have local traffic impacts. A review of traffic impacts will be undertaken 6 months following the opening of the primary tenant of the site.
3. It is noted that the turn movements at the southern access point warrant traffic signals. Additionally, the removal of on-street car parking has not been quantified. As such, Council request a condition of approval to be that detailed design of the accessways to Leader Street to be undertaken to the satisfaction of Council with a view for signals not to be required.
4. Based on future additional pedestrian demand generated by the proposal, pedestrian crossing infrastructure across Anzac Highway should be further considered by the relevant authorities.

I trust this provides a comprehensive review of the proposal and will assist Council in submitting comments in response to the proposal.

Yours sincerely,



Erik Stopp  
Senior Transport Engineer  
**infraPlan**

## Appendix A – Original Letter of Review

May 22, 2018

Mr David Brown  
Principal Policy Planner - City of Unley  
PO Box 1  
**UNLEY SA 5061**

### **RE: REVIEW OF TRAFFIC AND PARKING ASSESSMENT for the PROPOSED KAUFLAND STORE AT 10 ANZAC HIGHWAY FORESTVILLE**

Dear David

We have reviewed the following documents and plans relating to the Kaufland Store development proposed at 10 Anzac Highway, Forestville:

- Traffic and Parking Assessment, WGA, Rev E - 18 April 2018
- Pedestrian Movement Plan, WGA, Rev B – 3 May 2018
- Preliminary drawings by Architecture HQ (Site Plan P7, First Floor Plan P7, Roof Plan P4 and Sections & Elevations P4)

In our detailed assessment of these, we have summarised key traffic and transport related issues for consideration by Council.

#### **Key Issues Summary**

The following dot points list the issues that require further information or design to enable support of the development. These issues are in the order of priority with major items of concerns bolded.

- **Major Concern** - The proposed accessway onto Leader Street will warrant a signalised intersection. Further consideration should be given to infrastructure provision for an appropriate traffic control device to facilitate safe and efficient access with minimal delay along Leader Street.
- **Major Concern** - The main internal circulation driveway does not comply with AS2890.1 to reduce as far as practicable the number of conflict points. This is due to the proposed straight alignment between Maple Avenue and Leader Street, and the formation of three 4-way intersections. A review of the accessway is subsequently recommended.
- A false discount is applied to the number of trips utilising accessways. This should be revised and each accessway tested for appropriate control or infrastructure provision with a view to provide a safe and efficient interface.
- The intent and usage of the eastern laneway is not described in detail. This lane could encourage cut-through traffic to avoid the delays at the Leader St signals and increase traffic in the local area. Leader Street is a major east-west cycling route. This needs to be documented and shown that the access to the site via Leader Street does not compromise cyclist safety or efficiency.
- The car parking and bicycle parking rates used were not the most current and it is recommended that they are reviewed.
  
- Bicycle parking (long term, safe and secure) for staff is not detailed but should be required.
- The impact to on-street car parking is not quantified nor discussed.



- Sustainable transport to/from the site is not discussed (public transport & cycling).
- There are insufficient internal walkways, particularly at the crossing of the circulation roadways. The walkways leading outside of the site are not well-positioned to form a practical, continuous path of travel. There have been recommendations from the Pedestrian Movement Plan to address this which should be actioned.
- Crash frequency and locations on the surrounding streets is not discussed and road safety is not addressed.
- The site layout is not in line with the requirements of the development plan for this zone, and the zoning of all surrounding sites is not discussed.

## Detailed Assessment

The proposed Kaufland development has a gross leasable floor area of 7,100m<sup>2</sup>, which includes a major supermarket, a market place, speciality stores and associated offices.

The subject site (shown in blue) is designated as a Landmark Development Site, within an Urban Corridor Zone (Transit Living Policy Area No. 24) as illustrated in Figure 1. This map indicates locations for desirable/consolidated vehicle access/egress.

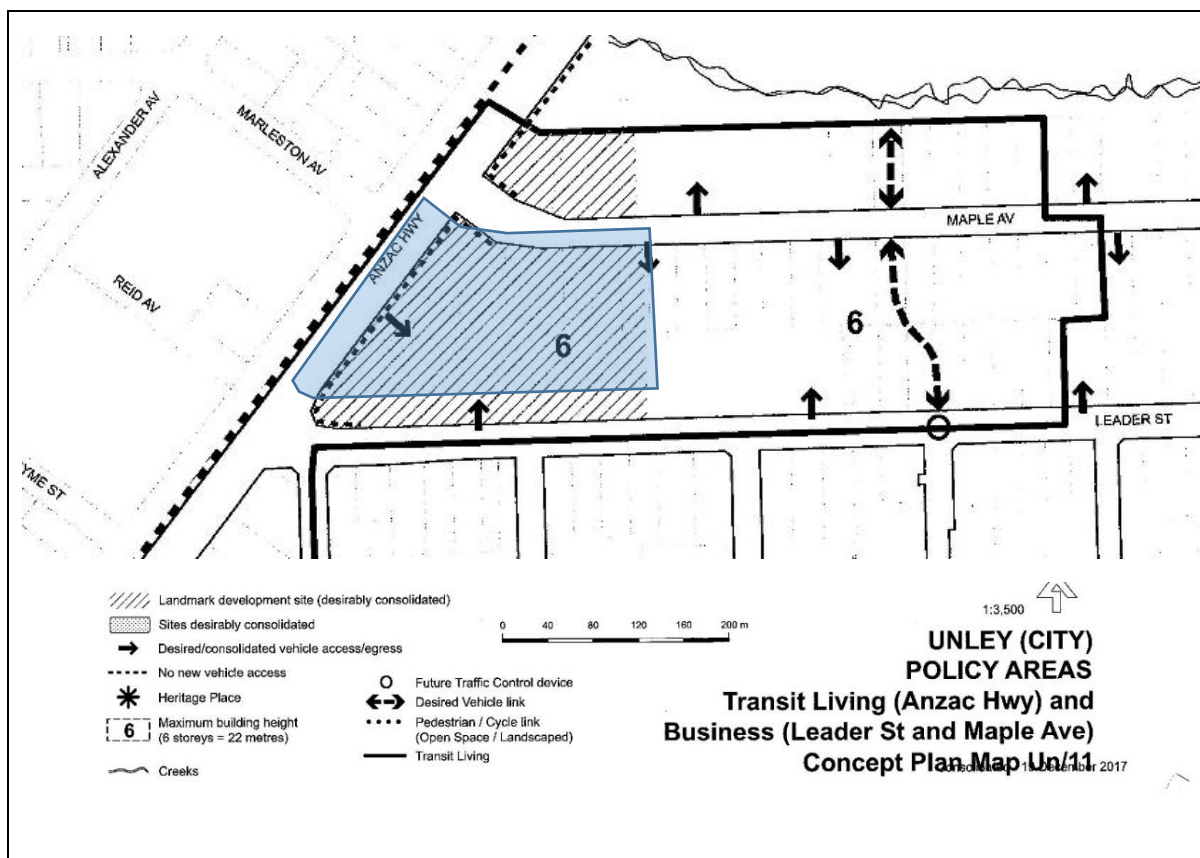


Figure 1: Concept Plan Map Un/11 – from Unley Development Plan

# infraPlan

With this background knowledge, we have created a set of tables in detailed review of documents submitted along with the planning proposal. These are detailed in Appendix A and includes:

- Table 1: Review of WGA Traffic & Parking Report, Rev
- Table 2: Review of Pedestrian Movement Report, Rev
- Table 3: General comments in review of plans
- Table 4: Comments in review of Development Plan

Additionally, we have used the 'Technical Completeness Checklist' from AUSTRROADS, Guide to Traffic Management Part 12: Traffic Impacts of Development as a cross reference for completeness, which is provided in Appendix B for information.

I trust this provides a comprehensive review of the proposal and will assist Council in submitting comments in response to the proposal.

Yours sincerely,



Erik Stopp  
Senior Transport Engineer  
**infraPlan**

## Appendix B

Table 1: Review of WGA Traffic & Parking Report, Rev H1

Item No.	WGA Report Reference	InfraPlan Comment	Action	2019 H1 Review
R1	Sect. 3.2.2	<p><b>Function of Leader St</b></p> <p>Leader Street is a major east-west cycling route.</p>	Ensure that design at Leader Street Access does not compromise cyclist safety or block the bicycle lane.	Resolved Bicycle lane continuous
R2	Sect. 4.1.1	<p><b>Car Parking Rates</b></p> <p>Do not agree with the use of parking demand as 5.5 spaces/100m<sup>2</sup>.</p> <p>The Unley Development Plan vehicle parking rates table for non-residential development (Urban Corridor Zone) is as follows:</p> <p>3 spaces/100m<sup>2</sup> GFA (desirable minimum) 5 spaces/100m<sup>2</sup> GFA (desirable maximum)</p> <p>Therefore, the desirable maximum no of spaces is 355, not 374.</p>	Modify report to reflect Development Plan car parking rates	Partially Resolved Report Updated with Development Plan Rate Parking provision still in excess of site requirements
R3	Sect. 4.1.2	<p><b>Accessible Parking Rates</b></p> <p>Agree to use BCA rates for Accessible Parking (1/50 spaces) instead of Development Plan (max. 5 spaces). The BCA rate results in a higher number of accessible parking.</p>	N/A	N/A
R4	Sect. 4.1.3	<p><b>Bicycle Parking Provision Rates</b> have been updated in 2017 Austroads Cycling Aspects. Current rates for shops more than 1000m<sup>2</sup> and offices are:</p> <p>Shop: Employees = 1/300m<sup>2</sup>, Visitor/shopper = 1/500m<sup>2</sup></p> <p>Office: Employee = 1/200m<sup>2</sup>, Visitor = 1/500m<sup>2</sup></p>	Update Bicycle Parking requirement and ensure that this number are provided. Employee bike parking to be undercover, safe and secure.	Resolved Visitor & secure employee bicycle parking provided in excess of requirements.
R5	Sect. 4.2	<p><b>Car Parking Provision Rates</b></p> <p>The proposal includes 487 spaces, which is more than the desired maximum requirement of the Development Plan (by 132 spaces, when calculated with DP rates, refer item R2).</p> <p>An excess of parking bays is acceptable given the land use and that additional</p>	Refer Item R6	N/A Fewer spaces provided.

Item No.	WGA Report Reference	InfraPlan Comment	Action	2019 H1 Review
		GFLA is proposed in the future. However, sustainable forms of travel should also be encouraged, e.g. bicycle parking, high quality pathways, and links to bus stops.		
R6	Sect. 4.3.3	<b>Bicycle Parking</b> Insufficient bicycle parking is currently shown on plan – this is noted in report.	Ensure additional bike parking is provided and is in a safe, secure location.	Resolved
R7	Sect. 5.1	<b>Traffic Generation Rate</b> A 20% discount has been applied as a 'passing traffic' discount. While this may be true for the road network, this causes a false decrease of 20% in traffic utilising the accessways. These lowered rates are applied throughout investigations.	Review discount provided and reflect likely accessway volumes	Partially Resolved Applied to Anzac Hwy only but still carried onto accessway calculations.
R8	Sect. 5.2	<b>Traffic Distribution Profile</b> Proportions of traffic have been applied to access locations. While this is an estimation, the Southern Access seems underrepresented in the number of trips handling 65% in the weekday peak and 75% in the weekend peak.  While difficult to put facts behind, there are some movements that are not intuitive such as Maple Avenue east of the northern access carrying 10% of trips, yet being a longer trip for most users.	For noting	Resolved Profile redistributed
R9	Sect. 6	<b>SIDRA modelling</b> has not been provided for review.  Further understanding required as to model calibration. For example, observations during the Weekday AM registered a queue of 210m for a right turn from Leader Street onto Anzac Highway. SIDRA outputs in table 7 suggests a queue of 45m maximum during the same time.  This is important since the proposed accessway onto Leader Street is approximately 160m from the signalised intersection with Anzac Hwy meaning that traffic is queued across the accessway.  Additionally, it is unclear whether future volumes have been modelled which are likely to worsen results.	Provide commentary on signalised intersection impact on proposed accessway and provide model for review.	Partially Resolved SIDRA model not provided Accessway shifted east outside of queue locations



Item No.	WGA Report Reference	InfraPlan Comment	Action	2019 H1 Review
R10	Sect. 6.8	<p><b>AIMSUN modelling</b> has been undertaken but no outputs provided to indicate probable increase of traffic on Council roads such as Leah Street or First, Second and Third Avenue.</p> <p>Understanding impacts to the local road network was the primary purpose of Council requesting AIMSUN modelling.</p>	Generate likely impacts to the local road network using the developed AIMSUN scenario.	No Change
R11	Sect. 7	<p><b>Development Access and Layout.</b> The main circulation roadway between Maple Avenue and Leader Street is not best practice design. AS2890.1 Clause 2.3.1 (c) states: <i>Arrangements of internal roadways to avoid, as far as practicable, conflicts between intersecting streams of circulating traffic.</i></p> <p>T-junctions are preferred over 4-way intersections for safety and clear right-of-way.</p> <p>The eastern laneway could be used as a cut-through route to avoid the delay at the Leader St signals and increase traffic in the local street network. Through traffic via this lane is not supported.</p>	<p>Consider re-designing the internal circulation roadway to remove 4-way intersections and reduce potential cut-through traffic.</p> <p>Provide discussion on the intended use of the eastern laneway. Provide a bollard or similar to prohibit vehicles from using this as a cut-through route.</p>	<p>Resolved</p> <p>Car park layout altered to reduce conflict</p>
R12	Sect. 7.2.1	<p><b>Parking Bay and aisle design</b></p> <p>Report notes that some bays are 4800 long and therefore 600mm overhang is required (e.g., no landscaping). However, the carpark screening may prevent overhang</p>	Ensure 600mm (min) clear space is provided to allow vehicle overhang where bays are 4800 long.	Resolved
R13	Sect 7.2.2	<p><b>Designated Accessible Parking Bays</b></p> <p>Report notes that the numbers are appropriate, but the spaces should be more appropriately located - <i>next to entrances.</i></p>	Agree - ensure Accessible Car parks are as close as possible to building entries.	<p>Resolved</p> <p>Spaces provided near main access points</p>
R14	Sect. 7.3	<p><b>Entry and Exit Points.</b></p> <p>The Report discusses the '3' access points (northern, southern and western), but does not discuss in detail, the entry and exit point at Leader Street (eastern side of boundary).</p>	Provide details on the intended use of the eastern laneway. Provide a bollard or similar to prohibit vehicles from using this as a cut-through route.	<p>Resolved</p> <p>Left access out provided</p>

Item No.	WGA Report Reference	InfraPlan Comment	Action	2019 H1 Review
		<p>The northern and southern entry/exit access points are aligned to form a straight access through road. This may be used as a short-cut to avoid the signals/delay at Leader Street and increase traffic in the local street network – this is not supported.</p>	<p>Offset the northern and southern entry/exit points to reduce the likelihood of through traffic.</p>	
R15	Sect. 7.3.3	<p><b>Anzac Highway</b> A raised concrete separator is proposed at the median opening in Anzac Highway opposite the proposed access, to ‘eliminate the risk of motorists undertaking a potentially hazardous right turn manoeuvre into or out of the site’. This will require liaison with DPTI as the proposal may not be in line with DPTI’s objective of these median openings.</p>	<p>Liaison with DPTI required.</p>	Resolved
R16	Sect. 7.4	<p><b>Heavy Vehicle Access</b> Although Maple Avenue currently provides access to light industrial land uses, the site to the north of Maple Avenue is within the same zone as the subject site. This could become future residential, mixed use. The loading docks on this road frontage need to consider future adjacent use. Will there be gates at the delivery entries?</p> <p>The laneway along the eastern boundary of the site and access point at Leader Street is not discussed in detail. It does not state the number of heavy vehicles that may exit via Leader Street local area. The report notes that this is an exit only, but this is not entirely clear, and the roadway is 6m wide which indicates 2-way. The encouragement of heavy vehicles into the local area is not supported.</p> <p>Will on-street parking on Maple Avenue be banned to allow for heavy vehicle access?</p> <p>The driveway crossovers are indicated at around 12-15m in width which is not conducive to pedestrian movements. Need for this width should be demonstrated (i.e. with turning</p>	<p>Require more information on the controls at the delivery areas off Maple st.</p> <p>Require more information on the use and intent of the eastern lane and the vehicles exiting to Leader St.</p> <p>Confirm the proposed status of the on-street parking in Maple Avenue.</p> <p>Demonstrate the need for proposed crossover widths or reduce to required size (loading &amp; waste)</p>	<p>Partially Resolved</p> <p>On-street parking impacts not discussed</p> <p>Crossovers reduced to fit turn path profiles</p> <p>Accessways also used for access to staff car parking and is sealed from remainder of car park and eastern accessway.</p>

Item No.	WGA Report Reference	InfraPlan Comment	Action	2019 H1 Review
		<p>movements) or the crossover reduced to the required width.</p> <p>The development is proposed to be available to receive deliveries or be services 24 hours a day.</p>		
R17	Sect. 7.5	<p><b>Emergency Vehicle Access</b></p> <p>Report notes that <i>Additional clearance width required.</i></p> <p>Is Emergency vehicle access also via eastern lane?</p>	<p>Ensure that clearance is provided.</p> <p>Confirm if Emergency Vehicles also use eastern lane</p>	Resolved
R18	Sect. 7.6	<p><b>Pedestrian Access</b></p> <p>The pedestrian access path to the Leader St signals does not align to the existing kerb ramp location.</p> <p>There is a north-south ped walkway out to the mid-block of Leader Street, but does not connect to a road crossing facility here.</p> <p>There are no crossing facilities in the car park to assist crossing of the circulation roadways east of the lifts/travelators.</p> <p>The details of the internal pedestrian crossing facilities are not shown – but we assume are zebra crossings.</p>	<p>Realign pedestrian path to line up with existing kerb ramp at Leader Street signals.</p> <p>Include a pedestrian refuge or similar crossing facility at Leader St opposite the walkway.</p> <p>Add pedestrian crossing facilities across circulation roadways within car park.</p> <p>Confirm type of internal pedestrian crossing facilities proposed.</p>	Resolved

Additional notes:

Bicycle lane should begin eastbound from Anzac/Leader intersection

Consider refuge through southern access for pedestrians along Leader Street.

The following table provides our assessment of the Pedestrian Movement Report (Rev B), prepared by WGA.

Table 2: Review of Pedestrian Movement Report, Rev E

Item No.	Pedestrian Movement Report (WGA) Reference	InfraPlan Comment	Action	2019 E Review
P1	Sect. 4.3	It has been assumed that the site is in a low density walking zone, using the existing land use. However, zoning of the site to the north of Maple Avenue and potentially the remainder of the development site will increase residential land use and therefore pedestrian trips.	Consideration of adjacent zoning is required to predict pedestrian trips.	Resolved  Additional consideration provided
P2	Sect. 4.3	It is stated that walking trips from/to bus stops and train stations will be minimal given the suburban nature of the site. We disagree with this statement and consider that sustainable transport is an increasing, equitable form of transport which is encouraged by Council. The public transport stops are located within close proximity of the site, and given the flagship nature of the store assume that it will attract various transport users.	Increase trip assumptions from public transport stops	Resolved
P3	Sect. 4.5	It is considered that pedestrian trips from Leader Street are under-represented. In addition to local residents, and public transport stops, Marino Rocks Greenway runs along the rail line. This is a very popular pedestrian and cycling route and potential origin for pedestrian or cycling trips to the subject site.	Increase trip assumptions to/from Leader St (refer also P8)	Resolved  Pedestrians external to carpark included
P4	Sect. 4.5	It is assumed that all pedestrians from the east (Leader Street) will use the Leader Street footpath until they are adjacent the building entry. This would also require that pedestrians cross the busy driveway entry on Leader Street. In reality, pedestrians are more likely to take the shortest route and cut diagonally through the car park. There is a lack of designated paths and roadway crossing facilities within the car park east of the lifts/travelators to facilitate this movement.  In addition, the eastern car park has a significantly high number of pedestrian	Provide additional paths and internal road crossings through the eastern car park (refer also P7)	Resolved  Rearranged entrance facilitates pedestrian access direct from Leader Street



		trips, with designated paths and crossings.		
P5	Sect. 4.5	There is a north-south ped walkway mid-block of Leader Street, but does not connect to a road crossing facility here.	Include a pedestrian refuge or similar crossing facility at Leader St opposite the walkway to facilitate crossing.	Partially Resolved  Recommendation for infrastructure crossing Leader Street.
P6	Sect. 5.3.1	The report recommends replacing the wombat crossing with a pedestrian refuge. This proposal changes priority and requires pedestrians to give way to vehicles, whilst the Wombat crossing required that vehicles yield to pedestrians.	Pedestrian priority is preferred, and a Wombat also facilitates slower traffic speed. However, a refuge is acceptable providing that it is of sufficient width to facilitate a person wheeling a pram (2.5m wide min.)	No Longer Relevant
P7	Sect. 5.3.2	Agree with additional pedestrian crossings and paths recommended by WGA in report	n/a	N/A
P8	Sect. 5.3.4	Disagree that the proposed zebra crossing to Leader Street be removed. It is our opinion that pedestrian trips will be higher at this location (refer also P3)	Retain proposed Zebra Crossing that links to Leader St.	No Longer Relevant
P9	Sect. 5.3.6	The pedestrian access path to the Leader St signals does not align to the existing kerb ramp location. We assume this will be realigned as part of the detail design.	Realign pedestrian path to line up with existing kerb ramp at Leader Street signals.	No Longer Relevant
P10	Sect. 5.3.7	Pedestrian movement G facilitates movement to and from the bus stop on Anzac Highway. We disagree that the zebra crossing be removed.	Retain proposed Zebra Crossing that links to the Anzac Highway bus stop.	No Longer Relevant
P11	Sect. 5.4	The signalised intersection at Anzac Highway and Leader Street does not have a crosswalk on the northeast leg. Therefore, it is considerably anti-directional and adds to delay for pedestrians from Anzac Highway northwest to use this crosswalk. Pedestrians will be more likely to cross Anzac Highway opposite the site without a safe crossing facility.	Liaise with DPTI regarding the provision of a crosswalk on the northeast leg of the intersection.  Desire lines should be explored along the Anzac Highway frontage and capture the demand from Marlestone Avenue for example where there is a clear desire line.	Partially Resolved  Movement identified but no demand assigned
P12	Sect. 5.5	Consideration of a pedestrian walkthrough (geometry permitting) at	It is recommended to assess the road geometry and provide a crossing facility at	No Change

		Leader street is recommended in the report.	this location (refuge preferred).	
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Table 3 below provides general comments collated in review of plans provided with the planning assessment.

Table 3: General comments in review of plans

Item No.	WGA Report Reference	InfraPlan Comment	Action	2019 Review
C1	On-street car parking	The impact to on-street car parking is not shown nor discussed (as recommended in Austroads Checklist)	Provide detail on-street car parking status on Maple Avenue and Leader Street	No Change
C2	Planning Zones	Planning zones in the vicinity are not discussed (as recommended in Austroads Checklist)	To be included for completeness	No Change
C3	Non-car transport	Non-car transport to/from site is not discussed. For example, the Marino Rocks Greenway is close by, which provides a high quality off-road cycling link to the development and encourages cycling as transport.	To be included in report	No Change
C4	Safety	Traffic crashes at potentially impacted locations and other known traffic safety or operational problems, and any proposals to address them, have not been documented (as recommended in Austroads Checklist).	Document at Maple/Anzac and Leader/Access point	No Change
C5	Regulatory Devices	There is no discussion of a speed limit to be applied in the car park.  While crossing locations for pedestrians are shown and appear to be either Zebra or Wombat Crossings, these are not specified nor is regulatory signage associated with them.	Further information to be provided on speed limit and pedestrian crossing type	No Change
C6	Southern Access	While a SIDRA model has been run, there has been no investigation into the suitability of intersection type. A basic turn treatment is currently shown. Austroads Guidelines along with DPTI's <i>The Code</i> provide guidance on appropriate treatments.  Based on the traffic generation estimates and volume summaries in the report, the Leader Street access would warrant traffic signals in the PM peak.  This includes the 20% discount applied to the accessway which is not	<b>Major Concern</b>  Leader Street access likely warrants traffic signals – further investigation required around accessway.	No Change

		<p>representative of the probable outcome as discussed in R7.</p> <p>While this may not be an ideal solution in consideration of proximity to the Anzac Hwy Leader St intersection, it demonstrates that additional consideration to the interaction of the proposed accessway with Leader Street is required.</p>		
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The following table provides an overall assessment of the proposed Plans with reference to the traffic and parking requirements of the Development Plan.

Table 4: Comments in review of Development Plan

Item No.	DP Ref.	Development Plan Requirement	InfraPlan Comment	2019 Review
D1	P.182	Parking will be predominantly under or at the rear of buildings and, where possible, vehicle access will be from the rear or side rather than the main road.	<p>The proposed layout does not comply with the DP requirements:</p> <p>All car parks are at ground level and at the front and side of the buildings.</p> <p>Vehicle access is proposed from all road frontages (Anzac Hwy, Maple Avenue and Leader Street).</p>	No Change
D2	P.183	<p>No vehicle parking is to be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for people with a disability.</p> <p>Access to loading areas and parking for service vehicles should not occur from Anzac Highway and Leader Street for those sites located north of Leader Street</p>	<p>The proposed layout does not comply with the DP requirements, refer above, and;</p> <p>The extent of the car park screening is not detailed. None of the spaces that are visible from Anzac Hwy or Leader St are shown as being for people with a disability.</p> <p>The loading areas are accessed from Maple Avenue but also connects directly to Leader Street.</p>	<p>Resolved</p> <p>Screening provided to car parks</p>
D3	P158	Restricted and consolidated vehicle access points will be available, and access will be mainly from secondary road frontages, limited rear access lanes and through-site integrated and shared rights-of-way.	With reference Figure 1, vehicle access is approximately where shown as desired. <b>Except</b> for the laneway and access points	Resolved

Item No.	DP Ref.	Development Plan Requirement	InfraPlan Comment	2019 Review
			along the eastern most boundary.	
D4	P158	Controlled pedestrian and cycle crossing points will be focused and consolidated at key locations.	Not shown on drawings.	Resolved
D5	P158	Development design and function will be people orientated with safe and convenient accessibility to and through buildings from roads and parking	There are insufficient designated walkways proposed through the car park.	Resolved
D6	P158	Parking areas will be consolidated and shared and screened from public view. Access and parking are to be sited and designed to minimise negative impacts on adjoining residential areas, including appropriate separation and screen and buffer landscaping	Refer Items 1 and 2.	Resolved
D7	P158	Road treatments are to be provided at the interface of the zone that correspond with the likely associated uses and discourage non-related traffic in residential streets.	Road treatments are not shown. Laneway that links Maple Avenue to Leader Street may encourage through traffic to Leader Street	Resolved  Realignment of accessways likely to discourage through traffic
D8	P159	A high amenity pedestrian environment will be established that provides integrated linkages to adjacent centres, public transport stops and public spaces.	There is a walkway proposed that connects to Bus Stop 3 on Anzac Highway – however this link is not discussed in report. Type of treatment not clear on drawing – but assume may be Zebra Crossing. Other pedestrian links do not connect to existing pedestrian ramps,	Resolved  Pedestrian movements reviewed and provided for
D9	P159	Cycle routes will be visible, safe, accessible, well signed and connected with key local destinations and the Parkland fringe	Not shown.	Resolved



## Appendix C

Table 5: Checklist for Traffic Impact Assessments – from Austroads guide to traffic management – Part 12

Section	Steps in traffic impact assessment	InfraPlan Checked
<b>4.4.1 Document proposed development</b>		
	Obtained plans showing layout of all traffic and pedestrian areas on site, locations of vehicle and pedestrian accesses, position and layout of nearby driveways and intersections.	Assessed
	Each type of internal access (cars, pedestrians, trucks, etc.) is direct, connected, continuous and makes sense.	Assessed
	Approach roads and paths are clearly understood and practical.	Assessed
	The correct design vehicle and checking vehicle have been used in various sections of the development.	Assessed
	Basic design requirements have been applied.	Assessed
	Land use planning zonings in the vicinity are documented.	Assessed
	Traffic-related features of the development have been summarised.	Assessed
	Timing and staged phasing (if any) has been described, including any connections with external timings.	n/a
<b>4.4.2 Resolve any initial problems with designers</b>		
	Any initial problems or issues needing resolution by designers have been identified.	NO
	Designers notified.	TBA
	Issues have been checked and re-worked by designers.	TBA
	Amended proposal has been re-documented.	TBA
<b>4.4.3 Identify area and stakeholders affected</b>		
	Agreed functional road hierarchy in area has been documented.	Assessed
	Relevant or affected non-car transport networks or services have been documented.	Assessed
	Initial assessment of area affected by changed traffic conditions has been made.	Assessed
	Sites potentially impacted have been listed.	Assessed
	All affected stakeholders have been identified and a note made about when each needs to be consulted.	Assessed
Section	Steps in traffic impact assessment	InfraPlan Notes
<b>4.4.4 Describe existing and design year conditions</b>		
	Existing on-site conditions, including traffic and parking, have been documented.	Assessed
	Existing traffic conditions for external sites, road lengths and/or areas identified as potentially impacted have been documented for critical periods.	Assessed
	Design year has been selected, and traffic conditions, excluding traffic generated by the development, have been documented. Volumes shown on plan.	Assessed
	Parking conditions, as relevant, have been described.	Assessed
	Traffic crashes at potentially impacted locations have been documented.	Assessed
	Other known traffic safety or operational problems, and any proposals to address them, have been documented.	Assessed
	Any traffic, transport or parking policies which affect the proposed development have been documented.	Assessed
<b>4.4.5 Determine generated traffic and modal split</b>		
	Number of trips which will be generated by the development (daily, peak period, etc.) has been determined for the design year or years.	Assessed

	The split of general traffic, commercial vehicles, public transport vehicles (including taxis), bicycles, pedestrians, etc. has been determined.	Assessed
<b>4.4.6 Determine approach and departure directions</b>		
	Approach and departure directions for the traffic have been determined.	Assessed
	Nature of attracted traffic (same origin and return destination, linked trips, etc.) has been considered and described.	Assessed
<b>4.4.7 Assign traffic to roads</b>		
	Traffic generated by the development has been assigned to the road network in the potentially affected area for the design year or years.	Assessed
	Development-generated traffic has been shown on plans.	Assessed
	Background traffic (existing volumes factored to the design year) and development-generated traffic have been added together.	Assessed
	Total traffic has been shown on plans for critical times of day or week, etc.	Assessed
<b>4.4.8 Determine where non-car traffic will go</b>		
	Paths, lanes, etc. required for pedestrians, cyclists, buses, delivery vehicles, etc. have been determined.	Assessed
<b>4.4.9 Review limits of area affected</b>		
	Limits of area impacted by the development have been checked, and necessary alterations noted.	Assessed
	If assessment over a greater area is needed, further analysis has been done.	N/A
<b>4.4.10 Assess traffic operation on roads</b>		
	Traffic operations (traffic volumes, capacity, level of service, delays) for access points, mid-blocks and intersections have been assessed; consequences noted.	Assessed
	Circulation of traffic near the site has been considered.	Assessed
	Need for on-street parking, and potential impact on arterial roads / traffic routes, has been determined.	Assessed
	Impact on public transport services, from development generated use and from increased traffic on public transport routes (buses and trams) has been assessed.	N/a
<b>4.4.11 Assess traffic operation on-site</b>		
	Traffic operation of roads, aisles, access ways on-site, including traffic circulation within the site, has been analysed.	Assessed
	Expected traffic volumes and vehicle types can be safely and efficiently accommodated within the traffic and parking areas on-site.	Assessed
	On-site parking provision is adequate and is suitably located.	Assessed
<b>4.4.12 Determine required impact-mitigating treatments</b>		
	Required changes, improvements, upgrades and/or modifications to roads, intersections, traffic lanes, controls, access driveways, have been determined.	Assessed
	Required changes on-site and on nearby roads/streets to manage parking have been determined.	Assessed
	Required works and traffic management to accommodate pedestrians, cyclists, public transport, delivery vehicles, on-site and in the nearby area, have been determined.	Assessed
	Required treatments relating to pavements, safety and environmental issues have been determined.	n/a
	Coordination of all required treatments has been considered.	n/a
<b>4.4.13 Obtain road safety engineering assessment</b>		
	Need for an independent assessment of the road safety aspects of the development has been considered.	n/a
	If necessary, independent road safety engineering assessment has been arranged.	n/a
<b>4.4.14 Document findings and recommendations</b>		
	The above steps and their outcomes have been documented in a suitable report.	Assessed

**From:** [brianna.johnson@kaufland.com.au](mailto:brianna.johnson@kaufland.com.au)  
**To:** [Talbot, Lauren \(DPTI\)](#)  
**Subject:** Fwd: Kaufland - 10 Anzac Highway, Forestville - Public Realm Improvement Plan  
**Date:** Tuesday, 9 April 2019 3:50:41 PM  
**Attachments:** [image001.png](#)

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Hi Lauren,  
Please see below email from David Brown

Sent from my iPhone

Begin forwarded message:

**From:** "David Brown" <[dbrown@unley.sa.gov.au](mailto:dbrown@unley.sa.gov.au)>  
**Date:** 9 April 2019 at 3:28:16 pm ACST  
**To:** "[brianna.johnson@kaufland.com.au](mailto:brianna.johnson@kaufland.com.au)"  
<[brianna.johnson@kaufland.com.au](mailto:brianna.johnson@kaufland.com.au)>  
**Subject: Kaufland - 10 Anzac Highway, Forestville - Public Realm Improvement Plan**

Hi Brianna

Thank you for our recent follow-up discussions regarding the Kaufland major development on Anzac Highway and the organisations commitment to collaborate on a mutually beneficial Public Realm Improvement Plan with the City of Unley.

The agreement to cooperate on a Public Realm Improvement Plan is supported to address any damage, reinstatement, removal, replacement and modification resulting from the development and desired shared improvements. This will involve a comprehensive outline to address appropriate vehicle accesses, on-street parking, bicycle lanes, footpaths, kerbs, verges, street trees etc in coordination with the program of construction and completion of the development.

The City of Unley (initially through me but overtime with others in City Design, Assets and Infrastructure) look forward to working together on a Public Realm Improvement Plan. Your commitment to collaborate and contribute is appreciated. It is trusted this will be to mutual advantage.

Thanks



**David Brown**  
**Principal Policy Planner**  
City Design  
City of Unley  
P: (08) 8372 5185  
[unley.sa.gov.au](http://unley.sa.gov.au)

**From:** [brianna.johnson@kaufland.com.au](mailto:brianna.johnson@kaufland.com.au) <[brianna.johnson@kaufland.com.au](mailto:brianna.johnson@kaufland.com.au)>  
**Sent:** Friday, 5 April 2019 4:10 PM  
**To:** David Brown <[dbrown@unley.sa.gov.au](mailto:dbrown@unley.sa.gov.au)>  
**Cc:** [jonathan.flint@kaufland.com.au](mailto:jonathan.flint@kaufland.com.au)  
**Subject:** 10 Anzac Highway, Forestville: Public Realm Plan

Good Afternoon David,

Thank You for taking the time to meet with Jon and myself on Wednesday (3rd April).

We held discussions about the benefits of Kaufland and the City of Unley working together to formulate a Public Realm Plan, likely over the next few months following Planning Approval.

The key purpose/s of a Public Realm Plan would be to:

- Provide an integrated approach to addressing the streetscape/ public realm around the site
- Review of Council street trees to be removed (as required by the Development)
- Identification of proposed new street tree plantings
- Cost allocation between Kaufland & Council (Kaufland to repair damage during, & replace removed trees, cost-sharing of new infrastructure, Council maintenance of Public Realm - and other items etc)
- Identify other opportunities for collaboration during the construction phase (eg upgrade to northern side of Leader St, to match southern side)
- Other matters as required.

I would welcome if you have any further feedback or comments in addition to the above.

To ensure that our mutual consent and in-principle agreement of working towards a Public Realm Plan, I would appreciate if you could reply with your approval.

Many Thanks,

Brianna Johnson  
Property Development

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In reply please quote 2019/00359, Process ID: 569614  
Enquiries to Marc Hryciuk  
Telephone (08) 7109 7877  
E-mail dpti.luc@sa.gov.au

4 April 2019

State Planning Commission  
C/- Ms Lauren Talbot  
Department of Planning, Transport and Infrastructure  
GPO Box 1815  
ADELAIDE SA 5001

Dear Ms Talbot

### SCHEDULE 8 - REFERRAL RESPONSE

<b>Development No.</b>	090/E004/18 – Amended Plan: Site Plan and Ground Floor Plan, Project Number S1171802, Drawing TP-02, Revision P21, dated 18 March 2019
<b>Applicant</b>	Kaufland Australia
<b>Location</b>	10 Anzac Highway, Forestville
<b>Proposal</b>	Freestanding Retail Development

I refer to the above development application forwarded to the Commissioner of Highways (CoH) in accordance with Section 37 of the *Development Act 1993*. The proposed development involves development adjacent a main road as described above.

The following response is provided in accordance with Section 37(4)(b) of the *Development Act 1993* and Schedule 8 of the *Development Regulations 2008*.

#### CONSIDERATION

The subject application is for the construction of a supermarket on the western portion of the former Le Cornu site. The subject site abuts Anzac Highway, an arterial road under the care, control and management of the CoH as well as Leader Street and Maple Avenue, local roads under the care, control and management of the City of Unley. The adjacent section of Anzac Highway is identified as a Major Traffic Route, Primary Freight Route, Major Cycling Route, High Activity Pedestrian Area and Public Transport Route under the Department of Planning, Transport and Infrastructure's (DPTI's) '*A Functional Hierarchy for South Australia's Land Transport Network*'. At this location, Anzac Highway carries approximately 47,100 vehicles per day (3.5% commercial vehicles) and has a posted speed limit of 60 km/h.

The proposed development will be served by a number of access points. Access to the car park is proposed to be provided via Anzac Highway, Leader Street and Maple Avenue. The Anzac Highway access will be limited to left turn in and left turn out movements only whilst the other access points will cater for all movements, except for the eastern most access on Leader Street which will operate as left turn out only. Access to the supermarket by service vehicles will be via separated ingress and egress points on Maple Avenue. The small tenancies will be served by two service parks within the car park fronting Anzac Highway. It

is noted that the Anzac Highway access will be in close proximity to a u-turn bay/emergency vehicle bay and that this will be modified to ensure that traffic associated with the site cannot use this facility. The department is generally supportive of the proposed access locations and proposed modification to the Anzac Highway u-turn bay/emergency vehicle bay, subject to detailed design.

With respect to the traffic impacts of the development, the developer's traffic consultant has provided an updated traffic impact statement which identified that the development would generate approximately 760 vehicle movements in the weekday pm peak hour and 1,010 vehicle movements in the weekend peak hour. As the projected volumes are in accordance with the RTA Guide to Traffic Generating Development, these volumes are considered reasonably representative of what may occur. The traffic generation at this point has only included the supermarket development and has not included any assessment of the balance of the subject land. Notwithstanding this, it is understood that Council has estimated that the balance of the land could yield in the order of 3,000m<sup>2</sup> of retail/commercial development and 300 dwellings. Depending on the type of mix of dwelling type and commercial use, the development of this part of the site could yield in the order of 300 extra vehicles in the peak hour.

The department has been working with the applicant to address the potential impacts of the development on the road network. As part of this, the applicant has committed to an upgrade scheme for the Anzac Highway/Leader Street junction that provides two right turn lanes on Anzac Highway and two eastbound lanes on Leader Street for a short distance before merging back to one lane. This arrangement is reflected in the updated traffic statement. It is noted that the modelling for this arrangement has been based on a signal cycle time of 150 seconds at the Anzac Highway/Leader Street junction. As previously advised, the cycle length for signals on Anzac Highway cannot exceed 120 seconds as they are coordinated for traffic progression. Consequently, the modelling is not fully reflective of the likely impacts. Notwithstanding this, the department is highly supportive of the proposed upgrade of the Anzac Highway/Leader Street junction, as it minimises the potential traffic impacts on Anzac Highway and also provides some potential to increase the capacity of the right turn lanes on Anzac Highway through further extension if necessary in the future. Notwithstanding this, the final layout will be subject to detailed design and may result in the merge point on Leader Street being slightly further to the east.

In addition to the above, in order to ensure that the Leader Street access does not adversely impact on traffic flow along this street and the Anzac Highway/Leader Street junction, it will be necessary for entering traffic to have clear right-of-way over traffic from the intersecting aisles of the car park. Similarly, it will be necessary to ensure that vehicles entering the car park from Maple Avenue have a right-of-way over all traffic crossing the path of the entry movement. Accordingly, appropriate line marking will need to be installed and the zebra crossing at the Maple Avenue access will need to be removed. Furthermore, it will also be necessary to ensure that in the event that the car park reaches capacity that it does not result in queuing back onto the adjacent roads. It is understood that this will be achieved by the proposed access control system.

With respect to sight distance at the access points, Safe Intersection Sight Distance should be provided in accordance with Austroads Guide to Road Design Part 4. This may require some slight modifications to proposed tree/shrub plantings and the positioning of the Leader Street pylon sign. Furthermore, pedestrian sightlines at the access points will need to be in accordance with AS/NZS 2890.1:2004 Figure 3.3 and AS/NZS 2890.2:2018 Figure 3.4.



## Construction Traffic

As the proposed development is located adjacent an arterial road, it will be necessary to ensure that a Traffic Management Plan (TMP) is implemented for the construction phase of the development. This will need to ensure that construction activities and access do not unduly interfere with the safe and efficient traffic flow on the adjacent roads. It is recommended that a TMP is drafted in consultation with and to the satisfaction of DPTI and Council.

## Road Widening

The Metropolitan Adelaide Road Widening Plan shows a possible requirement for a 4.5 metres x 4.5 metres cut-off at the Anzac Highway/Maple Avenue corner for possible future road purposes. The consent of the CoH under *the Metropolitan Adelaide Road Widening Plan Act 1972* is required to all new building works located on or within 6 metres of the possible requirement. As no building works are proposed within the above areas, consent is not required in this instance.

Notwithstanding the above, it is understood that the proposed modifications to the Anzac Highway/Leader Street junction will require some land from the site to be dedicated to road purposes at no cost to DPTI and Council. A land division dedicating this land will need to be undertaken prior to the development becoming operational.

## Signage and Lighting

Illuminated signage is proposed on this site. DPTI has released the *“Advertising Signs - Assessment Guidelines for Road Safety”* to assist with the review and assessment of advertising signs abutting the arterial road network. DPTI has reviewed the proposed signage against the above guidelines as follows:

- Some of the signs are within a device restriction area as defined in the Guide.
- The signs would be viewable to traffic travelling along the abutting roads.
- The signs achieve adequate clearances from direct sightlines to the traffic signals near the site.
- The luminance level of the signs is undefined.
- The final location of the blade sign on Anzac Highway should ensure that motorist sightlines are maximised at the adjacent access point.

The application indicates that the car parking areas will be lit at night. DPTI does not object to these areas being illuminated provided that any lighting is appropriately located and/or shielded in order to minimise the potential for driver distraction or discomfort.

## CONCLUSION

Whilst there are some minor modifications that will need to be made to the development to address a number of access and safety matters, the department is supportive of the proposed development, particularly given that the proposed development will address traffic impacts through an upgrade of the Anzac Highway/Leader Street signalised junction.

## ADVICE

The planning authority is advised to attach the following conditions to any approval:

1. The access points shall be in general accordance with Site Plan and Ground Floor Plan Project Number S1171802, Drawing TP-02, Revision P21, dated 18 March 2019.
2. The Anzac Highway/Leader Street junction shall be upgraded to cater for the projected traffic impacts associated with the development, including two right turn lanes on Anzac Highway and two eastbound lanes on Leader Street for a short distance before merging back to one lane. Additionally, the Anzac Highway u-turn bay/emergency vehicle bay shall be modified to prohibit its use by traffic exiting the Anzac Highway access point. All required road works associated with this shall be designed and constructed in accordance with Austroads Guides/Australian Standards and to DPTI's satisfaction. All associated costs (including project management and any necessary road lighting and drainage upgrades) shall be borne by the applicant (unless otherwise agreed by DPTI). These road works shall be completed prior to occupation of the development.

The applicant shall contact DPTI's, Traffic Operations Section, Network Planning Engineer, Ms Teresa Xavier on (08) 8226 8389 or via email at [Teresa.Xavier@sa.gov.au](mailto:Teresa.Xavier@sa.gov.au), to discuss the proposed road works prior to undertaking any detailed design. Furthermore, the applicant shall enter into a "Developer Agreement" to undertake the above works.

3. All vehicles shall enter and exit the site in a forward direction.
4. The largest vehicle permitted on-site shall be restricted to a 19 metres articulated vehicle (*AS 2890.2-2018*).
5. All off-street car parking shall be designed in accordance with *AS/NZS 2890.1:2004* and *AS/NZS 2890.6:2009*.
6. Clear sightlines, as shown in Figure 3.3 'Minimum Sight Lines for Pedestrian Safety' in *AS/NZS 2890.1:2004* and Figure 3.4 in *AS/NZS 2890.2:2018*, shall be provided at the property line to ensure adequate visibility between vehicles leaving the site and pedestrians on the adjacent footpath.
7. All off-street commercial vehicle facilities shall be designed in accordance with *AS 2890.2-2018*.
8. A traffic management plan for the construction phase of the development shall be developed in consultation with and to the satisfaction of DPTI and Council.
9. The illuminated signage shall be permitted to use LED lighting for internal illumination of a light box only.
10. The illuminated signage shall be limited to a low level of illumination so as to minimise distraction to motorists ( $\leq 150\text{cd/m}^2$ ).
11. The signage shall not contain any element that flashes, scrolls, moves or changes, or imitates a traffic control device.
12. Any floodlighting associated with the site shall be positioned and/or shielded so as to not produce glare or create a distraction for passing motorists on the abutting roads.



13. Stormwater run-off shall be collected on-site and discharged without jeopardising the integrity and safety of the adjacent roads. Any alterations to the road drainage infrastructure required to facilitate this shall be at the applicant's cost.

The following note provides important information for the benefit of the applicant and is required to be included in any approval:

- i. The Metropolitan Adelaide Road Widening Plan shows a possible requirement for a 4.5 metres x 4.5 metres cut-off at the Anzac Highway/Maple Avenue corner for possible future road purposes. The consent of the Commissioner of Highways under *the Metropolitan Adelaide Road Widening Plan Act 1972* is required to all new building works located on or within 6 metres of the possible requirement. As no building works are proposed within the above areas, consent is not required in this instance.
- ii. The proposed modifications to the Anzac Highway/Leader Street junction will require some land from the site to be dedicated to road purposes at no cost to DPTI and Council. A land division dedicating this land will need to be undertaken prior to the development becoming operational.

Yours sincerely



**MANAGER, TRANSPORT ASSESSMENT AND POLICY REFORM**  
for **COMMISSIONER OF HIGHWAYS**

A copy of the decision notification form should be forwarded to [dpti.developmentapplications@sa.gov.au](mailto:dpti.developmentapplications@sa.gov.au)

SOUTH AUSTRALIAN DEVELOPMENT ACT 1993  
REPRESENTATION ON APPLICATION - CATEGORY 2

**Applicant:** Kaufland Australia Pty Ltd  
**Development Number:** 090/E004/18  
**Nature of Development:** \*Re-notification\* Construction of two-storey retail development for Kaufland Supermarket including supporting small tenancies, solarpanels, associated undercroft car park, offices, various signage, and landscaping.  
**Zone / Policy Area:** Urban Corridor Zone / Transit Living (Anzac Highway) Policy Area 24  
**Subject Land:** 10 Anzac Highway, Forestville SA 5034 (front portion of former Le Cornu site)  
**Contact Officer:** Lauren Talbot  
**Phone Number:** 8402 1786  
**Close Date:** 1 April 2019

My Name: IVAN TANNED My phone number: 0417 700010

PRIMARY METHOD(S) OF CONTACT: Email address: ivan@entertanners.com  
Postal address: 4 AVENUE ST  
MILLSWOOD Postcode 5034

**You may be contacted via your nominated PRIMARY METHOD(S) OF CONTACT if you indicate below that you wish to be heard in support of your submission.**

My interests are:  owner of local property  
 occupier of local property  
 a representative of a company/other organisation affected by the proposal  
 a private citizen

The address of the property affected is 39-43 ANZAC H/W, KEESWICK Postcode 5034

The specific aspects of the application to which I make comment on are:

I support the development;  
 I support the development with some concerns;  
 I oppose the development  
(Please tick one)

For the following reasons:

Have concerns re traffic from Matlestone Av turning left then immediately right on Anzac H/W to access Maple Avenue. Concerned doctors/patients won't be able to access 2nd lane to turn into Maple of ANZAC H/W due to banking of cars.

Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

I:  wish to be heard in support of my submission  
(please tick one)  do not wish to be heard in support of my submission  
(Please tick one)

By:  appearing personally  
(please tick one)  being represented by the following person  
(Please tick one)

Date 22/3/2019 Signature 

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or [scapreps@sa.gov.au](mailto:scapreps@sa.gov.au).



PRELIMINARY	REV	DATE	DESCRIPTION	DRN	CHKD	REV	DATE	DESCRIPTION	DRN	CHKD
	P8	25.01.19	PRELIMINARY ISSUE	DA	CD	P12	25.02.19	PRELIMINARY ISSUE	DA	CD
	P9	01.02.19	PRELIMINARY ISSUE	DA	CD	P13	26.02.19	PRELIMINARY ISSUE	DG	CD
	P10	05.02.19	PRELIMINARY ISSUE	DA	CD	P14	28.02.19	PRELIMINARY ISSUE	DG	CD
	P11	08.02.19	PRELIMINARY ISSUE	DA	CD	P15	06.03.19	PRELIMINARY ISSUE	DG	CD
						P16	13.03.19	PRELIMINARY ISSUE	DG	CD



SOUTH AUSTRALIAN DEVELOPMENT ACT 1993  
REPRESENTATION ON APPLICATION – CATEGORY 2

RECEIVED 2 APR 2019

Applicant: Kaufland Australia Pty Ltd  
Development Number: 090/E004/18  
Nature of Development: \*Re-notification\* Construction of two-storey retail development for Kaufland Supermarket including supporting small tenancies, solarpanels, associated undercroft car park, offices, various signage, and landscaping.  
Zone / Policy Area: Urban Corridor Zone / Transit Living (Anzac Highway) Policy Area 24  
Subject Land: 10 Anzac Highway, Forestville SA 5034 (front portion of former Le Cornu site)  
Contact Officer: Lauren Talbot  
Phone Number: 8402 1786  
Close Date: 1 April 2019

My Name: I. L. TINKER. My phone number: 8293 8139

PRIMARY METHOD(S) OF CONTACT: Email address: \_\_\_\_\_  
Postal address: 2A FIRST AVENUE  
FORESTVILLE Postcode 5035

You may be contacted via your nominated PRIMARY METHOD(S) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:  owner of local property  
 occupier of local property  
 a representative of a company/other organisation affected by the proposal  
 a private citizen

The address of the property affected is 2A FIRST AVE, FORESTVILLE Postcode 5035

The specific aspects of the application to which I make comment on are:

I support the development;  
 I support the development with some concerns;  
 I oppose the development

(Please tick one)

For the following reasons:

- ① IT WILL SERVICE AN EVER INCREASING NUMBER OF APARTMENTS IN THE AREA.
- ② IT IS RELATIVELY LOW <sup>HEIGHT</sup> LEVEL THERE BY PREVENTING THE ERECTION OF HIGH MULTI-STORY APARTMENTS OR FLATS WHICH WOULD OVERLOOK MYSELF AND MY NEIGHBOURS.
- ③ IT DOES PROVIDE A REASONABLE LEVEL OF TREE COVER + ADEQUATE PARKING.
- ④ IT WILL PREVENT THE CONTINUED DEGRADATION OF THE SITE WHICH IS HIDEOUS.

Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

I:  wish to be heard in support of my submission  
(please tick one)  do not wish to be heard in support of my submission  
(Please tick one)

By:  appearing personally  
(please tick one)  being represented by the following person  
(Please tick one)

Date 27 March 2019 Signature Irene Tinker

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or [scapreps@sa.gov.au](mailto:scapreps@sa.gov.au).



SOUTH AUSTRALIAN DEVELOPMENT ACT 1993  
REPRESENTATION ON APPLICATION – CATEGORY 2

**Applicant:** Kaufland Australia Pty Ltd  
**Development Number:** 090/E004/18  
**Nature of Development:** \*Re-notification\* Construction of two-storey retail development for Kaufland Supermarket including supporting small tenancies, solarpanels, associated undercroft car park, offices, various signage, and landscaping.  
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**Subject Land:** 10 Anzac Highway, Forestville SA 5034 (front portion of former Le Cornu site)  
**Contact Officer:** Lauren Talbot  
**Phone Number:** 8402 1786  
**Close Date:** 1 April 2019

My Name: Dr. Ewa Stankiewicz My phone number: 0405 733 691

**PRIMARY METHOD(S) OF CONTACT:** Email address: doc.ewa@gmail.com  
Postal address: 23 rothbury avenue Heath pool  
Postcode 5068

You may be contacted via your nominated PRIMARY METHOD(S) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:

- owner of local property
- occupier of local property
- a representative of a company/other organisation affected by the proposal
- a private citizen

The address of the property affected is 57/59 anzac Highway Postcode 5035

The specific aspects of the application to which I make comment on are:

I support the development;  
 I support the development with some concerns;  
 I oppose the development  
(Please tick one)

For the following reasons:

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Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

I:  wish to be heard in support of my submission  
(please tick one)  do not wish to be heard in support of my submission  
(Please tick one)

By:  appearing personally  
(please tick one)  being represented by the following person  
(Please tick one)

Date 21/3/2019 Signature 

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or [scapreps@sa.gov.au](mailto:scapreps@sa.gov.au).



**LEVEL 12  
120 COLLINS STREET  
MELBOURNE VIC 3000**

URBIS.COM.AU  
Urbis Pty Ltd  
ABN 50 105 256 228

9 April 2019

Lauren Talbot  
Team Leader Development Officer  
State Commission Assessment Panel  
GPO Box 1815  
ADELAIDE SA 5001

Dear Lauren,

**APPLICATION NO. 090/E004/18  
NO. 10 ANZAC HIGHWAY, FORESTVILLE  
RESPONSE TO REPRESENTATIONS FROM THE PUBLIC AND UNLEY COUNCIL**

**1. INTRODUCTION**

Urbis continue to act on behalf of Kaufland Australia in support of a development application for the development of a supermarket at 10 Anzac Highway, Forestville.

The purpose of this correspondence is to respond to matters raised in public representations and the submission from the City of Unley. Kaufland and the consultant team have reviewed the submissions, and following this review, minor modifications have been made to the development proposal to address some areas of concern.

As such, please refer to the following enclosed documents:

- Updated Architectural Plans prepared by Studio 117, dated 8 April 2019
- Updated Landscape Plan prepared by Formium, dated March 2019
- Updated Town Planning Report prepared by Urbis, dated April 2019
- Traffic Response Letter prepared by WGA, dated 5 April 2019

It is considered that the proposed development has been appropriately revised to respond to SCAP's deferral matters and subsequently responds to many of the concerns raised by submitters, as well as continuing to appropriately respond to the applicable controls and the site's context.

This correspondence includes a response to the key concerns raised by public respondents and the City of Unley. In addition, a response is provided to each of Council's proposed permit conditions (please refer to Table 1).

## **2. RESPONSE TO KEY CONCERNS**

### **2.1. TRAFFIC AND ACCESS**

A response to specific traffic related items of the City of Unley submission has been prepared by WGA and is detailed in the attached Traffic Response Letter, dated 5 April 2019.

In response to the submission of Ivan Tanner it is noted that no change is proposed to the Maple Avenue access or egress. However, the design encourages vehicles to use Leader Street, which is signalised, and is being upgraded as part of this development. Improved right turn access into Leader Street will reduce some of the existing vehicles turning into Maple Street.

WGA also advise that the manoeuvre across three lanes as suggested in Mr Tanner's submission is dangerous and should not be encouraged. DPTI also agree with this statement which is why modifications are required to the central median to eliminate this movement from the opposite carriageway. WGA note that there are several locations further along Anzac Highway where traffic from Marlestone Avenue could undertake a U-Turn to safely access Maple Avenue, in the event that the right turn lane is full.

In addition, it is noted that DPTI's Transport Assessment and Policy Reform department have reviewed the amended proposal and provided conditional support for the development. This includes being supportive of the upgrade of the Anzac Highway / Leader Street junction as it is currently proposed and confirming that the projected traffic volumes of the updated WGA traffic impact statement are representative of the future traffic generation of the site, in accordance with the RTA Guide to Traffic Generating Development.

### **2.2. USE AND OPERATION**

The proposed retail development will occupy approximately two thirds of the overall former LeCornu site. As previously required by SCAP, a Land Management Agreement is also proposed to ensure the balance of the site is to be developed for predominantly residential purposes in the future, which will facilitate an overall mixed use outcome to be achieved for the site, as required by the objectives of the Urban Corridor Zone.

The City of Unley acknowledge that this will help to address the overall land use balance and result in a positive outcome for the site in the context of the overall Transit Living Area desired character.

With regard to the operating hours of the development, the applicant seeks to retain the commercial activities trading hours as proposed, subject to any future changes to legislation on shop trading hours by the State Government.

The delivery hour restrictions proposed by the City of Unley are not considered necessary to protect the amenity of surrounding residential properties. As detailed in the acoustic report prepared by Resonate, which accompanied the application, delivery operations for a 19 metre truck can meet the relevant noise guidelines by adhering to the following:

- 1 x delivery between 10pm-5am
- Deliveries between 5am and 7am - however not more than 1 x delivery per 15 minute period
- Unrestricted deliveries between 7am- 10pm

It is noted that deliveries between 5am and 7am are critical for the efficient operation of the supermarket, with fresh local produce being delivered during this period for sale throughout that day.

It is noted as not being required by the acoustic report to achieve compliant noise levels; however, the applicant has proposed the addition of a sliding gate to the loading area for screening purposes, as requested by City of Unley.

### **2.3. BUILT FORM AND SITE LAYOUT**

Noted as a 'low-rise' building by the City of Unley, it is highlighted that the proposed development, to be built to a height of 13.1 metres to 14.62 metres, meets the minimum building height of the Urban Corridor Zone (11.5 metres). As such, it is considered that the proposed building height is appropriate for the proposed use and has been designed to limit impact of the built form on surrounding interfaces, particularly the residential properties on the southern side of Leader Street.

It is noted that the City of Unley are supportive of the proposed setback alterations across the site, as well as recognising the improved built form presentation along Leader Street through the inclusion of glazing treatments and materiality updates.

### **2.4. LANDSCAPING**

The City of Unley supports the increase and refinement of the landscaping outcome across the site and the positive outcome this will have on the quality of the overall development and surrounding amenity.

In response to the feedback from the Council, the Landscape Plan has been updated to include an increased provision of screening planting to, and additional planting within, the front and rear car parking areas and refinement of the landscaped screening to the eastern interface. Subsequent updates have also been made to the architectural site plan to accommodate these changes, including a reduction in the overall provision of car parking to 418 spaces.

The provision of trees within the external car parking areas has been increased in excess of the 1 tree per 8 spaces, which was previously proposed.

In addition, the planting provision along the eastern boundary has been updated to provide an improved outcome to this interface and ensure a suitable environment for future residential uses in this location. This includes an increase in width of the landscape buffer running along the eastern boundary to accommodate a significant increase in tree planting, resulting in an effective and continuous buffer of soft landscaped screening to the property to the east.

The landscape plan also confirms that a 2.4 metre high fence will run along the eastern boundary to ensure the acoustic protection at ground level open space of existing and future residents to the east.

### **2.5. SIGNAGE**

The overall extent, location and size of the proposed outdoor advertising scheme is appropriate to the site's size, main road location and surrounding area, particularly when considered in the context of the scale of the proposed building.

Proposed Pylon Sign A will replace the existing Le Cornu pylon sign located on the site and has been designed to reflect the existing height, at approximately 20.6 metres. The replacement sign is deemed a 'like for like replacement' in terms of height and scale, noting that proposed signage atop the pylon itself is smaller than that of the 'Le Cornu' sign by approximately 5.8 square metres.





It is considered the substantial size of the site, its location on an arterial road, and the scale and nature of the proposed development supports the scale and quantum of the signage proposed. It is considered that the signage will not detrimentally impact of the appearance of the surrounding area and are considered an appropriate response in the Urban Corridor Zone.

### **3. CONCLUSION**

We trust the above response and enclosed documentation satisfactorily addresses the matters raised in the public and Council representations received. We look forward to the further progression of the application through the SCAP process. Should you have any queries please do not hesitate to contact the undersigned or Mietta Gleeson on 8663 4883 or via email at [jkelly@urbis.com.au](mailto:jkelly@urbis.com.au).

Yours sincerely,

A handwritten signature in cursive script that reads "Jane Kelly".

Jane Kelly  
Director

Enc: Table 1 – Response to City of Unley proposed Permit Conditions



Table 1 – Response to City of Unley proposed Permit Conditions

City of Unley proposed Condition	Response
<p>1. Following 6 months of operation of the subject development a Local Area Parking and Traffic Management review be supported to assess and implement any adjustments necessary to address identified traffic issues;</p>	<p>This condition is not supported.</p> <p>This condition is considered unreasonable on the basis that it provides little certainty for the client in terms of future obligations and only defers the resolution of the perceived issue.</p> <p>As detailed further in the traffic response prepared by WGA, adequate information with regard to future traffic generation has been provided in the Traffic Impact Assessment to make a determination, without the need for any further review post development.</p>
<p>2. The detailed design of the accessways to Leader Street and provision for right turns in; while avoiding impacting infrastructure on the southern side, minimising on-street parking loss and maintaining designated bicycle path; be undertaken to the satisfaction of Council and with a view for signals not to be required;</p>	<p>Accepted.</p>
<p>3. A central raised island be installed in the vehicle access point off Anzac Highway to ensure entry is facilitated and not compromised by exiting vehicles;</p>	<p>This condition is not supported.</p> <p>WGA have advised that the vehicle entry and exit is wide enough to sufficiently allow vehicles to enter and exit without interference.</p>
<p>4. Public footpaths be reinstated and incorporated into public realm with a minimum width of 1.8-2.0 metres (minimum pinch points of 1.5) and be resolved with, and approved by, the City of Unley at the expense of the applicant;</p>	<p>Accepted.</p>



City of Unley proposed Condition	Response
<p>5. The commercial activities trading hours be limited to 7:00am to 9:00pm Monday to Saturday and 10:00am to 5:00pm Sunday</p>	<p>This condition is not supported.</p> <p>Subject to any changes to legislation on shop trading hours by the State Government, operating hours are proposed as 12am – 9pm on weekdays, Saturday 12am-5pm, and Sunday 11am – 5pm. These hours are the same as Coles Kurralta Park.</p>
<p>6. The delivery and servicing hours be limited to 7:00am to 7:00pm Monday to Saturday and 9:00 to 5:00pm Sunday, with all noise control measures and large service vehicle noise minimisation be incorporated to mitigate emissions and noise impacts beyond the site;</p>	<p>It is noted that deliveries between 5am and 7am are critical for the efficient operation of the supermarket, with fresh local produce being delivered during this period for sale throughout that day.</p> <p>As detailed in the acoustic report prepared by Resonate, which accompanied the application, delivery operations between 5am and 7am can meet the relevant noise guidelines by ensuring no more than one 19 metre truck delivery occurs every 15 minutes during this time.</p> <p>As such, it is requested that such a condition be updated to allow for 19 metre truck deliveries as follows:</p> <ul style="list-style-type: none"> <li>• 1 x delivery between 10pm-5am</li> <li>• Deliveries between 5am and 7am - however not more than 1 x delivery per 15 minute period</li> <li>• Unrestricted deliveries between 7am- 10pm</li> </ul>
<p>7. The rear service and delivery area off Maple Avenue accommodate vehicles up to a maximum length of 16 metres and access openings be</p>	<p>Trucks servicing the site will be of a maximum length of 19 metres, as supported by the response from DPTI's Transport Assessment and Policy Reform department.</p>



City of Unley proposed Condition	Response
<p>secured and closed-off from view by sliding gates (noiseless system) matching the boundary fencing adjacent to Maple Avenue;</p>	<p>As such, it is requested that such a condition be updated to allow for vehicles up to a maximum length of 19 metres.</p> <p>It is proposed that a sliding gate to the loading area be included for aesthetic purposes.</p>
<p>8. The landscaping to the rear portion of the site be improved by:</p> <ul style="list-style-type: none"> <li>- removed street trees #13 be replaced with species consistent with those others proposed;</li> <li>- additional trees at ratio of 1 per 6 car spaces be provided in open carpark areas;</li> <li>- carpark row island ends be widened to accommodate further trees and landscaping;</li> <li>- landscaped areas, swales and trees be incorporated along northern edge of public carpark and southern edge of staff carpark;</li> <li>- landscaped areas and trees be incorporated along northern side of fence screen to loading area and to eastern side of loading area north and south wings to further enclose and screen area beyond space for 3 trucks access and parking needs;</li> </ul>	<p>The applicant is committed to the preparation of a 'Public Realm Plan' to address the appropriate replacement of street trees.</p> <p>Please refer to updated landscape plan for revised response.</p>
<p>9. The rear eastern boundary be fenced with a compatible appropriate quality finish continuous 2.4 metre high acoustic barrier, and the associated landscape strip be increased in length to the road boundaries (including past transformer location) and in width to at least 2.5 metres (and minimum 1.8 metres clear of vehicles) to accommodate the proposed row of trees at 4 metre centres and appropriate substantial under planting to form an attractive and effective acoustic and continuous landscape buffer and soft screen to the property to the east;</p>	<p>Condition not required.</p> <p>Please refer to updated Landscape Plan.</p> <p>The width of the landscape buffer has been increased to 4.2 metres, additional planting and a 2.4 metre high fence proposed.</p> <p>Two rows of trees are proposed to be planted at an average of 3.4 m centres.</p>





City of Unley proposed Condition	Response
<p>10. The mature tree (#32) to Leader Street be retained and pedestrian access point moved and/or split to the western side of column support to assist with this;</p>	<p>This condition is not supported.</p> <p>As detailed within the Arborist Report prepared by Arborman, submitted with the amended application, it is confirmed that tree 32 will be unviable on the basis of reduced photosynthetic potential and not as a result of impacts of the specific locations of the proposed building and infrastructure.</p>
<p>11. The removed Maple Avenue street tree (#13) be replaced;</p>	<p>Accepted.</p> <p>The applicant is committed to the preparation of a 'Public Realm Plan' (see Point 8) to address the appropriate replacement of street trees.</p>
<p>12. Public realm configuration, damage, alterations and improvements in relation to water-tables, footpaths, verges and street trees (removals and replacements) be resolved with, and approved by, the City of Unley at the expense of the applicant;</p>	<p>Accepted.</p> <p>As documented in email correspondence between Kaufland and the City of Unley, the applicant is committed to working with Council to achieve an appropriate public realm outcome.</p>
<p>13. Full landscaping details and species, including additional trees at 1 per 6 vehicle spaces in open car parks and along loading and staff area screen fencing, be incorporated prior to occupation. Ongoing maintenance of all landscaping be undertaken to ensure all plants remain in sound and thriving condition, and be promptly replaced if and when die;</p>	<p>Accepted.</p> <p>Please refer to updated Landscape Plan for additional detail.</p>
<p>14. Outdoor advertising signs be reduced in number and scale, including internally illuminated signs on building elevations, the pylon adjacent to Leader Street vehicle entry to 6.0 metres high and the pylon sign in the front carpark adjacent to Anzac Highway from 20.6 to 12-15 metres in</p>	<p>This condition is not supported.</p>



City of Unley proposed Condition	Response
<p>height and total area to better relate to the building scale and Transit Living Policy Area Desired Character;</p>	<p>As detailed in Section 5.2 of this letter, the proposed outdoor advertising signage scheme is appropriate in the context of the site and surrounds.</p>
<p>15. The final floor, site and grading (for appropriate water flow) levels and appropriate stormwater management (final specifications and maintenance regimes of on-site detention depressions (carparks) and tanks, retention tanks, water reuse, bio-retention/swales and limitation of discharge outflow (to be below equivalent of 80% site impervious area) and use of only Reinforced Concrete Pipe to Council's stormwater infrastructure be confirmed and endorsed before final Development Approval is granted;</p>	<p>The floor, site and grading levels are as per the submitted Stormwater Management Plan and are subject to final detailed design prior to development approval.</p>
<p>16. Construction Management Plan be developed and agreed with the City of Unley and SCPA prior to Development Approval being issued to mitigate undue impacts upon the locality; and include:</p> <ul style="list-style-type: none"> <li>- Staging to contain activity to the site;</li> <li>- Traffic requirements including construction access/egress and heavy vehicle routes;</li> <li>- Tradesperson vehicle parking;</li> <li>- Work in the public realm;</li> <li>- Hoardings;</li> <li>- Operating hours, noise, dust and emissions control.</li> </ul>	<p>Accepted.</p>



WALLBRIDGE GILBERT  
AZTEC

Kaufland Australia  
Level 7 / 431 King William Street  
ADELAIDE SA 5000

Attention: Brianna Johnson

5<sup>th</sup> April 2019

Job No. 171147

Dear Brianna

**KAUFLAND SUPERMARKET – FORESTVILLE  
TRAFFIC RELATED RESPONSES TO APPLICATION DA 090/E004/19**

We understand Kaufland Australia has received a number of submissions from the City of Unley (council) related to the pre-lodgement submission for a proposed supermarket at 10 Anzac Highway, Forestville.

Relevant previous correspondence has been included as Attachment A to this letter. Sketches that have been referenced in responses have also been included as Attachment B.

To assist with the development application WGA is able to provide the following responses to all councils outstanding traffic related queries:

**1. CITY OF UNLEY RESPONSES  
SCAP REFERRAL – AMENDMENT – DA 090/E004/18  
COUNCIL FURTHER COMMENTS, RETAIL DEVELOPMENT – 10 ANZAC HIGHWAY,  
EVERARD PARK**

**Response 1**

*In addition to traffic issues raised below, the existing and reinforced movement of pedestrians across Leader Street and particularly Anzac Highway from adjacent Ashford Hospital, to new major development, café and other tenancies, needs to be recognised and addressed.*

*Pedestrian crossing with appropriate refuge in centre island, similar to others on Anzac Highway and Greenhill Road, convenient to the main entry point to the site and shops should be seriously encouraged to DPTI.*

*Further, an identified and protected crossing point should be considered for Leader Street adjacent to the main supermarket entry;*

WGA and Kaufland have already had discussions on this concern with DPTI. It has been agreed that as the project moves into detailed design, a suitable outcome will be generated. The key issue to note is that suitable access into Ashford Hospital for emergency vehicles needs to be considered with any proposal. Further development of proposals will be undertaken during the detailed design phase in collaboration with key DPTI stakeholders.

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Adelaide SA 5000  
WGASA Pty Ltd  
ABN 97 617 437 724

ADELAIDE    DARWIN    MELBOURNE    PERTH    WHYALLA

## **Response 2**

*A comprehensive traffic and parking management assessment, in so far as supplied information allowed, has been undertaken and is attached.*

WGA have provided significant additional information and traffic modelling than otherwise would normally be required for a development of this scale.

Council requested further network modelling quantifying impacts on Leah Street. This was provided, and responses given within the previous submission.

Amended plans for the Leader Street access were presented to Council at a meeting held on the 13<sup>th</sup> February 2019. During this meeting WGA and Kaufland offered to provide the supporting models and information that informed the reporting for review. No request was forthcoming from Council or their traffic reviewer.

## **Response 3**

*In-principle there is support for the modified signalised intersection of Anzac Highway and dual northern right turn lanes into Leader Street, acknowledging this is a balanced network solution to cater for increased traffic in but also out of the local area while maintaining flow on Anzac Highway;*

WGA Noted

## **Response 4**

*The development and associated infrastructure alterations are likely to pose notable traffic impacts on local road network. A review of traffic impacts will be undertaken 6 months following the commencement of operation of the main tenant of the site with a view towards assessing any necessary adjustments and improvements that should be made to the design and arrangements for traffic;*

Traffic modelling of the wider road network within the vicinity of the development, up to and including Leah Street has already been completed. The model also incorporated predicted future traffic generation as a result of this development and provided an extensive assessment of the traffic impacts on the road network in the vicinity of the development.

We believe more than adequate information and assessment has been provided and do not agree with this requirement.

## **Response 5**

*Turn movements at the southern access point on Leader Street currently meet the warrant for traffic signals.*

We note that in addition to the warrant graphic provided by the councils traffic reviewer the DPTI document 'Part 2 – Code of Technical Requirements' states that regardless of whether the numerical guidelines for traffic signals indicate that signals may be warranted a detailed analysis involving the use of traffic modelling software should be undertaken. This statement has been omitted from councils traffic reviewers submission.

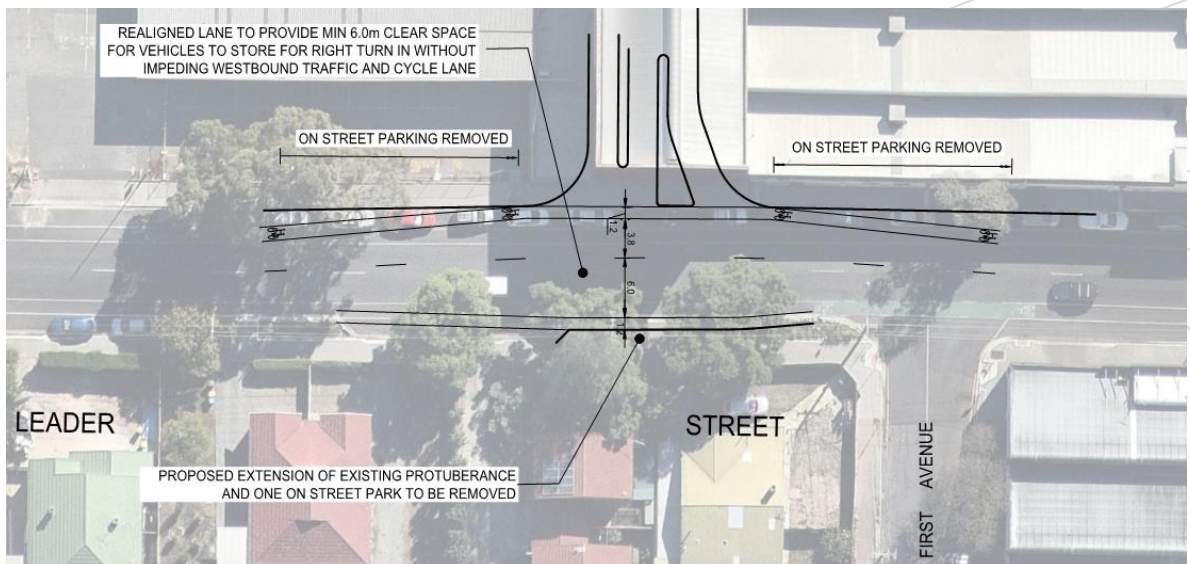
In accordance with this recommendation, WGA has completed detailed traffic modelling to DPTI standards, and the results from this modelling have been previously provided to Council and its independent traffic reviewer, as Appendix D of the *Traffic and Parking Assessment Report, Rev H*. The modelling indicates that there is an average delay of 4.1s at the junction. We have since modelled the junction as signalised. This results in an increase of average delay to 25.1s. Therefore signals are not warranted and if installed would actually increase delay for road users when considering the expected traffic demand.



## Response 6

*Additionally, the removal of on-street car parking has not been quantified nor the undesirable potential impact upon recently installed infrastructure on the southern side of Leader Street from creating space for right turns. Maintenance of cycling path is positive.*

The removal of on-street parking has been previously provided as Attachment A in the document titled WGA171147-TN-TT-0001[C]. The proposed area of affected on-street parking has been clearly identified. An exact number of on-street parks removed is not applicable as on-street parking along Leader Street is not delineated and is governed by vehicle lengths and driver discretion. Please refer to the screenshot below and note that the Concept Plan has also been provided as Attachment B to this letter. WGA also notes that the original design did not impact on Council infrastructure (*specifically the bioswales on the southern side*) at this intersection. The current parameters used in the design and widening of the road at the junction are based on recommendations provided by Council's independent traffic reviewer.



## Response 7

*A condition is requested that detailed design of the accessways to Leader Street, without impacting infrastructure on southern side and minimising on-street parking loss, be undertaken to the satisfaction of Council with a view for signals not to be required;*

WGA have provided several concepts to Council for review. We have actively engaged council on a number of occasions. The current designs are based on input provided to date from Council and its traffic reviewer. If current designs are not inline with council requirements we require these parameters to be provided so we can develop an appropriate solution.

## Response 8

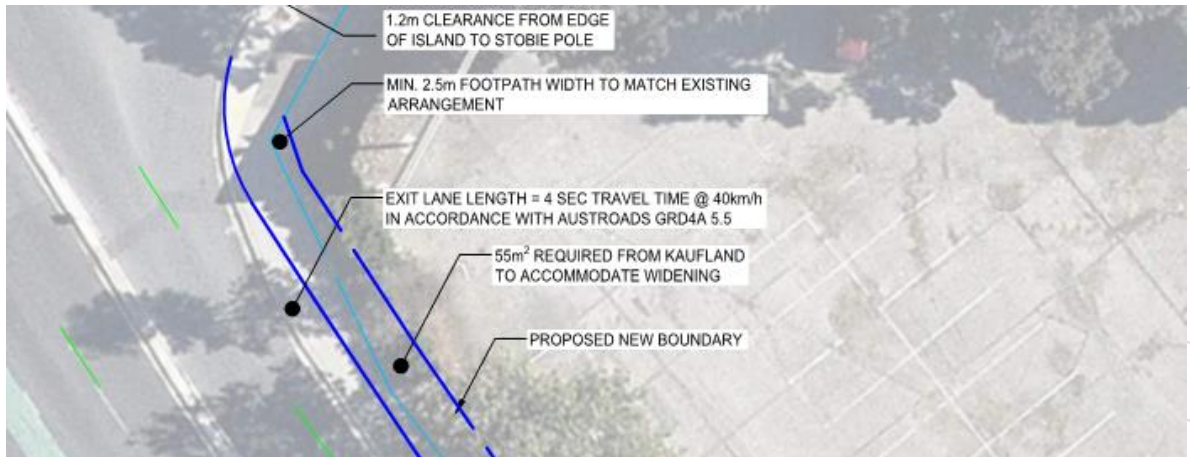
*Based on expected future additional pedestrian demand generated by the proposal, pedestrian crossing infrastructure across Anzac Highway should be further seriously considered by the relevant authorities;*

Refer response 1.

## Response 9

*Public footpaths be reinstated and incorporated into public realm with a minimum width of 1.8-2.0 metres (minimum pinch points of 1.5);*

This has been addressed within the design. Please refer to Attachment A of the document titled WGA171147-TN-TT-0001[C] and the below screenshot. Kaufland has agreed to provide up to 55m<sup>2</sup> of area to accommodate widening of the footpath to match existing footpath widths along Leader Street and Anzac Highway. Please refer to Attachment B for the concept plan.



## Response 10

### *Condition*

*The rear service and delivery area off Maple Avenue accommodate vehicles up to a maximum length of 16 metres and access openings be secured and closed-off from view by sliding gates (noiseless system) matching the boundary fencing adjacent to Maple Avenue;*

There may be an error with the noted maximum vehicle length, the design should typically accommodate the largest non-restricted access vehicle which is a 19.0m Semi (not the 16.0m mentioned). We also confirm sliding gates across access points are proposed to be installed and are shown within the current amended plans.

We trust this addresses all the outstanding traffic related concerns arising from the pre-lodgement submission. If required, we can make ourselves available to provide further clarifications or at any SCAP or DPTI meetings as required.

Yours faithfully

Jason Zafray  
for  
**WALLBRIDGE GILBERT AZTEC**

JZ:nd

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# ATTACHMENT A

## PREVIOUS CORRESPONDENCE AND RESPONSES





WALLBRIDGE GILBERT  
AZTEC

Kaufland Australia  
Level 2 / 100 Dorcas Street  
SOUTH MELBOURNE VIC 3205

Attention: Sam Russell-McLeod

11<sup>th</sup> July 2018

Job No. ADL171147

Dear Sam

## **KAUFLAND SUPERMARKET – FORESTVILLE PRE-LODGE MENT SUBMISSION, TRAFFIC RELATED RESPONSES**

We understand Kaufland Australia has received a number of submissions from stakeholders related to the pre-lodgement submission for a proposed supermarket at 10 Anzac Highway, Forestville. To assist with the Development Application WGA is able to provide the following responses to all outstanding traffic related queries:

### **DPTI RESPONSES (Email response received 5<sup>th</sup> June 2018)**

- DPTI remains unconvinced that 10% of the total site traffic would access the site via the eastern approach from Maple Avenue. Entering traffic on this route is likely to be extremely low as there is no residential development to the north or east of the site along Maple Avenue, and westbound traffic on Leader Street is not permitted to turn right into Maple Avenue. It is nonetheless acknowledged that a small portion of exiting traffic may leave the site via this route to avoid queues at the Leader Street access. The traffic attributed to the eastern section of Maple Avenue should redistribute to the Leader Street access in the absolute majority.*

We have undertaken a sensitivity analysis and transferred all the Maple Avenue (E) traffic to the southern access along Leader Street. The average intersection delay increases from 6.3 seconds to 6.6 seconds. The highest delay movement (right turn out) increases from 29.1 seconds to 31.8 seconds. This level of delay is still within acceptable levels.

- DPTI has cross-referenced the traffic volumes in the SIDRA file with SCATS data and found that the hour used for peak Saturday traffic appears to be 11:00 – 12:00 on 21 October 2017, albeit that 334 vehicles appear to be missing from the right turn out of Leader Street. Please clarify. Additionally, DPTI notes that the WGA response letter indicates that the site inspection report (Appendix B) was used to inform distributions and volumes. None of the surveys undertaken for this report were at an equivalent time period on a Saturday morning and may not provide a reliable basis for the traffic distributions and volumes.*

There is erroneous data for time periods 11:45 – 11:55 with Detector 9 reporting volumes 2000% higher than the adjacent 5-minute periods. We replaced these two periods with the average 5-minute demand for surrounding peak hour. Except for Maple Avenue the SCATS data forms the basis for all volumes used within this analysis with demand proportioned based on observed movements. We agree that the traffic distributions may vary marginally for the Saturday peak period given the reduced delay on the adjacent arterial network but these volume changes are within the range of normal stochastic variation. To test this, we have undertaken further sensitivity analysis and relocated all traffic to the junction of Anzac Highway and Leader Street with average delay increasing from 14.2 seconds to 20.9 seconds and Level of Service (LOS) B to C.

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3. *SIDRA Modelling*

*It is understood that the junction geometry has been picked up from aerial imagery (nearmap) and site observations. However, the full use of bay capacity does not appear to be reflected in the SIDRA outputs. Please review and clarify.*

Lane lengths used within the SIDRA Analysis have been measure to when bay widths are 2.0m.

*Measured saturation flows are acceptable for assessment purposes and it is noted that these have been used to modify the SIDRA models. It is noted that WGA were unable to calibrate the models using the phase splits from SCATS. The main issue here is that Phase C must assume that the pedestrian phase P2 is activated on every occasion during all analysis periods. The P2 walk and clearance time is 25 seconds and there is a 5 seconds intergreen period. In all models Phase C cannot be permitted to be less than the value of 30 seconds (25% of 120 second cycle time).*

*The lane utilisation produced by SIDRA does not reflect the actual use of the lanes:*

*Leader Street right lane of two right turn out lanes varies between 51% on Thursday 16% on Saturday [SIDRA 100% and 100%]*

*Anzac Highway NE through approach left lane approximately 70% [SIDRA 70%]*

*Anzac Highway SW through approach left lane approximately 40% [SIDRA 88%]*

We have undertaken further analysis utilising provided phase times, observed saturation flows and provided lane utilisation factors. The outputs do not represent observations with queues along Anzac Highway (NE) approach extending past Greenhill Road. Existing Degree of Saturation (DOS) is also above 1.0 which also provides an indication as to these parameters providing incorrect outputs as the existing DOS utilising SCATS volumes cannot exceed 1.0 or the real capacity of the junction.

4. *It is acknowledged that existing volumes for Maple Street are produced in Appendix B. The times of survey given for the Leader Street / Anzac Highway junction are:*

*Monday 16/10/17 17:00 – 18:00*

*Tuesday 17/10/17 08:00 – 0900*

*Wednesday 10/05/18 17:00 – 18:00*

*Please clarify whether the Anzac Highway / Maple Avenue junction was surveyed for the same time period as the Anzac Highway / Leader Street junction.*

Yes, Maple Street observation were undertaken during the same time periods. This is now updated within the revised traffic report.

5. *DPTI recognises that the operation of Anzac Highway / Maple Street intersection is somewhat difficult to analyse because although it is a 'give-way' junction its analysis cannot be based on gap acceptance. In order to compensate for expected behavioural issues at the junction (i.e. lower flow from Anzac Highway due to queues from the Anzac Highway / Leader Street junction blocking the Maple Avenue junction), all traffic turning right into Maple Avenue from the south west should be reassigned to the Leader Street intersection. This also reflects the anticipated driver behaviour (motorists using the first available opportunity to turn right towards the site).*

6. *WGA identify the channelised right turn lane into Leader Street will overflow into the right hand through lane of Anzac Highway in the PM peak hour following addition of development volumes (current queues are contained within the available storage). The overflow of vehicles into the right hand through lane is likely to increase once the alterations to traffic distributions identified above are applied to the Anzac Highway / Leader Street SIDRA model. Whilst WGA's rationale is noted with regard to the potential for a certain amount of this traffic to be rat-running movements between Anzac Highway and Goodwood Road, the department does not agree that this justifies acceptance of the lane overflowing into the through traffic. DPTI considers that queues of right*

*turning traffic need to be contained within a channelised turn lane post-development (i.e. status quo maintained). This is likely to require alterations to the configuration of the Anzac Highway / Leader Street junction.*

In view of the above DPTI concerns a meeting was held between DPTI, Kaufland and WGA representatives on the 26<sup>th</sup> June 2018 to discuss these outstanding issues, particularly with respect to discussion of possible improvements in capacity to the junction of Anzac Highway and Leader Street. WGA discussed one proposal to extend the right turn lane. DPTI agreed that it would be worth exploring. Since this meeting WGA have undertaken further concept design and consider that extending the lane by another 50m whilst keeping the impact to a maximum of two trees. A concept of this proposal is included within Attachment A. Extending any further would likely see at least a further three trees requiring removal. Analysis has shown that implementing this extension would maintain overall intersection LOS to a similar level to existing with the exception of the right turn movement into Leader Street. This right turn lane extension enables DPTI to provide additional green time to the critical southbound Anzac Highway movement during the PM peak period which in turn increases delay to the right turn movement, however, these queues would now be maintained within the proposed extended right turn lane and not extend into the adjacent through lane which is one of DPTI main concerns.

## **PUBLIC RESPONSES**

WGA have reviewed all the provided formal and informal public submissions and note that there are common concerns throughout. Therefore, rather than independently reply to each submission we propose to respond to address all the common concerns together. The main concerns with the proposed development including the references to the specific submissions include:

- *Increase in traffic – including Leah Street*
  - *Ref – V and R Reschke, S Fraser, C Heptinstall, P Flowers, M and E Walden, L Thomson, D Tranter, C and A Robey, B Allen, A Tran, A Sperring, H Le, J Stinson MP, K Treloar*

We appreciate the existing concerns residents have particularly with respect to Leah St as this is a very heavily trafficked local collector road linking Leader Street to Daws Road, St Marys some 5 km to the south. WGA have undertaken site observations of Leah Street during both peak periods and have observed the delays are significantly higher during the AM peak periods due to traffic heading towards the CBD which is also confirmed from feedback within the submissions. Please note that from a traffic generation and analysis perspective we are not required to undertake assessment for the AM peak period. The accepted guide to development rates, RTA Guide to Traffic Generating Developments does not provide a rate for the AM peak period. This is due to the fact that trips generated by a development of this type are low during the AM peak period and are not expected to impact the surrounding network as they are primarily employee trips only.

Regarding the PM peak period. Whilst we have observed high traffic levels, the delays are not as significant as the AM peak period as the traffic is either turning left or right into Leah St or continuing through instead of right or left out which is subject to higher delays as they are required to give way (AM peak condition). We note many informal submissions from Leah Street residents have concerns re the lack of wider traffic study. There is no requirement from DPTI to undertake a wider network analysis, however, at the request of Council we have extended our modelling to include Leah Street where no significant or additional delay was observed at the junction. To put the additional traffic into perspective with respect to the PM demand we expect there will be an additional 95 veh/hour heading east along Leader Street towards Leah St. Observed counts show a 65/35 ratio of right turning to through traffic into Leah Street therefore the total additional traffic we expect along Leah Street is approximately 60 veh/hr or an additional 1 vehicle per minute which is well within the range of stochastic variation of traffic for a peak hour period.

- *Increase in traffic – concerns re potential for increase in heavy vehicles volumes along Leader Street*
  - *Ref – L Kelly, M and E Walden, D Tranter, C and A Robey, B Allen, J Stinson MP*

All HV and service vehicle access is now proposed to be on Maple Street via Anzac Highway.

- *Leader Street Access – performance and operation*
  - *Ref – V and R Reschke, L Kelly, P Flowers, A Tran, H Le, T Pursey, J Stinson MP, K Treloar*

Concerns have been raised with respect to the operation of Kaufland's secondary access on Leader Street. They typically include concerns about the performance of the junction and the potential for vehicles waiting to enter the site to hold up through traffic along Leader Street, particularly after Councils recent installation of WSUD protuberances which have reduced capacity at the adjacent signalised intersection and along the length of Leader Street. In response to these concerns the proposed access has been located far enough along Leader Street to ensure that the queues from Anzac Highway do not extend past the access. In addition, Kaufland proposes dual in and out lanes and a short channelised right turn lane into the site to minimise impact to the adjacent network as much as possible. A concept of this proposal is included within Attachment B. Based on these improvements WGA have modelled the average delay at the junction to be 6.6 seconds with the worst-case delay of 30 seconds for only those exiting the site.

- *Parking – either too much or not enough to ensure to no spill over to on street*
  - *Ref - S Fraser, C Heptinstall, L Thomson, D Tranter, A Day, J Stinson MP*

There are two main concerns with respect to parking. The concern that the number of car parks provided infers that Kaufland are aiming to target a much wider catchment and the second is that there are not enough parks and there will be spill over onto local streets which are already congested with parking of employees from Ashford Hospital.

We have observed on site these parking issues and this is one of the main reasons for recommending more than the minimum number of parks to ensure there is no customer parking on adjacent local streets even during Christmas peak periods. The installation of boom gates is to ensure that parking is prioritised for customers and staff and not service the excess from Ashford Hospital.

#### **City of Unley Responses (infraPlan comments on Traffic Impact Assessment Report Rev E)**

**R1** *Function of Leader St - Leader Street is a major east-west cycling route.*

*Action - Ensure that design at Leader Street Access does not compromise cyclist safety or block the bicycle lane.*

The proposed access at Leader Street will now incorporate dual in and out lanes with barrier gates positioned to ensure queued vehicles do not impact both cyclists and traffic along Leader Street.

**R2** *Car Parking Rates - Do not agree with the use of parking demand as 5.5 spaces/100m<sup>2</sup>. The Unley Development Plan vehicle parking rates table for non-residential development (Urban Corridor Zone) is as follows: 3 spaces/100m<sup>2</sup> GFA (desirable minimum) 5 spaces/100m<sup>2</sup> GFA (desirable maximum) Therefore, the desirable maximum no of spaces is 355, not 374.*

*Action - Modify report to reflect Development Plan car parking rates*

WGA have updated report and calculations.

**R3** *Accessible Parking Rates - Agree to use BCA rates for Accessible Parking (1/50 spaces) instead of Development Plan (max. 5 spaces). The BCA rate results in a higher number of accessible parking.*

*Action – None*

Noted

**R4** *Bicycle Parking Provision Rates have been updated in 2017 Austroads Cycling Aspects. Current rates for shops more than 1000m<sup>2</sup> and offices are: Shop: Employees = 1/300m<sup>2</sup>, Visitor/shopper = 1/500m<sup>2</sup>. Office: Employee = 1/200m<sup>2</sup>, Visitor = 1/500m<sup>2</sup>"*

*Action - Update Bicycle Parking requirement and ensure that this number are provided. Employee bike parking to be undercover, safe and secure.*

We have used the applicable bicycle rates within the Unley DP. These should take precedence above Austroads.

- R5 *Car Parking Provision Rates The proposal includes 487 spaces, which is more than the desired maximum requirement of the Development Plan (by 132 spaces, when calculated with DP rates, refer item R2). An excess of parking bays is acceptable given the land use and that additional GFLA is proposed in the future. However, sustainable forms of travel should also be encouraged, e.g. bicycle parking, high quality pathways, and links to bus stops.*

*Action – Refer to Item R6*

Noted.

- R6 *Bicycle Parking Insufficient bicycle parking is currently shown on plan – this is noted in report.*

*Action - Ensure additional bike parking is provided and is in a safe, secure location.*

Additional bicycle parking, both secure and casual has now been included within the current proposal.

- R7 *"Traffic Generation Rate*

*A 20% discount has been applied as a 'passing traffic' discount. While this may be true for the road network, this causes a false decrease of 20% in traffic utilising the accessways. These lowered rates are applied throughout investigations." Review discount provided and reflect likely accessway volumes*

Noted and has been addressed in current modelling and report

- R8 *Traffic Distribution Profile*

*Proportions of traffic have been applied to access locations. While this is an estimation, the Southern Access seems underrepresented in the number of trips handling 65% in the weekday peak and 75% in the weekend peak.*

*While difficult to put facts behind, there are some movements that are not intuitive such as Maple Avenue east of the northern access carrying 10% of trips, yet being a longer trip for most users.*

*Action - For noting .*

Repeat customers will find faster routes in and out of the development. We expect these customers to use the Maple Street access as it will be underutilised and provide almost zero delay.

- R9 *SIDRA modelling has not been provided for review.*

*Further understanding required as to model calibration. For example, observations during the Weekday AM registered a queue of 210m for a right turn from Leader Street onto Anzac Highway. SIDRA outputs in table 7 suggests a queue of 45m maximum during the same time.*

*This is important since the proposed accessway onto Leader Street is approximately 160m from the signalised intersection with Anzac Hwy meaning that traffic is queued across the accessway.*

*Additionally, it is unclear whether future volumes have been modelled which are likely to worsen results.*

*Action - Provide commentary on signalised intersection impact on proposed accessway and provide model for review.*

The queue length of 210m noted above is for Weekday AM and Table 7 refers to Weekend SAT AM.



Future modelling has not been undertaken nor required by DPTI.

- R10 AIMSUN modelling has been undertaken but no outputs provided to indicate probable increase of traffic on Council roads such as Leah Street or First, Second and Third Avenue.*

*Understanding impacts to the local road network was the primary purpose of Council requesting AIMSUN modelling.*

*Action - Generate likely impacts to the local road network using the developed AIMSUN scenario.*

It was agreed to include the junction with Leah St within the AIMSUN Modelling. This was included and the network delay statistics included within the AIMSUN Summary Report. No specific reporting on Leah Street operation was included as no change to performance were observed noting the delays at Leah Street are primarily confined to the AM peak period and outside the scope of our analysis. As for First, Second and Third Avenue their permeability and capacity is so limited any increase in traffic demand would be negligible.

- R11 Development Access and Layout.*

*The main circulation roadway between Maple Avenue and Leader Street is not best practice design. AS2890.1 Clause 2.3.1 (c) states: Arrangements of internal roadways to avoid, as far as practicable, conflicts between intersecting streams of circulating traffic.*

*T-junctions are preferred over 4-way intersections for safety and clear right-of-way.*

*The eastern laneway could be used as a cut-through route to avoid the delay at the Leader St signals and increase traffic in the local street network. Through traffic via this lane is not supported.*

*Action - Consider re-designing the internal circulation roadway to remove 4-way intersections and reduce potential cut-through traffic.*

*Provide discussion on the intended use of the eastern laneway. Provide a bollard or similar to prohibit vehicles from using this as a cut-through route.*

The direct link between access points is now realigned to address the cut through issue.

The eastern laneway is to be controller with boom gates, therefore no connectivity is provided to the public.

- R12 Parking Bay and aisle design*

*Report notes that some bays are 4800 long and therefore 600mm overhang is required (e.g., no landscaping). However, the carpark screening may prevent overhang*

*Action - Ensure 600mm (min) clear space is provided to allow vehicle overhang where bays are 4800 long.*

Noted.

- R13 Designated Accessible Parking Bays*

*Report notes that the numbers are appropriate, but the spaces should be more appropriately located - next to entrances.*

*Agree - ensure Accessible Car parks are as close as possible to building entries.*

Noted.

- R14 Entry and Exit Points.*

*The Report discusses the '3' access points (northern, southern and western), but does not discuss in detail, the entry and exit point at Leader Street (eastern side of boundary).*

*The northern and southern entry/exit access points are aligned to form a straight access through road. This may be used as a short-cut to avoid the signals/delay at Leader Street and increase traffic in the local street network – this is not supported.*

*Action - Provide details on the intended use of the eastern laneway. Provide a bollard or similar to prohibit vehicles from using this as a cut-through route. Offset the northern and southern entry/exit points to reduce the likelihood of through traffic.*

Refer R11 response

#### R15 Anzac Highway

*A raised concrete separator is proposed at the median opening in Anzac Highway opposite the proposed access, to 'eliminate the risk of motorists undertaking a potentially hazardous right turn manoeuvre into or out of the site'. This will require liaison with DPTI as the proposal may not be in line with DPTI's objective of these median openings.*

*Action - Liaison with DPTI required.*

The layout has been developed in coordination with DPTI and Ashford Hospital and they are supportive.

#### R16 Heavy Vehicle Access

*Although Maple Avenue currently provides access to light industrial land uses, the site to the north of Maple Avenue is within the same zone as the subject site. This could become future residential, mixed use. The loading docks on this road frontage need to consider future adjacent use. Will there be gates at the delivery entries?*

*The laneway along the eastern boundary of the site and access point at Leader Street is not discussed in detail. It does not state the number of heavy vehicles that may exit via Leader Street local area. The report notes that this is an exit only, but this is not entirely clear, and the roadway is 6m wide which indicates 2-way. The encouragement of heavy vehicles into the local area is not supported.*

*Will on-street parking on Maple Avenue be banned to allow for heavy vehicle access?*

*The driveway crossovers are indicated at around 12-15m in width which is not conducive to pedestrian movements. Need for this width should be demonstrated (i.e. with turning movements) or the crossover reduced to the required width.*

*The development is proposed to be available to receive deliveries or be services 24 hours a day.*

*Action - Require more information on the controls at the delivery areas off Maple St. Require more information on the use and intent of the eastern lane and the vehicles exiting to Leader St. Confirm the proposed status of the on-street parking in Maple Avenue. Demonstrate the need for proposed crossover widths or reduce to required size (loading & waste)*

No controls are proposed. Required width is shown within Appendix F Vehicle Turnpaths of the Traffic Impact Assessment Report

#### R17 Emergency Vehicle Access

*Report notes that Additional clearance width required. Is Emergency vehicle access also via eastern lane?*

*Action - Ensure that clearance is provided. Confirm if Emergency Vehicles also use eastern lane.*

The eastern access is required to and is available to Emergency Vehicles and the access into the car park has been widened to accommodate a typical fire appliance.

**R18 Pedestrian Access**

*The pedestrian access path to the Leader St signals does not align to the existing kerb ramp location. There is a north-south ped walkway out to the mid-block of Leader Street, but does not connect to a road crossing facility here. There are no crossing facilities in the car park to assist crossing of the circulation roadways east of the lifts/travelators. The details of the internal pedestrian crossing facilities are not shown – but we assume are zebra crossings.*

*Action - Realign pedestrian path to line up with existing kerb ramp at Leader Street signals.*

*Include a pedestrian refuge or similar crossing facility at Leader St opposite the walkway.*

*Add pedestrian crossing facilities across circulation roadways within car park.*

*Confirm type of internal pedestrian crossing facilities proposed.*

Pedestrian path is proposed to be realigned or relocated. Any additional pedestrian refuges will need to be located in cooperation with City of Unley. These plans are currently preliminary therefore we propose that this is coordinated during detailed design phase.

Given the size of the parking facility there are no clear pedestrian desire lines. Therefore, any facility i.e. pedestrian path down the middle would be underutilised and potentially create other issues. To improve safety the design includes wider than standard aisles and speed humps will be installed for long east - west aisles to reduce speed within the car park.

**City of Unley Responses (infraPlan comments on Pedestrian Movement Report Rev B)**

**P1** *It has been assumed that the site is in a low density walking zone, using the existing land use. However, zoning of the site to the north of Maple Avenue and potentially the remainder of the development site will increase residential land use and therefore pedestrian trips.*

*Consideration of adjacent zoning is required to predict pedestrian trips.*

Understood. However, we cannot undertake analysis on what may happen to adjacent land uses only the area as it currently.

**P2** *It is stated that walking trips from/to bus stops and train stations will be minimal given the suburban nature of the site. We disagree with this statement and consider that sustainable transport is an increasing, equitable form of transport which is encouraged by Council. The public transport stops are located within close proximity of the site, and given the flagship nature of the store assume that it will attract various transport users.*

*Action - Increase trip assumptions from public transport stops*

Noted. We can update our report; however, it does not impact any component of the development as it is currently stands.

**P3** *It is considered that pedestrian trips from Leader Street are under-represented. In addition to local residents, and public transport stops, Marino Rocks Greenway runs along the rail line. This is a very popular pedestrian and cycling route and potential origin for pedestrian or cycling trips to the subject site.*

*Increase trip assumptions to/from Leader St (refer also P8)*

See previous response.

**P4** *It is assumed that all pedestrians from the east (Leader Street) will use the Leader Street footpath until they are adjacent the building entry. This would also require that pedestrians cross the busy driveway entry on Leader Street. In reality, pedestrians are more likely to take the shortest route and cut diagonally through the car park. There is a lack of designated paths and roadway crossing*

facilities within the car park east of the lifts/travelators to facilitate this movement. In addition, the eastern car park has a significantly high number of pedestrian trips, with designated paths and crossings.

Action - Provide additional paths and internal road crossings through the eastern car park (refer also P7)

We do not agree. There will be bioswales, parked cars and additional obstructions. The revised landscaping and architectural design will provide delineation and guidance to pedestrians to remain on existing footpaths until designated safe crossings.

P5 There is a north-south ped walkway mid-block of Leader Street, but does not connect to a road crossing facility here.

Action - Include a pedestrian refuge or similar crossing facility at Leader St opposite the walkway to facilitate crossing.

Noted. Propose to review with Council at subsequent design stage.

P6 The report recommends replacing the wombat crossing with a pedestrian refuge. This proposal changes priority and requires pedestrians to give way to vehicles, whilst the Wombat crossing required that vehicles yield to pedestrians.

Action - Pedestrian priority is preferred, and a Wombat also facilitates slower traffic speed. However, a refuge is acceptable providing that it is of sufficient width to facilitate a person wheeling a pram (2.5m wide min.)

The crossing has now been modified from the previous revision with the barrier gate control moved inside the building the separate this from the zebra crossing to improve safety.

P7 Agree with additional pedestrian crossings and paths recommended by WGA in report

Action - n/a

Noted.

P8 Disagree that the proposed zebra crossing to Leader Street be removed. It is our opinion that pedestrian trips will be higher at this location (refer also P3)

Retain proposed Zebra Crossing that links to Leader St.

Noted. Zebra crossing is to be retained.

P9 The pedestrian access path to the Leader St signals does not align to the existing kerb ramp location. We assume this will be realigned as part of the detail design.

Action - Realign pedestrian path to line up with existing kerb ramp at Leader Street signals.

Addressed in current issue.

P10 Pedestrian Movement G facilitates movement to and from the bus stop on Anzac Highway. We disagree that the zebra crossing be removed.

Action - Retain proposed Zebra Crossing that links to the Anzac Highway bus stop.

Noted. Zebra crossing is to be retained.

P11 The signalised intersection at Anzac Highway and Leader Street does not have a crosswalk on the northeast leg. Therefore, it is considerably anti-directional and adds to delay for pedestrians from Anzac Highway northwest to use this crosswalk. Pedestrians will be more likely to cross Anzac Highway opposite the site without a safe crossing facility.



*Action - Liaise with DPTI regarding the provision of a crosswalk on the northeast leg of the intersection.*

*Desire lines should be explored along the Anzac Highway frontage and capture the demand from Marlestone Avenue for example where there is a clear desire line.*

We expect DPTI would not consider a pedestrian crossing on the northern side as this would create significant additional delay to all traffic along Anzac Hwy and Leader Street due to the requirement to add an additional 30 second phase to allow pedestrians to cross. Only the right turn into and left turn out from Leader Street could run concurrently.

- P12 Consideration of a pedestrian walkthrough (geometry permitting) at Leader street is recommended in the report.*

*It is recommended to assess the road geometry and provide a crossing facility at this location (refuge preferred).*

This will require the removal of some on street parking to implement. Propose to review with City of Unley during detailed design phase.

- C1 The impact to on-street car parking is not shown nor discussed (as recommended in Austroads Checklist)*

*Action - Provide detail on-street car parking status on Maple Avenue and Leader Street*

There is a high demand for on-street parking within this area. This is the primary reason for the preference to maintain higher than minimum parking rates.

- C2 Planning zones in the vicinity are not discussed (as recommended in Austroads Checklist)*

*To be included for completeness*

Noted. Can add to report if significant issue but not required by DPTI.

- C3 Non-car transport to/from site is not discussed. For example, the Marino Rocks Greenway is close by, which provides a high quality off-road cycling link to the development and encourages cycling as transport.*

*To be included in report*

Noted. Can add to report if significant issue but not required by DPTI.

- C4 Traffic crashes at potentially impacted locations and other known traffic safety or operational problems, and any proposals to address them, have not been documented (as recommended in Austroads Checklist).*

*Action - Document at Maple/Anzac and Leader/Access point*

Noted. Can add to report if significant issue but not required by DPTI.

- C5 There is no discussion of a speed limit to be applied in the car park.*

*While crossing locations for pedestrians are shown and appear to be either Zebra or Wombat Crossings, these are not specified nor is regulatory signage associated with them.*

*Action - Further information to be provided on speed limit and pedestrian crossing type*

In accordance with Table 2.1 AS1742.4 a 20km/h speed limit is proposed.

- C6 While a SIDRA model has been run, there has been no investigation into the suitability of intersection type. A basic turn treatment is currently shown. Austroads Guidelines along with DPTI's The Code provide guidance on appropriate treatments.*

*Based on the traffic generation estimates and volume summaries in the report, the Leader Street access would warrant traffic signals in the PM peak. This includes the 20% discount applied to the accessway which is not representative of the probable outcome as discussed in R7.*

*While this may not be an ideal solution in consideration of proximity to the Anzac Hwy Leader St intersection, it demonstrates that additional consideration to the interaction of the proposed accessway with Leader Street is required*

*Action - Major Concern*

*Leader Street access warrants traffic signals – further investigation required around accessway.*

Appears to be an incorrect interpretation as to requirements of 'The Code'. The numerical guideline for traffic signal warrants is only a tool to determine when detailed analysis (which has been undertaken) of the intersection should be completed using modelling programs. It does not state that signals must be installed. In this situation signals would reduce performance and potentially increase crashes due to its close proximity to the existing signalised junction This has been discussed with DPTI Traffic and they are against any consideration of signals at this location. We propose to include a right turn storage lane on Leader Street to allow vehicles to pass any stored vehicles turning into the development and increase the capacity of the access by providing dual in and out lanes (included within Attachment A).

- D1 Parking will be predominantly under or at the rear of buildings and, where possible, vehicle access will be from the rear or side rather than the main road.*

*Action - The proposed layout does not comply with the DP requirements: All car parks are at ground level and at the front and side of the buildings. Vehicle access is proposed from all road frontages (Anzac Hwy, Maple Avenue and Leader Street).*

Unable to provide comment of DP issues however the access locations are in line with the locations shown on Concept Plan Map Un/11. Also included as Figure 1 of the infraPlan report.

- D2 No vehicle parking is to be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for people with a disability.*

*Access to loading areas and parking for service vehicles should not occur from Anzac Highway and Leader Street for those sites located north of Leader Street*

*Action - The proposed layout does not comply with the DP requirements, refer above, and;*

*The extent of the car park screening is not detailed. None of the spaces that are visible from Anzac Hwy or Leader St are shown as being for people with a disability.*

*The loading areas are accessed from Maple Avenue but also connects directly to Leader Street.*

Whilst we understand Council concerns with screening parking consideration still needs to be given that safe areas are created and that CPTED principles are maintained rather than focussing purely on the aesthetic.

- D3 Restricted and consolidated vehicle access points will be available, and access will be mainly from secondary road frontages, limited rear access lanes and through-site integrated and shared rights-of-way.*

*Action - With reference to Figure 1, vehicle access is approximately where shown as desired. Except for the laneway and access points along the eastern most boundary.*

The lane way and connectivity in this location is an emergency vehicle requirement. As discussed previously this will be controlled access and not open to the public.

- D4 Controlled pedestrian and cycle crossing points will be focused and consolidated at key locations.*

*Action - Not shown on drawings.*

This extract appears to have been taken out of context. We believe this statement relates to urban corridor roads and the need to consolidate crossings to not impact major metropolitan transport movements. For this project it is focussed at the signals of Anzac Highway and Leader Street. It is not applicable to collector and secondary roads such as Leader Street.

*D5 Development design and function will be people orientated with safe and convenient accessibility to and through buildings from roads and parking*

*Action - There are insufficient designated walkways proposed through the car park.*

Refer R18 Response

*D6 Parking areas will be consolidated and shared and screened from public view. Access and parking are to be sited and designed to minimise negative impacts on adjoining residential areas, including appropriate separation and screen and buffer landscaping*

*Action - Refer Items 1 and 2.*

Refer D2 Response

*D7 Road treatments are to be provided at the interface of the zone that correspond with the likely associated uses and discourage non-related traffic in residential streets.*

*Action - Road treatments are not shown. Laneway that links Maple Avenue to Leader Street may encourage through traffic to Leader Street.*

Refer current layout. Additional information provided and addressed.

*D8 A high amenity pedestrian environment will be established that provides integrated linkages to adjacent centres, public transport stops and public spaces.*

*There is a walkway proposed that connects to Bus Stop 3 on Anzac Highway – however this link is not discussed in report. Type of treatment not clear on drawing – but assume may be Zebra Crossing. Other pedestrian links do not connect to existing pedestrian ramps*

Refer R18 Response

*D9 Cycle routes will be visible, safe, accessible, well signed and connected with key local destinations and the Parkland fringe*

*Action - Not shown.*

We consider this outside the scope of our requirement to undertake traffic impact assessment.

We trust this addresses all the outstanding traffic related concerns arising from the pre-lodgement submission. If required we can make ourselves available to provide further clarifications or at any SCAP or DPTI meetings as required.

Yours faithfully

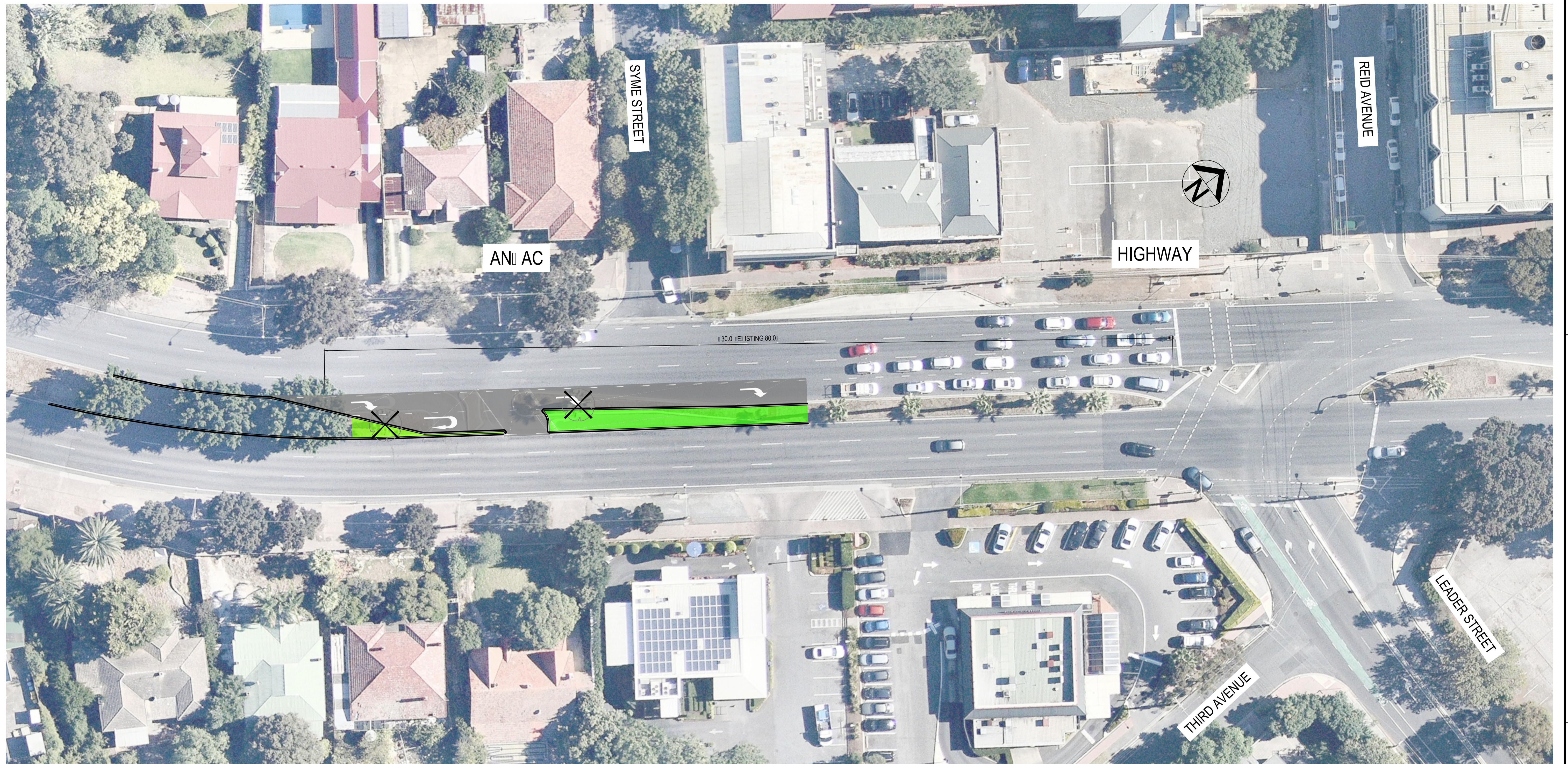


Jason Zafray  
for

**WALLBRIDGE GILBERT AZTEC**

JZ:nd





**NOTES:**

- DESIGN VEHICLE TURNING PATHS USED WAS: AUSTRALIAN STANDARD SRV – 6.4M SMALL RIGID VEHICLE. -UTURN SLOT.

**LEGEND**

SYMBOL	DESCRIPTION
	TREES TO BE REMOVED

No.	AMENDMENT DESCRIPTION	BY	CHECK	ACCEPTANCE	DATE

INDEX SHEET REFERENCE: SHEET

**PRELIMINARY ISSUE**  
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WGA JOB NUMBER: 171147

**Government of South Australia**  
Department of Planning, Transport and Infrastructure

PROJECT No.: FILE No.:  
DESIGN No.: SURVEY No.:  
PROJECT START ROAD RUNNING DISTANCE:  
PROJECT END ROAD RUNNING DISTANCE:

SCALES:  
6 0 3 6 9 12

**ROAD No. 6212 / 6197**  
**ANZAC HIGHWAY**  
**U-TURN SLOT / RIGHT TURN LANE TO LEADER STREET**

**CONCEPT PLAN**

DESIGNED: AW CHECKED: AW CHECKED: ACCEPTED FOR USE: TITLE: DATE:

ACCEPTANCE FORM KNET No.: DRAWING No.: SHEET No.: AMEND No.:

171147 SK51 A

IN ACCORDANCE WITH DP013 SHEET LATITUDE -34.4467 SHEET LONGITUDE 138.576232

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 0 50 100mm

SCALE BAR (m)  
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 Email adelaide@wga.com.au

**KAUFLAND FORESTVILLE**  
**LEADER STREET ACCESS**  
 A1  
 Design TB Drawn TB  
 DRAWING NUMBER  
 Job Number ADL171147 Sheet No. SK31 Rev. A



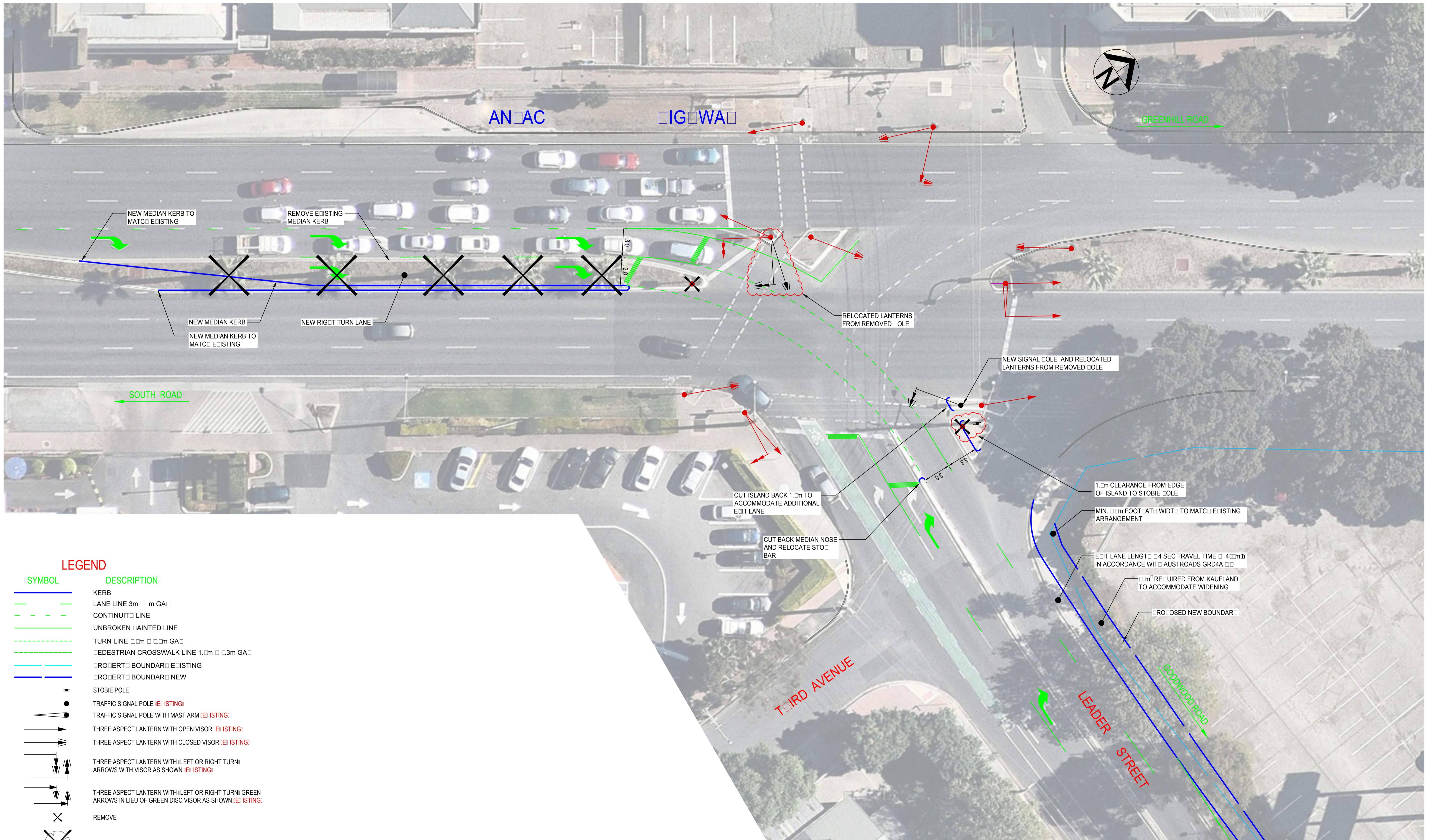
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# ATTACHMENT B

## CONCEPT PLAN







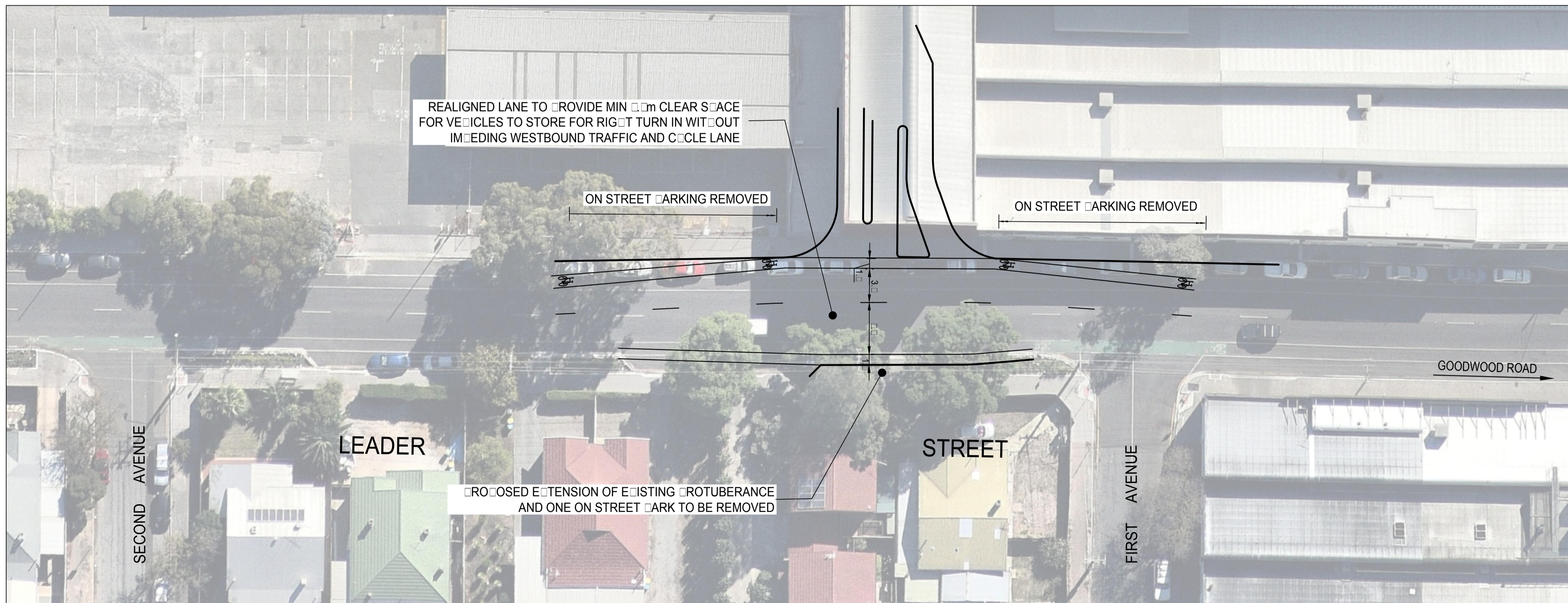
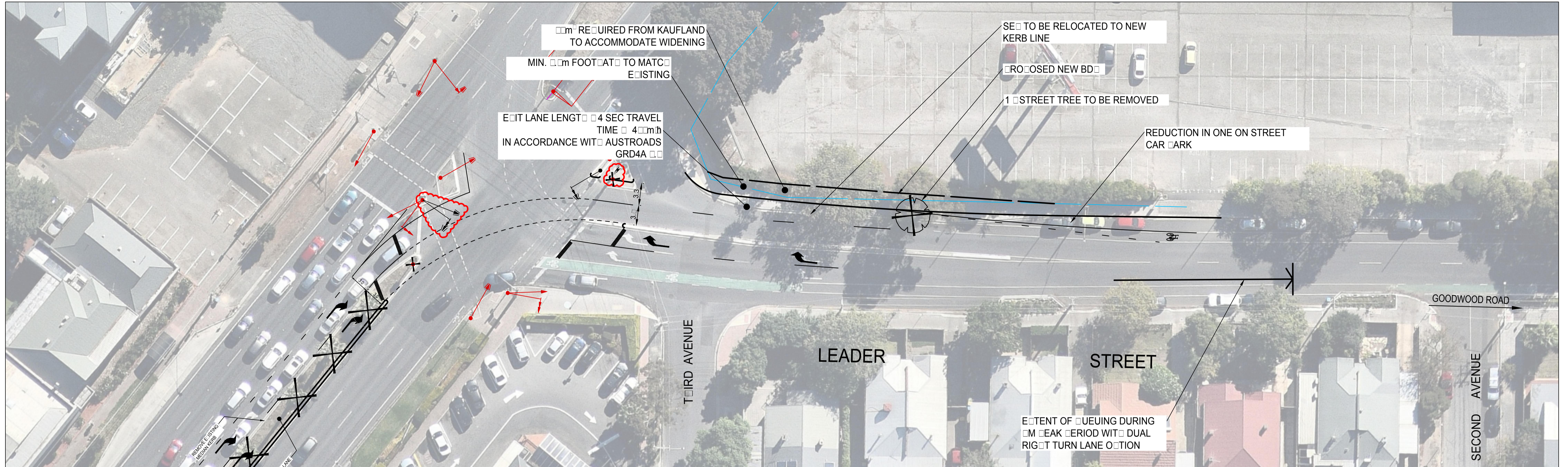
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SYMBOL	DESCRIPTION
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---	LANE LINE 3m GA
---	CONTINUITY LINE
---	UNBROKEN PAINTED LINE
---	TURN LINE 0.5m GA
---	PEDESTRIAN CROSSWALK LINE 1.0m GA
---	ROBERT BOUNDARY EXISTING
---	ROBERT BOUNDARY NEW
—	STOBIE POLE
—	TRAFFIC SIGNAL POLE EXISTING
—	TRAFFIC SIGNAL POLE WITH MAST ARM EXISTING
—	THREE ASPECT LANTERN WITH OPEN VISOR EXISTING
—	THREE ASPECT LANTERN WITH CLOSED VISOR EXISTING
—	THREE ASPECT LANTERN WITH LEFT OR RIGHT TURN ARROWS WITH VISOR AS SHOWN EXISTING
—	THREE ASPECT LANTERN WITH LEFT OR RIGHT TURN ARROWS IN LIEU OF GREEN DISC VISOR AS SHOWN EXISTING
✕	REMOVE
✕	TREES TO BE REMOVED

<p>INDEX SHEET REFERENCE: SHEET</p> <p style="color: blue; font-weight: bold;">CONCEPT ONLY NOT FOR CONSTRUCTION</p>		<p><b>WGA</b> WALLBRIDGE GILBERT AZTEC</p> <p>60 Wyatt Street, Adelaide, SA 5000 Telephone 08 8223 7433 Email adelaide@wga.com.au</p>		<p><b>Government of South Australia</b> Department of Planning Transport and Infrastructure</p>		<p>PROJECT No.: FILE No.:</p> <p>DESIGN No.: SURVEY No.:</p> <p>PROJECT START ROAD RUNNING DISTANCE:</p> <p>PROJECT END ROAD RUNNING DISTANCE:</p>		<p>ROAD No. 1117</p> <p><b>ANAC IGWA</b></p> <p>JUNCTION</p> <p><b>LEADER STREET</b></p> <p>TRAFFIC SIGNALS</p> <p style="text-align: right;">SIGNAL No.: TS17</p>	
<p>SCALES:</p>		<p>DESIGNED: WGA CHECKED: WGA</p> <p>DRAFTED: WGA CHECKED: WGA</p> <p>ACCEPTED FOR USE:</p> <p>TITLE: DATE:</p>		<p>ACCEPTANCE FORM KNET No. DRAWING No.: 171147</p> <p>SHEET No.: AMEND No.: B</p> <p>IN ACCORDANCE WITH DP013 SHEET LATITUDE -34.41062 SHEET LONGITUDE 138.577027</p>		<p>NO. AMENDMENT DESCRIPTION</p> <p>SC DATE UNCONTROLLED COPIES PRINTED</p> <p>1 MILLIMETRES ON ORIGINAL DRAWING</p> <p>ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE</p>		<p>PRELIMINARY CONCEPT</p> <p>SC 03.08.18</p> <p>NO. CHECK ACCEPTANCE DATE</p>	

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**LEGEND**

SYMBOL	DESCRIPTION
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---	CONTINUITY LINE
---	UNBROKEN PAINTED LINE
---	TURN LINE 0.5m GA
---	PEDESTRIAN CROSSWALK LINE 1.0m GA
---	PROPOSED BOUNDARY EXISTING
---	PROPOSED BOUNDARY NEW
●	STOBIE POLE
●	TRAFFIC SIGNAL POLE EXISTING
●	TRAFFIC SIGNAL POLE WITH MAST ARM EXISTING
→	THREE ASPECT LANTERN WITH OPEN VISOR EXISTING
→	THREE ASPECT LANTERN WITH CLOSED VISOR EXISTING
→	THREE ASPECT LANTERN WITH LEFT OR RIGHT TURN ARROWS WITH VISOR AS SHOWN EXISTING
→	THREE ASPECT LANTERN WITH LEFT OR RIGHT TURN GREEN ARROWS IN LIEU OF GREEN DISC VISOR AS SHOWN EXISTING
✕	REMOVE
✕	TREES TO BE REMOVED

PROJECT DOCUMENT REFERENCE

CONCEPT ONLY NOT FOR CONSTRUCTION		<b>WGA</b> WALLBRIDGE GILBERT AZTEC 60 Wyatt Street, Adelaide, SA 5000 Telephone 08 8223 7433 Email adelaide@wga.com.au	 <b>Government of South Australia</b> Department of Planning Transport and Infrastructure	PROJECT No.: DESIGN No.: PROJECT START ROAD RUNNING DISTANCE: PROJECT END ROAD RUNNING DISTANCE: SCALES: 4 0 2 4 6 8	FILE No.: SURVEY No.: DRAWING No.: 171147	SIGNAL No.: TS07	ROAD No. 10107 ANACIGWA JUNCTION LEADER STREET TRAFFIC SIGNALS	SHEET No.: 37	AMEND No.: B
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## URBAN CORRIDOR ZONE

Refer to [Maps Un/3, 4, 5 and 9](#) that relate to this zone.

### OBJECTIVES

- Objective 1:** A mixed use zone accommodating a range of compatible non-residential and medium and high density residential land uses orientated towards a high frequency public transport corridor.
- Objective 2:** Integrated, mixed use, medium and high rise buildings with ground floor uses that create active and vibrant streets with residential development above.
- Objective 3:** A mix of land uses that enable people to work, shop and access a range of services close to home.
- Objective 4:** Adaptable and flexible building designs that can accommodate changes in land use and respond to changing economic and social conditions.
- Objective 5:** A built form that provides a transition down in scale and intensity at the zone boundary to maintain the amenity of residential properties located within adjoining zones.
- Objective 6:** A safe, comfortable and appealing street environment for pedestrians that is sheltered from weather extremes, is of a pedestrian scale and optimises views or any outlook onto spaces of interest.
- Objective 7:** Noise and air quality impacts mitigated through appropriate building design and orientation.
- Objective 8:** Development that contributes to the desired character of the zone.

### DESIRED CHARACTER

This zone supports mixed use development on major road corridors and comprises non-residential development in association with medium to high density residential living, including more than 15 percent of dwellings as affordable housing. Development will create a linear corridor that will focus and frame the main road and create active street frontages. Buildings of 3 or more storeys will be the predominant built form, with key strategic sites developed with landmark buildings that will feature prominent, attractive and activating road facades.

The siting and design of buildings will achieve high quality urban design outcomes. Development will be undertaken within defined building envelopes. Buildings at the periphery of the zone will have an appropriate transition that relates to development in adjacent zones of a lower scale and intensity. Contextual qualities, including the setting and juxtaposition of heritage places/character items with new or refurbished development, will be respected.

Heritage buildings will be adapted, maintaining their heritage qualities with development encouraged to the rear and behind the front façades. Buildings adjacent to heritage buildings will be sympathetic to the heritage nature in their design.

The urban corridor roads function as major metropolitan transport movement systems as well as for local movement, access and parking. Restricted and consolidated vehicle access points will be available and access will be mainly from secondary road frontages, limited rear access lanes and through-site integrated and shared rights-of-way. Controlled pedestrian and cycle crossing points will be focused and consolidated at key locations. Development design and function will be people orientated with safe and convenient accessibility to and through buildings from roads and parking.

Parking areas will be consolidated and shared and screened from public view. Access and parking are to be sited and designed to minimise negative impacts on adjoining residential areas, including appropriate separation and screen and buffer landscaping. Road treatments are to be provided at the

interface of the zone that correspond with the likely associated uses and discourage non-related traffic in residential streets.

A high amenity pedestrian environment will be established that provides integrated linkages to adjacent centres, public transport stops and public spaces. Access for people with disabilities, signage, seating and street lighting will be provided along key walking routes between public transport stops and major activity nodes. Cycle routes will be visible, safe, accessible, well signed and connected with key local destinations and the Parkland fringe.

Overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques, however, it is noted noise and air amenity cannot be expected to be equivalent to a purely residential area. Impacts on adjoining zones will be minimised through appropriate land uses, building envelopes, transition of building heights, design and location of on-site activities/windows/balconies, and use of landscaping.

Well-designed landscaping will assist to visually soften large building façades, screen and buffer parking/service areas/zone interface areas, and provide amenity, biodiversity and micro-climate benefits.

Water sensitive urban design (WSUD) for the harvest, treatment, storage and reuse of stormwater, and environmentally sustainable design (ESD) for reduction in energy consumption through passive design, construction and operation is envisaged with development. Green (vegetated) places will assist urban heat island effects and roof top gardens will provide opportunities for private and communal open space.

Given the distinctly different land use mixes, urban design features and street character intended for the various sites to which the zone is applied, four different policy areas have been designated as follows:

- (a) Boulevard Policy Area – where taller, mixed use buildings of predominantly office uses at ground and low building levels and residential apartments above are intended along the Greenhill Road and Glen Osmond Road frontage with its premium Park Land interface where grand buildings and strong landscape settings are appropriate.
- (b) High Street Policy Area – where more moderate scaled buildings of mixed use are intended along Unley Road with predominantly small scale shops, mixed business services and hospitality uses at ground and low building levels and upper level comprising residential apartments.
- (c) Business Policy Area – where development will be varied in focus on commercial and business land uses at street level with dwellings located above along the more commercially oriented parts of Leader Street.
- (d) Transit Living Policy Area – where taller, mixed use buildings are intended for predominantly residential development together with low impact, generally commercial uses that support the daily needs of the local population (such as offices, consulting rooms, shops, cafés and restaurants) located at ground level. Upper levels are intended to provide residential apartments to take advantage of high frequency public transport corridors upon which such developments are located.

Detailed concept plans are prepared for distinct sections of the roads, detailing matters including desired accessways/road links, excluded property frontage access, variations to prescribed building heights, consolidated sites, heritage sites and any particular intended urban design element or feature.

The potential for buildings within the zone to penetrate the Adelaide International Airport Obstacle Surface Limitation exists. It is essential that development within the zone not impede the long-term operational, safety and commercial aviation requirements of the Adelaide International Airport.

## PRINCIPLES OF DEVELOPMENT CONTROL

### Land Use

- 1 The following types of development, or combination thereof, are envisaged in the zone:

Affordable housing  
 Aged persons accommodation  
 Community centre  
 Consulting room  
 Dwelling  
 Educational establishment  
 Entertainment venue  
 Licensed premises  
 Office  
 Pre-school  
 Residential flat building  
 Retirement village  
 Shop or group of shops  
 Supported accommodation  
 Tourist accommodation.

- 2 Development listed as non-complying is generally inappropriate.

### Form and Character

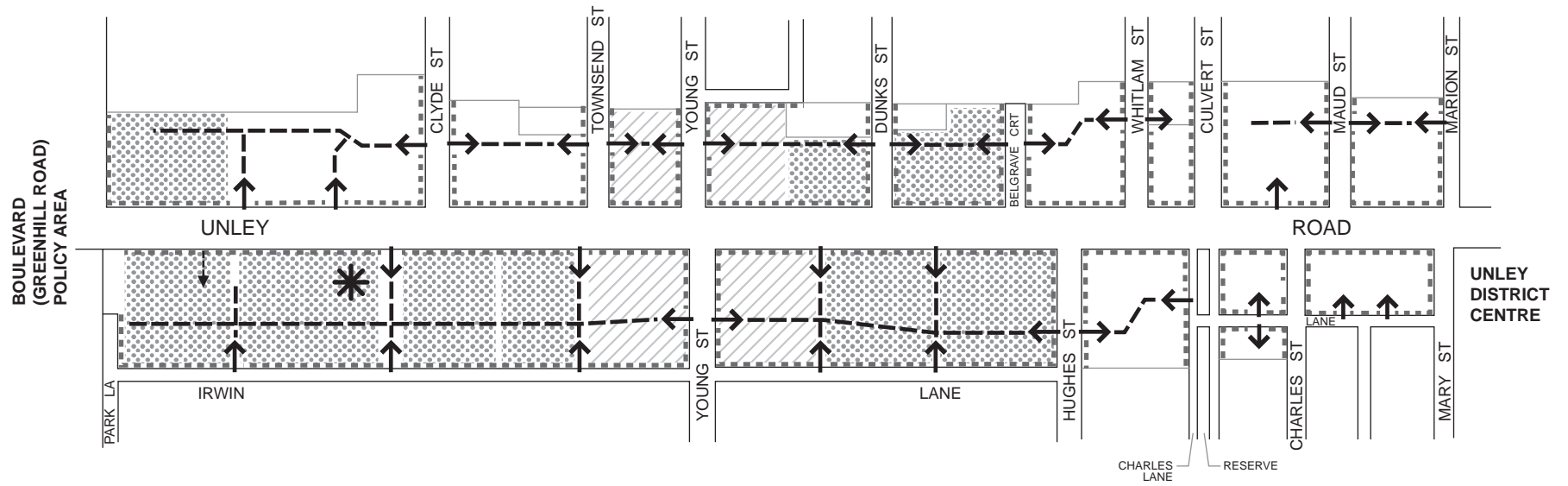
- 3 Development should be consistent with the desired character for the zone.
- 4 Development should be in accordance with Concept Plan [Maps Un/1 to 7 and 11](#).
- 5 Residential development should achieve a minimum net residential site density in accordance with the following:








Policy Area	Minimum net residential site density
Boulevard (Greenhill Road) Policy Area 19	75 dwellings per hectare net (except within the southern half of the Annesley Campus Area fronting Rose Terrace 35 dwellings per hectare net)
High Street (Unley Road) Policy Area 20	60 dwellings per hectare net
Transit Living (Anzac Highway) Policy Area 24	45 dwellings per hectare net
Business (Leader Street and Maple Avenue) Policy Area 25	No minimum

- 6 Vehicle parking should be located to the rear of development or not be visible from public land along the primary road frontage.

### Design and Appearance

- 7 Buildings on sites with a frontage greater than 10 metres should be well articulated through variations in forms, materials, openings and colours.
- 8 Buildings should be designed and sited to address the primary public road and to face other public thoroughfares (other than rear laneways) and open spaces and to enable suitable sunlight access to public and common private open space as well as good daylighting of habitable room windows of dwellings.



-  Landmark development site (desirably consolidated)
-  Sites desirably consolidated
-  Desired vehicle link
-  Desired/consolidated vehicle access/egress
-  Existing vehicle access to be closed
-  No vehicle access
-  Heritage Place

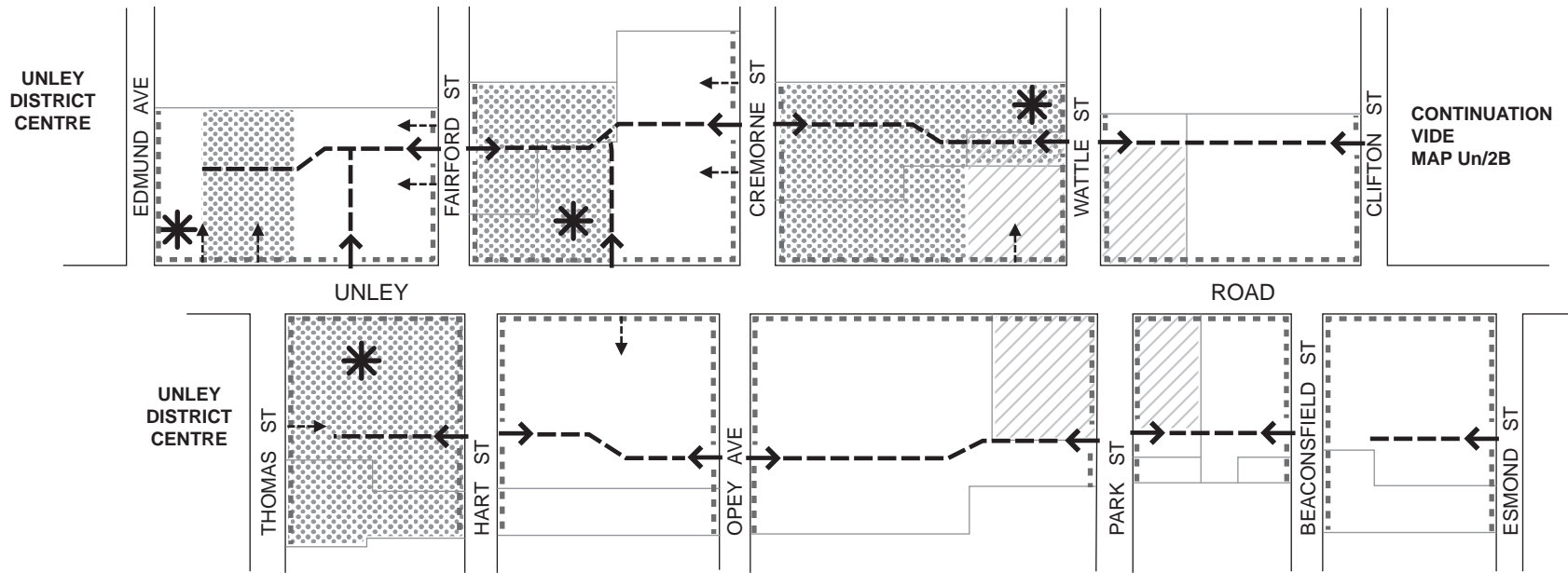
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




**Unley Road (North)**

**UNLEY (CITY)  
HIGH STREET (Unley Road) POLICY AREA  
Concept Plan Map Un/1**





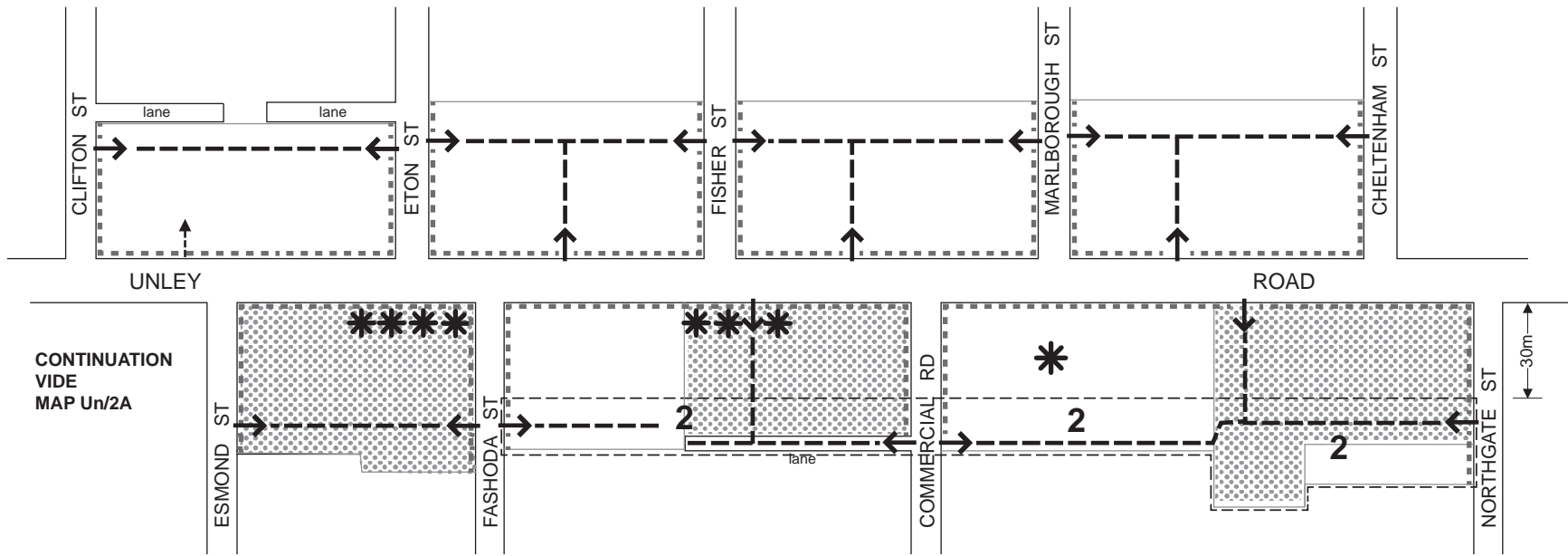
-  Landmark development site (desirably consolidated)
-  Sites desirably consolidated
-  Desired vehicle link
-  Desired/consolidated vehicle access/egress
-  Existing vehicle access to be closed
-  No vehicle access
-  Heritage Place









1:2,000



## Unley Road South

# UNLEY (CITY) HIGH STREET (Unley Road) POLICY AREA Concept Plan Map Un/2A



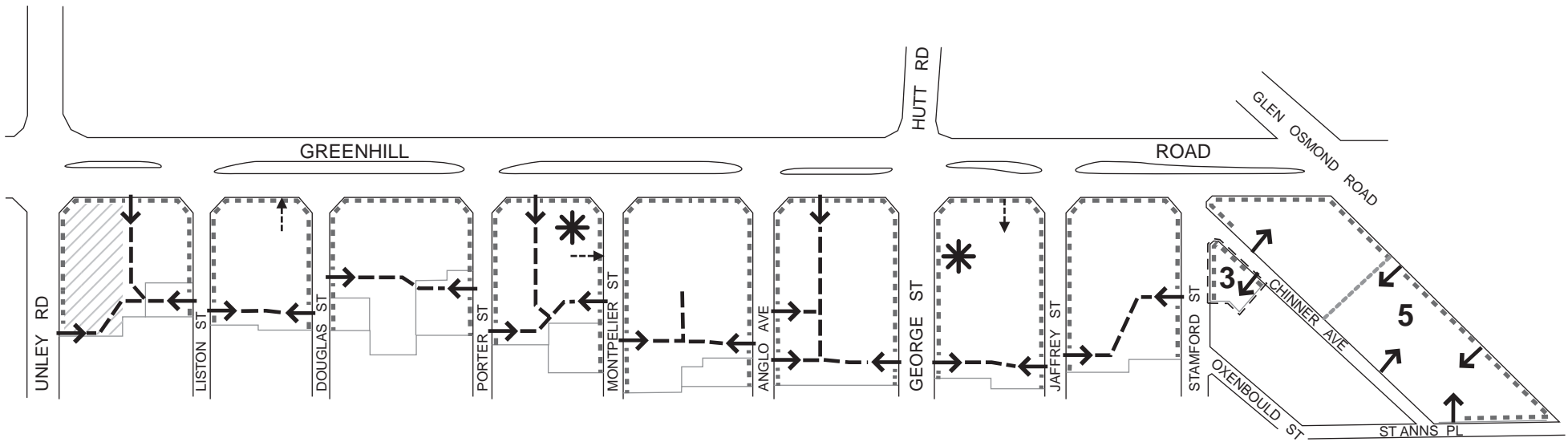
-  Landmark development site (desirably consolidated)
-  Sites desirably consolidated
-  Desired vehicle link
-  Desired/consolidated vehicle access/egress
-  Existing vehicle access to be closed
-  No vehicle access
-  Heritage Place
-  Maximum building height (2 storey = 8.0m )









1:2,000



## Unley Road (South)

# UNLEY (CITY) HIGH STREET (Unley Road) POLICY AREA Concept Plan Map Un/2B

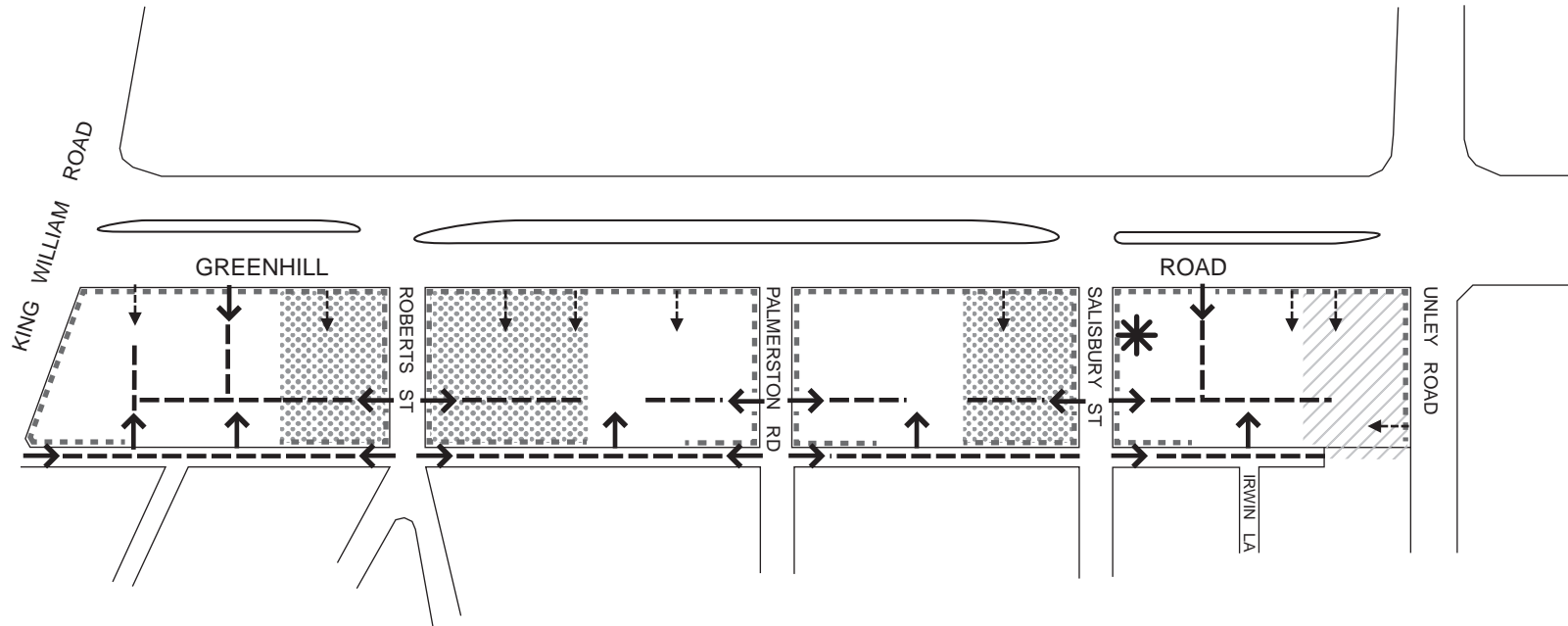









-  Landmark development site (desirably consolidated)
-  Pedestrian Access
-  Desired vehicle link
-  Desired/consolidated vehicle access/egress
-  Existing vehicle access to be closed
-  No vehicle access
-  Heritage Place
-  Maximum building height (3 storeys = 11.5metres)

1:3,000 

**Parkside**

# UNLEY (CITY) BOULEVARD (Greenhill Road) POLICY AREA Concept Plan Map Un/3



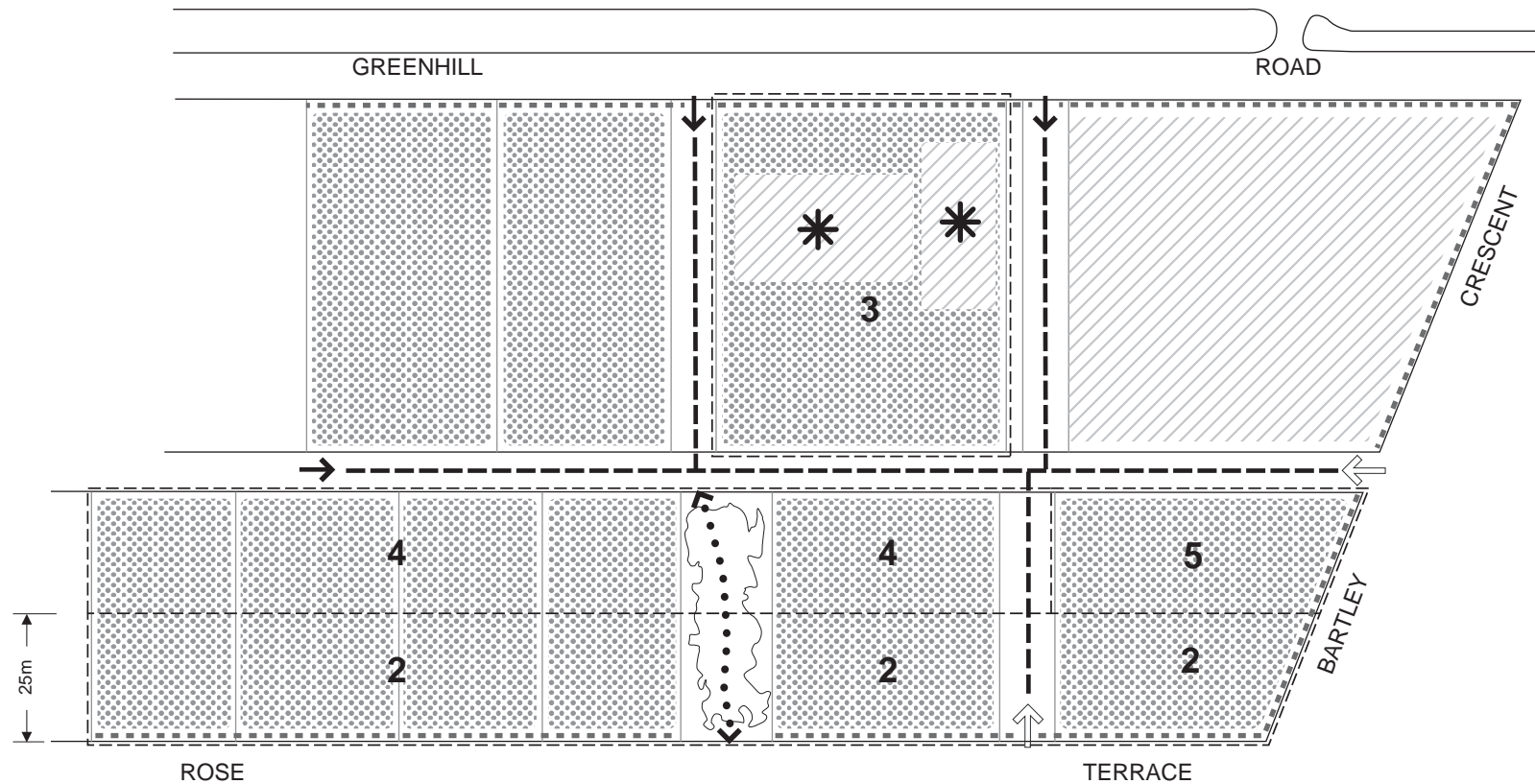
-  Landmark development site (desirably consolidated)
-  Sites desirably consolidated
-  Desired vehicle link
-  Desired/consolidated vehicle access/egress
-  Existing vehicle access to be closed
-  No vehicle access
-  Heritage Place










1:2,000 


**Unley**

# UNLEY (CITY) BOULEVARD (Greenhill Road) POLICY AREA Concept Plan Map Un/4



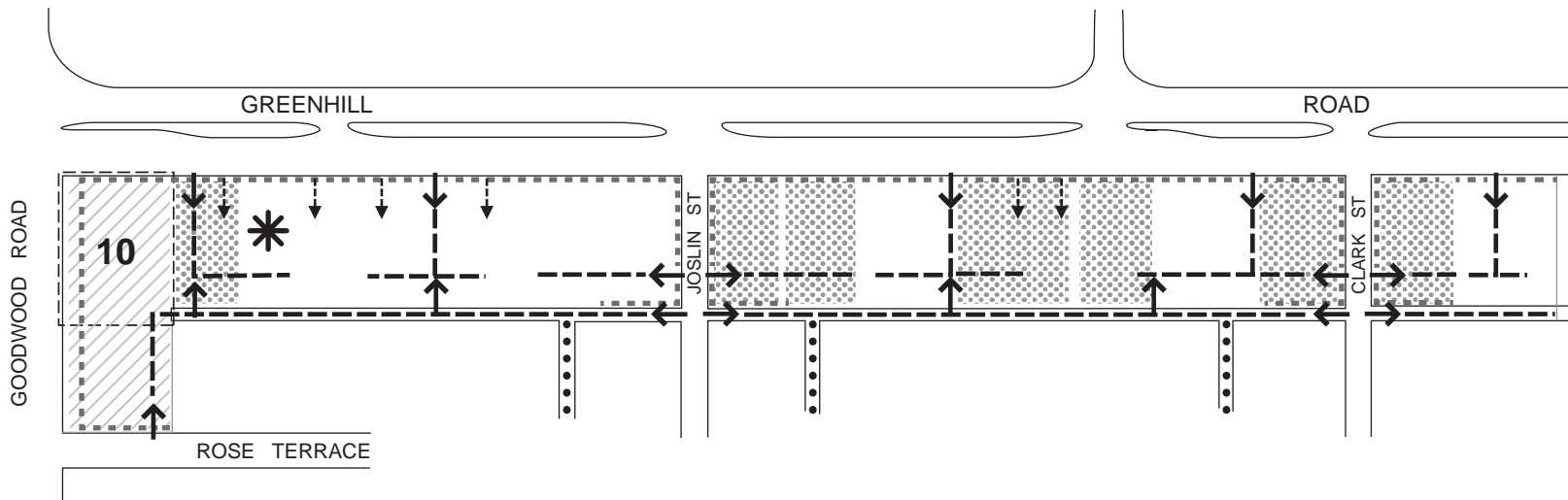











-  Landmark development site (desirably consolidated)
-  Desired/consolidated vehicle access/egress
-  Desired vehicle link
-  In only, no exit
-  No vehicle access
-  Pedesrian/cycle link (open space/landscaped)
-  Sites desirably consolidated
-  Heritage Place
-  Maximum building height  
(2 storey = 8.0metres , 3 storey = 11.5metres  
4 storey = 15.0metres , 5 storey = 18.5metres)


1:1,250 

**Annesley Campus**

**UNLEY (CITY)  
BOULEVARD (Greenhill Road) POLICY AREA  
Concept Plan Map Un/5**

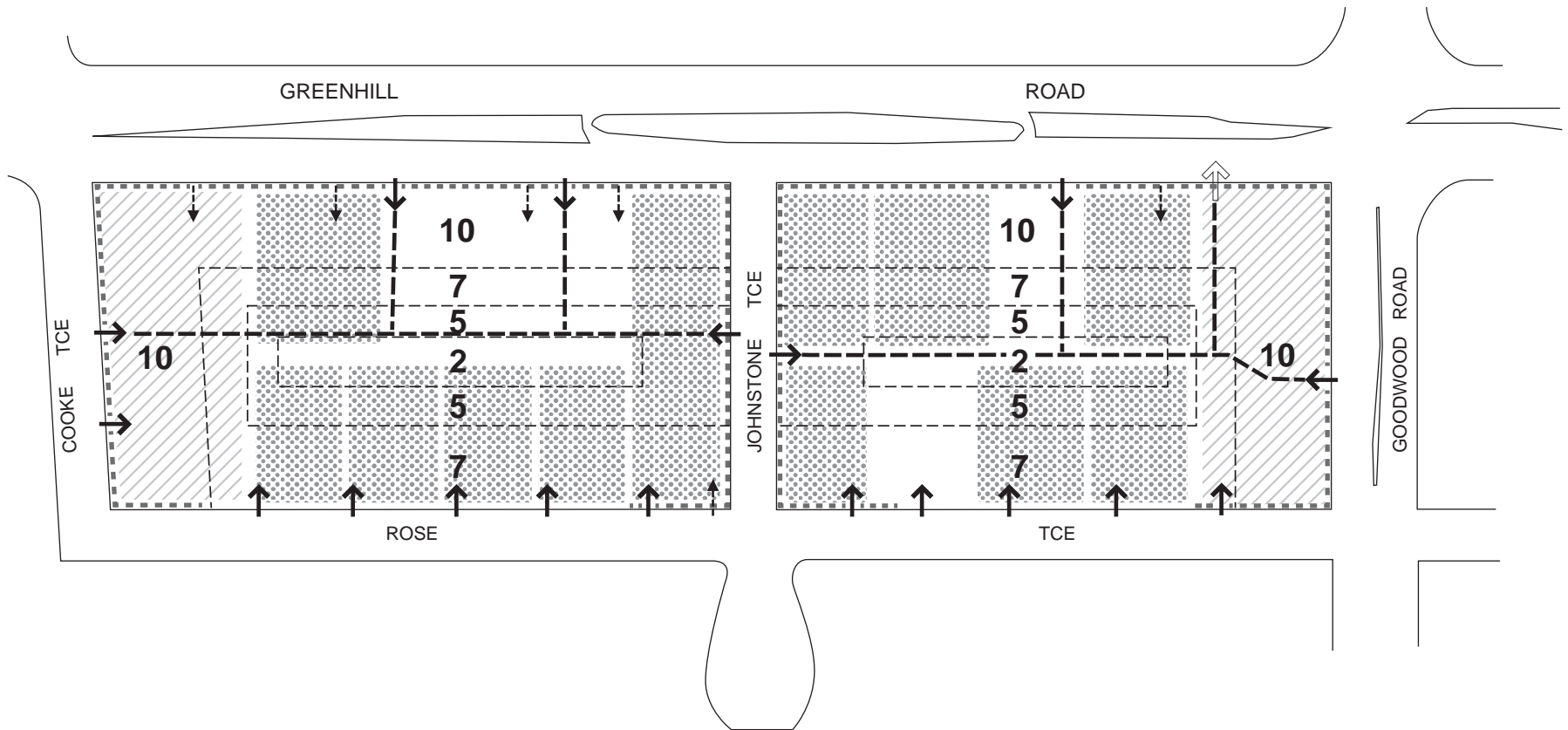










-  Landmark development site (desirably consolidated)
-  Sites desirably consolidated
-  Desired vehicle link
-  Desired/consolidated vehicle access/egress
-  Existing vehicle access to be closed
-  No vehicle access
-  Primarily pedestrian link
-  Heritage Place
-  Maximum building height (10 storey = 36.0metres)

1:3,000 

**Wayville**

# UNLEY (CITY) BOULEVARD (Greenhill Road) POLICY AREA Concept Plan Map Un/6



-  Landmark development site (desirably consolidated)
-  Sites desirably consolidated
-  Private lane extension
-  Desired/consolidated vehicle access/egress
-  Exit only, no entry
-  Existing vehicle access to be closed
-  No vehicle access
-  Maximum building height  
(2 storey = 8.0metres , 5 storey = 18.5metres  
7 storey = 25.5metres , 10 storey = 36.0metres)

1:2,500 

**Keswick**

**UNLEY (CITY)**  
**Boulevard (Greenhill Road) POLICY AREA**  
**Concept Plan Map Un/7**



Landmark development site (desirably consolidated)

Sites desirably consolidated

Desired/consolidated vehicle access/egress

No new vehicle access

Heritage Place

Maximum building height  
(6 storeys = 22 metres)

Creeks

Future Traffic Control device

Desired Vehicle link

Pedestrian / Cycle link  
(Open Space / Landscaped)

Transit Living



1:3,500



# UNLEY (CITY) POLICY AREAS

## Transit Living (Anzac Hwy) and Business (Leader St and Maple Ave)

### Concept Plan Map Un/11

Consolidated 13 December 2017



- 9 To maintain sight lines between buildings and the street, and to improve safety through passive surveillance, solid fencing should not be constructed between the front building line and the primary or secondary street.
- 10 Development should minimise the number of access points onto an arterial road, and where possible access points should be:
- from local streets (including rear lane access) as identified on Concept Plan [Maps Un/1 to 7 and 11](#);
  - shared between developments.
- 11 Vehicle access points on side streets and rear access ways should be located and designed to:
- minimise the impacts of headlight glare and noise on nearby residents;
  - avoid excessive traffic flows into residential streets.

## Building Envelope

### Building Height

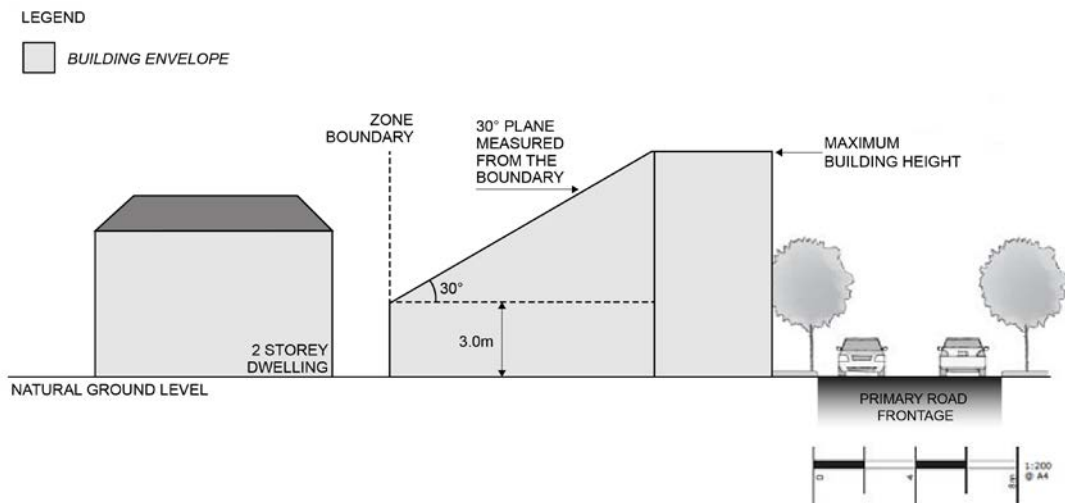
- 12 Except where airport building height restrictions prevail, the interface height provisions require a lesser height, or an alternative maximum building height is shown on Concept Plan [Maps Un/1 to 7 and 11](#), building heights (excluding any rooftop mechanical plant or equipment) should be consistent with the following parameters:

Policy area	Minimum building height	Maximum building height
Boulevard (Greenhill Road) Policy Area 19	3 storeys (11.5 metres), or 4 storeys (15 metres) for land that is directly adjacent to or facing the Adelaide Park Lands.	7 storeys and up to 25.5 metres
High Street (Unley Road) Policy Area 20	3 storeys (11.5 metres)	5 storeys and up to 18.5 metres
Transit Living (Anzac Highway) Policy Area 24	3 storeys or no less than 11.5 metres for sites fronting Anzac Highway, and 2 storeys or no less than 8 metres for sites fronting Leader Street or Maple Avenue	6 storeys and up to 22 metres.
Business (Leader Street and Maple Avenue) Policy Area 25	2 storeys or no less than 8 metres	6 storeys and up to 22 metres.

### Interface Height Provisions

- 13 To minimise building massing at the interface with development outside of the zone, buildings should be constructed within a building envelope provided by a 30 degree plane, measured from a height of 3 metres above natural ground level at the zone boundary (except where this boundary is a primary road frontage, as illustrated in Figure 1).

Figure 1



### Setbacks from Road Frontages

- 14 Buildings (excluding verandahs, porticos and the like) should be set back from the primary road frontage (exclusive of any land required under the Metropolitan Road Widening Act) in accordance with the following parameters

Policy area	Minimum setback from the primary road frontage
Boulevard Policy Area	6 metres
High Street Policy Area	No minimum (3 metre maximum setback where extended outdoor dining/licensed area only is proposed forward of the building)
Transit Living Policy Area	3 metres, and 6 metres to Third Avenue
Business Policy Area	3 metres

- 15 Buildings (excluding verandahs, porticos and the like) should be set back from the secondary road frontage or a vehicle access way in accordance with the following parameters:

Designated area	Minimum setback from secondary road	Minimum setback from a rear access way
Boulevard Policy Area	3 metres	No minimum where the access way is 6.5 metres or more OR Where the access way is less than 6.5 metres in width, the distance equal to the additional width required to make the access way 6.5 metres or more, to provide adequate manoeuvrability for vehicles
High Street Policy Area	0 metres for a distance of 20 metres from the primary road junction and 2 metres thereafter	As above

Designated area	Minimum setback from secondary road	Minimum setback from a rear access way
Transit Living Policy Area	2 metres, and 6 metres to Third Avenue	No minimum where the access way is 6.5 metres or more  OR Where the access way is less than 6.5 metres in width, the distance equal to the additional width required to make the access way 6.5 metres or more, to provide adequate manoeuvrability for vehicles
Business Policy Area	2 metres	No minimum where the access way is 6.5 metres or more  OR Where the access way is less than 6.5 metres in width, the distance equal to the additional width required to make the access way 6.5 metres or more, to provide adequate manoeuvrability for vehicles

#### Other Setbacks

- 16 Buildings (excluding verandahs, porticos and the like) should be set back in accordance with the following parameters:

Designated area	Minimum setback from rear allotment boundary	Minimum setback from side boundaries (where not on a road boundary)
Boulevard Policy Area	5 metres where the subject land directly abuts an allotment of a different zone  3 metres in all other cases, except where the development abuts the wall of an existing or simultaneously constructed building on the adjoining land.	For allotments with a frontage width of :  (a) 20 metres or less: no minimum to one boundary but at least 3 metres to the other side boundary, with respective setbacks to create an orderly pattern of built form in accord with the Desired Character and desired consolidated sites in Concept Plan <a href="#">Maps Un/1 to 7</a>  (b) more than 20 metres: 3 metres.
High Street Policy Area	As above	0 metres
Transit Living Policy Area	5 metres where the subject land directly abuts an allotment of a different zone  3 metres in all other cases, except where the development abuts the wall of an existing or simultaneously constructed building on the adjoining land.	For allotments with a frontage width of:  (a) 20 metres or less: no minimum to one boundary but at least 3 metres to the other side boundary, with respective setbacks to create an orderly pattern of built form in accord with the Desired Character and desired consolidated sites in Concept Plan <a href="#">Map Un/11</a>  (b) more than 20 metres: 3 metres.

Designated area	Minimum setback from rear allotment boundary	Minimum setback from side boundaries (where not on a road boundary)
Business Policy Area	5 metres where the subject land directly abuts an allotment of a different zone 3 metres in all other cases, except where the development abuts the wall of an existing or simultaneously constructed building on the adjoining land.	For allotments with a frontage width of: (a) 20 metres or less: no minimum to one boundary but at least 3 metres to the other side boundary, with respective setbacks to create an orderly pattern of built form in accord with the Desired Character and desired consolidated sites in Concept Plan <a href="#">Map Un/11</a> (b) more than 20 metres: 3 metres.

### Car Parking Efficiency

- 17** A lesser on-site car parking rate that still affords adequate provision may be applied to applicable elements of a development where justified based on local circumstances in relation to a reduced overall demand, efficiency of use of the parking provided or practical constraints, where:
- (a) amalgamation of allotments occurs, or an agreement is formed to integrate and share adjoining parking areas, to create larger more functional and efficient parking areas incorporating a number of features, as follows:
    - (i) sites of greater than 2000 square metres and providing greater than 60 parking spaces;
    - (ii) side road frontage with two-way vehicle access provided;
    - (iii) convenient flow through two-way vehicle accessibility created between side roads;
    - (iv) rationalised, minimised or coordinated vehicle crossovers to roads and optimisation of on-street parking;
  - (b) development includes affordable housing or student accommodation;
  - (c) sites are located within 200 metres walking distance of a convenient and frequent service fixed public transport stop;
  - (d) mixed use development including residential and a variety of non-residential development has respective peak demands for parking occurring at different times;
  - (e) the proposed development is on or adjacent to the site of a heritage place, or includes retention of a desired traditional building and its features, which hinders the provision of on-site parking or the most effective use of the spaces within the building;
  - (f) the parking shortfall is met by contribution to the Car Parking Contributions Fund, or other arrangements, to provide improved or increased on-site parking elsewhere in convenient proximity;
  - (g) generous on-street parking and/or public parking areas are available and in convenient proximity, other than where such parking may become limited or removed by the probable future priority for traffic flow, parking restrictions, road modifications or widening (eg Strategic Transport Routes [Maps Un/1 \(Overlay 4a and 4b\)](#)).

### Land Division

- 18** Land division in the zone is appropriate provided new allotments are of a size and configuration to ensure the objectives of the zone can be achieved.



- 19 Streets that provide rear access for vehicles should be created in accordance with Concept Plan [Maps Un/1 to 7 and 11](#).

### Vehicle Parking

- 20 Vehicle parking should be provided in accordance with the rates set out in [Table Un/5](#) - Off Street Vehicle Parking Requirements or [Table Un/5A](#) - Off Street Vehicle Parking Requirements for Designated Areas (whichever applies)

## PROCEDURAL MATTERS

### Complying Development

- 21 Complying developments are prescribed in schedule 4 of the *Development Regulations 2008*.

In addition, the following forms of development (except where the development is non-complying) are complying:

Advertisement subject to the conditions contained in [Table Un/1](#) - Conditions for Complying Development and other than in respect to a Heritage Place identified in [Table Un/3](#) or [Table Un/4](#).

A change of use to a shop, office, consulting room or any combination of these uses where all of the following are achieved:

- (a) the area to be occupied by the proposed development is located in an existing building and is currently used as a shop, office, consulting room or any combination of these uses;
- (b) the development is located inside any of the following area(s):
  - High Street (Unley Road) Policy Area
- (c) the building is not a State heritage place;
- (d) it will not involve any alterations or additions to the external appearance of a local heritage place as viewed from a public road or public space;
- (e) if the proposed change of use is for a shop that primarily involves the handling and sale of foodstuffs, it achieves either (i) or (ii):
  - (i) all of the following:
    - (A) areas used for the storage and collection of refuse are sited at least 10 metres from any Residential Zone boundary or a dwelling (other than a dwelling directly associated with the proposed shop);
    - (B) if the shop involves the heating and cooking of foodstuffs in a commercial kitchen and is within 30 metres of any Residential Zone boundary or a dwelling (other than a dwelling directly associated with the proposed shop), an exhaust duct and stack (chimney) exists or is capable of being installed for discharging exhaust emissions;
  - (ii) the development is the same or substantially the same as a development, which has previously been granted development approval under the *Development Act 1993* or any subsequent Act and Regulations, and the development is to be undertaken and operated in accordance with the conditions attached to the previously approved development;
- (f) if the change in use is for a shop with a gross leasable floor area greater than 250 square metres and has direct frontage to an arterial road, it achieves either (i) or (ii):

- (i) the primary vehicle access (being the access where the majority of vehicles access/egress the site of the proposed development) is from a road that is not an arterial road;
  - (ii) the development is located on a site that operates as an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared;
- (g) off-street vehicular parking is provided in accordance with the rate(s) specified in [Table Un/5](#) - Off Street Vehicle Parking Requirements or the desired minimum in rate in [Table Un/5A](#) - Off Street Vehicle Parking Requirements for Designated Areas (whichever table applies) to the nearest whole number, except in and one or more of the following circumstances:
- (i) the building is a local heritage place;
  - (ii) the development is the same or substantially the same as a development, which has previously been granted development approval under the *Development Act 1993* or any subsequent Act and Regulations, and the number and location of parking spaces is the same or substantially the same as that which was previously approved;
  - (iii) the development is located on a site that operates as an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared.

### Non-complying Development

- 22** Development (including building work, a change in the use of land or division of an allotment) involving any of the following is **non-complying**:

Any development or portion thereof within 5 metres of the Leader Street road boundary that exceeds 2 storeys, or 9 metres in height above natural ground level within the Transit Living Policy Area and Business Policy Area north of Leader Street

Industry, except Light Industry and Service Industry located within the Business Policy Area

Fuel depot

Petrol filling station, except where located within the Business Policy Area

Major public service depot

Road transport terminal

Store, except where located within the Business Policy Area

Transport depot

Warehouse, except where located within the Business Policy Area

Waste reception storage treatment and disposal

### Public Notification

- 23** Categories of public notification are prescribed in Schedule 9 of the *Development Regulations 2008*.

In addition, the following forms of development, or any combination of (except where the development is classified as non-complying), are designated:

#### Category 1

Advertisement

Aged persons accommodation

All forms of development that are ancillary and in association with residential development

Consulting room

Dwelling

Educational establishment

Office  
 Pre-school  
 Residential flat building  
 Retirement village  
 Supported accommodation

Shop or group of shops:

- (a) located within the High Street (Unley Road) Policy Area 17;
- (b) located within the Boulevard (Greenhill Road) Policy Area 19 with a gross leasable area of 450 square metres or less;
- (c) located within the Transit Living (Anzac Highway) Policy Area 24 or Business (Leader Street and Maple Avenue) Policy Area 25 with a gross leasable area of 500 square metres or less

Tourist accommodation

### Category 2

All forms of development not listed as Category 1

Any development listed as Category 1 and located on adjacent land to a residential zone that:

- (a) is 3 or more storeys, or 11.5 metres or more, in height above natural ground level;
- (b) exceeds the maximum building height in the Building Envelope Building Height or Concept Plan [Maps Un/1 to 7 and 11](#);
- (c) exceeds the Building Envelope Interface Height Provisions.

## Boulevard (Greenhill Road) Policy Area 19

Refer to [Maps Un/12 to 15](#) that relate to this policy area.

### OBJECTIVES

- Objective 1:** Medium and high rise development framing the street, including mixed use buildings that contain offices together with small scale shops and mixed business development at lower floors with residential land uses above.
- Objective 2:** A uniform streetscape edge established through a largely consistent front setback and tall, articulated building façades.
- Objective 3:** Development that does not compromise the transport functions of the road corridor.
- Objective 4:** Development that contributes to the desired character of the policy area.

### DESIRED CHARACTER

This policy area includes the whole of the corridor adjacent to Greenhill Road and within the City of Unley, from Anzac Highway, Keswick through to, and including northern portion of, Glen Osmond Road, Parkside.

The Boulevard (Greenhill Road) Policy Area 19 is framed by avenues of exotic and native trees and wide grassed and landscaped medians and verges on Unley's interface with the Park Lands. Development within the policy area will reinforce its significance as one of Adelaide's most prominent and well trafficked City-fringe commercial corridors and comprising strong and imposing buildings of high design quality within well landscaped surrounds.

The predominant built form will front and frame Greenhill Road, with smaller scale and compatible built form and land uses adjacent to lower density residential zones. This corridor is to develop primarily as a premium fringe office and medium to high density living area with dwellings or residential apartments

provided at least in the upper levels of new and refurbished buildings. In general, no single use buildings are to be developed, unless residential or in combination with other on-site buildings to achieve the desired mixed use. The non-residential component of multi-storey buildings (primarily offices together with associated minor shop and personal service establishments and restaurants supporting primarily the development occupiers) are to be limited to lower floor levels.

The Annesley Campus, as shown in Concept Plan [Map Un/5](#), requires a comprehensive master planned redevelopment if the college does not continue as an educational facility. The Greenhill Road frontage is for wholly residential or mixed use development comprising upper level dwellings and ground level offices together with tourist accommodation or serviced apartments for short term stay. The central hub of the campus, including the heritage buildings should be developed with compatible scale and form of buildings and for low key residential use alone or in association with educational, mixed business, conference, recreational, hospitality, community uses and retail services for resident occupiers. The Rose Terrace frontage is for low to medium scale and density land use or buildings.

The area adjacent to the Showgrounds, as shown in Concept Plan [Map Un/7](#), requires a consistency in the pattern of development with higher building tower elements concentrated near road frontages and lower heights and spaces provided away from street frontages, to allow appropriate juxtaposition of buildings and spaces to afford appropriate outlooks, access to light, daylight and air within, and between, developments.

Vehicle access and movement is to be restricted to consolidated points onto Greenhill Road and via side streets and where applicable rear laneways, with primarily local resident access onto Rose Terrace.

Well designed buildings and associated site works are sought which:

- (a) reinforce the importance of Greenhill Road and the northern end of Glen Osmond Road with buildings of grand and consistent proportions, with height relative to width, and dominant solid bases, well articulated middle levels and lighter construction on top levels, which together with neighbouring sites create a complementary built form with noticeable gaps and landscaping framing the street and filling the gaps between buildings at ground level;
- (b) create simple and elegant buildings of high design quality with a consistent rhythm, proportions and form but of individuality and enduring appeal;
- (c) avoid glass curtain walls of mirrored/highly reflective or tinted finishes and create visual transparency and interest at ground floor and lower levels (particularly for non-residential buildings);
- (d) create appealing at-grade public entries linked to and complementing access from car parks, pedestrian and cycle paths, and associated plazas or forecourts providing active streetscape environments;
- (e) locate parking areas under, behind or within buildings, and avoid exposed or raised undercroft or parking areas and the raising of ground floor levels above footpath levels or voids along road frontages and around entries, to provide for planting, easy access entry paths and direct interaction to the public realm.

Create high quality living environments by:

- (a) applying sustainable design solutions to optimise ventilation and capture of sunlight;
- (b) optimising resident and visitor safety, convenience and amenity by providing reserved and secured car parks, lighting and surveillance of public and common spaces;
- (c) locating and screening goods storage and refuse collection areas in a sensitive manner;
- (d) locating and designing sensitive habitable rooms and balconies to optimise the utility of those spaces and minimise noise intrusion.



In order to achieve the desired building design outcome and car parking and access links it will be necessary for existing small and narrow sites to be amalgamated and their redevelopment co-ordinated.

### **Glen Osmond Road Section**

Buildings will be designed to front onto Glen Osmond Road with a strong lower podium built form edge and lighter weight recessed tall facades, with small front and side setbacks when viewed from Glen Osmond Road. Articulation with finer details such as balconies, verandahs and canopies over a pedestrian friendly and active streetscape will reinforce the connections with transport and cycling networks.

Buildings of up to five storeys in height will have their focus and greatest height at the Glen Osmond Road frontage including use of podium designs up to three storeys at ground level, with a transition down from Glen Osmond Road to the rear of sites fronting Chinner Avenue.

Vehicle access will be limited and consolidated to avoid disturbance and retain the primary role of Glen Osmond Road as a strategic transport corridor, with secondary access from side and rear roads provided via a limited number of well distributed, consolidated locations.

Development will be carefully designed to minimise overshadowing impacts on existing low density residential development.

## **PRINCIPLES OF DEVELOPMENT CONTROL**

### **Land Use**

- 1 Development should predominately comprise mixed use across larger sites or within buildings.
- 2 In a mixed use building, non-residential development (offices and small scale shops, restaurants) should be located on the ground floor and lower levels, and residential development should be located on upper levels.
- 3 Existing service industries, workshops and storage activities should be removed or redeveloped to reduce these land uses to a minor floor area and not having a public street frontage.
- 4 Shops or groups of shops contained in a single building, should be of a minor and local scale to support envisaged local services.

### **Form and Character**

- 5 Development should be consistent with the desired character for the policy area.
- 6 The finished ground floor level should be at grade and level with the footpath.
- 7 The ground floor of buildings should be built to dimensions including a minimum floor to ceiling height of 3.5 metres to allow for adaptation to a range of land uses including retail, office and residential without the need for significant change to the building.
- 8 A minimum of 50 percent of the ground floor primary frontage of buildings should be visually permeable, transparent or clear glazed to promote active street frontages and maximise passive surveillance.
- 9 No new access points are appropriate onto Greenhill Road except where rationalising existing crossovers on consolidated sites. All ramped driveways accessing parking areas are to encompass a vehicle length near level standing area within the property boundary.
- 10 Access points onto side or rear roads should be consolidated in accordance with Concept Plan [Map Un/3](#) and only provide limited levels of vehicle movement.

- 11 Laneway-style links between side streets should be retained where provided or re-established under coordinated redevelopments at the rear of consolidated sites and formalised through reciprocal rights of way.
- 12 Development should be in accordance with Concept Plan [Maps Un/3 to 7](#).

## High Street (Unley Road) Policy Area 20

Refer to [Maps Un/14 and 18](#) that relate to this policy area.

### OBJECTIVES

- Objective 1:** A mix of land uses including retail, office, commercial, community, civic and medium and high density residential development that support the economic vitality of the area.
- Objective 2:** Buildings sited to provide a continuous and consistent built edge with verandahs/awnings over the public footpath and an intimate built scale, with fine-grained detailing of buildings in the public realm.
- Objective 3:** An interesting and varied skyline as viewed from the street and afar, provided by modulation in roof forms and the use of parapets.
- Objective 4:** An intimate public realm with active streets created by buildings designed with frequently repeated frontage form and narrow tenancy footprints.
- Objective 5:** A high degree of pedestrian activity and a vibrant street-life with well lit and engaging shop fronts and business displays including alfresco seating and dining facilities and licensed areas.
- Objective 6:** Development that contributes to the desired character of the policy area.

### DESIRED CHARACTER

This policy area includes two sections of the Unley Road corridor either side of the Unley District Centre and extending the full length of the road as far south as Northgate Street from Greenhill Road.

The maintenance of a safe and efficient movement system (for significant private vehicle numbers as well as critical public transport links) needs to be balanced with the desire to transform these strips into vibrant, intimate and appealing mixed use pedestrian friendly corridors of small scale retail, mixed business and entertainment facilities at ground and lower levels with medium to high density living at upper levels of multi-storey buildings.

Some incompatible land uses such as service trade premises, bulky goods outlets, warehousing and workshops need to be progressively replaced or redeveloped such that they are reduced to a minor floor area and/or without public road frontage.

High quality buildings and associated site works are sought which:

- (a) improve the comfort, safety, convenience and appeal of the public realm and the pedestrian environment for visitors and residents by creating:
- (i) visually interesting, highly transparent and varied shop fronts and building entries;
  - (ii) continuity of verandahs, awnings or canopies to provide shelter and shade;
  - (iii) appealing through links to shops and businesses set behind the street frontage and also to ground level and multi-level car parking areas at the rear or underneath buildings;

- (iv) occasional outdoor dining areas extending in part over the public footway and linked to recessed buildings comprising restaurants and licensed premises;
  - (v) paving, lighting, tree planting, furniture and amenities in areas to the rear of street fronting buildings and linked to key local movement networks, public reserves and common private spaces;
  - (vi) parking areas under, behind or within buildings, to ensure ground floor levels match public footpath levels along road frontages and provide for level access and direct interaction to the public realm.
- (b) respect the predominant, traditional rhythm of narrow-fronted shop tenancies and the siting, height and street format by:
- (i) retaining, adapting and redeveloping existing historic or appealing traditional buildings and developing 'behind' the converted street fronting shop or business facades;
  - (ii) developing or maintaining a dominant street level podium building form along the main road reflecting the one to two storey shop or commercial parapet façades traditionally associated with this strip and developing the core building element (and any building above 8.5 metres in total building height) offset and setback behind the ground level façade;
  - (iii) complementing in an innovative and contemporary manner, using modern materials and finishes, the key traditional building and shop-front elements including verandahs, parapet facades, detailed pediments, and clear-glazed narrow shop front displays above raised display levels (base stall boards) and recessed entries;
  - (iv) developing narrow buildings built side by side so as to create a largely continuous built edge to the street and reflecting the traditional narrow-fronted tenancies by creating varied and distinctive building facades through careful and fine-grained attention to building detailing;
  - (v) supporting the predominant street boundary setback, and no more than 3 metres (to allow for a wider pedestrian footway and outdoor dining area forward of the building) setback from the main road;
- (c) create high quality living environments by:
- (a) applying sustainable design solutions to optimise natural ventilation and capture of sun or natural daylight;
  - (b) optimising resident and visitor safety, convenience and amenity by providing reserved and secure car parks, lighting and surveillance of public and common spaces;
  - (c) locating and screening goods storage, refuse collection areas in a sensitive manner;
  - (d) locating and designing sensitive habitable rooms and balconies to optimise the utility of those spaces and minimise noise intrusion.

In order to achieve the desired building design outcome and car parking and access links, it will be necessary for existing small and narrow sites to be amalgamated and their redevelopment co-ordinated.

## PRINCIPLES OF DEVELOPMENT CONTROL

### Land Use

- 1 Development should provide continuity of predominately narrow small ground floor shops, and limited offices and other non-residential land uses along the road corridor at ground level or first floor level, and residential development above.

- 2 Existing service industries, workshops and storage activities should be removed or redeveloped to reduce these land uses to a minor floor area and not having a public street frontage.
- 3 Shops or group of shops contained in a single building should have a maximum gross leasable area in the order of 450 square metres (per tenancy).

### Form and Character

- 4 Development should be consistent with the desired character for the policy area.
- 5 The finished ground floor level should be at grade and level with the footpath.
- 6 The ground floor of buildings should be built to dimensions including a minimum floor to ceiling height of 3.5 metres to allow for adaptation to a range of land uses including retail, office and residential without the need for significant change to the building.
- 7 A minimum of 50 per cent of the ground floor primary frontage of buildings should be visually permeable, transparent or clear glazed to promote active street frontages and maximise passive surveillance.
- 8 Buildings should maintain a pedestrian scale at street level, and on land identified on Concept Plan [Maps Un/1, 2A and 2B](#), should:
  - (a) include a clearly defined podium or street wall fronting the High Street (Unley Road) Policy Area 20 main road and side streets where appropriate, of a height consistent with traditional one and two storey facades and no greater than two storeys or 8.5 metres in height;
  - (b) have levels above the defined podium or street wall setback a minimum of 3 metres from that wall.
- 10 The integrity and spatial setting of a heritage place, and positive character facades, be respected by adjacent development providing appropriate setbacks, wall heights, format and features, and new and taller building elements being distinctly further setback and of lightweight subservient appearance.
- 11 Development should be in accordance with Concept Plan [Maps Un/1, 2A and 2B](#).

## Transit Living (Anzac Highway) Policy Area 24

Refer to Policy Areas [Map Un/12](#) that relates to this policy area.

### OBJECTIVES

- Objective 1:** A medium density residential area supported by local shops, offices and community land uses.
- Objective 2:** A highly varied built streetscape allowing multiple built form design responses that support innovative housing and mixed use development.
- Objective 3:** Development that contributes to the desired character of the policy area.

### DESIRED CHARACTER

This policy area will primarily serve a residential function with local shops, offices and community land uses to support the daily living and working needs of residents and local workers.

The form of buildings, setbacks and street pattern will vary and make use of site opportunities, provide space for landscaping and good design outcomes. Buildings of up to 6 storeys are anticipated and will be developed with dominant lower 3 storey podium façades fronting Anzac Highway, and 2 storey



podium facades facing Leader Street and Maple Avenue. Upper building levels will be recessed, increasing with height to relieve overall visual building height and mass. Development will provide a strong presence and focus towards to main roads with a transition down to the adjoining residential areas. Behind the main road a variety of building forms will be developed, creating housing opportunity for people of various life stages and accommodating a variety of small businesses.

Development will contribute positively to the quality of the public realm by articulating buildings with canopies, modelled facades and balconies that make use of light and shade, and by providing architectural detail. Solid material will be balanced with glazed areas, and plant and service equipment will be enclosed and out of view from the street and neighbouring sites.

The range of setbacks provided in the policy area to accommodate development fronting a primary and/or secondary road frontage will also be critical in softening the continuous edge of new built form and provide a higher amenity streetscape and pedestrian environment which is shaded by street trees and other forms of mature vegetation.

Development will be interspersed with landscaping, particularly behind the main road frontage, along with small side setbacks to ensure space between boundaries to soften the appearance of buildings from the street and reduce heat load in summer. On-site vehicle parking will not be visible from the primary street frontage through the use of design solutions such as locating parking areas behind the front building façade and screening parking areas with landscaping and articulated screening.

### **North of Leader Street**

The Le Cornu site should be developed as an integrated mixed use development that provides landmark quality buildings and a setting to respect and celebrate the important history and gateway to the Anzac Highway Memorial Avenue, and which comprises a mixture of commercial uses including retail showrooms, offices, medical services, and residential uses above.

Development will provide variations in scale, and building mass will be carefully articulated and distributed across the site. Development will also be carefully designed to minimise massing of buildings and overshadowing impacts on existing residential land uses on the southern side of Leader Street.

Development should seek to create a vibrant and active street frontage to Anzac Highway and Leader Street, with commercial activities on the ground floor promoting transparent and/or articulated frontages for interest.

Retail development will be of scale that supports an active, mixed use environment which is compatible with residential development. Shops and commercial uses will be primarily accommodated on the ground floor or lower floor levels within mixed use buildings. The development of any large floor plate retailing will be 'sleeved' by smaller specialty shops to ensure an activated street frontage.

Parking will be predominantly under or at the rear of buildings and, where possible, vehicle access will be from the rear or side rather than the main road. The creation of laneways and shared vehicle access is encouraged.

### **South of Leader Street**

In the area south of Leader Street, bound by Anzac Highway and Grove and Third Avenues, taller buildings will be developed toward the Anzac Highway frontage with a transition down from Anzac Highway to Third and Grove Avenues to provide a sensitive two to three storey interface and minimise overshadowing impacts to the established residential area in this location.

Vehicle access should be consolidated to single points primarily to Anzac Highway with secondary movement to Third Avenue, and designed so that they do not connect or provide through movement for vehicles between the frontages. Bicycle and pedestrian through access is encouraged.

Provision should be made for a bicycle and pedestrian link connecting through to Anzac Highway as an extension of Wilberforce Walk.

## PRINCIPLES OF DEVELOPMENT CONTROL

### Land use

- 1 Shops or groups of shops contained in a single building should have a gross leasable area of less than 500 square metres, except for sites located north of Leader Street.
- 2 Shops or group of shops with a gross leasable area of more than 500 square metres should be integrated with residential development and comprise a range of tenancies.

### Form and Character

- 3 Development should be undertaken in accordance with Concept Plan [Map Un/11](#).
- 4 Development should be consistent with the desired character for the policy area.
- 5 Detached dwellings should take the form and appearance of row dwellings (i.e. constructed to side boundaries) and achieve the desired net residential site density.
- 6 A minimum of 50 per cent of the ground floor primary frontage of buildings containing non-residential development should be visually permeable, transparent or clear glazed to promote active street frontages and maximise passive surveillance.
- 7 No vehicle parking is to be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for people with a disability.
- 8 Access to loading areas and parking for service vehicles should not occur from Anzac Highway and Leader Street for those sites located north of Leader Street.

## Business (Leader Street And Maple Avenue) Policy Area 25

Refer to Policy Areas [Map Un/12](#) that relates to this policy area.

### OBJECTIVES

- Objective 1:** A mixed use business policy area that accommodates a range of commercial and light industrial land uses together with compatible medium and high density residential development.
- Objective 2:** Development that minimises any adverse impacts upon the amenity of the locality within the zone.
- Objective 3:** A high standard of development which promotes distinctive building, landscape and streetscape design, with high visual and environmental amenity.
- Objective 4:** Development that contributes to the desired character of the policy area.

### DESIRED CHARACTER

This policy area will have a strong employment focus, encouraging the continuation and expansion of retail, office, commercial and light industrial uses with supporting medium density residential and shops to support the local workforce's daily needs.

Development will be varied in form to accommodate a mixture of commercial and business land uses, with residential dwellings located above the ground floor. Development will be cognisant of the nearby industrial, commercial and residential uses and be designed to minimise the impacts to and from these land uses.

Development will provide variations in scale, and building mass will be carefully articulated and distributed across the policy area. A variety of building forms will be developed, creating housing opportunity for people of various life stages and accommodating a variety of business activities.

The form of buildings, setbacks and street pattern will also vary and make use of site opportunities, provide space for landscaping and encourage good design outcomes. Development will provide a strong presence and focus towards the main roads with a transition down to the adjoining residential areas and road frontages, including Leader Street.

New residential dwellings will be in the form of medium to high density apartment buildings focussed around the transportation corridors of Anzac Highway, Leader Street and the railway line. The location will contain a variety of building heights predominantly between 2 and 6 storeys. Buildings will be developed with lower two storey podium façades fronting Leader Street and Maple Avenue. Upper building levels will be recessed, increasing with height to relieve overall visual building height and mass. Development will also be carefully designed to minimise massing of buildings and overshadowing impacts on existing residential land uses on the southern side of Leader Street.

The footpath will be sheltered with awnings, verandahs and similar structures, and street tree planting will provide shade and shelter and soften hard building edges. Development will also be interspersed with landscaping, particularly behind the main road frontage, along with small side and appropriate rear setbacks to ensure space between boundaries to soften the appearance of buildings from the street and reduce heat load in summer.

Parking will be predominantly under or at the rear of buildings and, where possible, vehicle access will be from the rear or side rather than the main road. Some parking conveniently located near the front of the building on the site is anticipated for short term and visitor use. The creation of laneways and shared vehicle access is encouraged.

## **PRINCIPLES OF DEVELOPMENT CONTROL**

### **Land Use**

- 1 The following types of development or combination thereof, are envisaged in the Business Policy Area and are additional to those identified in the zone:

- Bulky goods outlet
- Light industry
- Petrol filling station
- Service industry
- Service trade premises
- Store
- Warehouse.

- 2 Land uses on the ground floor of buildings should be predominantly non-residential.
- 3 Shops or groups of shops should have a gross leasable area of less than 500 square metres.
- 4 Light industry should comprise high technology and/or research and development related uses.

### **Form and Character**

- 5 Development should be consistent with the desired character for the policy area.
- 6 Vehicle parking should be predominantly located at the rear or underneath buildings with limited short-term parking located to the front.
- 7 The ground floor of buildings should be built to dimensions including a minimum floor to ceiling height of 4.5 metres to allow for adaptation to a range of land uses including retail, office and residential without the need for significant change to the building.
- 8 A minimum of 50 per cent of the ground floor primary frontage of buildings should be visually permeable, transparent or clear glazed to promote active street frontages and maximise passive surveillance.

## COUNCIL WIDE

### Introduction

The following policies apply across the area within the boundary of the Unley (City) Development Plan, as shown on [Map Un/1](#). This Development Plan has the City-wide Objectives and Principles of Development Control first, and grouped under various headings. These are followed by the individual zones which also have their Objectives and Principles of Development Control. After this are Tables which apply to all zones, and finally the maps, including zone maps.

Reference should be made to all parts of this Development Plan when ascertaining the relevant policies applying to any site.

## Centres and Shops

### OBJECTIVES

- Objective 1:** Shopping, administrative, cultural, community, entertainment, educational, religious, and recreational, facilities located in integrated centres which are distributed rationally.
- Objective 2:** Centres established and developed in accordance with a hierarchy based on function, so that each type of centre provides a proportion of the total requirement of goods and services commensurate with its role.
- Objective 3:** A hierarchy of centres located in centre zones or areas.

The grouping of a wide range of facilities in integrated centres will benefit the community by encouraging economic, and shared, use of facilities, providing a meeting place for communities, and encouraging ready access by both public and private transport. The hierarchy of centres is based on the principle that each type of centre provides a proportion of the total community requirement for goods and services commensurate with its role.

Centres within the area of metropolitan Adelaide are of the following type:

- (a) The Central Business Area of the City of Adelaide;
- (b) Regional Centre;
- (c) District Centre;
- (d) Neighbourhood Centre; and
- (e) Local Centre.

The degree to which the various facilities can be located within a centre will depend, among other things, upon the size of the centre, the specific policies relating to the centre, the implications of competing centres for the population being served, and the characteristics of the population to be served. Each development proposal for a centre should be evaluated against that centre's and other centres', defined roles in the centre hierarchy.

New development in centres should result in the expansion of the total range of retail goods and services available to the population to be served, have regard to the location and role of other existing and proposed centre zones, and be of a size and type which would not demonstrably lead to the physical deterioration of any existing centre zone or designated shopping area.

The identification of each zone in a hierarchy of centres should be such as to:

- (a) cater for the existing and future population's shopping and community needs;



- (b) provide a degree of choice in the location of centre facilities;
- (c) be safely and readily accessible to the population to be served, particularly by public transport, and obviate the need for unscheduled large-scale traffic and transport works;
- (d) have minimal adverse impact on residential areas;
- (e) concentrate development on one side of an arterial road, or one quadrant of an arterial road, intersection and have minimal adverse impact on traffic movement on arterial roads. Linear extension of centre zones or areas along arterial, roads is to be minimised;
- (f) reflect the potential to rehabilitate or extend centre zones or areas, and make effective use of existing investment in public infrastructure, utilities and transport, any costs involved being offset by benefits to the population being served;
- (g) be of a size and shape suitable for their functions, and provide car parking facilities:
- (h) have regard to the maintenance of retail employment levels in the area; and
- (i) have regard to the degree to which existing centres satisfy the above objectives.

The development of new centres may be staged, and specific areas may be set aside for community and other non-retail uses, with the total integrated development producing a character desired for that particular centre.

**Objective 4:** The central business area to provide the principal focus for the economic, social and political life of metropolitan Adelaide, and the State.

The central business area is located in the City of Adelaide.

**Objective 5:** Regional centres to function as the main centres outside the central business area for a full range of shopping, administrative, cultural, community, entertainment, education, religious and recreational facilities, as public transport interchanges and focus of public transport networks and public and private office development.

Regional centres are shown in the Development Plans for the relevant council areas, at Elizabeth, Modbury, Marion, Noarlunga and Port Adelaide.

In some instances the distribution of existing shopping development will be such that some centres, which provide a full range of other regional facilities, will be unable to develop the full range of shopping facilities envisaged for a regional centre.

**Objective 6:** District centres served by public transport and including shopping facilities that provide mainly 'convenience' goods and a sufficient range of 'comparison' goods to serve the major weekly shopping trips, as well as a comparable range of other community facilities.

The size of a district centre and the range of facilities within it, may vary throughout the area of metropolitan Adelaide but should be related to the size and characteristics of the population it serves. The largest district centres should serve a population in the order of 60 000 people.

The following list indicates those facilities which are appropriate in a fully developed district centre:

Ambulance Station	Community Health Centre
Bank	Consulting Room
Child Minding/Child Care Centre	Day Care Centre
Church	Discount Department Store
Cinema	Further Education
Civic Centre	Hospital
Club/Meeting Hall	Hotel/Tavern
Commercial Development	Indoor Recreation Centre

Library	Primary School
Offices (general, professional, governmental)	Restaurant
Park	Secondary School
Personal Service Establishments	Service Station
Playing Field	Special School
Police Station	Specialty Shop
Pre-school	Supermarket
	Swimming Pool

**Objective 7:** Neighbourhood centres to include shopping facilities that provide mainly 'convenience' goods to serve the day-to-day needs of the neighbourhood, and a limited range of more frequently required 'comparison' goods as well as a narrow range of facilities. There are not likely to be administrative facilities in neighbourhood centres.

The size of a neighbourhood centre and the range of facilities within it may vary within the area of metropolitan Adelaide but it should be related to the size and characteristics of the population it serves. The largest neighbourhood centres should serve a population in the order of 10 000 people.

The following list indicates those facilities which are appropriate in a fully developed neighbourhood centre:

Bank	Park
Branch Library	Personal Service Establishment
Child Minding/Child Care Centre	Playing Field
Church	Pre-school
Club/Meeting Hall	Primary School
Commercial Development	Restaurant
Community Welfare Local Office	Service Station
Consulting Room	Specialty Shop
Local Health Centre	Squash Court
Office (to serve nearby residents)	Supermarket

**Objective 8:** Local centres to include shopping and local community facilities to serve day-to-day needs of the local community.

Local centres on arterial roads should comply with the same criteria as those for other local centres.

**Objective 9:** Retail showroom development should only be allowed outside of designated centres if it can be clearly demonstrated that it could be undesirable or impractical to locate them in the vicinity of designated centres.

Retail showrooms, trading in furniture, floor coverings, household appliances and other similar articles of bulky merchandise, require expensive indoor areas for the display of products and exhibit a lower parking demand than convenience shops. Retail showrooms complement the overall provision of facilities in centres and should be located on the periphery of those centres.

In inner areas, the designation of service retail zones for retail showroom development may be appropriate in the event that a centre location cannot be achieved. Such a zone should not be created in a linear fashion along arterial roads.

**Objective 10:** Retailing not consistent with facilities envisaged in a centre located and operated so as not to adversely affect any designated centre, commercial, business or residential, zones, or areas, and traffic movements on local, primary, and primary arterial roads.

The diversification of locations for retailing providing goods and services not compatible with the grouping of facilities envisaged for regional, district, and neighbourhood, centres may be considered so long as the integrity of the centre hierarchy is not compromised and the development is compatible with land uses in the locality.

Retail development of this kind should be evaluated having regard to:

- (a) its locational and operational compatibility with existing shopping, business, commercial zones, or areas, including the nature of the goods and materials to be stocked, and the noise levels of vehicles and plant used on, and servicing, the site;
- (b) its effect on adjacent residential development;
- (c) the increased use of local and arterial roads;
- (d) the adequacy of vehicular access and car parking; and
- (e) the maintenance of building and site development standards required for centres.

## **PRINCIPLES OF DEVELOPMENT CONTROL**

### **General**

- 1 Development or redevelopment within centre and mixed use zones, or areas, should meet the following criteria:
  - (a) Their location and assigned role in the centre hierarchy of designated centres and designated centre zones, or areas.
  - (b) The need to integrate facilities in the zone, or area.
  - (c) Staging of development within the centre and the needs for any future expansion of the zone, or area, as a whole.
  - (d) Multiple use of facilities and sharing of utility spaces.
  - (e) Attractive development, with a unified design of buildings and produce a close relationship between shops in a lively setting.
  - (f) Materials compatible with the natural features of the site and adjacent buildings.
  - (g) Acceptable micro-climatic conditions and degree of exposure in designing and orienting buildings, and locating open space and car parking areas.
  - (h) Development and operation of facilities within a zone, or area, compatible with adjoining areas. This should be promoted through landscaping, screen walls, centre orientation, location of access ways, buffer strips and transitional use areas.
  - (i) Signs designed in scale with the amenity of the area, and carefully located. Illumination from signs or floodlights should not spill over to adjacent areas.
  - (j) Access and car parking for residential areas located within centres separate from the access and car parking areas serving the other centre facilities.
  - (k) Integration of public transport requirements.
  - (l) Provision of retail showrooms for the trading of bulky goods on the periphery of centres, or in designated service retail zones in inner areas.
- 2 Centres should have minimal adverse impacts on residential areas.
- 3 Centres should be so located as to make effective use of existing investment in public infrastructure, utilities, transport and other facilities, and any costs involved should be off-set by benefits to the population being served.
- 4 Centres should be located consistent with policies pertaining to adjoining council areas.

- 5 The development of centres should not result in the physical deterioration of any designated centre.

### Location and Design

- 6 Shopping development should be located as follows:
- (a) A shop or group of shops with a total floor area of greater than 250 square metres should be located in a centre or mixed use zone, or area.
  - (b) A shop or group of shops with a gross leasable floor area of 250 square metres or less should not be located on an arterial road as shown on [Map Un/1 \(Overlay 1\)](#) unless located in a centre or mixed use zone, or area.
  - (c) A shop or group of shops with a gross leasable floor area of 250 square metres or less located outside a centre or mixed use zone, or area should not hinder the development or function of any centre or mixed use zone, or area, and should conform with the design, access, car parking and design principles for centre or mixed use zones or areas set out in principle of development control numbered 11 below.
- 7 The total floor area of shops in a Local Centre Zone should not exceed 450 square metres.
- 8 Development within centre zones should conform with the following design and location principles:
- (a) Development should provide for the integration of existing and future facilities so as to promote ease of pedestrian movement and sharing of facilities as well as to retain the opportunity for future expansion within the zone.
  - (b) Within zones which straddle arterial roads or intersections of arterial roads, the major shopping focus, defined by the total floor area and associated car parking, should be restricted to one side of the road or one quadrant of the intersection.
  - (c) Development should not:
    - (i) generate pedestrian or vehicular traffic onto or across an arterial road in such a way as to materially impair the movement of traffic on that road or to cause safety hazards; and
    - (ii) involve utilization of land, including car parking and landscaping, which is required for road widening.
  - (d) Development within centre zones should avoid significant vertical separation between the public footway and ground floor level, or separation of the public footway and ground floor level by voids to undercroft parking areas.
  - (e) Where necessary, development should:
    - (i) provide access and facilities for the disabled and parking in accordance with principles of development control numbered 24 and 25 under the heading Transport (Movement of People and Goods);
    - (ii) minimise energy consumption for lighting, heating, cooling and ventilation;
    - (iii) provide public spaces such as malls, plazas and courtyards;
    - (iv) provide public facilities including toilets, infant changing facilities for parents, seating, telephones and community information boards;
    - (v) provide access for public transport and sheltered waiting areas for passengers;



- (vi) provide lighting for buildings and ancillary areas, with no light spill causing nuisance or hazard;
  - (vii) provide facilities for the parking and securing of bicycles; and
  - (viii) provide facilities for the storage and collection of shopping trolleys.
- (f) Landscaping should be provided and maintained in order to:
- (i) establish a buffer between development in the zone and adjacent areas;
  - (ii) complement the landscaping provided by adjacent development and enhance the visual appearance and character of the zone;
  - (iii) shade, define and create windbreaks for pedestrian paths and spaces; and
  - (iv) screen service yards, loading areas and outdoor storage areas.
- 9** Centres should develop on one side of an arterial road, or one quadrant of an arterial road intersection. Where centre facilities, already straddle an arterial road, or the intersection of two arterial roads, development within them should:
- (a) concentrate on one side of the arterial, road or one quadrant of the arterial road intersection; and
  - (b) minimise the need for pedestrian and vehicular movement across the arterial road, from one part of the centre to another.
- 10** Centre type development located outside centre zones should of a size and type which would not hinder the development or function of any centre zone, in accordance with the objectives for centres and shops and the objectives for the appropriate zones and should conform with the access, car parking and design principles for centre zones set out below.
- 11** Shopping development which is more appropriately located outside business, centre or shopping, zones, or areas, should:
- (a) be of a size and type which would not hinder the development or function of any business, centre, or shopping, zone or area, in accordance with the objectives and principles of development control for centres and shops, and the objectives and principles of development control for the appropriate zones, or areas;
  - (b) conform to the criteria above, and the design, access, and car parking requirements for business, centre, and shopping, zones, or areas, set out in other principles of development control;
  - (c) result in the expansion of the total range of retail goods and services presently available to the community;
  - (d) result in a maintenance of retail employment in the area; and
  - (e) not demonstrably lead to the physical deterioration of any designated centre.
- 12** The location and design of centres and shopping development should ensure that all sources of noise, including refrigeration and air conditioning equipment, garbage collection and car parking, do not cause excessive or disturbing noise at neighbouring properties.

### **Transport, Access and Parking**

- 13** Centres should be highly accessible to the population to be served, especially by public transport, where that applies.

- 14 Centres should have a minimal adverse impact on traffic movements on arterial roads.
- 15 Access points for the development should be determined by Transport SA in consultation with the Planning Authority.
- 16 Development in the form of retail showrooms trading in bulky goods merchandise, should provide adequate manoeuvring and circulation areas in order to accommodate truck and trailer movements.
- 17 Centre type development should make adequate provision on the site to enable the loading, unloading and manoeuvring of vehicles without the necessity to use public roads, and in a manner which results in minimal conflict between service vehicles and customer vehicles, pedestrians and cyclists.
- 18 Provision for the movement of people and goods within business, centre, and shopping zones, or areas, should comply with the following:
  - (a) Development should not cause inconvenient and unsafe traffic and pedestrian movements or be likely to result in the need for significant expenditure on transport and traffic works, or facilities within, or outside, the locality.
  - (b) Development should be concentrated for pedestrian convenience and not allowed to extend unnecessarily along road frontages; (increasing the depth of development is a more desirable alternative).
  - (c) The separation of pedestrian and vehicle movements within zones or areas, is most desirable to ensure safety and convenience.
  - (d) Access to car parking areas should be designed not to cause congestion or detract from the safety of traffic on abutting roads.
  - (e) Adequate and convenient provision should be made for service vehicles and the storage and removal of waste goods and materials.
  - (f) Parking areas should be consolidated and co-ordinated into convenient groups, rather than located individually, and the access points minimised.
  - (g) Car parks should be orientated so as to facilitate direct and convenient access of pedestrians between them and the facilities they serve.
  - (h) On-site parking shall be determined having regard to:
    - (i) the amount, type and timing of movement generated by the use;
    - (ii) the design, location and configuration of parking spaces;
    - (iii) the ability of the site to accommodate the parking spaces;
    - (iv) the potential for shared use of parking spaces;
    - (v) the effect on surrounding activities;
    - (vi) specific in requests of cyclists; and
    - (vii) the availability of appropriate on-street parking.

(Also see Principles 21 and 22 under the heading Transport (Movement of People and Goods) and [Table Un/5](#) for Off Street Vehicle Parking Requirements).

- (i) Retail showroom development should provide appropriate manoeuvring and circulation areas on the site, in order to accommodate trucks and trailer movements for the carriage of bulky products.

19 Shopping development should provide for separate parking spaces for the disabled. (See [Table Un/5](#))

### Entertainment and Recreational Facilities

20 Entertainment and recreational development should be located in Centre and Mixed Use Zones, and should comply with the relevant principles of development control applying to centres and shops.

21 Entertainment and recreational facilities should be designed to have minimal impact upon the amenity of abutting residential zones.

22 All development involving entertainment and recreational facilities should provide at least 50 square metres of area on the site suitable for servicing and temporary waste storage.

23 Development for which the applicant intends to seek a liquor licence should:

- (a) not be located in residential zones; and
- (b) not exceed the following closing times, unless located in the District Centre Zone:
  - (i) Sunday - 11 pm;
  - (ii) Monday to Thursday - Midnight; and
  - (iii) Friday and Saturday - 1 am on the following day.

24 A shop which is a restaurant should restrict hours of opening to those compatible with the nature and needs of other development in the vicinity.

### Landscaping

25 Landscaping should form an integral part of centre design, and be used to foster human scale, define spaces, reinforce paths and edges, screen utility areas, and generally enhance the visual amenity of the area.

## Commercial and Industrial Development

### OBJECTIVES

**Objective 1:** Commercial development located in suitable areas.

Commercial areas cater for wholesaling, storage, and associated, activities. Parts of these areas may be suitable for development that does not generate much traffic, such as car and boat sales yards, small offices, tyre sales outlets and premises which are used primarily for the fabrication, storage, and repair, of goods with only a small ancillary retailing area.

**Objective 2:** An adequate supply of suitable and appropriately located land to accommodate current and projected industrial activities.

Industry requires reasonably level, well drained land, which can be supplied with the appropriate infrastructure and is readily accessible to labour and transport. In choosing suitable locations for industrial land it is also important to consider the effects of industry on surrounding land uses.

While supplies of industrial land are adequate in the short term, Metropolitan Adelaide's stocks of good quality industrial land have been reduced over past years. Industrial land is a valuable economic resource and it is vital that new supplies of suitable, well located land for industry are provided in Metropolitan Adelaide and that land set aside for industry is not developed for other purposes.

**Objective 3:** Industrial land and activities protected from encroachment by incompatible land uses.

Land earmarked for industrial purposes requires protection from encroachment by incompatible land uses. In particular, residential land uses can encroach upon existing industrial activities over time. As residential development moves closer to these industries, the capacity of industry to operate properly or to expand can be threatened. Similarly, increases in residential densities close to industrial areas can also have implications for industry.

The potential conflicts between existing industry and encroaching non-industrial development, either by the take up of vacant land or through residential density increases, need to be assessed when rezoning land, particularly for residential uses, or when reviewing zone policies in adjoining areas.

Distances to existing industrial development need to be taken into account when considering the zoning of land for residential or other potentially sensitive land uses. The use of separation areas along zone boundaries and the management of these areas to mitigate impacts and minimise the potential for conflict between industrial land uses and other incompatible land uses, should also be considered when appropriate.

**Objective 4:** Development at the interface between industrial activities and sensitive uses that is compatible with surrounding activities, particularly those in adjoining zones.

Where industrial zones already adjoin residential areas, it is appropriate that those industrial activities with lower potential for off-site impacts be located on the periphery of industrial zones. Some types of commercial development are also suitable on the periphery of industrial areas as they can perform a separation role between housing and industry. Consideration should also be given to the appropriateness of, and design treatments required, for other land uses located in close proximity to industrial locations. Separation distances can be utilised as a trigger for more detailed assessment to ensure that impacts can be minimised.

## PRINCIPLES OF DEVELOPMENT CONTROL

### Bank, Office and Consulting Room Development

- 1 Bank, office and consulting room development should provide a building line set-back from side and rear boundaries, for the provision of landscaping to adjoining properties of at least three metres, other than in centre zones, where the building adjoining the road alignment may be built closer or to the side boundary to provide a continuous building frontage on the road.

Small protrusions from the building, such as floor slab projections and window and door canopies, may occur within the building line set-back up to a maximum projection of 1.1 metres from the building.

- 2 Where bank, office or consulting room development involves the construction of more than one individual building unit on a site, each building unit should be separated from other buildings on the site by at least six metres, other than for projections from the building referred to in principle of development control numbered 1, with only open, lightweight, uncovered structures therein.
- 3 Bank, office and consulting room development should be designed to provide a continuous physical and visual link between adjacent public footways and the ground floor of the development. Accordingly, the design of development should avoid significant vertical separation between the public footway and ground floor level, or separation of the public footway and ground floor level by voids to undercroft parking areas.
- 4 Bank, office and consulting room development should provide a screened service and storage area of at least 15 square metres.



## Industrial Development

- 5 Warehouses, stores and industries should be located in Light Industry and Mixed Use Zones.
- 6 No dwellings other than caretakers' quarters should be erected in industrial areas.

## Development Associated with the Motor Trades

- 7 Development associated with the motor trades should be located in Light Industry and Mixed Use 2 Zones.
- 8 Development associated with the motor trades should be designed and located to cause minimal inconvenience to existing land uses and be compatible with existing uses, buildings and the character of the zone.

See Principles 21 and 22 under the heading Transport (Movement of People and Goods) and [Table Un/5](#) for Off Street Vehicle Parking Requirements.

## Community Facilities

### OBJECTIVES

- Objective 1:** Appropriate community facilities conveniently accessible to the population they serve.

A sound education system and an adequate health service provide the basis for the social well-being of a community. Therefore, schools, hospitals, cemeteries and other institutions, must be located conveniently for the people they serve.

The changing age structure of the population will affect the range of community facilities required, therefore flexibility should be a major consideration when considering the design, type and life of buildings.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Community facilities should be conveniently located in relation to the population they are to serve.
- 2 Primary school and educational establishment developments should provide an adequate area, preferably within the development site, for buses to pick up and set down passengers.

See Principles 21 and 22 under the heading Transport (Movement of People and Goods) and [Table Un/5](#) for Off Street Vehicle Parking Requirements.

## Crime Prevention

### OBJECTIVES

- Objective 1:** A safe, secure, crime resistant environment where land uses are integrated and designed to facilitate community surveillance.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should promote the personal safety of people by:
  - (a) enabling them to be seen, to see and to interpret their surrounds, through:
    - (i) adequate lighting;

- (ii) clear sightlines;
  - (iii) the elimination of entrapment spots;
  - (iv) the design of buildings to overlook public space;
  - (v) the mixing of activities which facilitate more constant public use;
  - (vi) appropriate use and design of landscaping and fencing;
- (b) enabling them to leave an area or seek assistance when in danger, through legible design and comprehensive signage.
- 2** Development should promote the security of property by:
- (a) clearly defining ownership and legitimate use of private, public and community space
  - (b) minimising access between roofs, balconies and windows of adjacent buildings;
  - (c) avoiding the use of materials which are likely to be susceptible to damage and vandalism;
  - (d) avoiding landscaping and fencing which may present a security risk by providing concealment opportunities;
  - (e) screen planting and use of prickly plant species in areas susceptible to vandalism.

## Design and Appearance

### OBJECTIVES

- Objective 1:** Development of a high design standard and appearance that responds to and reinforces positive aspects of the local environment and built form.
- Objective 2:** Roads, open spaces, paths, buildings and land uses laid out and linked so that they are easy to understand and navigate.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1** Buildings should reflect the desired character of the locality while incorporating contemporary designs that have regard to the following:
- (a) building height, mass, proportion and siting;
  - (b) external materials, patterns, colours and decorative elements;
  - (c) roof form and pitch;
  - (d) façade articulation and detailing;
  - (e) verandahs, eaves, parapets and window screens.
- 2** Where a building is sited on or close to a side or rear boundary, the boundary wall should minimise:
- (a) the visual impact of the building as viewed from adjoining properties;
  - (b) overshadowing of adjoining properties and allow adequate sunlight access to neighbouring buildings.

- 3 The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare to neighbouring properties, drivers or cyclists.
- 4 Structures located on the roofs of buildings to house plant and equipment should be screened from view to the street and adjacent building viewing points (existing or envisaged) and should form an integral part of the building and roof top design in relation to creating an attractive appearance, external finishes and colours.
- 5 Balconies should:
  - (a) be integrated with the overall form and detail of the building;
  - (b) include balustrade detailing that enables line of sight to the street;
  - (c) be recessed where wind would otherwise make the space unusable;
  - (d) be self-draining and plumbed to minimise runoff.
- 6 Transportable buildings and buildings which are elevated on stumps, posts, piers, columns or the like, should have their suspended footings enclosed around the perimeter of the building, and the use of verandahs, pergolas and other suitable architectural detailing to give the appearance of a permanent structure.

#### **Development Adjacent Heritage Places**

- 7 The design of multi-storey buildings should not detract from the form and materials of adjacent State or Local Heritage Places listed in [Table Un/3](#) or [Table Un/4](#).
- 8 Development on land adjacent to a State or Local Heritage Places listed in [Table Un/3](#) or [Table Un/4](#), should be sited and designed to reinforce the historic character of the place and maintain its visual prominence.

#### **Overshadowing**

- 9 The design and location of buildings should enable direct winter sunlight into adjacent dwellings and private open space and minimise the overshadowing of:
  - (a) windows of habitable rooms;
  - (b) upper-level private balconies that provide the primary open space area for a dwelling;
  - (c) solar collectors (such as solar hot water systems and photovoltaic cells).

#### **Visual Privacy**

- 10 Development should minimise direct overlooking of the habitable rooms and private open spaces of dwellings through measures such as:
  - (a) appropriate site layout and building orientation;
  - (b) off-setting the location of balconies and windows of habitable rooms with those of other buildings so that views are oblique rather than direct to avoid direct line of sight;
  - (c) building setbacks from boundaries (including building boundary to boundary where appropriate) that interrupt views or that provide a spatial separation between balconies or windows of habitable rooms;
  - (d) screening devices (including fencing, obscure glazing, screens, external ventilation blinds, window hoods and shutters) that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity.
- 11 Permanently fixed external screening devices should be designed and coloured to complement the associated building's external materials and finishes.

### Relationship to the Street and Public Realm

- 12 Buildings (other than ancillary buildings, group dwellings or buildings on allotments with a battle axe configuration) should be designed so that the main façade faces the primary street frontage of the land on which they are situated.
- 13 Buildings, landscaping, paving and signage should have a coordinated appearance that maintains and enhances the visual attractiveness of the locality.
- 14 Buildings should be designed and sited to avoid extensive areas of uninterrupted walling facing areas exposed to public view.
- 15 Building design should emphasise pedestrian entry points to provide perceptible and direct access from public street frontages and vehicle parking areas.
- 16 In mixed use and medium and high density residential areas, development facing the street should be designed to provide interesting and pedestrian friendly street frontages by:
  - (a) including features such as frequent doors and display windows, retail shopfronts and/or outdoor eating or dining areas;
  - (b) minimising the frontage for fire escapes, service doors, plant and equipment hatches;
  - (c) avoiding undercroft, semi-basement or ground floor vehicle parking that is visible from the primary street frontage;
  - (d) using colour, vertical and horizontal elements, roof overhangs and other design techniques to provide visual interest and reduce massing; and
  - (e) including awnings, eaves, verandahs or similar, to the street where setbacks and ground floor uses allow.
- 17 Where zero or minor setbacks are desirable, development should incorporate shelter over footpaths to enhance the quality of the pedestrian environment.

### Outdoor Storage and Service Areas

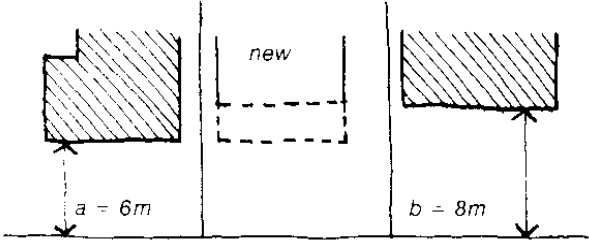
- 18 Outdoor storage, loading and service areas should be:
  - (a) screened from public view by a combination of built form, solid fencing and/or landscaping;
  - (b) conveniently located and designed to enable the manoeuvring of service and delivery vehicles;
  - (c) sited away from sensitive land uses.

### Building Setbacks from Road Boundaries

- 19 Except in areas where a new character is desired, the setback of buildings from public roads should:
  - (a) be similar to, or compatible with, setbacks of buildings on adjoining land and other buildings in the locality;
  - (b) contribute positively to the function, appearance and/or desired character of the locality.
- 20 Except where specified in a particular zone, policy area or precinct, buildings and structures should be set back from road boundaries having regard to the requirements set out in [Table Un/2](#) – Building Setbacks.



- 21 Except where specified in a particular zone, policy area or precinct, the main face of a building should be set back from the primary road frontage in accordance with the following table:

Setback difference between buildings on adjacent allotments	Setback of new building
Up to 2 metres	The same setback as one of the adjacent buildings, as illustrated below:  <p style="text-align: center;"><i>When <math>b - a \leq 2</math>, setback of new dwelling = a or b</i></p>
Greater than 2 metres	At least the average setback of the adjacent buildings

- 22 Except in areas where a new character is desired or where specified in a zone, policy area or precinct, the setback of development from a secondary street frontage should reflect the setbacks of the adjoining buildings and other buildings in the locality.
- 23 All setbacks from the road frontage should be additional to the road widening setback established under the *Metropolitan Adelaide Road Widening Plan Act 1972*.

## Energy Efficiency

### OBJECTIVES

- Objective 1:** Development designed and sited to conserve energy.
- Objective 2:** Development that provides for on-site power generation including photovoltaic cells and wind power.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should provide for efficient solar access to buildings and open space all year around.
- 2 Buildings should be sited and designed:
  - (a) to ensure adequate natural light and winter sunlight is available to the main activity areas of adjacent buildings;
  - (b) so that open spaces associated with the main activity areas face north for exposure to winter sun;
  - (c) to allow for cross ventilation and natural cooling of buildings and zoning of building layouts to enable main living room areas to be separately heated and cooled;
  - (d) to incorporate roof top gardens and green 'living' walls, particularly for multi-storey and large developments, to reduce the 'urban heat island effect';
  - (e) to use energy efficient building materials or the re-use of existing materials (embodied energy).

## COUNCIL WIDE

### Introduction

The following policies apply across the area within the boundary of the Unley (City) Development Plan, as shown on [Map Un/1](#). This Development Plan has the City-wide Objectives and Principles of Development Control first, and grouped under various headings. These are followed by the individual zones which also have their Objectives and Principles of Development Control. After this are Tables which apply to all zones, and finally the maps, including zone maps.

Reference should be made to all parts of this Development Plan when ascertaining the relevant policies applying to any site.

## Centres and Shops

### OBJECTIVES

- Objective 1:** Shopping, administrative, cultural, community, entertainment, educational, religious, and recreational, facilities located in integrated centres which are distributed rationally.
- Objective 2:** Centres established and developed in accordance with a hierarchy based on function, so that each type of centre provides a proportion of the total requirement of goods and services commensurate with its role.
- Objective 3:** A hierarchy of centres located in centre zones or areas.

The grouping of a wide range of facilities in integrated centres will benefit the community by encouraging economic, and shared, use of facilities, providing a meeting place for communities, and encouraging ready access by both public and private transport. The hierarchy of centres is based on the principle that each type of centre provides a proportion of the total community requirement for goods and services commensurate with its role.

Centres within the area of metropolitan Adelaide are of the following type:

- (a) The Central Business Area of the City of Adelaide;
- (b) Regional Centre;
- (c) District Centre;
- (d) Neighbourhood Centre; and
- (e) Local Centre.

The degree to which the various facilities can be located within a centre will depend, among other things, upon the size of the centre, the specific policies relating to the centre, the implications of competing centres for the population being served, and the characteristics of the population to be served. Each development proposal for a centre should be evaluated against that centre's and other centres', defined roles in the centre hierarchy.

New development in centres should result in the expansion of the total range of retail goods and services available to the population to be served, have regard to the location and role of other existing and proposed centre zones, and be of a size and type which would not demonstrably lead to the physical deterioration of any existing centre zone or designated shopping area.

The identification of each zone in a hierarchy of centres should be such as to:

- (a) cater for the existing and future population's shopping and community needs;

- (b) provide a degree of choice in the location of centre facilities;
- (c) be safely and readily accessible to the population to be served, particularly by public transport, and obviate the need for unscheduled large-scale traffic and transport works;
- (d) have minimal adverse impact on residential areas;
- (e) concentrate development on one side of an arterial road, or one quadrant of an arterial road, intersection and have minimal adverse impact on traffic movement on arterial roads. Linear extension of centre zones or areas along arterial, roads is to be minimised;
- (f) reflect the potential to rehabilitate or extend centre zones or areas, and make effective use of existing investment in public infrastructure, utilities and transport, any costs involved being offset by benefits to the population being served;
- (g) be of a size and shape suitable for their functions, and provide car parking facilities:
- (h) have regard to the maintenance of retail employment levels in the area; and
- (i) have regard to the degree to which existing centres satisfy the above objectives.

The development of new centres may be staged, and specific areas may be set aside for community and other non-retail uses, with the total integrated development producing a character desired for that particular centre.

**Objective 4:** The central business area to provide the principal focus for the economic, social and political life of metropolitan Adelaide, and the State.

The central business area is located in the City of Adelaide.

**Objective 5:** Regional centres to function as the main centres outside the central business area for a full range of shopping, administrative, cultural, community, entertainment, education, religious and recreational facilities, as public transport interchanges and focus of public transport networks and public and private office development.

Regional centres are shown in the Development Plans for the relevant council areas, at Elizabeth, Modbury, Marion, Noarlunga and Port Adelaide.

In some instances the distribution of existing shopping development will be such that some centres, which provide a full range of other regional facilities, will be unable to develop the full range of shopping facilities envisaged for a regional centre.

**Objective 6:** District centres served by public transport and including shopping facilities that provide mainly 'convenience' goods and a sufficient range of 'comparison' goods to serve the major weekly shopping trips, as well as a comparable range of other community facilities.

The size of a district centre and the range of facilities within it, may vary throughout the area of metropolitan Adelaide but should be related to the size and characteristics of the population it serves. The largest district centres should serve a population in the order of 60 000 people.

The following list indicates those facilities which are appropriate in a fully developed district centre:

Ambulance Station	Community Health Centre
Bank	Consulting Room
Child Minding/Child Care Centre	Day Care Centre
Church	Discount Department Store
Cinema	Further Education
Civic Centre	Hospital
Club/Meeting Hall	Hotel/Tavern
Commercial Development	Indoor Recreation Centre

Library	Primary School
Offices (general, professional, governmental)	Restaurant
Park	Secondary School
Personal Service Establishments	Service Station
Playing Field	Special School
Police Station	Specialty Shop
Pre-school	Supermarket
	Swimming Pool

**Objective 7:** Neighbourhood centres to include shopping facilities that provide mainly 'convenience' goods to serve the day-to-day needs of the neighbourhood, and a limited range of more frequently required 'comparison' goods as well as a narrow range of facilities. There are not likely to be administrative facilities in neighbourhood centres.

The size of a neighbourhood centre and the range of facilities within it may vary within the area of metropolitan Adelaide but it should be related to the size and characteristics of the population it serves. The largest neighbourhood centres should serve a population in the order of 10 000 people.

The following list indicates those facilities which are appropriate in a fully developed neighbourhood centre:

Bank	Park
Branch Library	Personal Service Establishment
Child Minding/Child Care Centre	Playing Field
Church	Pre-school
Club/Meeting Hall	Primary School
Commercial Development	Restaurant
Community Welfare Local Office	Service Station
Consulting Room	Specialty Shop
Local Health Centre	Squash Court
Office (to serve nearby residents)	Supermarket

**Objective 8:** Local centres to include shopping and local community facilities to serve day-to-day needs of the local community.

Local centres on arterial roads should comply with the same criteria as those for other local centres.

**Objective 9:** Retail showroom development should only be allowed outside of designated centres if it can be clearly demonstrated that it could be undesirable or impractical to locate them in the vicinity of designated centres.

Retail showrooms, trading in furniture, floor coverings, household appliances and other similar articles of bulky merchandise, require expensive indoor areas for the display of products and exhibit a lower parking demand than convenience shops. Retail showrooms complement the overall provision of facilities in centres and should be located on the periphery of those centres.

In inner areas, the designation of service retail zones for retail showroom development may be appropriate in the event that a centre location cannot be achieved. Such a zone should not be created in a linear fashion along arterial roads.

**Objective 10:** Retailing not consistent with facilities envisaged in a centre located and operated so as not to adversely affect any designated centre, commercial, business or residential, zones, or areas, and traffic movements on local, primary, and primary arterial roads.

The diversification of locations for retailing providing goods and services not compatible with the grouping of facilities envisaged for regional, district, and neighbourhood, centres may be considered so long as the integrity of the centre hierarchy is not compromised and the development is compatible with land uses in the locality.



Retail development of this kind should be evaluated having regard to:

- (a) its locational and operational compatibility with existing shopping, business, commercial zones, or areas, including the nature of the goods and materials to be stocked, and the noise levels of vehicles and plant used on, and servicing, the site;
- (b) its effect on adjacent residential development;
- (c) the increased use of local and arterial roads;
- (d) the adequacy of vehicular access and car parking; and
- (e) the maintenance of building and site development standards required for centres.

## **PRINCIPLES OF DEVELOPMENT CONTROL**

### **General**

- 1 Development or redevelopment within centre and mixed use zones, or areas, should meet the following criteria:
  - (a) Their location and assigned role in the centre hierarchy of designated centres and designated centre zones, or areas.
  - (b) The need to integrate facilities in the zone, or area.
  - (c) Staging of development within the centre and the needs for any future expansion of the zone, or area, as a whole.
  - (d) Multiple use of facilities and sharing of utility spaces.
  - (e) Attractive development, with a unified design of buildings and produce a close relationship between shops in a lively setting.
  - (f) Materials compatible with the natural features of the site and adjacent buildings.
  - (g) Acceptable micro-climatic conditions and degree of exposure in designing and orienting buildings, and locating open space and car parking areas.
  - (h) Development and operation of facilities within a zone, or area, compatible with adjoining areas. This should be promoted through landscaping, screen walls, centre orientation, location of access ways, buffer strips and transitional use areas.
  - (i) Signs designed in scale with the amenity of the area, and carefully located. Illumination from signs or floodlights should not spill over to adjacent areas.
  - (j) Access and car parking for residential areas located within centres separate from the access and car parking areas serving the other centre facilities.
  - (k) Integration of public transport requirements.
  - (l) Provision of retail showrooms for the trading of bulky goods on the periphery of centres, or in designated service retail zones in inner areas.
- 2 Centres should have minimal adverse impacts on residential areas.
- 3 Centres should be so located as to make effective use of existing investment in public infrastructure, utilities, transport and other facilities, and any costs involved should be off-set by benefits to the population being served.
- 4 Centres should be located consistent with policies pertaining to adjoining council areas.

- 5 The development of centres should not result in the physical deterioration of any designated centre.

### Location and Design

- 6 Shopping development should be located as follows:
- (a) A shop or group of shops with a total floor area of greater than 250 square metres should be located in a centre or mixed use zone, or area.
  - (b) A shop or group of shops with a gross leasable floor area of 250 square metres or less should not be located on an arterial road as shown on [Map Un/1 \(Overlay 1\)](#) unless located in a centre or mixed use zone, or area.
  - (c) A shop or group of shops with a gross leasable floor area of 250 square metres or less located outside a centre or mixed use zone, or area should not hinder the development or function of any centre or mixed use zone, or area, and should conform with the design, access, car parking and design principles for centre or mixed use zones or areas set out in principle of development control numbered 11 below.
- 7 The total floor area of shops in a Local Centre Zone should not exceed 450 square metres.
- 8 Development within centre zones should conform with the following design and location principles:
- (a) Development should provide for the integration of existing and future facilities so as to promote ease of pedestrian movement and sharing of facilities as well as to retain the opportunity for future expansion within the zone.
  - (b) Within zones which straddle arterial roads or intersections of arterial roads, the major shopping focus, defined by the total floor area and associated car parking, should be restricted to one side of the road or one quadrant of the intersection.
  - (c) Development should not:
    - (i) generate pedestrian or vehicular traffic onto or across an arterial road in such a way as to materially impair the movement of traffic on that road or to cause safety hazards; and
    - (ii) involve utilization of land, including car parking and landscaping, which is required for road widening.
  - (d) Development within centre zones should avoid significant vertical separation between the public footway and ground floor level, or separation of the public footway and ground floor level by voids to undercroft parking areas.
  - (e) Where necessary, development should:
    - (i) provide access and facilities for the disabled and parking in accordance with principles of development control numbered 24 and 25 under the heading Transport (Movement of People and Goods);
    - (ii) minimise energy consumption for lighting, heating, cooling and ventilation;
    - (iii) provide public spaces such as malls, plazas and courtyards;
    - (iv) provide public facilities including toilets, infant changing facilities for parents, seating, telephones and community information boards;
    - (v) provide access for public transport and sheltered waiting areas for passengers;

- (vi) provide lighting for buildings and ancillary areas, with no light spill causing nuisance or hazard;
  - (vii) provide facilities for the parking and securing of bicycles; and
  - (viii) provide facilities for the storage and collection of shopping trolleys.
- (f) Landscaping should be provided and maintained in order to:
- (i) establish a buffer between development in the zone and adjacent areas;
  - (ii) complement the landscaping provided by adjacent development and enhance the visual appearance and character of the zone;
  - (iii) shade, define and create windbreaks for pedestrian paths and spaces; and
  - (iv) screen service yards, loading areas and outdoor storage areas.
- 9** Centres should develop on one side of an arterial road, or one quadrant of an arterial road intersection. Where centre facilities, already straddle an arterial road, or the intersection of two arterial roads, development within them should:
- (a) concentrate on one side of the arterial, road or one quadrant of the arterial road intersection; and
  - (b) minimise the need for pedestrian and vehicular movement across the arterial road, from one part of the centre to another.
- 10** Centre type development located outside centre zones should of a size and type which would not hinder the development or function of any centre zone, in accordance with the objectives for centres and shops and the objectives for the appropriate zones and should conform with the access, car parking and design principles for centre zones set out below.
- 11** Shopping development which is more appropriately located outside business, centre or shopping, zones, or areas, should:
- (a) be of a size and type which would not hinder the development or function of any business, centre, or shopping, zone or area, in accordance with the objectives and principles of development control for centres and shops, and the objectives and principles of development control for the appropriate zones, or areas;
  - (b) conform to the criteria above, and the design, access, and car parking requirements for business, centre, and shopping, zones, or areas, set out in other principles of development control;
  - (c) result in the expansion of the total range of retail goods and services presently available to the community;
  - (d) result in a maintenance of retail employment in the area; and
  - (e) not demonstrably lead to the physical deterioration of any designated centre.
- 12** The location and design of centres and shopping development should ensure that all sources of noise, including refrigeration and air conditioning equipment, garbage collection and car parking, do not cause excessive or disturbing noise at neighbouring properties.

### **Transport, Access and Parking**

- 13** Centres should be highly accessible to the population to be served, especially by public transport, where that applies.

- 14 Centres should have a minimal adverse impact on traffic movements on arterial roads.
- 15 Access points for the development should be determined by Transport SA in consultation with the Planning Authority.
- 16 Development in the form of retail showrooms trading in bulky goods merchandise, should provide adequate manoeuvring and circulation areas in order to accommodate truck and trailer movements.
- 17 Centre type development should make adequate provision on the site to enable the loading, unloading and manoeuvring of vehicles without the necessity to use public roads, and in a manner which results in minimal conflict between service vehicles and customer vehicles, pedestrians and cyclists.
- 18 Provision for the movement of people and goods within business, centre, and shopping zones, or areas, should comply with the following:
  - (a) Development should not cause inconvenient and unsafe traffic and pedestrian movements or be likely to result in the need for significant expenditure on transport and traffic works, or facilities within, or outside, the locality.
  - (b) Development should be concentrated for pedestrian convenience and not allowed to extend unnecessarily along road frontages; (increasing the depth of development is a more desirable alternative).
  - (c) The separation of pedestrian and vehicle movements within zones or areas, is most desirable to ensure safety and convenience.
  - (d) Access to car parking areas should be designed not to cause congestion or detract from the safety of traffic on abutting roads.
  - (e) Adequate and convenient provision should be made for service vehicles and the storage and removal of waste goods and materials.
  - (f) Parking areas should be consolidated and co-ordinated into convenient groups, rather than located individually, and the access points minimised.
  - (g) Car parks should be orientated so as to facilitate direct and convenient access of pedestrians between them and the facilities they serve.
  - (h) On-site parking shall be determined having regard to:
    - (i) the amount, type and timing of movement generated by the use;
    - (ii) the design, location and configuration of parking spaces;
    - (iii) the ability of the site to accommodate the parking spaces;
    - (iv) the potential for shared use of parking spaces;
    - (v) the effect on surrounding activities;
    - (vi) specific in requests of cyclists; and
    - (vii) the availability of appropriate on-street parking.

(Also see Principles 21 and 22 under the heading Transport (Movement of People and Goods) and [Table Un/5](#) for Off Street Vehicle Parking Requirements).



- (i) Retail showroom development should provide appropriate manoeuvring and circulation areas on the site, in order to accommodate trucks and trailer movements for the carriage of bulky products.

19 Shopping development should provide for separate parking spaces for the disabled. (See [Table Un/5](#))

### Entertainment and Recreational Facilities

20 Entertainment and recreational development should be located in Centre and Mixed Use Zones, and should comply with the relevant principles of development control applying to centres and shops.

21 Entertainment and recreational facilities should be designed to have minimal impact upon the amenity of abutting residential zones.

22 All development involving entertainment and recreational facilities should provide at least 50 square metres of area on the site suitable for servicing and temporary waste storage.

23 Development for which the applicant intends to seek a liquor licence should:

- (a) not be located in residential zones; and
- (b) not exceed the following closing times, unless located in the District Centre Zone:
  - (i) Sunday - 11 pm;
  - (ii) Monday to Thursday - Midnight; and
  - (iii) Friday and Saturday - 1 am on the following day.

24 A shop which is a restaurant should restrict hours of opening to those compatible with the nature and needs of other development in the vicinity.

### Landscaping

25 Landscaping should form an integral part of centre design, and be used to foster human scale, define spaces, reinforce paths and edges, screen utility areas, and generally enhance the visual amenity of the area.

## Commercial and Industrial Development

### OBJECTIVES

**Objective 1:** Commercial development located in suitable areas.

Commercial areas cater for wholesaling, storage, and associated, activities. Parts of these areas may be suitable for development that does not generate much traffic, such as car and boat sales yards, small offices, tyre sales outlets and premises which are used primarily for the fabrication, storage, and repair, of goods with only a small ancillary retailing area.

**Objective 2:** An adequate supply of suitable and appropriately located land to accommodate current and projected industrial activities.

Industry requires reasonably level, well drained land, which can be supplied with the appropriate infrastructure and is readily accessible to labour and transport. In choosing suitable locations for industrial land it is also important to consider the effects of industry on surrounding land uses.

While supplies of industrial land are adequate in the short term, Metropolitan Adelaide's stocks of good quality industrial land have been reduced over past years. Industrial land is a valuable economic resource and it is vital that new supplies of suitable, well located land for industry are provided in Metropolitan Adelaide and that land set aside for industry is not developed for other purposes.

**Objective 3:** Industrial land and activities protected from encroachment by incompatible land uses.

Land earmarked for industrial purposes requires protection from encroachment by incompatible land uses. In particular, residential land uses can encroach upon existing industrial activities over time. As residential development moves closer to these industries, the capacity of industry to operate properly or to expand can be threatened. Similarly, increases in residential densities close to industrial areas can also have implications for industry.

The potential conflicts between existing industry and encroaching non-industrial development, either by the take up of vacant land or through residential density increases, need to be assessed when rezoning land, particularly for residential uses, or when reviewing zone policies in adjoining areas.

Distances to existing industrial development need to be taken into account when considering the zoning of land for residential or other potentially sensitive land uses. The use of separation areas along zone boundaries and the management of these areas to mitigate impacts and minimise the potential for conflict between industrial land uses and other incompatible land uses, should also be considered when appropriate.

**Objective 4:** Development at the interface between industrial activities and sensitive uses that is compatible with surrounding activities, particularly those in adjoining zones.

Where industrial zones already adjoin residential areas, it is appropriate that those industrial activities with lower potential for off-site impacts be located on the periphery of industrial zones. Some types of commercial development are also suitable on the periphery of industrial areas as they can perform a separation role between housing and industry. Consideration should also be given to the appropriateness of, and design treatments required, for other land uses located in close proximity to industrial locations. Separation distances can be utilised as a trigger for more detailed assessment to ensure that impacts can be minimised.

## PRINCIPLES OF DEVELOPMENT CONTROL

### Bank, Office and Consulting Room Development

- 1 Bank, office and consulting room development should provide a building line set-back from side and rear boundaries, for the provision of landscaping to adjoining properties of at least three metres, other than in centre zones, where the building adjoining the road alignment may be built closer or to the side boundary to provide a continuous building frontage on the road.

Small protrusions from the building, such as floor slab projections and window and door canopies, may occur within the building line set-back up to a maximum projection of 1.1 metres from the building.

- 2 Where bank, office or consulting room development involves the construction of more than one individual building unit on a site, each building unit should be separated from other buildings on the site by at least six metres, other than for projections from the building referred to in principle of development control numbered 1, with only open, lightweight, uncovered structures therein.
- 3 Bank, office and consulting room development should be designed to provide a continuous physical and visual link between adjacent public footways and the ground floor of the development. Accordingly, the design of development should avoid significant vertical separation between the public footway and ground floor level, or separation of the public footway and ground floor level by voids to undercroft parking areas.
- 4 Bank, office and consulting room development should provide a screened service and storage area of at least 15 square metres.

## Industrial Development

- 5 Warehouses, stores and industries should be located in Light Industry and Mixed Use Zones.
- 6 No dwellings other than caretakers' quarters should be erected in industrial areas.

## Development Associated with the Motor Trades

- 7 Development associated with the motor trades should be located in Light Industry and Mixed Use 2 Zones.
- 8 Development associated with the motor trades should be designed and located to cause minimal inconvenience to existing land uses and be compatible with existing uses, buildings and the character of the zone.

See Principles 21 and 22 under the heading Transport (Movement of People and Goods) and [Table Un/5](#) for Off Street Vehicle Parking Requirements.

## Community Facilities

### OBJECTIVES

- Objective 1:** Appropriate community facilities conveniently accessible to the population they serve.

A sound education system and an adequate health service provide the basis for the social well-being of a community. Therefore, schools, hospitals, cemeteries and other institutions, must be located conveniently for the people they serve.

The changing age structure of the population will affect the range of community facilities required, therefore flexibility should be a major consideration when considering the design, type and life of buildings.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Community facilities should be conveniently located in relation to the population they are to serve.
- 2 Primary school and educational establishment developments should provide an adequate area, preferably within the development site, for buses to pick up and set down passengers.

See Principles 21 and 22 under the heading Transport (Movement of People and Goods) and [Table Un/5](#) for Off Street Vehicle Parking Requirements.

## Crime Prevention

### OBJECTIVES

- Objective 1:** A safe, secure, crime resistant environment where land uses are integrated and designed to facilitate community surveillance.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should promote the personal safety of people by:
  - (a) enabling them to be seen, to see and to interpret their surrounds, through:
    - (i) adequate lighting;

- (ii) clear sightlines;
  - (iii) the elimination of entrapment spots;
  - (iv) the design of buildings to overlook public space;
  - (v) the mixing of activities which facilitate more constant public use;
  - (vi) appropriate use and design of landscaping and fencing;
- (b) enabling them to leave an area or seek assistance when in danger, through legible design and comprehensive signage.
- 2** Development should promote the security of property by:
- (a) clearly defining ownership and legitimate use of private, public and community space
  - (b) minimising access between roofs, balconies and windows of adjacent buildings;
  - (c) avoiding the use of materials which are likely to be susceptible to damage and vandalism;
  - (d) avoiding landscaping and fencing which may present a security risk by providing concealment opportunities;
  - (e) screen planting and use of prickly plant species in areas susceptible to vandalism.

## Design and Appearance

### OBJECTIVES

- Objective 1:** Development of a high design standard and appearance that responds to and reinforces positive aspects of the local environment and built form.
- Objective 2:** Roads, open spaces, paths, buildings and land uses laid out and linked so that they are easy to understand and navigate.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1** Buildings should reflect the desired character of the locality while incorporating contemporary designs that have regard to the following:
- (a) building height, mass, proportion and siting;
  - (b) external materials, patterns, colours and decorative elements;
  - (c) roof form and pitch;
  - (d) façade articulation and detailing;
  - (e) verandahs, eaves, parapets and window screens.
- 2** Where a building is sited on or close to a side or rear boundary, the boundary wall should minimise:
- (a) the visual impact of the building as viewed from adjoining properties;
  - (b) overshadowing of adjoining properties and allow adequate sunlight access to neighbouring buildings.



- 3 The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare to neighbouring properties, drivers or cyclists.
- 4 Structures located on the roofs of buildings to house plant and equipment should be screened from view to the street and adjacent building viewing points (existing or envisaged) and should form an integral part of the building and roof top design in relation to creating an attractive appearance, external finishes and colours.
- 5 Balconies should:
  - (a) be integrated with the overall form and detail of the building;
  - (b) include balustrade detailing that enables line of sight to the street;
  - (c) be recessed where wind would otherwise make the space unusable;
  - (d) be self-draining and plumbed to minimise runoff.
- 6 Transportable buildings and buildings which are elevated on stumps, posts, piers, columns or the like, should have their suspended footings enclosed around the perimeter of the building, and the use of verandahs, pergolas and other suitable architectural detailing to give the appearance of a permanent structure.

#### **Development Adjacent Heritage Places**

- 7 The design of multi-storey buildings should not detract from the form and materials of adjacent State or Local Heritage Places listed in [Table Un/3](#) or [Table Un/4](#).
- 8 Development on land adjacent to a State or Local Heritage Places listed in [Table Un/3](#) or [Table Un/4](#), should be sited and designed to reinforce the historic character of the place and maintain its visual prominence.

#### **Overshadowing**

- 9 The design and location of buildings should enable direct winter sunlight into adjacent dwellings and private open space and minimise the overshadowing of:
  - (a) windows of habitable rooms;
  - (b) upper-level private balconies that provide the primary open space area for a dwelling;
  - (c) solar collectors (such as solar hot water systems and photovoltaic cells).

#### **Visual Privacy**

- 10 Development should minimise direct overlooking of the habitable rooms and private open spaces of dwellings through measures such as:
  - (a) appropriate site layout and building orientation;
  - (b) off-setting the location of balconies and windows of habitable rooms with those of other buildings so that views are oblique rather than direct to avoid direct line of sight;
  - (c) building setbacks from boundaries (including building boundary to boundary where appropriate) that interrupt views or that provide a spatial separation between balconies or windows of habitable rooms;
  - (d) screening devices (including fencing, obscure glazing, screens, external ventilation blinds, window hoods and shutters) that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity.
- 11 Permanently fixed external screening devices should be designed and coloured to complement the associated building's external materials and finishes.

### Relationship to the Street and Public Realm

- 12 Buildings (other than ancillary buildings, group dwellings or buildings on allotments with a battle axe configuration) should be designed so that the main façade faces the primary street frontage of the land on which they are situated.
- 13 Buildings, landscaping, paving and signage should have a coordinated appearance that maintains and enhances the visual attractiveness of the locality.
- 14 Buildings should be designed and sited to avoid extensive areas of uninterrupted walling facing areas exposed to public view.
- 15 Building design should emphasise pedestrian entry points to provide perceptible and direct access from public street frontages and vehicle parking areas.
- 16 In mixed use and medium and high density residential areas, development facing the street should be designed to provide interesting and pedestrian friendly street frontages by:
  - (a) including features such as frequent doors and display windows, retail shopfronts and/or outdoor eating or dining areas;
  - (b) minimising the frontage for fire escapes, service doors, plant and equipment hatches;
  - (c) avoiding undercroft, semi-basement or ground floor vehicle parking that is visible from the primary street frontage;
  - (d) using colour, vertical and horizontal elements, roof overhangs and other design techniques to provide visual interest and reduce massing; and
  - (e) including awnings, eaves, verandahs or similar, to the street where setbacks and ground floor uses allow.
- 17 Where zero or minor setbacks are desirable, development should incorporate shelter over footpaths to enhance the quality of the pedestrian environment.

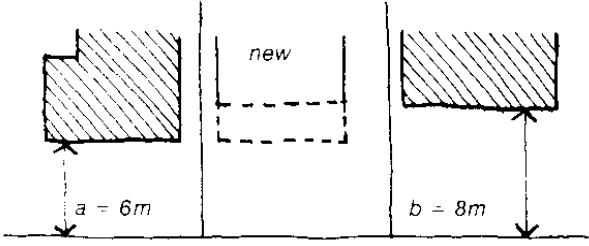
### Outdoor Storage and Service Areas

- 18 Outdoor storage, loading and service areas should be:
  - (a) screened from public view by a combination of built form, solid fencing and/or landscaping;
  - (b) conveniently located and designed to enable the manoeuvring of service and delivery vehicles;
  - (c) sited away from sensitive land uses.

### Building Setbacks from Road Boundaries

- 19 Except in areas where a new character is desired, the setback of buildings from public roads should:
  - (a) be similar to, or compatible with, setbacks of buildings on adjoining land and other buildings in the locality;
  - (b) contribute positively to the function, appearance and/or desired character of the locality.
- 20 Except where specified in a particular zone, policy area or precinct, buildings and structures should be set back from road boundaries having regard to the requirements set out in [Table Un/2 – Building Setbacks](#).

- 21 Except where specified in a particular zone, policy area or precinct, the main face of a building should be set back from the primary road frontage in accordance with the following table:

Setback difference between buildings on adjacent allotments	Setback of new building
Up to 2 metres	The same setback as one of the adjacent buildings, as illustrated below:  <p style="text-align: center;"><i>When <math>b - a \leq 2</math>, setback of new dwelling = a or b</i></p>
Greater than 2 metres	At least the average setback of the adjacent buildings

- 22 Except in areas where a new character is desired or where specified in a zone, policy area or precinct, the setback of development from a secondary street frontage should reflect the setbacks of the adjoining buildings and other buildings in the locality.
- 23 All setbacks from the road frontage should be additional to the road widening setback established under the *Metropolitan Adelaide Road Widening Plan Act 1972*.

## Energy Efficiency

### OBJECTIVES

- Objective 1:** Development designed and sited to conserve energy.
- Objective 2:** Development that provides for on-site power generation including photovoltaic cells and wind power.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should provide for efficient solar access to buildings and open space all year around.
- 2 Buildings should be sited and designed:
  - (a) to ensure adequate natural light and winter sunlight is available to the main activity areas of adjacent buildings;
  - (b) so that open spaces associated with the main activity areas face north for exposure to winter sun;
  - (c) to allow for cross ventilation and natural cooling of buildings and zoning of building layouts to enable main living room areas to be separately heated and cooled;
  - (d) to incorporate roof top gardens and green 'living' walls, particularly for multi-storey and large developments, to reduce the 'urban heat island effect';
  - (e) to use energy efficient building materials or the re-use of existing materials (embodied energy).

### On-site Energy Generation

- 3 Development should facilitate the efficient use of photovoltaic cells and solar hot water systems by:
  - (a) taking into account overshadowing from neighbouring buildings;
  - (b) designing roof orientation and pitches to maximise exposure to direct sunlight.
- 4 Public infrastructure and lighting, should be designed to generate and use renewable energy.

### Form of Development

#### OBJECTIVES

- Objective 1:** Orderly and economic development.
- Objective 2:** The development of Adelaide as an international and national centre for cooperative research and innovation in science, technology, environmental management, education and the arts.
- Objective 3:** The establishment of urban development which provides models in the conservation and management of resources and the natural environment and the enhancement of natural site features, in urban planning and the provision of physical and social infrastructure.

A concept that encapsulates the vision of Adelaide as an international city where a wide variety of social and economic activities can occur and which provides models, through research, innovation and the application of technology, in the conservation and management of resources, the natural environment, urban planning community development and the provision of physical and social infrastructure.

The Adelaide economy built on research, education and advanced industries, serviced by advanced infrastructure and be export oriented. The principal industries identified for Adelaide are education, information technology and environmental management. Other important industries are media, leisure, tourism and health.

- Objective 4:** A proper distribution and segregation of living, working and recreational activities by the allocation of suitable areas of land for those purposes.

In the 21st Century Adelaide's growth will be accommodated through higher densities within the present urban area and development within the Willunga Basin and northern Adelaide Plains. The future form and nature of the existing metropolitan area will be influenced by meeting housing choice in the metropolitan area. Current and anticipated demographic trends in the metropolitan area indicate population growth but a changing population structure, with falling dwelling occupancy rates and declining population in many areas, particularly in the inner and middle suburbs, will necessitate increasing dwelling density to maintain population levels.

While taking these trends into account, there are social, environmental and economic benefits to be gained from higher residential densities within the metropolitan area and in turn this Plan promotes and seeks to implement a policy of housing choice.

It is an essential element in the future development of Adelaide, to address concerns about increased housing demand, efficient use of urban infrastructure and population change. This can be achieved by increasing the number of dwellings that can be accommodated within the existing boundary of the metropolitan area, and arresting and perhaps reversing the decline in population which has been evident in many parts of the metropolitan area.



While these aims are applicable across the metropolitan area, implementation must recognise the particular requirements of residential character and amenity, environmentally sensitive areas, water catchment areas, and other land which is subject to specific hazard or constraint.

**Objective 5:** Maintenance of the long-term operational, safety and commercial aviation requirements of the Adelaide International Airport and Parafield Airport.

**Objective 6:** Adequate public parks and recreation areas conveniently located.

Open spaces are needed in a city for outdoor recreation, and all age groups must be catered for. The size of the open spaces must be adequate, and they must be located conveniently for the people who use them.

**Objective 7:** The City of Unley will be a City that offers its citizens the best of living and working environments.

In the next decade, the City of Unley will be recognised for community spirit, desirable character, and business success in a sustainable and safe environment.

New people and investment growth will bring vibrancy to the City's tapestry of local communities supporting their environment and each other. Unley will be recognised for its social and economic innovations. Citizens will be proud of their environment, their successes and their strength of community well being.

Development will primarily occur on individual sites as compatible, complementary and reinforcing elements within the existing desirable form and character of localities and the City.

## PRINCIPLES OF DEVELOPMENT CONTROL

### General

- 1 Development should be in accordance with the Unley Plan, [Map Un/1 \(Overlay 1\)](#) primarily by:
  - (a) concentrating comprehensive redevelopment and renewal for more intensive mixed activity and housing development along major transport corridors and within/adjacent to key centres and activity hubs;
  - (b) replacing existing buildings and land uses not contributing to a locality's character within areas of historic and valued streetscape character where revitalisation is warranted;
  - (c) restoring and conserving valued buildings and streetscape character, including the visual rhythms and patterns created by physical elements in a streetscape including the valued buildings, site proportions, building curtilage, fencing, mature trees and private gardens.
- 2 Development should be orderly and economic.
- 3 New housing and other urban development should create a safe, convenient and pleasant environment in which to live.
- 4 No development, other than residential development and advertisements, should be erected, added to or altered on any land so that any portion of it is constructed nearer to the existing boundary of a road, or to the boundary of any land shown as being required for road widening on the plan deposited under the provisions of the *Metropolitan Adelaide Road Widening Plan Act, 1972-1976*, than the distance prescribed for each road or portion thereof in Column 3 of [Table Un/2](#).
- 5 Landfill facilities should not be located in existing or future urban, township, living, residential, commercial, centre, office, business, industry or institutional zones, or environment protection, conservation, landscape, open space or similar zones, or in a Water Protection Area.

### Non-Residential Development in Residential Zones

- 6 Home offices should only be incorporated into a dwelling where:
- (a) the scale of the use is minor and the floor area, including the area allowed for a home activity, does not exceed 50 square metres or 30 percent the total floor area of the associated dwelling (excluding any garage/carport), whichever is the lesser;
  - (b) the nature of the use does not cause detrimental impact to the amenity of residents living in the locality.
- 7 The expansion or redevelopment of a building to be used for non-residential purposes in a residential zone may be appropriate where the proposed non-residential use is confined to a site used, in whole or in part, for non-residential purposes, and:
- (a) the proposed use is non-intensive and primarily serves, or has long established direct associations with, the local community and improves the range and quality of community facilities or other services to that local community; or
  - (b) is located adjacent to a non-residential use, or a non-residential zone boundary, so as to provide a buffer for nearby residential occupiers to the activities arising from that non-residential use; or
  - (c) improves existing unsatisfactory site conditions.
- 8 The expansion or redevelopment of a non-residential use should be minor in scale and nature and:
- (a) preserve, or enhance, the established residential character and streetscape;
  - (b) preserve, or enhance, the residential amenity of the locality in terms of the intensity and scale of non-residential activities including hours of operation, traffic generation, noise nuisance from plant and equipment and general business activity, overlooking and overshadowing, and any odours, overspray or other atmosphere discharges; and
  - (c) not significantly increase the traffic activity or car parking demand associated with the continuing non-residential use, and any minor increase be met by additional car parking provided on-site, or otherwise available within the street at the times likely to be demanded without prejudicing required resident parking, or the amenity and enjoyment of nearby residential occupiers.
- 9 The alteration of, or addition to, an existing building used or intended to be used in whole or in part for non-residential purposes on its existing site may be appropriate where the use enhances the form and setting of the building which is a designated Heritage Place, contributory item or a building on a valued site (located in the Residential Historic (Conservation) Zone and Residential Streetscape (Built Form) Zone, respectively) and where such works supports the retention, conservation and refurbishment of that Place, item or building.

### Building Heights Adjacent to Airports

- 10 Buildings and structures should not adversely affect by way of their height and location the long term operational, safety and commercial aviation requirements of Adelaide International Airport and Parafield Airport.
- 11 Buildings and structures which exceed the heights shown on [Maps Un/1 \(Overlay 2 and 2a\)](#) and which penetrate the obstacle limitation surfaces (OLS) should be designed, marked or lit to ensure the safe operation of aircraft within the airspace around the Adelaide International Airport and Parafield Airport.

## Utility Services

- 12** Development should be capable of economic and effective servicing, including garbage collection and fire protection.
- 13** All non-residential development should be provided with adequate waste receptacles and waste storage areas which should be:
- (a) conveniently located;
  - (b) screened from public view;
  - (c) distanced from any adjacent residential development; and
  - (d) of a total area in accord with the following ratio:
    - (i) one square metre for each 30 square metres, or part thereof, of total floor area of the development up to 120 square metres total floor area.
    - (ii) an additional one square metre for each 50 square metres, or part thereof, of total floor area of the development over 120 square metres total floor area; and
    - (iii) an additional 1.5 square metres for a premises occupied by a restaurant or takeaway food premises to accommodate additional receptacles for their special needs.

## Hazards

### OBJECTIVES

- Objective 1:** Maintenance of the natural environment and systems by limiting development in areas susceptible to natural hazard risk.
- Objective 2:** Critical community facilities such as hospitals, emergency control centres, major service infrastructure facilities, and emergency service facilities located where they are not exposed to natural hazard risks.
- Objective 3:** Development located and designed to minimise the risks to safety and property from flooding.
- Objective 4:** Protection of human health and the environment wherever site contamination has been identified or is suspected to have occurred.
- Objective 5:** Appropriate assessment and remediation of site contamination to ensure land is suitable for the proposed use and provides a safe and healthy living and working environment.
- Objective 6:** Minimisation of harm to life, property and the environment through appropriate location of development and appropriate storage, containment and handling of hazardous materials.

### PRINCIPLES OF DEVELOPMENT CONTROL

#### Flooding

- 1** Development should not be undertaken in areas liable to inundation by tidal, drainage or flood waters unless the development can achieve all of the following:
- (a) it is developed with a public stormwater system capable of catering for a 1 in 100 year average return interval flood event;

- (b) buildings are designed and constructed to prevent the entry of floodwaters in a 1 in 100 year average return interval flood event.
- 2 Development should mitigate peak stormwater outflows by incorporating on-site measures to contain the rate of peak outflow and volume equivalent to the pre-development rates in a 5 year ARI (average recurrence interval) flood event.
  - 3 Development and earthworks associated with development should not do any of the following:
    - (a) impede the flow of floodwaters through the land or other surrounding land;
    - (b) increase the potential hazard risk to public safety of persons during a flood event;
    - (c) aggravate the potential for erosion or siltation or lead to the destruction of vegetation during a flood;
    - (d) cause any adverse effect on the floodway function;
    - (e) increase the risk of flooding of other land;
    - (f) obstruct a watercourse.
  - 4 Stormwater management systems should be sited and designed to avoid surface run-off flows into adjoining properties.
  - 5 Stormwater management systems should be sited and designed to ensure that public health and safety are protected.

#### **Site Contamination**

- 6 Development, including land division, should not occur where site contamination has occurred or there is evidence of past potentially contaminating activity/ies, unless the site has been assessed and remediated as necessary to ensure that it is suitable and safe for the proposed use.

#### **Containment of Chemical and Hazardous Materials**

- 7 Hazardous materials should be stored and contained in a manner that minimises the risk to public health and safety and the potential for water, land or air contamination.
- 8 Development that involves the storage and handling of hazardous materials should ensure that these are contained in designated areas that are secure, readily accessible to emergency vehicles, impervious, protected from rain and stormwater intrusion and other measures necessary to prevent:
  - (a) discharge of polluted water from the site;
  - (b) contamination of land;
  - (c) airborne migration of pollutants;
  - (d) potential interface impacts with sensitive land uses.

#### **Sloping Land**

- 9 Development on steep slopes should retain vegetation where such measures would assist in stabilising the land surface and reduce the possibility of surface movement or disturbance.
- 10 Development on sloping land should:
  - (a) not occur on sites where slopes are unsuitable for the purpose for which the site is to be used;



- (b) provide safe and convenient access to the building site;
- (c) complement and not dominate the natural landform by minimising the extent of cut and fill;
- (d) provide drainage measures to ensure surface stability is not compromised;
- (e) ensure natural drainage lines are not obstructed.

## Heritage

### OBJECTIVES

- Objective 1:** The preservation of buildings or sites of architectural, historical, or scientific, interest.
- Objective 2:** The conservation of State and Local Heritage Places, and their setting.
- Objective 3:** Development of, or affecting, an identified Heritage Place complementing and conserving its heritage value.
- Objective 4:** Appropriate use, or re-use, of an identified Heritage Place assisting in its refurbishment, and maintenance, and the enhancement and promotion of its heritage value.
- Objective 5:** Complementary development that responds to the predominant streetscape attributes and context of its locality, and makes a positive contribution to the desired character as identified in the respective zone policy areas and precincts.

### PRINCIPLES OF DEVELOPMENT CONTROL

#### Heritage Places

- 1 The "Description of Place of Value" of a Local Heritage Place applies to:
  - (a) all exterior parts of the original portion of the building including exterior walls; roofing and chimneys; verandahs and balconies, including balustrade and lacework; doors and windows and their frames; and also original materials and finishes; as well as any original fencing; and
  - (b) excludes the interior of such buildings and the rear elevation, as well as outbuildings and ancillary structures unless otherwise specifically identified for that Place.
- 2 A Heritage Place should not be demolished in whole or in part, unless:
  - (a) that portion to be demolished or removed is excluded from the Description of Place of Value; or
  - (b) where the building, or that part to be demolished or removed, is structurally unsafe or so unsound as to be unreasonably economically rehabilitated.
- 3 Development should:
  - (a) retain a Heritage Place and conserve, enhance and reinforce the heritage value of the Place; and
  - (b) conserve the street presentation, setting and prominence of the Place;
  - (c) locate additions, alterations and improvements primarily to the rear, and in any event so as to avoid detriment to the original fabric and characteristic features of the Place; and

- (d) design any additions, alterations and improvements in a distinctive manner to form a discrete and identifiable building element that nonetheless respects and complements the original building, and its associated form and features and streetscape presence, and makes a positive contribution to the desired character.
- 4** Development of a Heritage Place should retain, respect and enhance those elements contributing to its heritage value, including:
- (a) its principal facades, including important publicly visible aspects of the Place;
  - (b) characteristic design features and detailing (such as roofing, verandahs, and iconic ornamentation) associated with its period of construction and architectural style;
  - (c) original building fabric including unpainted plaster, brickwork, stonework, or other masonry; and
  - (d) site features and conditions affecting its streetscape presence including its fencing, garden features and driveway access features.
- 5** Original front fencing and gates should be retained, restored whenever reasonably practicable to do so or reinstated so as to define private gardens and the public space as was traditionally created. New and replacement fencing and gates should reflect the features and details characteristic of the associated building's period of construction, and its architectural style and scale. In this respect:
- (a) on narrow-fronted dwelling sites of up to 16 metres in street frontage - low and essentially open-style fencing, including picket or crimped wire or decorative mesh, with or without hedging, up to 1.2 metres in height; or
  - (b) on dwelling sites in excess of 16 metres street frontage - low and essentially open-style fencing as in (a), but may also include a masonry pier and plinth (palisade style) fence with wide decorative open sections of up to 1.8 metres in total height.
- 6** Advertisements and signage, where positioned on a Heritage Place, should:
- (a) be placed only on a building approved for, or already used for, non-residential or community use; and
  - (b) be positioned in a manner traditionally and historically associated with such buildings, in particular on dedicated street-fronting elements of parapets and wall panels, below the verandah or awning on the street-fronting window(s), or on, or hung under, verandah fascias or on infill end panels, of verandahs or awnings; and
  - (c) involve primarily, traditional sign-written format and not comprise neon or flashing lights nor internally lit signs;
  - (d) not conceal or obstruct historical detailing, nor project beyond the silhouette or skyline of the Place; and
  - (e) not overwhelm or detract from the Place.
- 7** The division of land containing a Heritage Place or adjacent to such a place should only occur where the proposed allotment(s) are consistent in width with the predominant allotment pattern in the locality or that prescribed by the desired character. Further, all new allotments should:
- (a) not entail demolition of the Place nor pass through the Place other than for the purposes of a community plan of an approved, and substantially commenced, conversion of the Place; or

- (b) be configured to ensure that the allotment containing the Place should include the whole of its curtilage and all attributes of its "Description of Place of Value" as defined (refer [Table Un/3](#) and [Table Un/4](#)) as well as additional land area for the purposes of conserving and enhancing its valued site features and its setting; or
- (c) where abutting the Place, be of an overall size and proportions to satisfactorily accommodate a future building(s) and associated site works so as not to intrude upon, nor diminish the setting or streetscape presence of the Place.

## Contextual Design

### *Contextual Design in Historic Conservation Zone - Centre*

- 8** Development should:
- (a) conserve and not involve demolition in whole or in part of a Contributory Item, unless the building, or that part to be demolished or removed, is a portion of no heritage value, or otherwise is structurally unsafe or so unsound as to be unreasonably economically rehabilitated; and
  - (b) contribute positively to the desired character of the zone in terms of the building siting, form and scale, boundary set-backs, architectural style, fenestration and detailing, materials, finishes and external colours.
- 9** Existing gardens and landscape features should be retained and complemented where identified as a significant feature of the desired character of the zone.
- 10** Variations to centres design and site development Principles may be appropriate in the development of a Local Heritage Place where:
- (a) the variance is justified by significantly unusual and difficult constraints created by the desired conservation of the Place;
  - (b) there is no adverse impact upon the desired and general character and amenity of the locality; and
  - (c) the variation does not unreasonably interfere with fundamental site development and operational provisions.
- 11** Development adjoining, or with potential to impact on the integrity and setting of, a designated Heritage Place or contributory item should complement its heritage value, integrity and character of that Place or item in terms of its setting, form and scale, boundary setbacks, architectural styles and detailing, fenestration, materials, finishes and external colours.

## Multi-storey Additions

- 12** Multi-storey additions to a State or local heritage place should be compatible with the heritage value of the place through a range of design solutions such as:
- (a) extending into the existing roof space or to the rear of the building;
  - (b) retaining the elements that contribute to the building's heritage value;
  - (c) distinguishing between the existing and new portion of the building;
  - (d) stepping in parts of the building that are taller than the front facade.

## Interface Between Land Uses

### OBJECTIVES

- Objective 1:** Development located and designed to minimise adverse impact and conflict between land uses.
- Objective 2:** Protect community health and amenity from adverse impacts of development.
- Objective 3:** Protect desired land uses from the encroachment of incompatible development.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:
  - (a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants
  - (b) noise
  - (c) vibration
  - (d) electrical interference
  - (e) light spill
  - (f) glare
  - (g) hours of operation
  - (h) traffic impacts.
- 2 Development should be sited and designed to minimise negative impacts on existing and potential future land uses desired in the locality.
- 3 Development adjacent to a **Residential Zone** should be designed to minimise overlooking and overshadowing of adjacent dwellings and private open space.
- 4 Residential development adjacent to non-residential zones and land uses should be located, designed and/or sited to protect residents from potential adverse impacts from non-residential activities.
- 5 Sensitive uses likely to conflict with the continuation of lawfully existing developments and land uses desired for the zone should be designed to minimise negative impacts.
- 6 Non-residential development on land abutting a residential zone should be designed to minimise noise impacts to achieve adequate levels of compatibility between existing and proposed uses.

### Noise Generating Activities

- 7 Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant *Environment Protection (Noise) Policy* criteria when assessed at the nearest existing noise sensitive premises.
- 8 Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.
- 9 Outdoor areas (such as beer gardens or dining areas) associated with licensed premises should be designed or sited to minimise adverse noise impacts on adjacent existing or future noise sensitive development.



- 10 Development proposing music should include noise attenuation measures that achieve the following desired noise levels:

Noise level assessment location	Desired noise level
Adjacent existing <i>noise sensitive development</i> property boundary	Less than 8 dB above the level of background noise ( $L_{90,15min}$ ) in any octave band of the sound spectrum and Less than 5 dB(A) above the level of background noise ( $LA_{90,15min}$ ) for the overall (sum of all octave bands) A-weighted level
Adjacent <i>land</i> property boundary	Less than 65dB(Lin) at 63Hz and 70dB(Lin) in all other octave bands of the sound spectrum or Less than 8 dB above the level of background noise ( $L_{90,15min}$ ) in any octave band of the sound spectrum and 5 dB(A) overall (sum of all octave bands) A-weighted level

### Air Quality

- 11 Development with the potential to emit harmful or nuisance-generating air pollution should incorporate air pollution control measures to prevent harm to human health or unreasonable interference with the amenity of sensitive uses within the locality.
- 12 Chimneys or exhaust flues associated with commercial development (including cafes, restaurants and fast food outlets) should be designed to ensure they do not cause a nuisance or health concerns to nearby sensitive receivers by:
- incorporating appropriate treatment technology before exhaust emissions are released to the atmosphere
  - ensuring that the location and design of chimneys or exhaust flues maximises dispersion and takes into account the location of nearby sensitive uses.

### Land Division

#### OBJECTIVES

- Objective 1:** Land in appropriate localities divided into allotments in an orderly and economic manner.
- Objective 2:** Land division to provide for development opportunities appropriate to the desired character.
- Objective 3:** Public open space providing diverse recreational opportunities.
- Objective 4:** Encouragement of walking, cycling and public transport usage.

#### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Land should not be divided:
- in a manner which would prevent the satisfactory future division of the land, or any part thereof;
  - if the proposed use, or the establishment of the proposed use, is likely to lead to undue erosion of the land or land in the vicinity thereof;

- (c) unless wastes produced by the proposed use of the land, or any use permitted by the principles of development control, can be managed so as to prevent pollution of a public water supply or any surface or underground water resources;
- (d) if the size, shape and location of, and the slope and nature of the land contained in each allotment resulting from the division is unsuitable for the purpose for which the allotment is to be used;
- (e) if any part of the land is likely to be inundated by floodwaters and the proposed allotments are to be used for a purpose which would be detrimentally affected when the land is inundated;
- (f) where community facilities or public utilities are lacking or inadequate;
- (g) where the proposed use of the land is the same as the proposed use of other existing allotments in the vicinity, and a substantial number of the existing allotments have not been used for that purpose;
- (h) if it would cause an infringement of any provisions relating to building work contained in the *Development Act 1993* or any by-law or regulation made thereunder;
- (i) if the division and subsequent use is likely to lead to clearance of or damage to one or more significant trees.

**2** When land is divided:

- (a) any reserves or easements necessary for the provision of public utility services should be provided;
- (b) stormwater not used or disposed of on the subject land should be capable of being drained safely and efficiently from each proposed allotment and disposed of from the land in a satisfactory manner;
- (c) a water supply sufficient for the purpose for which the allotment is to be used should be made available to each allotment;
- (d) provision should be made for the disposal of waste waters, sewage and other effluent from each allotment without risk to health;
- (e) roads or thoroughfares should be provided where necessary for safe and convenient communication with adjoining land and neighbouring localities;
- (f) each allotment resulting from the division should have safe and convenient access to the carriageway of an existing or proposed road or thoroughfare;
- (g) proposed roads should be graded, or be capable of being graded to connect safely and conveniently with an existing road or thoroughfare;
- (h) at the intersection of two or more roads, an appropriate corner cut-off is provided to ensure adequate sight lines are maintained for motorists and pedestrians.

**Residential Neighbourhoods**

**3** Neighbourhoods and local infill development should have a layout which:

- (a) integrates movement networks and land use;
- (b) reinforces the traditional grid pattern and allotment configuration characteristic of the City and desired character of particular localities;
- (c) reduces local vehicle trips, travel distances and speeds in residential streets;

- (d) enhances the effectiveness of public transport;
  - (e) facilitates walking and cycling to daily activities.
- 4** Neighbourhood identity should be reinforced by:
- (a) locating a range of community, retail, recreational and commercial facilities and local employment opportunities at convenient focal points; and
  - (b) relating development to site features and characteristics, landmarks, views, existing sound and attractive housing and desired character of particular localities.
- 5** Higher dwelling densities should occur in areas close to centres and public transport, generally in accordance with the structure indicated on [Map Un/1 \(Overlay 1\)](#).
- 6** Land division should:
- (a) provide access to public open space through provision of land or linkages to existing areas of open space;
  - (b) provide for the protection of significant vegetation, including avoiding substantial tree-damaging activity in relation to a significant tree;
  - (c) minimise impact on landform and drainage systems;
  - (d) retain State and Local Heritage Places, contributory items, and valued buildings contributing to streetscape character, and appropriate settings for such places;
  - (e) enable efficient solar access for dwellings and private open space;
  - (f) minimise risk to personal safety and potential for crime;
  - (g) create allotments complementing the existing surrounding subdivision pattern and desired character of particular localities;
  - (h) provide allotments with energy, water, waste water and waste disposal facilities to serve the needs of prospective users;
  - (i) only occur by Community Title where the proposed division results in an element of the development being shared between two or more dwellings;
  - (j) ensure that common land (eg, shared driveways, visitor parking areas, communal open space, etc) is defined as "common property" as part of any Community Title Scheme;
  - (k) only occur by Torrens Title where the proposed allotments and uses thereon are exclusive and have exclusive access to a public road; and
  - (l) only occur where vehicle access is available from a public road having sufficient width to provide safe and functional access and manoeuvring for resident, visitor and service vehicles, or a private road of similar standard connected to a public road.

### **Residential Allotments**

- 7** Residential allotments<sup>1</sup> should have a generally rectangular shape and the appropriate area and dimensions:
- (a) for siting and constructing a dwelling and ancillary outbuildings;
  - (b) for locating private outdoor space directly accessible to a dwelling;
  - (c) for convenient vehicle access and parking; and

- (d) to reinforce the desired character of surrounding development in the relevant Zone or Policy Area.

<sup>1</sup> Residential allotments include Torrens title allotments and primary, secondary, tertiary etc allotments created under community schemes.

- 8** Where a site is to accommodate one dwelling, its minimum frontage to a public street should be 10 metres, unless otherwise stated in the zone or policy area.
- 9** Narrower minimum frontage widths to 7 metres may be suitable for hammerhead allotments or where garaging is provided from a rear lane, subject to desired character and site patterns.
- 10** Allotments should be of sufficient depth to afford development of dwellings with adequate set-back from the street and private rear yard/courtyard space, with the primary elevation of the dwelling being to a public street or shared driveway.
- 11** Unless otherwise stated in the relevant zone or policy area, allotments should have:
- (a) a minimum depth (exclusive of the length of the handle of a hammerhead allotment) of 20 metres;
  - (b) a depth equal to or exceeding the frontage of the allotment and maintain the characteristic pattern of site configuration.
- 12** Land division should provide for residential allotments:
- (a) having a variety of sizes to encourage housing diversity;
  - (b) that contribute to the desired character of the zone;
  - (c) of sufficient area to satisfy the relevant zone requirements, or a lesser area if similar to the predominant area and shape of sites in the immediate locality; and
  - (d) that facilitates the retention, upgrading and maintenance of the integrity of a State or Local Heritage Place identified in [Table Un/3](#) or [Table Un/4](#) or a contributory item or building that contribute to the streetscape character.
- 13** Residential allotments should have an orientation, size, shape and dimensions that will:
- (a) protect natural or cultural features;
  - (b) minimise the need for earthworks and retaining walls;
  - (c) facilitate the siting of dwellings to face streets and open spaces; and
  - (d) provide adequate space for the siting and construction of buildings such that sufficient separation is provided from an existing adjacent dwelling to meet bulk, scale and open space criteria and desired character of particular localities.
- 14** Residential allotments fronting arterial roads should be of a shape and size which allows for dwellings to be sited while enabling vehicles to enter and exit the allotment in a forward direction.

#### **Residential Allotments Created From Rear Yards of Corner Sites**

- 15** In addition to meeting the requirements of the preceding land division policies, residential allotments subdivided from rear yards of corner sites should promote the general or desired character of the locality by ensuring that lots:
- (a) are rectangular in shape with the shorter boundary on a street frontage;



- (b) include (if necessary) portions of more than one existing allotment to achieve (a) above; and
- (c) preserve an appropriate setting and relationship with the retained, and/or proposed, dwelling in terms of indoor and outdoor areas and spaces around the dwelling.

### **Road Reserve Width**

**16** Residential road reserves should be of a width and alignment that provides for:

- (a) safe and convenient movement and parking of projected volumes of vehicles and other users;
- (b) motorists to enter or reverse from an allotment or site in a single movement when a car is parked on the opposite side of the street;
- (c) street tree planting, landscaping and street furniture;
- (d) locating footpaths adjacent to property boundaries;
- (e) the location, construction and maintenance of stormwater drainage and public utilities; and
- (f) unobstructed, safe and efficient vehicular access to individual lots and sites.

### **Public Open Space**

**17** Public open space should be of a size, dimension(s) and location that:

- (a) facilitates a range of active and passive recreation activities to meet the needs of the community;
- (b) provides for the movement of pedestrians and cyclists;
- (c) incorporates existing significant vegetation, rocks, streams, wildlife habitat and other sites of natural or cultural value;
- (d) links habitats, wildlife corridor, public open spaces and existing recreation facilities; and
- (e) enables effective stormwater management.

## **Landscaping**

### **OBJECTIVES**

**Objective 1:** The amenity of land and development enhanced with appropriate planting and other landscaping works, using locally indigenous plant species where possible.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

**1** Landscaping of development should:

- (a) be provided to soften the appearance of built form;
- (b) complement the scale of the built form;
- (c) be consistent with any particular desired character or important contextual features of the landscape setting in the locality;
- (d) define spaces and edges;

- (e) provide microclimate benefits such as shade and shelter;
- (f) retain existing landscaping, where practicable;
- (g) use species and techniques that require low water use and support and enhance local biodiversity;
- (h) enhance the appearance of development, establish visual buffers to adjacent development and screen service, loading, outdoor storage and parking areas.

**2** Landscaping should not:

- (a) unreasonably restrict solar access to habitable rooms and solar collection areas in adjoining development;
- (b) be likely to cause structural damage or impact upon adjoining development through root damage and canopy drop;
- (c) remove opportunities for passive surveillance to public areas;
- (d) promote concealment and the potential for criminal activities adjacent to footpaths and public activity areas;
- (e) introduce environmental weeds to sensitive environmental areas.

## **Medium and High Rise Development (3 or More Storeys)**

### **OBJECTIVES**

- Objective 1:** Medium and high rise development that provides housing choice and employment opportunities.
- Objective 2:** Residential development that provides a high standard of amenity and adaptability for a variety of accommodation and living needs.
- Objective 3:** Development that is contextual and responds to its surroundings, having regard to adjacent built form and character of the locality and the Desired Character for the Zone and Policy Area.
- Objective 4:** Development that integrates built form within high quality landscapes to optimize amenity, security and personal safety for occupants and visitors.
- Objective 5:** Development that enhances the public environment, provides activity and interest at street level and a high quality experience for residents, workers and visitors by:
  - (a) enlivening building edges;
  - (b) creating attractive, welcoming, safe and vibrant spaces;
  - (c) improving public safety through passive surveillance;
  - (d) creating interesting and lively pedestrian environments;
  - (e) integrating public art into the development where it fronts the street and public spaces;
  - (f) incorporating generous areas of high quality fit for purpose landscaping, green walls and roofs.

**Objective 6:** Commercial, office and retail development that is designed to create a strong visual connection to the public realm and that contributes to the vitality of the locality.

**Objective 7:** Buildings designed and sited to be energy and water efficient.

## PRINCIPLES OF DEVELOPMENT CONTROL

*Note: Some of the following Principles of Development Control (PDC) prescribe a measurable design solution as one way of achieving the intent of the PDC. Where this solution is met, it should be taken as meeting the intent of the principle. Alternative design solutions may also achieve the intent of the PDC and, when proposed should be assessed on their merits.*

### Design and Appearance

- 1 Buildings should be designed to respond to key features of the prevailing local context within the same zone as the development. This may be achieved through design features such as vertical rhythm, proportions, composition, material use, parapet or balcony height, and use of solid and glass.
- 2 In repetitive building types, such as row housing, the appearance of building facades should provide some variation, but maintain an overall coherent expression such as by using a family of materials, repeated patterns, facade spacings and the like.
- 3 Windows and doors, awnings, eaves, verandas or other similar elements should be used to provide variation of light and shadow and contribute to a sense of depth in the building façade.
- 4 Buildings should:
  - (a) achieve a comfortable human scale at ground level through the use of elements such as variation in materials and form, building projections and elements that provide shelter (for example awnings, verandas, and tree canopies);
  - (b) be designed to reduce visual mass by breaking up the building façade into distinct elements;
  - (c) ensure walls on the boundary that are visible from public land include visually interesting treatments to break up large blank facades.
- 5 Buildings should reinforce corners through changes in setback, materials or colour, roof form or height.
- 6 Materials and finishes should be selected to be durable and age well to minimise ongoing maintenance requirements. This may be achieved through the use of materials such as masonry, natural stone and prefinished materials that minimise staining, discolouring or deterioration.
- 7 Balconies should be integrated into the overall architectural form and detail of the development and should:
  - (a) utilise sun screens, pergolas, louvres, green facades and openable walls to control sunlight and wind;
  - (b) be designed and positioned to respond to daylight, wind, and acoustic conditions to maximise comfort and provide visual privacy;
  - (c) allow views and casual surveillance of the street while providing for safety and visual privacy of nearby living spaces and private outdoor areas;
  - (d) be of sufficient size, particularly depth, to accommodate outdoor seating.

## Street Interface

- 8** Development facing the street should be designed to provide attractive, high quality and pedestrian friendly street frontage(s) by:
- (a) incorporating active uses such as shops or offices, prominent entry areas for multi-storey buildings (where it is a common entry), habitable rooms of dwellings, and areas of communal public realm with public art or the like where consistent with the Zone and/or Policy Area provisions;
  - (b) providing a well landscaped area that contains a deep soil zone space for a medium to large tree in front of the building (except in a High Street Policy Area or other similar location where a continuous ground floor façade aligned with the front property boundary is desired).  
  
One way of achieving this is to provide a 4 metre x 4 metre deep soil zone area in front of the building;
  - (c) designing building façades that are well articulated by creating contrasts between solid elements (such as walls) and voids (for example windows, doors and balcony openings);
  - (d) positioning services, plant and mechanical equipment (such as substations, transformers, pumphouses and hydrant boosters, car park ventilation) in discreet locations, screened or integrated with the façade;
  - (e) ensuring ground, undercroft, semi-basement and above ground parking does not detract from the streetscape;
  - (f) minimising the number and width of driveways and entrances to car parking areas to reduce the visual dominance of vehicle access points and impacts on street trees and pedestrian areas.
- 9** Common areas and entry points of the ground floor level of buildings should be designed to enable surveillance from public land to the inside of the building at night.
- 10** Entrances to multi-storey buildings should:
- (a) be oriented towards the street;
  - (b) be visible and clearly identifiable from the street, and in instances where there are no active or occupied ground floor uses, be designed as a prominent, accentuated and welcoming feature;
  - (c) provide shelter, a sense of personal address and transitional space around the entry;
  - (d) provide separate access for residential and non-residential land uses;
  - (e) be located as close as practicable to the lift and/or lobby access;
  - (f) avoid the creation of potential areas of entrapment.
- 11** To contribute to direct pedestrian access and street level activation, the finished ground level of buildings should be no more than 1.2 metres above the level of the footpath, except for common entrances to apartment buildings which should be at ground level or universally accessible.
- 12** Dwellings located on the ground floor with street frontage should have individual direct pedestrian street access.



- 13** The visual privacy of ground floor dwellings within multi-storey buildings should be protected through the use of design features such as orientation, elevation of ground floors above street level, setbacks from street and the location of verandas, windows, porticos or the like.

One way of achieving this is for ground floor level dwellings in multi-storey developments to be raised by up to 1.2 metres (provided access is not compromised where relevant).

### **Building Separation and Outlook**

- 14** Residential buildings (or the residential floors of mixed use buildings) should have habitable rooms, windows and balconies designed and positioned with adequate separation and screening from one another to provide visual and acoustic privacy and allow for natural ventilation and the infiltration of daylight into interior and outdoor spaces.

One way of achieving this is to ensure any habitable room windows and/or balconies are separated by at least 6 metres from one another where there is a direct 'line of sight' between them and be at least 3 metres from a side or rear property boundary. Where a lesser separation is proposed, alternative design solutions may be applied (such as changes to orientation, staggering of windows or the provision of screens or blade walls, or locating facing balconies on alternating floors as part of double floor apartments), provided a similar level of occupant visual and acoustic privacy, as well as light access, can be demonstrated.

- 15** Living rooms should have a satisfactory short range visual outlook to public, communal or private open space.

### **Dwelling Configuration**

- 16** Buildings comprising more than 10 dwellings should provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling.
- 17** Dwellings located on the ground floor with street frontage should have habitable rooms with windows overlooking the street or public realm.
- 18** Dwellings with 3 or more bedrooms, should, where possible, have the windows of habitable rooms overlooking internal courtyard space or other public space.

### **Adaptability**

- 19** Multi-storey buildings should include a variety of internal designs that will facilitate adaptive reuse, including the conversion of ground floor residential to future commercial use (i.e. by including floor to ceiling heights suitable for commercial use).

### **Environmental**

- 20** Multi-storey buildings should:
- (a) minimise detrimental micro-climatic and solar access impacts on adjacent land or buildings, including effects of patterns of wind, temperature, daylight, sunlight, glare and shadow;
  - (b) incorporate roof designs that enable the provision of photovoltaic cells and other features that enhance sustainability (including landscaping).
- 21** Green roofs (which can be a substitute for private or communal open space provided they can be accessed by occupants of the building) are encouraged for all new residential commercial or mixed use buildings.
- 22** Development of 5 or more storeys, or 21 metres or more in building height (excluding the rooftop location of mechanical plant and equipment), should be designed to minimise the risk of wind tunnelling effects on adjacent streets by adopting one or more of the following:

- (a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street;
- (b) substantial verandas around a building to deflect downward travelling wind flows over pedestrian areas;
- (c) the placement of buildings and use of setbacks to deflect the wind at ground level.

- 23** Deep soil zones should be provided to retain existing vegetation or provide areas that can accommodate new deep root vegetation, including tall trees with large canopies.

One way of achieving this is in accordance with the following table:

Site area	Minimum deep soil area	Minimum dimension	Tree/ deep soil zones
<300m <sup>2</sup>	10m <sup>2</sup>	1.5 metres	1 small tree/10m <sup>2</sup> deep soil
300-1500m <sup>2</sup>	7% site area	3 metres	1 medium tree/30m <sup>2</sup> deep soil
>1500m <sup>2</sup>	7% site area	6 metres	1 large or medium tree/60m <sup>2</sup> deep soil
<b>Tree size and site area definitions</b>			
Small tree:	< 6 metres mature height and < less than 4 metres canopy spread		
Medium tree:	6-12 metres mature height and 4-8 metres canopy spread		
Large tree:	12 metres mature height and > 8 metres canopy spread		
Site area:	The total area for development site, not average area per dwelling		

- 24** Deep soil zones should be provided with access to natural light to assist in maintaining vegetation health.

### Site Facilities and Storage

- 25** Dwellings should provide a covered storage area of not less than 8 cubic metres in one or more of the following areas:
- (a) in the dwelling (but not including a habitable room)
  - (b) in a garage, carport, outbuilding or an on-site communal facility and be conveniently located and screened from view from streets and neighbouring properties.
- 26** Development should provide a dedicated area for the on-site collection and sorting of recyclable materials and refuse, green organic waste and wash-bay facilities for the ongoing maintenance of bins. This area should be screened from view from public areas so as to not detract from the visual appearance of the ground floor.
- 27** Where the number of bins to be collected kerbside is 10 or more at any one time, provision should be made for on-site collection.
- 28** The size of lifts, lobbies and corridors should be sufficient to accommodate movement of bicycles, strollers, mobility aids and visitor waiting areas.

### Zone Interface

- 29** Unless separated by a public road or reserve, development site(s) adjacent to any zone that has a primary purpose of accommodating low rise (1 to 2 storey) residential activity should incorporate deep soil zones along the common boundary to enable medium to large trees to be retained or established to assist in screening new buildings of 3 or more storeys in height.

One way of achieving this is for development comprising building elements of three or more storeys in height to be setback at least 6 metres from a zone boundary, and incorporate a deep soil zone area capable of accommodating medium to large trees with a canopy spread of not more than 8 metres when fully mature.

## Natural Resources

### OBJECTIVES

- Objective 1:** Retention, protection and restoration of the natural resources and environment.
- Objective 2:** Protection of the quality and quantity of South Australia's surface waters, including inland, and underground waters.
- Objective 3:** The ecologically sustainable use of natural resources including water resources, ground water, surface water and watercourses.
- Objective 4:** Natural hydrological systems and environmental flows reinstated, and maintained and enhanced.
- Objective 5:** Development consistent with the principles of water sensitive design.
- Objective 6:** Development sited and designed to:
- (a) protect natural ecological systems;
  - (b) achieve the sustainable use of water;
  - (c) protect water quality, including receiving waters;
  - (d) reduce runoff and peak flows and prevent the risk of downstream flooding;
  - (e) minimise demand on reticulated water supplies;
  - (f) maximise the harvest and use of stormwater;
  - (g) protect stormwater from pollution sources.
- Objective 7:** Storage and use of stormwater which avoids adverse impact on public health and safety.
- Objective 8:** Native flora, fauna and ecosystems protected, retained, conserved and restored.
- Objective 9:** Restoration, expansion and linking of existing native vegetation to facilitate habitacorridors for ease of movement of fauna.
- Objective 10:** Minimal disturbance and modification of the natural landform.
- Objective 11:** Protection of the physical, chemical and biological quality of soil resources.
- Objective 12:** Protection of areas prone to erosion or other land degradation processes from inappropriate development.
- Objective 13:** Protection of the scenic qualities of natural and rural landscapes.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.

- 2 Development should ensure that South Australia's natural assets, such as biodiversity, water and soil, are protected and enhanced.
- 3 Development should not significantly obstruct or adversely affect sensitive ecological areas such as creeks or wetlands.
- 4 Development should be appropriate to land capability and the protection and conservation of water resources and biodiversity.

### **Water Sensitive Design**

- 5 Development should be designed to maximise conservation, minimise consumption and encourage reuse of water resources.
- 6 Development should not take place if it results in unsustainable use of surface or underground water resources.
- 7 Development should be sited and designed to:
  - (a) capture and re-use stormwater, where practical;
  - (b) minimise surface water runoff;
  - (c) prevent soil erosion and water pollution;
  - (d) protect and enhance natural water flows;
  - (e) protect water quality by providing adequate separation distances from watercourses and other water bodies;
  - (f) not contribute to an increase in salinity levels;
  - (g) avoid the water logging of soil or the release of toxic elements;
  - (h) maintain natural hydrological systems and not adversely affect:
    - (i) the quantity and quality of groundwater;
    - (ii) the depth and directional flow of groundwater;
    - (iii) the quality and function of natural springs.
- 8 Water discharged from a development site should:
  - (a) be of a physical, chemical and biological condition equivalent to or better than its pre-developed state;
  - (b) not exceed the rate of discharge from the site as it existed in pre-development conditions.
- 9 Development should include stormwater management systems to protect it from damage during a minimum of a 1-in-100 year average return interval flood.
- 10 Development should have adequate provision to control any stormwater over-flow runoff from the site and should be sited and designed to improve the quality of stormwater and minimise pollutant transfer to receiving waters.
- 11 Development should include stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure the carrying capacities of downstream systems are not overloaded.



- 12** Development should include stormwater management systems to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system.
- 13** Stormwater management systems should preserve natural drainage systems, including the associated environmental flows.
- 14** Stormwater management systems should:
- (a) maximise the potential for stormwater harvesting and re-use, either on-site or as close as practicable to the source;
  - (b) utilise, but not be limited to, one or more of the following harvesting methods:
    - (i) the collection of roof water in tanks;
    - (ii) the discharge to open space, landscaping or garden areas, including strips adjacent to car parks;
    - (iii) the incorporation of detention and retention facilities;
    - (iv) aquifer recharge.
- 15** Where it is not practicable to detain or dispose of stormwater on site, only clean stormwater runoff should enter the public stormwater drainage system.
- 16** Artificial wetland systems, including detention and retention basins, should be sited and designed to:
- (a) ensure public health and safety is protected;
  - (b) minimise potential public health risks arising from the breeding of mosquitoes.

### **Water Catchment Areas**

- 17** Development should ensure watercourses and their beds, banks, wetlands and floodplains are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes.
- 18** No development should occur where its proximity to a swamp or wetland will damage or interfere with the hydrology or water regime of the swamp or wetland.
- 19** A wetland or low-lying area providing habitat for native flora and fauna should not be drained, except temporarily for essential management purposes to enhance environmental values.
- 20** Along watercourses, areas of remnant native vegetation, or areas prone to erosion, that are capable of natural regeneration should be fenced off to limit stock access.
- 21** Development such as cropping, intensive animal keeping, residential, tourism, industry and horticulture, that increases the amount of surface run-off should include a strip of land at least 20 metres wide measured from the top of existing banks on each side of a watercourse that is:
- (a) fenced to exclude livestock;
  - (b) kept free of development, including structures, formal roadways or access ways for machinery or any other activity causing soil compaction or significant modification of the natural surface of the land;
  - (c) revegetated with locally indigenous vegetation comprising trees, shrubs and other groundcover plants to filter runoff so as to reduce the impacts on native aquatic ecosystems and to minimise soil loss eroding into the watercourse.

- 22** Development resulting in the depositing of an object or solid material in a watercourse or floodplain or the removal of bank and bed material should not:
- (a) adversely affect the migration of aquatic biota;
  - (b) adversely affect the natural flow regime;
  - (c) cause or contribute to water pollution;
  - (d) result in watercourse or bank erosion;
  - (e) adversely affect native vegetation upstream or downstream that is growing in or adjacent to a watercourse.
- 23** The location and construction of dams, water tanks and diversion drains should:
- (a) occur off watercourse;
  - (b) not take place in ecologically sensitive areas or on erosion prone sites;
  - (c) provide for low flow by-pass mechanisms to allow for migration of aquatic biota;
  - (d) not negatively affect downstream users;
  - (e) minimise in-stream or riparian vegetation loss;
  - (f) incorporate features to improve water quality (eg wetlands and floodplain ecological communities);
  - (g) protect ecosystems dependent on water resources.
- 24** Irrigated horticulture and pasture should not increase groundwater induced salinity.
- 25** Development should comply with the current *Environment Protection (Water Quality) Policy*.

### **Biodiversity and Native Vegetation**

- 26** Development should retain existing areas of native vegetation and where possible contribute to revegetation using locally indigenous plant species.
- 27** Development should be designed and sited to minimise the loss and disturbance of native flora and fauna.
- 28** Native vegetation should be conserved and its conservation value and function not compromised by development if the native vegetation does any of the following:
- (a) provides an important habitat for wildlife or shade and shelter for livestock;
  - (b) has a high plant species diversity or includes rare, vulnerable or endangered plant species or plant associations and communities;
  - (c) provides an important seed bank for locally indigenous vegetation;
  - (d) has high amenity value and/or significantly contributes to the landscape quality of an area, including the screening of buildings and unsightly views;
  - (e) has high value as a remnant of vegetation associations characteristic of a district or region prior to extensive clearance for agriculture;
  - (f) is growing in, or is characteristically associated with a wetland environment.

- 29** Native vegetation should not be cleared if such clearing is likely to lead to, cause or exacerbate any of the following:
- (a) erosion or sediment within water catchments;
  - (b) decreased soil stability;
  - (c) soil or land slip;
  - (d) deterioration in the quality of water in a watercourse or surface water runoff;
  - (e) a local or regional salinity problem;
  - (f) the occurrence or intensity of local or regional flooding.
- 30** Development that proposes the clearance of native vegetation should address or consider the implications that removing the native vegetation will have on the following:
- (a) provision for linkages and wildlife corridors between significant areas of native vegetation;
  - (b) erosion along watercourses and the filtering of suspended solids and nutrients from runoff;
  - (c) the amenity of the locality;
  - (d) bushfire safety;
  - (e) the net loss of native vegetation and other biodiversity.
- 31** Where native vegetation is to be removed, it should be replaced in a suitable location on the site with locally indigenous vegetation to ensure that there is not a net loss of native vegetation and biodiversity.
- 32** Development should be located and occur in a manner which:
- (a) does not increase the potential for, or result in, the spread of pest plants, or the spread of any nonindigenous plants into areas of native vegetation or a conservation zone;
  - (b) avoids the degradation of remnant native vegetation by any other means including as a result of spray drift, compaction of soil, modification of surface water flows, pollution to groundwater or surface water or change to groundwater levels;
  - (c) incorporates a separation distance and/or buffer area to protect wildlife habitats and other features of nature conservation significance.
- 33** Development should promote the long-term conservation of vegetation by:
- (a) avoiding substantial structures, excavations, and filling of land in close proximity to the trunk of trees and beneath their canopies;
  - (b) minimising impervious surfaces beneath the canopies of trees;
  - (c) taking other effective and reasonable precautions to protect both vegetation and the integrity of structures and essential services.
- 34** Horticulture involving the growing of olives should be located at least:
- (a) 500 metres from:
    - (i) a national park;

- (ii) a conservation park;
  - (iii) a wilderness protection area;
  - (iv) the edge of a substantially intact stratum of native vegetation greater than 5 hectares in area;
- (b) 50 metres from the edge of stands of native vegetation 5 hectares or less in area.
- 35** Horticulture involving the growing of olives should have at least one locally indigenous tree that will grow to a height of at least 7 metres sited at least every 100 metres around the perimeter of the orchard.

### **Soil Conservation**

- 36** Development should not have an adverse impact on the natural, physical, chemical or biological quality and characteristics of soil resources.
- 37** Development should be designed and sited to prevent erosion.
- 38** Development should take place in a manner that will minimise alteration to the existing landform.
- 39** Development should minimise the loss of soil from a site through soil erosion or siltation during the construction phase of any development and following the commencement of an activity.

## **Outdoor Advertisements**

### **OBJECTIVES**

- Objective 1:** An urban environment not disfigured by advertisements.
- Objective 2:** Advertisements in retail, commercial and industrial urban areas, and centre zones, designed to enhance the appearance of those areas.
- Objective 3:** Advertisements not hazardous to any person.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

#### **General**

- 1** Lettering, colouring and other design work on any advertisement should be carried out in a competent manner, and relate to the activity carried out upon the site on which it is erected.
- 2** Advertisements should be simple in form and provide for instant recognition and should not dominate or obscure other advertisements or result in visual clutter.
- 3** In residential zones advertisements should only be erected upon non-residential premises.
- 4** Advertisements affixed to a building should be affixed as closely as possible to the building to prevent the entry of birds and vermin behind the advertisement.
- 5** Advertisements should not be erected upon:
  - (a) public footways, verandah posts or public utility poles located on public footways;
  - (b) a vehicle carriageway, dividing strip or traffic island;
  - (c) a vehicle adapted and exhibited primarily as an advertisement;
  - (d) a building so as to extend above the silhouette of the building; and



- (e) residential land unless erected to fulfil a statutory requirement associated with the residential use of the land.
- 6 Advertisements not complying with Column 2 of the section of [Table Un/1](#) relating to Advertisements should, however, comply with the relevant conditions specified in Column 3 of that section of [Table Un/1](#).

### **Amenity and Character**

- 7 The location, siting, size, shape and materials of construction, of advertisements should be:
- (a) consistent with the desired character of areas or zones as described by their objectives;
  - (b) consistent with the predominant character of the urban or rural landscape; or
  - (c) in harmony with any building or site of historic significance or heritage value in the locality.
- 8 Advertisements should not detrimentally affect by way of their siting, size, shape, scale, glare, reflection or colour the amenity of areas, zones, or localities, in which they are situated.
- 9 Advertisements should not impair the amenity of areas, zones, or localities, in which they are situated by creating, or adding to, clutter, visual disorder and the untidiness of buildings and spaces.
- 10 Advertisements should not obscure views of attractive landscapes or particular trees or groups of trees.
- 11 The scale of advertisements should be compatible with the buildings on which they are situated and with nearby buildings and spaces.
- 12 Advertisements wholly or partly consisting of bunting, streamers, flags, windvanes, and the like should not detrimentally affect the amenity of areas, zones or localities in which they are situated.
- 13 Buildings occupied by a number of tenants should exhibit co-ordinated and complementary advertisements to identify the tenants and their types of businesses.
- 14 Structural supports of any advertisement should be designed wherever possible to be concealed from public view.
- 15 Advertisements should be located so as not to require the lopping of street and site vegetation.
- 16 Illuminated advertisements should not be erected in residential zones.

### **Safety**

- 17 Advertisements should not create a hazard to persons travelling by any means.
- 18 Advertisements should not obscure a driver's view of other road vehicles, of rail vehicles at or approaching level crossings, of pedestrians and of features of the road such as junctions, bends, changes in width, traffic control devices and the like that are potentially hazardous.
- 19 Advertisements should not be so highly illuminated as to cause discomfort to an approaching driver, or create difficulty in their perception of the road, or of persons or objects on it.
- 20 Advertisements should not be liable to interpretation by drivers as an official traffic sign, or convey to drivers information that might be confused with instructions given by traffic signals or other control devices, or impair the conspicuous nature of traffic signs or signals.
- 21 Advertisements should not detract drivers from the primary driving task at a location where the demands on driver concentration are high.

- 22** Advertisements should not be erected in positions close to existing electricity mains so that potentially hazardous situations are created.

### **Advertising in Mixed Use, Corridor and District Centre Zones**

- 23** Advertisements and/or advertising hoardings should be:
- (a) no higher than the height of the finished floor level of the second storey of the building to which it relates;
  - (b) where located below canopy level, flush with the wall or projecting horizontally;
  - (c) where located at canopy level, in the form of a fascia sign;
  - (d) where located above the canopy, flush with the wall and within the height of the parapet.
- 24** Advertisements or advertising hoardings should not exceed 25 percent of the ground floor wall area on the façade the sign is placed.

## **Public Notification**

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1** The public notification requirements for development are specified in each zone and in [Table Un/8](#) subject to the following:
- (a) where a development is comprised of a number of components and each of those components are assigned to either Category 1 or Category 2 or a combination of both Categories under the relevant zone provisions, [Table Un/8](#) or Schedule 9 to the *Development Regulations 2008*, the development is assigned as follows:
    - (i) where each component is assigned to Category 1 the development is assigned to Category 1; and
    - (ii) where each component is assigned to Category 2 or where the components of the development are a combination of Category 1 and Category 2 the development is assigned to Category 2; and
  - (b) a reference to a particular kind of development expressed in the singular also means the plural and vice versa.

## **Regulated and Significant Trees**

### **OBJECTIVES**

- Objective 1:** The conservation of regulated trees that provide important aesthetic and/or environmental benefit.
- Objective 2:** Development in balance with preserving regulated trees that demonstrate one or more of the following attributes:
- (a) significantly contributes to the character or visual amenity of the locality;
  - (b) indigenous to the locality;
  - (c) a rare or endangered species;

- (d) an important habitat for native fauna.

**Objective 3:** The preservation of significant trees in The City of Unley which provide important aesthetic and environmental benefit.

Trees are a highly valued part of the Metropolitan Adelaide and Unley environment and are important for a number of reasons including high aesthetic value, preservation of bio-diversity, provision of habitat for fauna, and preservation of original and remnant vegetation.

While indiscriminate and inappropriate significant tree removal should be generally prevented, the preservation of significant trees should occur in balance with achieving appropriate development.

## PRINCIPLES OF DEVELOPMENT CONTROL

### Regulated Trees

- 1 Development should have minimum adverse effects on regulated trees.
- 2 A regulated tree should not be removed or damaged other than where it can be demonstrated that one or more of the following apply:
  - (a) the tree is diseased and its life expectancy is short;
  - (b) the tree represents a material risk to public or private safety;
  - (c) the tree is causing damage to a building;
  - (d) development that is reasonable and expected would not otherwise be possible;
  - (e) the work is required for the removal of dead wood, treatment of disease, or is in the general interests of the health of the tree.
- 3 Tree damaging activity other than removal should seek to maintain the health, aesthetic appearance and structural integrity of the tree.

### Significant Trees

- 4 The trees listed in the "Significant Trees Register" identified in [Table Un/9](#) together with any others controlled by Development Regulations are designated as significant trees. This designation extends to all parts of the root system, trunk, canopy and other parts of each tree, including those parts which have grown since the initial designation of the tree as a significant tree.
- 5 Development should be designed and undertaken to retain and protect significant trees and advice should be obtained from suitably qualified persons with regard to such retention and protection
- 6 Where a significant tree or significant tree grouping:
  - (a) makes an important contribution to the character or amenity of the local area, or
  - (b) forms a notable visual element to the landscape of the local area, or
  - (c) contributes to habitat value of an area individually, or provides links to other vegetation which forms a wildlife corridor

development should be designed and undertaken to retain and protect such significant trees and to preserve these attributes.

- 7 Development should be undertaken with the minimum adverse affect on the health of a significant tree.

- 8** Significant trees should be preserved and tree damaging activity should not be undertaken unless:
- (a) in the case of tree removal;
    - (i) the tree is diseased and its life expectancy is short; or
    - (ii) the tree represents an unacceptable risk to public or private safety; or
    - (iii) the tree is shown to be causing or threatening to cause substantial damage to a substantial building or structure of value and all other reasonable remedial treatments and measures have been determined to be ineffective; or
    - (iv) it is demonstrated that reasonable alternative development options and design solutions in accord with Council-wide, Zone and Area provisions have been considered to minimise inappropriate tree-damaging activity occurring; or
  - (b) in any other case;
    - (i) the work is required for the removal of dead wood, treatment of disease, or is in the general interests of the health of the tree; or
    - (ii) the work is required due to unacceptable risk to public or private safety; or
    - (iii) the tree is shown to be causing, or threatening to cause damage to a substantial building or structure of value; or
    - (iv) the aesthetic appearance and structural integrity of the tree is maintained; or
    - (v) it is demonstrated that reasonable alternative development options and design solutions in accord with Council-wide, Zone and Area provisions have been considered to minimise inappropriate tree-damaging activities occurring.
- 9** Development involving ground work activities such as excavation, filling, and sealing of surrounding surfaces (whether such work takes place on the site of the tree or otherwise) within a distance equal to the under-tree canopy of a significant tree, should only be undertaken where the aesthetic appearance, health and integrity of the significant tree, including its root system, will not be adversely affected.
- 10** Land should not be divided where the division and subsequent fencing, boundary definition, roads, buildings or structures would be likely to result in a substantial tree-damaging activity occurring to a significant tree, or significant tree grouping.
- 11** Where development is to take place in respect of, or in close proximity to, a significant tree (whether such development takes place on the site of the tree or otherwise) that tree should be protected by appropriate measures during the course of the development. In particular, the area in which the tree's branches and roots are located should be protected by the erection of a secure fence prior to commencement of any work on site to prevent and disturbance to such area, for example by compaction, excavation, filling or contact causing damage to branches.
- 12** Temporary fencing erected for the protection of a tree designated as a significant tree during construction and development activity to appropriate standards of practice should:
- (a) consist of a minimum 2.0 metre high solid, chain mesh, steel or similar fabrication with posts at maximum 3.0 metre intervals;
  - (b) incorporate on all sides a clearly legible sign displaying the words "Tree Protection Zone";
  - (c) not be erected closer to the tree than a distance equal to half of the height of the tree or the full width of the branch spread (whichever is the lesser).



## Renewable Energy

### OBJECTIVES

- Objective 1:** The development of renewable energy facilities, such as wind and biomass energy facilities, in appropriate locations.
- Objective 2:** Renewable energy facilities located, sited, designed and operated to avoid or minimise adverse impacts and maximise positive impacts on the environment, local community and the State.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Renewable energy facilities, including wind farms, should be located, sited, designed and operated in a manner which avoids or minimises adverse impacts and maximises positive impacts on the environment, local community and the State.
- 2 Renewable energy facilities, including wind farms, and ancillary developments should be located in areas that maximise efficient generation and supply of electricity.
- 3 Renewable energy facilities, including wind farms, and ancillary development such as substations, maintenance sheds, access roads and connecting power-lines (including to the National Electricity Grid) should be located, sited, designed and operated in a manner which:
  - (a) avoids or minimises detracting from the character, landscape quality, visual significance or amenity of the area;
  - (b) utilises elements of the landscape, materials and finishes to minimise visual impact;
  - (c) avoids or minimises adverse impact on areas of native vegetation, conservation, environmental, geological, tourism or built or natural heritage significance;
  - (d) does not impact on the safety of water or air transport and the operation of ports, airfields and designated landing strips;
  - (e) avoids or minimises nuisance or hazard to nearby property owners/occupiers, road users and wildlife by way of:
    - (i) shadowing, flickering, reflection and blade glint impacts;
    - (ii) noise;
    - (iii) interference to television and radio signals;
    - (iv) modification to vegetation, soils and habitats; and
    - (v) bird and bat strike.

## Residential Development

### OBJECTIVES

- Objective 1:** Safe, convenient, sustainable and healthy living environments.
- Objective 2:** Preservation and enhancement of the existing character within historic conservation and streetscape character zones and policy areas through contextual design and conservation measures that promotes the retention of buildings and the sensitive re-development, alterations, additions and adaptive re-use of buildings.

**Objective 3:** Higher dwelling densities yielded from sensitive and well designed residential infill and comprehensive residential redevelopment of selected living areas outside those zones or policy areas of identified historic conservation and streetscape character.

**Objective 4:** A diversity of housing to meet the needs and preferences of the community.

**Objective 5:** Residential areas free of incompatible uses and activities.

## PRINCIPLES OF DEVELOPMENT CONTROL

### Design and Appearance

**1** The design and appearance of buildings and their surrounds should respect the contextual qualities of the locality and be consistent with the desired character for the zone or policy area and therefore should have regard to:

- (a) site dimensions and configurations;
- (b) street and boundary setbacks;
- (c) site coverage;
- (d) private and communal open space;
- (e) building form, scale, mass and height;
- (f) building orientation to public streets;
- (g) building facades and detailing;
- (h) roof form and pitch;
- (i) fences, walls and landscaping;
- (j) overlooking and overshadowing;
- (k) noise;
- (l) access and car parking;
- (m) site facilities and storage.

### Site Dimensions and Configurations

**2** A dwelling site should have:

- (a) sufficient dimensions (street frontage width and site area) to accommodate a dwelling which enjoys a setback from its street frontage and adjoining properties, together with suitable land for useable private open space to the rear of the dwelling, landscaping, vehicle parking and domestic storage and functional needs;
- (b) a site area and dimensions consistent with the typical ranges prescribed under the zone, policy area or relevant locality in order to make a positive contribution to the desired character.

**3** A dwelling site should be primarily rectangular in shape and a hammerhead configuration should:

- (a) be avoided where it is incompatible with the prevailing streetscape pattern of development within the locality;

- (b) not create multiple access points onto a road that would adversely affect the amenity or functionality of the locality;
  - (c) allow adequate site area to allow for access and egress to and from the site in a forward direction.
- 4 The site of any dwelling should be proportioned such that its depth is equal to or exceeds its width and in any event is no less than 20 metres (excluding the handle of a hammerhead site).

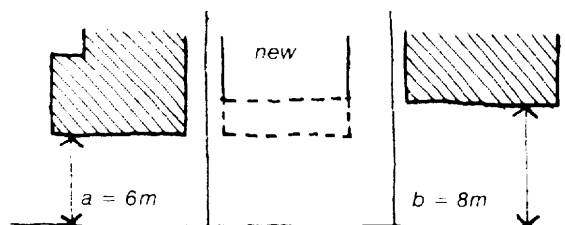
### Street and Boundary Setbacks

- 5 A dwelling should be setback from allotment boundaries to:
- (a) contribute to existing streetscape character and be compatible with the desired streetscape character as described for the zone or policy area;
  - (b) reduce the appearance of building bulk by progressively increasing setbacks as height increases;
  - (c) allow for adequate provision for front yard landscaping, driveways, private open space and outdoor utility areas.

### Public Road

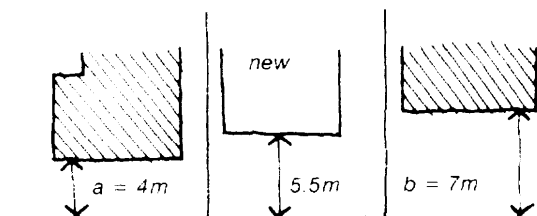
#### Dwellings

- 6 Except where specified in a particular zone, policy area or precinct, a dwelling should be setback from the primary street frontage:
- (a) where adjacent dwellings have reasonably consistent setbacks (difference is less than 2 metres), the same distance as one or the other of the adjacent dwellings.



When  $b - a \leq 2$ ,  
set-back of new dwelling =  $a$  or  $b$

- (b) where adjacent setbacks are variable (difference of greater than 2 metres) the average of the setbacks of adjoining buildings.



When  $b - a > 2$ ,  
set-back of new dwelling  $\geq (a + b) \div 2$

- 7 Except where specified in a particular zone, policy area or precinct, a dwelling setback from its secondary street frontage should be in accordance with the following parameters:

Height of building (metres)	Width of site to primary street frontage (metres)	Minimum setback to secondary street frontage (metres)
≤4	≤10	1
	>10	2
>4 – 7	≤10	2.5
	>10	4
>7	≤10	5
	>10	6

### *Garages, carports and outbuildings*

- 8** A garage, carport or outbuilding should be setback from the primary street frontage:
- (a) at least 1.0 metres further than the setback of the associated dwelling;
  - (b) no closer than the front alignment of walls of the associated dwelling if the dwelling incorporates street facing attached verandahs, porticos and similar structures;
  - (c) at least 5.5 metres where a car parking space is required within the driveway.
- 9** A carport only, may be located forward of the dwelling where the existing exceptional site circumstances prevent the practical undertaking of its construction at the rear of the site or behind the front dwelling wall, providing it does not unreasonably diminish the streetscape presence of the dwelling and the following parameters are met:
- (a) a single width and permanently open on all sides;
  - (b) setback no less than half the setback of the nearest adjacent dwelling.
- 10** A garage, carport or outbuilding should be setback no less than 1 metre from its secondary street frontage.

### **Public Lane**

#### *Dwellings and outbuildings*

- 11** Where a site adjoins a public lane, no wider than 6.10 metres, vested in Council, and performs as a secondary road to the majority of abutting properties in that lane, no building setback is required, other than where direct pedestrian doorway access or windows are provided then appropriate setbacks should be provided.

#### *Garages and carports*

- 12** Garages and carports accessed from a public lane should be sited and designed to provide safe and functional vehicle access in accordance with relevant Australian Standards AS 2890.1 for vehicle turning and manoeuvring.

### **Side and Rear Boundaries**

#### *Dwellings*

- 13** Except where specified in a relevant zone or policy area, dwelling setbacks from side and rear boundaries should be progressively increased as the height of the building increases to minimise massing and overshadowing impacts to adjoining properties and should be in accordance with the following parameters:



Building height from ground level of the adjoining affected land (metres)	Site area (square metres)	Minimum side boundary setback (metres)	Minimum rear boundary setback (metres)
≤4	≤300	1	3
	>300	1	5
>4 – 7	≤300	2	6
	>300	3	8
>7	≤300	3 (plus half the equivalent increase in building height over 7m)	6 (plus the equivalent increase in building height over 7m)
	>300	4 (plus the equivalent increase in building height over 7m)	8 (plus the equivalent increase in building height over 7m)

**14** Dwellings sited on side boundaries (other than on secondary road frontages) should be located and limited in length and height to maintain visual amenity and allow adequate provision of natural light to adjacent properties (habitable room windows and private open space) and should be in accordance with the following parameters:

- (a) the same or lesser length and height dimensions of any abutting boundary wall;
- (b) setback at least 1 metre behind the main face of the associated dwelling and the nearest adjoining dwelling;
- (c) up to 3 metres above ground level and a maximum length of 9 metres (including all other attributable boundary walls) or 50 percent of the boundary length that is not forward of the dwelling, whichever is the lesser amount;
- (d) developed along one side boundary only with the other side setback of no less than 1 metre or as prescribed;
- (e) not within 0.9 metres of a habitable room window of an adjacent dwelling.

*Garages, carports, verandahs, pergolas, outbuildings and like structures*

**15** Garages, carports, verandahs, pergolas, outbuildings and like structures should be sited and designed to be ancillary to the dwelling and not visually dominate the locality and should:

- (a) site any solid wall at least 600 millimetres off the boundary or on the boundary
- (b) site boundary walls immediately abutting other adjacent walls and have the same or lesser length and height
- (c) have a minimum setback of 1.8 metres for solid walls or a minimum setback of 0.9 metres for an open sided structure to a habitable room window of an adjacent dwelling
- (d) have a minimum distance of 3 metres to any other attributable walls on the boundary
- (e) be sited clear of easements and the canopy of significant trees, where practicable.

### Site Coverage

- 16** A dwelling site should be provided with sufficient space that is not covered by roofed buildings so as to provide:
- (a) front, side and rear setbacks appropriate for the desired character of the locality;
  - (b) private open space and landscaping;
  - (c) entry of natural light;
  - (d) permeable surfaces to allow for on-site water harvesting;
  - (e) pedestrian and vehicle access and parking;
  - (f) storage and clothes drying area/s.
- 17** Roofed buildings (excluding verandahs and eaves up to 2 metres in width or garden structures up to 10 square metres in area) should:
- (a) cover no more than 50 percent of the area of the site (excluding the area of the handle of a hammerhead allotment, any right of way or any shared driveway access)
  - (b) together with the impervious areas (private driveways, car parking spaces, paths and outdoor entertainment areas) cover no more than 70 percent of the site.
- 18** Within the Residential Streetscape Zone and the Residential Zone the total floor area of above ground floor levels should not exceed 50 percent of the total ground floor area of a dwelling.

### Private and Communal Open Space

- 19** Private and communal open space should be provided as part of a residential development to:
- (a) create outdoor living areas;
  - (b) provide 'soft' landscapes within an urban setting;
  - (c) allow reasonable entry of natural light;
  - (d) provide opportunities for permeable areas to allow for on-site water harvesting and aquifer recharge;
  - (e) facilitate landscaping, food production and backyard biodiversity.
- 20** Private open space should be provided for each dwelling and sited and designed to be:
- (a) located adjacent or behind the primary street facing building facade and be exclusive of storage areas, outbuildings, carports, driveways, parking spaces and roofed pergolas and associated structures;
  - (b) screened from public areas and adjoining properties with fencing of not less than 1.8 metres above finished ground level;
  - (c) sited to receive direct winter sunlight;
  - (d) of sufficient area with a minimum of 20 percent of the site area (>300 square metre site area per dwelling) and 35 square metres (≤300 square metres site area per dwelling) within a residential zone and 20 square metres for each site within a non-residential zone;

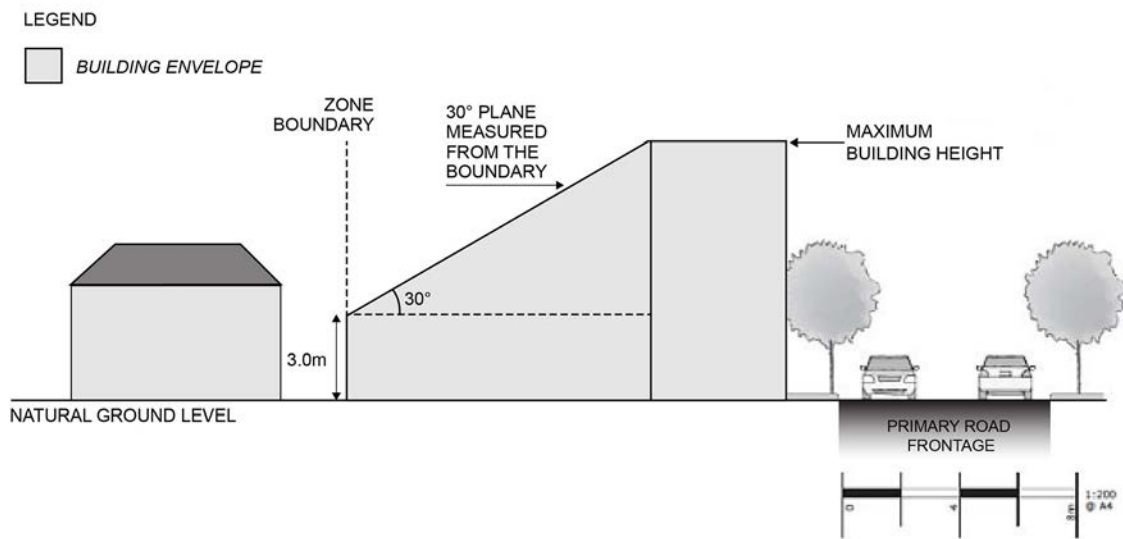
- (e) useable for residents and visitors with a minimum of 4 metres (residential zone) and 3 metres (non-residential zone) in any one direction, a maximum grade of 1:10, and directly accessible from a habitable room.
- 21** Communal open space shared by more than one dwelling should be provided on-site for medium and higher density development without direct access to ground level private outdoor living areas and sited and designed to be:
- (a) screened from public areas and adjoining properties by fencing to a height of no less than 1.8 metres above finished ground level;
  - (b) capable of receiving direct winter sunlight and good natural daylighting;
  - (c) only located on elevated gardens or roof tops where acoustic, safety, visual privacy and amenity issues have been addressed;
  - (d) of sufficient area with no less than 25 square metres for each dwelling (residential zone) and 15 square metres for each dwelling (non-residential zone) in combination with indoor communal facilities provided to supplement the primary outdoor living spaces;
  - (e) safe, convenient and usable space for residents and visitors with a minimum dimension of 4 metres (residential zone) and 3 metres (non-residential zone) in any one direction.
- 22** Private and communal open space may also include balcony areas, roof patios and similar structures provided the area:
- (a) is screened to 1.7 metres high;
  - (b) has a minimum dimension of 2 metres;
  - (a) has at least 70 percent uncovered by roofed structures.

### **Building Form, Scale, Mass and Height**

#### *General*

- 23** Building form, scale, mass and height should be compatible with development in the locality and in particular the desired character and built form parameters for the zone or policy area.
- 24** Development should be sited and designed to minimize negative visual impacts on existing and potential future land uses that are considered appropriate in the locality.
- 25** To minimise impacts at the interface with lower scale sensitive development, buildings of 3 storeys or more (or heights greater than 7 metres) should be constructed within a building envelope provided by a 30 degree plane, measured from a height of 3 metres above ground level (of the adjoining affected land) at the zone or Policy Area boundary (except where this boundary is the primary road frontage), as illustrated in **Figure 1**:

Figure 1



- 26** Buildings on hammerhead allotments or the like should be designed to maintain the privacy and amenity of adjoining properties.
- 27** Within residential zones (other than the Residential Regeneration Zone), sites greater than 5000m<sup>2</sup> should be developed in an efficient and co-ordinated manner to increase housing choice by providing dwellings, supported accommodation or institutional housing facilities at densities higher than, but compatible with, adjoining residential development.
- 28** Within residential zones on sites for existing or proposed aged care housing, supported accommodation or institutional housing, minor ancillary non-residential services may be included providing that the development interface is compatible with adjoining residential development.

#### *Garages and carports*

- 29** Garages and carports facing the street (excluding public lanes) should reinforce the prominence of the associated dwelling in the streetscape, and be compatible with the prevailing built form within the zone and locality, and in any case:
- (a) have a roof form that visually distinguishes between the garage/carport and the main dwelling and should not be in the form of an extension to the main roof line of the associated dwelling;
  - (b) be compatible with, but substantially subservient in scale, mass and height to, the associated dwelling and adjacent dwellings;
  - (c) have a width of no greater than 30 percent of the site width or a maximum garage or carport width of 6.5 metres, whichever is the lesser amount;
  - (d) reduce the scale of wide garages by the adoption of one or more of the following design measures:
    - (i) single width doors horizontally separated by no less than 300 millimetres;
    - (ii) limiting double width garage openings to no wider than 5 metres;
    - (iii) increased setback behind the main façade of the associated dwelling or sited and designed to be obscured or partially obscured from the streetscape.



### *Outbuildings and like structures*

- 30** Outbuildings and like structures should be sited and designed to be ancillary to the dwelling and not visually dominate the locality by having:
- (a) a maximum wall height of 3 metres and roof height of 5 metres (sited at least 2 metres from the side boundary) above ground level;
  - (b) a maximum wall length of 8 metres for solid walls and 12 metres for open-sided structures (including all other boundary walls) or no longer than 50 percent of the boundary length behind the front face of the dwelling, whichever is the lesser amount;
  - (c) a total floor area not exceeding 80 square metres or 10 percent of the site, whichever is the lesser amount.

### **Building Orientation to Public Streets**

#### *Dwellings*

- 31** Dwellings adjacent to streets should be designed so that the front doorway and main façade of the dwellings faces toward the primary road frontage and should be clearly visible to visitors. Where this is not practicable, the design of the development should respect the rhythm of the building form and provide visual interest to the streetscape.

### **Building Facades and Detailing**

- 32** The appearance of buildings should be of high quality, visual massing of facades minimised and external fixtures integrated through design methods that have regard to:
- (a) colour finishes;
  - (b) building materials and textures;
  - (c) façade detailing and proportions of solid walling and window and other building penetrations or voids;
  - (d) articulation of walls and roofs and use of verandahs and eaves;
  - (e) minimizing the visual intrusiveness of structures such as antennae, wind turbines, satellite dishes and air conditioners and other plant and equipment located on roofs or parapet wall levels;
  - (f) the careful siting and design of ancillary buildings to be recessive features and not dominate or conflict with the main dwelling.

### **Roof Form and Pitch**

- 33** Buildings should be designed to incorporate well designed roofs that:
- (a) reinforce the desired character of the locality, as expressed in the relevant zone or policy area;
  - (b) protect reasonable skyline and local views;
  - (c) contribute to the architectural quality of the building;
  - (d) are articulated into smaller roof elements where there would otherwise be excessive roof volume and mass, particularly on large buildings;
  - (e) create minimal glare;
  - (f) facilitate discrete solar energy collection; and

- (g) provide opportunities for roof top gardens and/or communal open space in higher density developments.

**34** Where prevailing roof forms in the locality are consistent with the desired character of the zone or policy area, new roof forms should complement the form and pitch of such roofs. In these circumstances, flat roofs or monopitch roofs may be inappropriate.

### **Fencing, Walls and Landscaping**

**35** Fences and walls that form part of a development should be designed to:

- (a) maintain attractive streetscapes, clearly define the boundary between public and private property, and enhance safety and surveillance by incorporating:
  - (i) low solid fencing of up to 1.2 metres high (measured from ground level);
  - (ii) substantially open front fencing (greater than 50 percent transparent) to 2 metres high (measured from finished ground levels or the lower of the two adjoining finished ground levels) that complements the associated development;
- (b) minimize noise and associated nuisances from adjacent major collector and arterial roads through the use of:
  - (i) solid structures that do not exceed 2 metres in height (measured from finished ground levels or the lower of the two adjoining finished ground levels);
  - (ii) materials and designs that complement the associated development, its prevailing or desired streetscape character, and provide visual interest;
- (c) ensure adequate visibility and driver sight lines at intersections with a maximum wall height of 1 metre extending 6 metres in both directions of a corner allotment;
- (d) provide visual interest and relief by incorporating articulation or other detailing every 5 metres where there is a large expanse of solid fencing facing the street or in public view;
- (e) create visual privacy between properties on side and rear boundaries behind the front building façade through the use of light weight and visually impermeable boundary fences or structures that do not exceed 2.1 metres in height (measured from finished ground levels or the lower of the two adjoining finished ground levels);
- (f) provide structures that are semi visually impermeable (greater than 50 percent open) such as lattice extensions above solid boundary fences to a total height of 2.8 metres (measured from finished ground levels or the lower of the two adjoining finished ground levels) in circumstances where it does not adversely affect the visual amenity of the locality nor reasonable access to sunlight of adjoining land.

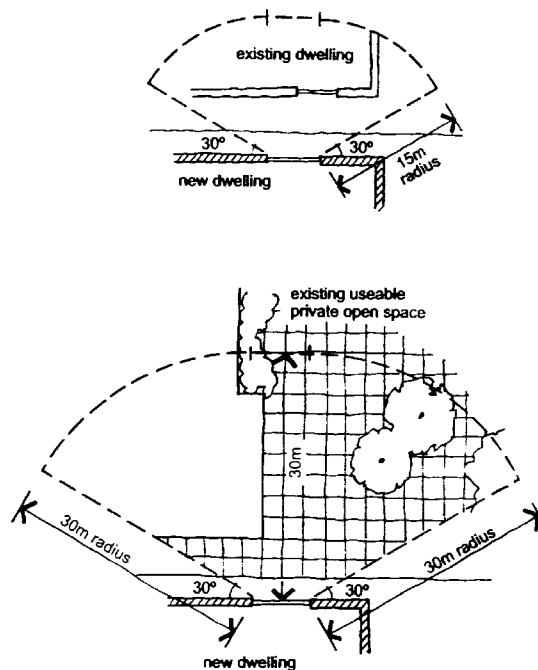
**36** Landscaping should be provided as part of a development to:

- (a) contribute to the typical garden setting and streetscape character within front yards;
- (b) soften and complement the scale of the built form, retaining walls, driveways and common parking areas;
- (c) screen storage, service and parking areas;
- (d) complement existing vegetation;
- (e) provide opportunities for on-site water harvesting;
- (f) promote the use of low water use plants such as local native plants where practicable.

- 37 Landscaping should be provided along both sides of access driveways serving more than one dwelling at a minimum width of 1 metre.

### Overlooking

- 38 Direct overlooking from upper level (above ground floor level) habitable room windows and external balconies, roof patios, terraces and decks to habitable room windows and useable private open space of other dwellings should be minimised through adoption of one or more of the following:
- building layout;
  - location and design of windows, balconies, roof patios and decks;
  - screening devices;
  - adequate separation distances;
  - existing landscaping and supplementary screen tree planting.
- 39 To maintain a reasonable level of visual privacy to adjacent residential properties the following measures are sought:
- orientate and stagger windows and upper level viewing areas to prevent direct views into adjoining property indoor and outdoor living areas;
  - obscure viewing by raising window sills or incorporating obscure glass windows to a height at least 1.7 metres above floor level;
  - use permanently fixed external screening devices such as screens, fences, wing walls, panels, planter boxes or similar measures adequate to restrict 120 degree views;
  - provide a separation distance of 15 metre radius to windows of habitable rooms in potentially impacted dwellings and 30 metre radius to private open space as described in the Figure below;
  - incorporate plants capable of providing and seasonally sustaining a privacy screen.



*Area likely to be primarily affected by overlooking from upper level windows, balconies and decks.*

- 40** Decks and finished levels adjacent to pools/spas have a maximum finished height of 0.5 metres above ground level within 5 metres of a property boundary and 1.5 metres above ground level elsewhere on the site, subject to adequate screening to minimise overlooking into adjoining properties.

### Overshadowing and Natural Light

- 41** Development should allow direct winter sunlight access to adjacent residential properties and minimise the overshadowing of:
- living room windows, wherever practicable;
  - the majority of private open space areas, communal open space and upper level balconies that provide the primary open space provision;
  - roof areas, preferably north facing and suitable for the siting of at least 4 solar panels on any dwelling;

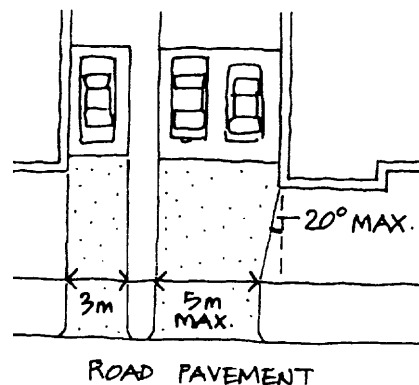
or where such affected areas are already shaded, the additional impact should not significantly worsen the available sunlight access.

- 42** To ensure an adequate level of daylight and outlook, light wells and similar devices should not be relied on as the primary source of daylight for habitable rooms.

### Access and Car Parking

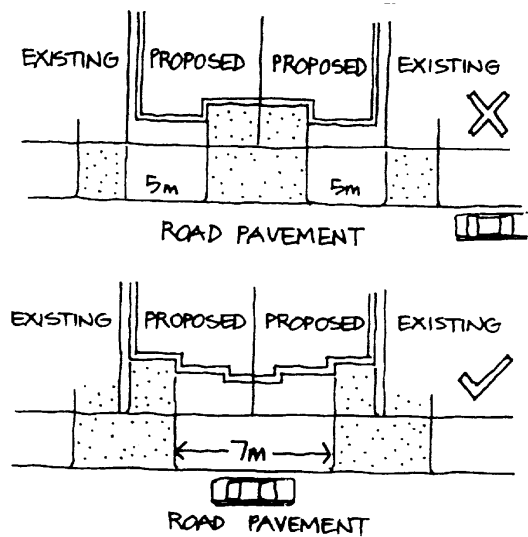
#### Driveways

- 43** Driveways and cross-overs should be located and designed to:
- provide safe and convenient access for users, including appropriate dimensions and grades;
  - provide adequate space for vehicles to park, manoeuvre on-site and to allow vehicles to enter and exit in a forward direction on sites with common driveways;
  - provide appropriate access points to allow for adequate sight distances, separated to allow for on-street car parking spaces, located away from intersections to avoid adverse effects on traffic safety and avoid compromising existing infrastructure and street trees;
  - reinforce or contribute to attractive streetscapes by minimising the width, number and straight line lengths of driveways;
  - to allow for infiltration of surface water into the ground through the use of measures such as permeable paving.

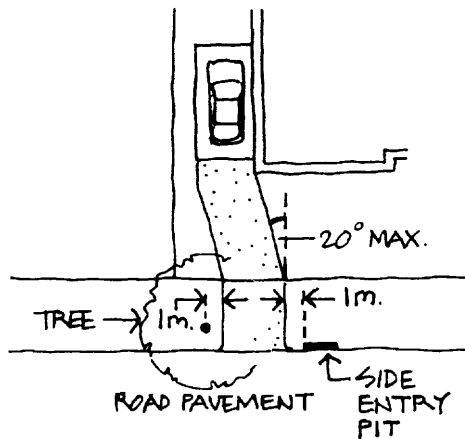


Where narrowing of the driveway is required, the deviation angle does not exceed 20 degrees





Crossovers located to create on-street parking opportunities



Crossovers should have a 1m clearance to street trees, stobie poles and stormwater side entry pits

- 44 Access driveway pavements should be constructed in accordance with the following parameters:

Number of dwellings served by the driveway	Minimum width of driveway within 6 metres of the front boundary (metres)	Minimum width beyond the first 6 metres (metres)
1-2	3	3
3-7	5	3
>7	6	5

The access driveway is to widen to 5 metres for a distance of 7 metres every 25 metres measured from the front property boundary or another passing point, to enable the passing of vehicles.

#### Car Parking

- 45 The number of car parking spaces should be provided in accordance with [Table Un/5](#).

**46** Site car parking may be varied according to the projected needs of users and taking account of the:

- (a) type of housing, particularly affordable and supported accommodation;
- (b) availability and 'after-hours' agreement to use shared non-residential car parking spaces within close walking distance of the dwellings;
- (c) availability of public transport in close proximity to the dwellings;
- (d) availability of on-street parking;

but disregarding infrequent, high-visitation events (eg, parties, garage sales, auctions etc).

**47** Garages and carports should have minimum internal dimensions in accordance with the following parameters:

- (a) 3 metres by 6 metres for a single vehicle;
- (b) 5.8 metres by 6 metres for two vehicles.

**48** The design of car parking spaces and access ways should be provided in accordance with Australian Standards 2890.1 (latest version).

**49** Development and driveway cross-overs that reduce available on-street parking in front of a site to less than 1 space per 2 dwellings should address any shortfall with additional on-site visitor spaces.

### **Swimming Pools and Outdoor Spas**

**50** Swimming pools, outdoor spa baths and ancillary equipment and structures should be designed and located so as to protect the privacy and visual and acoustic amenity of adjoining residential occupiers and should be constructed in accordance with the following parameters:

- (a) located at least 1.5 metres from any adjoining residential property boundary;
- (b) ancillary pool and spa equipment is located within a sound attenuated enclosure and located at least 5 metres from a habitable room window in an adjoining residential building;
- (c) have a maximum finished height above ground level of 0.5 metres for in-ground pools/spas and 1.5 metres for above-ground pools/spas.

### **Site Facilities and Storage**

**51** Refuse and storage areas for a dwelling on an individual allotment should incorporate adequate area for recycling and waste collection and be limited to those items that are ancillary to residential living and for this purpose such areas should be:

- (a) a minimum of 2 square metres;
- (b) readily accessible;
- (c) sited and designed to minimise any detrimental impacts to adjoining properties and the streetscape.

**52** Site facilities for group dwellings and residential flat buildings should include:

- (a) a common mailbox structure located close to the major pedestrian entrance to the site;
- (b) garbage and recyclable material storage areas;

- (c) for dwellings which do not incorporate ground level open space:
  - (i) an external clothes drying area;
  - (ii) a safe and secure bicycle storage and parking area;

which is readily accessible to each dwelling and complement the development and streetscape character.

### **Affordable Housing**

- 53** Development on sites with greater than 20 dwellings should include a minimum 15 percent of residential dwellings for affordable housing.
- 54** Affordable housing should be preferentially located in close proximity to centres, public transport stops and public open space whilst avoiding an over-concentration within a particular area.

### **Dependent Accommodation**

- 55** Dependent accommodation should only be developed on the site of an existing dwelling where:
  - (a) the site of the existing dwelling is greater than 600 square metres;
  - (b) the accommodation is located on the same allotment as the associated dwelling;
  - (c) the accommodation has a small floor area relative to the main dwelling and does not exceed 60 square metres;
  - (d) outdoor space of at least 120 square metres is available to be shared by both residences;
  - (e) on-site car parking is maintained for the existing dwelling and an additional space provided for exclusive use by occupants of the dependent accommodation;
  - (f) the additional accommodation continues the architectural style and general appearance of the main dwelling.

### **Supported Accommodation**

- 56** Supported accommodation and housing for seniors (including nursing homes, hostels, retirement homes, retirement villages, residential care facilities and special accommodation houses) should be:
  - (a) located within walking distance of essential facilities such as convenience shops, health and community services and public transport;
  - (b) located where the on-site slope allows for convenient on-site movement;
  - (c) sited and designed to promote interaction with other sections of the community, without compromising privacy;
  - (d) of a streetscape appearance that reflects the scale and pattern of dwellings and/or the streetscape character of its locality.
- 57** Supported accommodation and housing for seniors should be designed to provide safe, secure, attractive, convenient and comfortable living conditions for residents that include:
  - (a) communal areas and private spaces;
  - (b) useable indoor and outdoor recreation areas for residents and visitors, including visiting children;

- (c) spaces to accommodate social needs and activities, including social gatherings, internet use gardening, keeping pets, preparing meals and doing personal laundry;
- (d) storage areas for items such as small electric powered vehicles, boats, trailers and caravans;
- (e) mail boxes and waste disposal and recycling areas within easy walking distance of all dwellings or residential units.

**58** Access roads within supported accommodation and housing for seniors developments should:

- (a) not have steep gradients;
- (b) provide convenient access for emergency vehicles, visitors and residents;
- (c) provide space for manoeuvring cars and community buses;
- (d) include kerb ramps at pedestrian crossing points;
- (e) have level-surface passenger loading areas.

**59** Car parking associated with supported accommodation and housing for seniors should:

- (a) be conveniently located on site within easy walking distance of all dwellings or resident units;
- (b) have adequate spaces provided for residents, service providers and visitors;
- (c) include covered and secure parking for residents' vehicles;
- (d) allow ease of vehicle manoeuvrability;
- (e) be designed to allow the full opening of all vehicle doors;
- (f) minimise the impact of car parking on adjacent residences from unreasonable visual intrusion and noise;
- (g) be appropriately lit to enable safe and easy movement to and from vehicles.

**60** Where security fencing and restricted key card or coded access gates are provided in a gated-style estate the location of associated entry point(s) should not impact on the safe and convenient flow of traffic and any speaker devices should minimise disturbance to any residential neighbours.

### **Multiple Dwellings**

**61** Multiple dwellings (including lodging houses and backpackers accommodation) should be located close to public transport, public open space and community facilities or located within Centre, Mixed Use, or Office zones.

**62** Multiple dwellings should comprise the following parameters:

- (a) a maximum of 8 residents within Residential Zones
- (b) a minimum of 5 square metres indoor recreation space and 10 square metres outdoor recreation space provided for each resident.



## Telecommunications Facilities

### OBJECTIVES

- Objective 1:** Telecommunications facilities provided to meet the needs of the community.
- Objective 2:** Telecommunications facilities located and designed to minimise visual impact on the amenity of the local environment.

Telecommunications facilities are an essential infrastructure required to meet the rapidly increasing community demand for communications technologies. To meet this demand there will be a need for new telecommunications facilities to be constructed.

The *Commonwealth Telecommunications Act 1997* is pre-eminent in relation to telecommunications facilities. The Telecommunications (Low-impact Facilities) Determination 1997 identifies a range of facilities that are exempt from State planning legislation. The development of low impact facilities to achieve necessary coverage is encouraged in all circumstances where possible to minimise visual impacts on local environments.

Where required, the construction of new facilities is encouraged in preferred industrial and commercial and appropriate non-residential zones. Recognising that new facility development will be unavoidable in more sensitive areas in order to achieve coverage for users of communications technologies, facility design and location in such circumstances must ensure visual impacts on the amenity of local environments are minimised.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Telecommunications facilities should:
  - (a) be located and designed to meet the communication needs of the community;
  - (b) utilise materials and finishes that minimise visual impact;
  - (c) have antennae located as close as practical to the support structure;
  - (d) primarily be located in industrial, commercial, business, office, centre, and rural zones;
  - (e) incorporate landscaping to screen the development, in particular equipment shelters and huts; and
  - (f) be designed and sited to minimise the visual impact on the character and amenity of the local environment, in particular visually prominent areas, main focal points or significant vistas.
- 2 Where technically feasible, co-location of telecommunications facilities should primarily occur in industrial, commercial, business, office, centre and rural zones.
- 3 Telecommunications facilities in areas of high visitation and community use should utilise, where possible, innovative design techniques, such as sculpture and art, where the facilities would contribute to the character of the area.
- 4 Telecommunications facilities should only be located in residential zones if sited and designed so as to minimise visual impact by:
  - (a) utilising screening by existing buildings and vegetation;
  - (b) where possible being incorporated into, and designed to suit the characteristics of an existing structure that may serve another purpose; and
  - (c) taking into account existing size, scale, context and characteristics of existing structures, land forms and vegetation so as to complement the local environment.

- 5 Telecommunications facilities should not detrimentally affect the character or amenity of Historic Conservation Zones or Policy Areas, Local Heritage Places, State Heritage Places, or State Heritage Areas.

## Transportation (Movement of People and Goods)

### OBJECTIVES

- Objective 1:** Control the movement of traffic within the city having regard to a hierarchy of roads in order to ensure compatibility between development adjacent to roads and the position of the road in the hierarchy.

The following arterial roads are of primary importance to metropolitan traffic movement:

Anzac Highway;  
Cross Road;  
Glen Osmond Road;  
Greenhill Road; and  
South Road.

The following arterial roads supplement the above arterial roads in catering for metropolitan traffic movement, but are of secondary importance to the above roads in this role:

Fullarton Road;  
Goodwood Road; and  
Unley Road.

The following major collector roads carry a small component of through traffic particularly during peak periods. Traffic restraint is necessary due to the impacts upon adjacent land use arising from through traffic on the road:

Duthy Street;  
George Street;  
East Avenue/Leah Street/Leader Street; and  
King William Road/Northgate Street/Victoria Avenue.

The following roads have a local crossing/collector function in that:

- (a) they fulfil a need to subdivide a local traffic area because, in one dimension at least, the area is too large to be reasonably circumnavigated by intra-suburban traffic; and/or
- (b) distribute traffic between the arterial roads and the local street system:

Albert Street;  
Arthur Street (Unley);  
Ferguson Avenue;  
Fisher Street;  
Forest Avenue;  
Mills Street;  
Mitchell Street;  
Park Street;  
Victoria Street; and  
Wattle Street.

All other local streets and roads have a main function of providing access to abutting property and are not designed to facilitate through traffic movement.

- Objective 2:** A network of roads, paths and tracks, to accommodate satisfactorily a variety of vehicular, cycle and pedestrian, traffic.

- Objective 3:** A safe and efficient vehicular and pedestrian movement system.

**Objective 4:** Safe and easy movement of pedestrians across arterial roads.

**Objective 5:** A comprehensive, integrated, and efficient, public and private transport system which will:

- (a) provide access to adequate transport services for all people, at an acceptable cost;
- (b) effectively support the economic development of metropolitan Adelaide and the State;
- (c) ensure a high level of safety; and
- (d) maintain the options for the introduction of suitable new transport technologies.

**Objective 6:** A compatible arrangement between land uses and the transport system which will:

- (a) ensure minimal noise and air pollution;
- (b) protect amenity of existing and future land uses;
- (c) provide adequate access; and
- (d) ensure maximum safety.

**Objective 7:** A form of development adjoining main roads which will:

- (a) ensure traffic can move efficiently and safely;
- (b) prevent large traffic-generating uses outside designated shopping/centre zones;
- (c) provide for adequate off-street parking; and
- (d) provide limited and safe points of access and egress.

**Objective 8:** A high degree of visibility at intersections for drivers of motor vehicles entering arterial roads.

**Objective 9:** The retention of all present road reserve widths in the city, other than in respect of arterial roads.

Due to the magnitude of impacts that road widening has upon properties abutting roads affected by these actions, widening of arterial roads should only take place where detailed investigations of both local and regional needs indicate such widening is desirable.

**Objective 10:** Non-local traffic utilizing the arterial road system, and not local streets.

**Objective 11:** Development located and designed to direct traffic away from local crossing/collector roads and local streets, and the improvement of the environment of these classes of streets.

**Objective 12:** A co-ordinated and integrated bicycle movement system which complements other vehicles movement systems.

**Objective 13:** Off-street parking areas able to cater for the demands of existing and proposed development in Office, Mixed Use and Centre Zones.

The main elements of the transport system are shown on [Map Un/1 \(Overlay 1\)](#).

## PRINCIPLES OF DEVELOPMENT CONTROL

### General

- 1 Development adjacent to every road and street should conform with the objectives relating to movement of people and goods and be compatible with the hierarchy of roads shown on [Map Un/1 \(Overlay 1\)](#).
- 2 Where traffic control works, public works or facilities are required as a direct result of a development, the cost of such works or facilities should be borne by the developer.
- 3 Development should:
  - (a) provide safe and convenient access for private cars, cyclists, pedestrians, service vehicles, emergency vehicles and public utility vehicles;
  - (b) include access points located and designed in such a way as to minimise traffic hazards, vehicle queuing on public roads and intrusion of vehicles into adjacent residential areas; and
  - (c) provide off-street loading, service and vehicle manoeuvring areas.
- 4 The number, location and design of access points onto the arterial roads shown on [Map Un/1 \(Overlay 1\)](#) should be such as to minimise traffic hazards, queuing on the roads, right turn movements and interference with the function of intersections, junctions and traffic control devices.

### Cycling and Walking

- 5 Development should ensure that a permeable street and path network is established that encourages walking and cycling through the provision of safe, convenient and attractive routes with connections to adjoining streets, paths, open spaces, schools, pedestrian crossing points on arterial roads, public and community transport stops and activity centres.
- 6 Development should provide access, and accommodate multiple route options, for pedestrians and cyclists by enhancing and integrating with:
  - (a) open space networks, recreational trails, parks, reserves, and sport and recreation areas;
  - (b) Adelaide's principal cycling network (Bikedirect), which includes arterial roads, local roads and off-road paths.
- 7 New developments should give priority to and not compromise existing designated bicycle routes.
- 8 Where development coincides with, intersects or divides a proposed bicycle route or corridor, development should incorporate through-access for cyclists.
- 9 Development should encourage and facilitate cycling as a mode of transport by incorporating end-of-journey facilities including:
  - (a) showers, changing facilities and secure lockers
  - (b) signage indicating the location of bicycle facilities
  - (c) bicycle parking facilities provided at the rate set out in [Table Un/6](#) – Off-street Bicycle Parking requirements for Mixed Use, Corridor and District Centre Zones.
- 10 On-site secure bicycle parking facilities should be:
  - (a) located in a prominent place;



- (b) located at ground floor level;
- (c) located undercover;
- (d) located where surveillance is possible;
- (e) well lit and well signed;
- (f) close to well used entrances;
- (g) accessible by cycling along a safe, well lit route.

**11** Pedestrian and cycling facilities and networks should be designed and provided in accordance with relevant provisions of the *Australian Standards and Austroads Guides*.

### **Access**

**12** Development should have direct access from an all-weather public road.

**13** Development should be provided with safe and convenient access which:

- (a) avoids unreasonable interference with the flow of traffic on adjoining roads
- (b) provides appropriate separation distances from existing roads or level crossings
- (c) accommodates the type and volume of traffic likely to be generated by the development or land use and minimises induced traffic through over-provision
- (d) is sited and designed to minimise any adverse impacts on the occupants of and visitors to neighbouring properties.

**14** Development should not restrict access to publicly owned land such as recreation areas.

**15** The number of vehicle access points onto arterial roads shown on Strategic Transport Routes [Maps Un/1 \(Overlay 4a and 4b\)](#) should be minimised and, where possible, access points should be:

- (a) limited to local roads (including rear lane access)
- (b) shared between developments.

**16** Development with access from arterial roads or roads as shown on Strategic Transport Routes [Maps Un/1 \(Overlay 4a and 4b\)](#) should be sited to avoid the need for vehicles to reverse onto or from the road.

**17** Structures such as canopies and balconies that encroach onto the footpath of an arterial road should not cause visual or physical obstruction to:

- (a) signalised intersections
- (b) heavy vehicles
- (c) street lighting
- (d) overhead electricity lines
- (e) street trees
- (f) bus stops.

**18** Driveways, access tracks and parking areas should be designed and constructed to:

- (a) follow the natural contours of the land
- (b) minimise excavation and/or fill
- (c) minimise the potential for erosion from surface runoff
- (d) avoid the removal of existing vegetation
- (e) be consistent with Australian Standard AS 2890 Parking facilities.

#### **Parking Area - Design, Location and Provision**

**19** Development should provide sufficient off-street parking to accommodate resident, visitor, customer, employee, and service vehicles.

**20** Off-street vehicle parking should be in accordance with [Table Un/5](#) Off Street Vehicle Parking Requirements.

**21** Car parking areas should:

- (a) be located and designed in such a way as to ensure safe and convenient pedestrian access from vehicles to facilities; safe and convenient traffic circulation; include adequate provision for manoeuvring into and out of parking bays, and, in the case of centre-type development, result in minimal conflict between customer and service vehicles; and
- (b) be designed so as to obviate the necessity for vehicles to back onto public roads.

**22** Individual parking areas should, wherever possible, be so located and designed that:

- (a) vehicular movement between them does not require the use of public roads; and
- (b) the number of access points is minimised.

**23** Development should provide the opportunity for the shared use of car parking and integration of car parking areas with adjacent development so as to reduce the total extent of car parking areas.

**24** Development providing 25 or more car parking spaces should provide at least one car parking space in every 25 spaces for the use of the disabled, up to a maximum of five spaces. (See [Table Un/5](#)).

**25** Parking for the disabled should be allocated and located within a short distance and convenient to major building entrances, ramps and other pedestrian access facilities useable by disabled people.

#### **Vehicle Parking for Mixed Use, Corridor and District Centre Zones**

**26** Development should provide off-street vehicle parking and specifically marked accessible car parking places to meet anticipated demand.

**27** Loading areas and designated parking spaces for service vehicles should:

- (a) be provided within the boundary of the site;
- (b) not be located in areas where there is parking provided for any other purpose.

**28** Vehicle parking spaces and multi-level vehicle parking structures within buildings should:

- (a) enhance active street frontages by providing land uses such as commercial, retail or other non-car park uses along ground floor street frontages;

- (b) complement the surrounding built form in terms of height, massing and scale;
- (c) incorporate facade treatments along major street frontages that are sufficiently enclosed and detailed to complement neighbouring buildings consistent with the desired character of the locality.

**29** In mixed use buildings, the provision of vehicle parking may be reduced in number and shared where the operating hours of commercial activities complement the residential use of the site.

### **Undercroft and Below Ground Garaging and Parking of Vehicles**

**30** Undercroft and below ground garaging of vehicles should only occur where envisaged in the relevant zone or policy area or precinct and ensure:

- (a) the overall height and bulk of the undercroft structure does not adversely impact on streetscape character of the locality or the amenity of adjacent properties;
- (b) vehicles can safely enter and exit from the site without compromising pedestrian or cyclist safety or causing conflict with other vehicles;
- (c) driveway gradients provide for safe and functional entry and exit;
- (d) driveways and adjacent walls, fencing and landscaping are designed to provide adequate sightlines from vehicles to pedestrians using the adjacent footpath;
- (e) openings to undercroft areas are integrated with the main building so as to minimise visual impact;
- (f) landscaping, mounding and/or fencing is incorporated to improve its presentation to the street and to adjacent properties;
- (g) the overall streetscape character of the locality is not adversely impaired (e.g. visual impact, building bulk, front setbacks relative to adjacent development).

**31** In the case of undercroft and below ground car parks where cars are visible from public areas, adequate screening and landscaping should be provided.

### **Parking Area - Screening and Landscaping**

**32** Landscaping should be provided and maintained in order to screen, shade and enhance the appearance of car parking areas. To this end, grade level car parking areas should not be located closer than two metres to the street alignment and 1.2 metres to the common boundary of adjoining property located within a residential zone.

**33** To allow for adequate landscaping and screening, below ground level parking areas should:

- (a) be set-back from property boundaries a distance which is the lesser of the building set-back or:
  - (i) in the case of the primary road frontage, six metres;
  - (ii) in the case of the secondary road frontage, three metres; and
  - (iii) in the case of other boundaries, two metres;
- (b) ensure that the finished ground floor level of the building does not exceed a height of 1.3 metres, when measured from the lowest point of existing natural ground level on the site;
- (c) incorporate earth mounding or raised ground levels in the landscaping areas and/or screening structures adjacent to any opening between ground level and the underside of the building; and

- (d) be designed to comply with Australian Standard 2890.1 (Off Street Parking).

## Waste

### OBJECTIVES

- Objective 1:** Development that, in order of priority, avoids the production of waste, minimises the production of waste, re-uses waste, recycles waste for re-use, treats waste and disposes of waste in an environmentally sound manner.
- Objective 2:** Development that includes the treatment and management of solid and liquid waste to prevent undesired impacts on the environment including, soil, plant and animal biodiversity, human health and the amenity of the locality.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be sited and designed to prevent or minimise the generation of waste (including wastewater) by applying the following waste management hierarchy in the order of priority as shown below:
  - (a) avoiding the production of waste;
  - (b) minimising waste production;
  - (c) reusing waste;
  - (d) recycling waste;
  - (e) recovering part of the waste for re-use;
  - (f) treating waste to reduce the potentially degrading impacts;
  - (g) disposing of waste in an environmentally sound manner.
- 2 The storage, treatment and disposal of waste materials from any development should be achieved without risk to health or impairment of the environment.
- 3 Development should avoid as far as practical, the discharge or deposit of waste (including wastewater) onto land or into any waters (including processes such as seepage, infiltration or carriage by wind, rain, sea spray, stormwater or by the rising of the water table).
- 4 Untreated waste should not be discharged to the environment, and in particular to any water body.
- 5 Development should include appropriately sized area to facilitate the storage of receptacles that will enable the efficient recycling of waste.
- 6 Development that involves the production and/or collection of waste and/or recyclable material should include designated collection and storage area(s) that are:
  - (a) screened and separated from adjoining areas;
  - (b) located to avoid impacting on adjoining sensitive environments or land uses;
  - (c) designed to ensure that wastes do not contaminate stormwater or enter the stormwater collection system;
  - (d) located on an impervious sealed area graded to a collection point in order to minimise the movement of any solids or contamination of water;



- (e) protected from wind and stormwater and sealed to prevent leakage and minimise the emission of odours;
- (f) stored in such a manner that ensures that all waste is contained within the boundaries of the site until disposed of in an appropriate manner.

### **Wastewater**

- 7** The disposal of wastewater to land should only occur where methods of wastewater reduction and reuse are unable to remove the need for its disposal, and where its application to the land is environmentally sustainable.
- 8** Wastewater lagoons should not be sited in any of the following areas:
  - (a) within land subject to a 1-in-100 year average return interval flood event;
  - (b) within 50 metres of the top of the bank of a watercourse;
  - (c) where the base of the lagoon would be below any seasonal water table.
- 9** Artificial wetland systems for the storage of treated wastewater, such as wastewater lagoons, should be:
  - (a) sufficiently separated from adjoining sensitive uses to minimise potential adverse odour impacts
  - (b) sited and designed to minimise potential public health risks arising from the breeding of mosquitoes.

### **Waste Treatment Systems**

- 10** Development that produces any sewage or effluent should be connected to a waste treatment system that complies with (or can comply with) the relevant public and environmental health legislation applying to that type of system.
- 11** The methods for, and siting of, effluent and waste storage, treatment and disposal systems should minimise the potential for environmental harm and adverse impacts on:
  - (a) the quality of surface and groundwater resources;
  - (b) public health;
  - (c) the amenity of a locality;
  - (d) sensitive land uses.
- 12** Waste treatment should only occur where the capacity of the treatment facility is sufficient to accommodate likely maximum daily demands including a contingency for unexpected high flows and breakdowns.
- 13** Any on-site wastewater treatment system/ re-use system or effluent drainage field should be located within the allotment of the development that it will service.
- 14** A dedicated on-site effluent disposal area should not include any areas to be used for, or could be reasonably foreseen to be used for, private outdoor open space, driveways, car parking or outbuildings.
- 15** The spreading or discharging of treated liquid or solid waste onto the ground should only occur where the disposal area consists of soil and vegetation that has the capacity to store and use the waste without contaminating soil or surface or ground water resources or damaging crops.

- 16** Stock slaughter works, poultry processors, saleyards, piggeries, cattle feedlots, milking sheds, milk processing works, fish processing works, wineries, distilleries, tanneries and fellmongeries, composting works, waste or recycling depots and concrete batching works should have a wastewater management system that is designed so as not to discharge wastes generated by the premises:
- (a) into any waters;
  - (b) onto land in a place where it is reasonably likely to enter any waters by processes such as:
    - (i) seepage;
    - (ii) infiltration;
    - (iii) carriage by wind, rain, sea spray, or stormwater;
    - (iv) the rising of the watertable.