

Proposed Redevelopment of the Eastlakes Shopping Centre Site

Review of Traffic & Parking Matters

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on Behalf of Department of Planning

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December, 2010 RevB
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1. Introduction

1.1 Background

Crown International Holdings Group is proposing the redevelopment of the Eastlakes Shopping Centre. The company has requested the Department of Planning to authorise a Concept Plan to be prepared for the site. The request included a Traffic report prepared by Colston Budd Hunt & Kafes (CBHK, 2010).

Gennaoui Consulting has been commissioned to carry out the following tasks including:

1. A written review of the Traffic Study and any relevant Council comments/traffic documents
2. An assessment of the likely performance/ acceptability of the proposed traffic options, and
3. Review recommended improvements or identify alternatives to manage traffic generated by the proposed redevelopment.

1.2 The Proposed Development

The shopping centre is located south of Gardeners Road at Eastlakes. It provides some 11,540 m² GLA and parking for some 460 cars. Access is provided from Gardeners Road at a signalised intersection with Racecourse Place. Access to parking areas is provided from Evans Avenue and Barber Avenue.

It is now proposed to expand the shopping centre to provide 15,000 m² GLA; the proposal also includes the provision of between 200 and 300 residential units.

In order to facilitate access to and from the expanded developments, a number of traffic measures are proposed including a new slip lane from Gardeners Road, the relocation and consolidation of existing access, and a new and an upgraded roundabouts.

1.3 Scope of Report

This report presents a summary of the review including findings in regard to the likely traffic impact of the proposed development, its parking requirements and vehicular access. A number of conditions are recommended to form part of the DG's requirements.

2. Evaluation of Proposed Development

2.1 Basis of Review

The parking and traffic evaluation of the proposed mixed-residential and retail development has been based on a review of the Transport Report prepared by CBHK (2010). This review covered the following areas

- Review Council and PAC submissions
- Parking requirement
- Traffic impact
- Pedestrian & Buses facilities
- Loading facilities

2.2 Review of Available Information

2.2.1 Council Submission

Botany Council, in a letter to the Deputy Director General dated 9 October 2009, has raised an objection to the use of Part 3A to determine the proposal. Council supports the redevelopment of the Shopping Centre with improved traffic arrangements. However, it strongly objects to the provision of residential units unless the proponent acquires the existing residential flat buildings at 1 Racecourse Place. In any circumstance, Council requires the developer to address traffic and amenity issues on the surrounding existing residential developments.

In Council's letter, reference is made to Action 3.2.2 of its Planning Strategy is to Increase residential density potential around the Eastlakes Shopping Centre, integrated with a redevelopment and expansion of the shopping centre. The Strategy provides a number of principles to guide the residential intensification in the Eastlakes Shopping Centre and surrounds. A number of these principles have been addressed by CBH&K (2010) and referred to later on in this report. These include the provision of a direct access from Gardeners Road, the removal of loading access from Barber Avenue and the feasibility of extending Racecourse Place to St Helena Parade.

Councils has advised that a traffic study of the area including Gardeners Road from Southern Cross Drive to west of Botany Road would be carried out and has requested that no decision be made in relation to a mixed development until the study is completed. As it is not known if this study has commenced, it would not be reasonable to defer this application to prepare a Concept Plan.

2.2.2 PAC Review

The PAC agreed that the project meets the threshold for Part 3A Declaration. The Commission whilst supporting the proposal for the redevelopment of the shopping centre does not support a concept plan which includes a residential component.

2.3 Proposed Parking

2.3.1 Parking Provisions

The existing shopping centre includes about 460 spaces. Surveys carried out at the existing shopping centre indices a peak parking demand of 2.8 spaces per 100 m² GLA on Thursday and 3.5 spaces per 100 m² GLA on Saturday.

The parking requirement for the proposed development estimated by CBH&K was based on the requirement of Botany Council's DCP for residential developments, and the RTA Guidelines (2002) for the retail component as noted in **Table 1**. The proposed development would thus necessitate the provision of 1,120 and 1,260 spaces for 200 and 300 units respectively.

Table 1: Parking Requirement

Land use Residential *	Parking rates	200 Apartments		300 Apartments	
		Units	Spaces	Units	Spaces
Small & medium	1 space / unit	160 units	160	240	240
Large	2.0 space/ unit	40 units	80	60	120
Visitors	1.0 space / 5 units	200 units	40	300 units	60
Sub-Total		200 units	280		420
Retail	5.6 spaces/100m ² GLA [#]	15,000 m ² GLA	840	15,000 m ² GLA	840
Total			1,120		1,260

* Council DCP

[#]RTA (2002) For shopping centres developments between 10,000 m² and 20,000 m² GLFA

CBH&K have also applied the existing peak parking demand rate of 3.5 spaces per 100 m² GLA to the expanded retail development resulting in a peak parking demand for retail of 525 spaces. Thus under this scenario, a minimum provision of 805 and 945 spaces for 200 and 300 units respectively would be required.

Whilst CBH&K have not recommended the use of the lower estimated demand, they have suggested that consideration be given to share the retail and residential visitors requirement as their peak demand does not coincide. This approach has merit.

2.3.2 Parking Layout

The existing parking and access arrangements are at best average and mostly mediocre with generally very narrow aisles and spaces making parking manoeuvres difficult and slow.

CBH&K has recommended that the internal circulation and parking layout of the proposed development be in accordance with the Australian Standard for off-street parking (2004). Some of the critical dimensions are noted in **Table 2**.

All recommended dimensions of the parking layout and ramp gradients for the retail parking component are concurred with. However, the minimum space and aisle dimensions for residential spaces recommended by CBH&K are not supported.

Table 2: Parking Requirements with Proposal

Area		CBH&K	Recommended Layout
Retail Spaces			
Aisle Width	Two way	6.6 m	6.6 m
Space dimensions	To wall or high kerb	2.6 m x 5.4 m	2.6 m x 5.4 m
	Obstructions on one side	2.9 m x 5.4 m	2.9 m x 5.4 m
Ramp Gradient		Max 1:5	Max 1:5
Residential Spaces			
Aisle Width	Two way	5.8 m	5.8m
Space dimensions	To wall or high kerb	2.4 m x 5.4 m	2.6 m x 5.4 m
	Obstructions on one side	2.7 m x 5.4 m	2.9 m x 5.4 m
Ramp Gradient		Max 1:5	Max 1:5

Whilst the Standards suggest these dimensions for residential spaces, they do apply in situation when the car spaces are not assigned to specific units and where each driver park in the next available space. Residential car spaces are usually allocated to individual units and therefore it would be more appropriate to provide larger spaces (say 2.6 m) to facilitate the entering and exiting manoeuvre from a space when the two adjacent spaces are occupied. Two percent of spaces should be designated and designed as spaces for the “disabled”.

2.3.3 Access Arrangement to Car Parks

CBH&K have identified a number of problems associated with the existing access arrangements to the car parks including:

- The right turning movement into the southern car park from Evans Avenue results in queues extending into the very close roundabout at Racecourse Place thus affecting its operation
- The offset and restricted car park access arrangements to the centre from the intersection of Barber Avenue and St Helena Parade

In order to improve this situation, CBH&K have suggested the following access arrangements in conjunction with the redevelopment of the site:-

- Vehicular access from the northern side of Evans Avenue could be retained and consolidated into a single two-way access point;
- The existing access on the southern side of Evans Avenue, close to Racecourse Place, should be relocated as a fourth leg onto the roundabout controlled intersection of Evans Avenue and Racecourse Place; the feasibility of extending Racecourse Place to St Helena Parade should be investigated.
- The existing access on the northern side of Barber Avenue, close to St. Helena Parade, should be relocated as a fourth leg onto the intersection of Barber Avenue and St. Helena Parade, and the intersection upgraded to a roundabout.
- Provision of a direct entry point off Gardeners Road via a slip lane to reduce traffic along Racecourse Place and Evans Avenue

It is considered that these proposed access arrangements, which are currently required, would provide much better and safer access into a redeveloped site. Existing traffic volumes accessing the Centre, shown in Figures 2 and 3 of CBH&K report, would be redirected as shown in Figures 4 and 5 of the report. The redirection made by CBH&K of the existing traffic and the assignment of the additional traffic is considered reasonable.

2.4 Traffic Impact of Proposed Development

2.4.1 Trip Generation of Proposed Development

The Shopping Centre currently generates about 700 vehicles per hour two-way on Thursday afternoon, increasing to about 940 vehicles per hour two-way on Saturday morning.

CBH&K have adopted the following RTA (2002) trip generation rates for the residential component of the proposed development:

- 0.40 trip/hour per small & medium size units (1 and 2 bedrooms)
- 0.65 trip/hour per larger units (3 bedroom)

Thus about 105 and 160 trips per hour are expected to be generated by 200 and 300 residential units during the peak hours. The use of the RTA generation rates for residential units is considered appropriate.

Traffic counts undertaken by CBH&K at the existing Centre indicate that it generates about 6.1 and 8.2 vehicles per hour two-way per 100 m² GLA on Thursday afternoon and Saturday midday respectively. CBH&K have adopted these rates to estimate the additional trip generation of the expanded shopping centre. This is considered appropriate as those rates are of the same order of magnitude as the average trip generation rates suggested in the RTA guidelines (2002) for shopping centres developments between 10,000 m² and 20,000 m² GLFA of 7.6 and 7.5 vehicle trips per 100 m² GLFA on Thursday afternoon and Saturday morning respectively.

Thus the additional retail component is likely to generate about 210 and 285 vehicles trips per hour during the Thursday afternoon and Saturday morning peak hours respectively as noted in **Table 3**.

Table 3: Additional Trip Generation

Land use	Generation Rates	200 Apartments		300 Apartments	
		Units	Trips	Units	Trips
Thursday Afternoon					
Residential *					
Small & medium	0.5 trip / unit	160 units	80	240	120
Large	0.65 trip/ unit	40 units	26	60	39
Sub-Total		200 units	106	300 units	159
Retail	6.1 trips/ 100m ² GLA	3,460 m ² GLA	211	3,460 m ² GLA	211
Total			317		370
Saturday Morning					
Residential *					
Small & medium	0.5 trip / unit	160 units	80	240	120
Large	0.65 trip/ unit	40 units	26	60	39
Sub-Total		200 units	106	300 units	159
Retail	8.2 trips / 100m ² GLA	3,460 m ² GLA	284	3,460 m ² GLA	284
Total			390		443

#RTA (2002)

Overall, the proposed redevelopment would generate up to 450 additional vehicles per hour two-way which would occur during the Saturday midday period as a result of the retail expansion plus 300 residential units.

2.4.2 Trip Distribution

The additional trips, including residential trips, were distributed in accordance with the distribution in **Table 4** derived from in-centre customers interviews. The results of this distribution are included in the Figures included as **Appendix A**.

Table 4: Trip Distribution *

Road	Arrival	Departure
Gardeners Road west	20%	20%
Gardeners Road east	30%	30%
Evans Avenue east	10%	10%
Evans Avenue west	25%	25%
St Helena Parade	15%	15%
Total	100%	100%

*Source: CBH&K (2010)

The proposed distribution is considered reasonable for shopping centre traffic as it tend to attract a large proportion of custom from the surrounding residential area.

However, it is considered that a higher proportion of residential trips would most likely use Gardeners Road along Racecourse Place, and to a lesser extent St Helena Parade to the south and Evans Avenue to the west.

2.4.3 Assessment of Traffic Conditions

CBH&K have assessed the operational capacity of four intersections in the vicinity of the site using the SIDRA software which simulates the operations of the intersections to provide a number of performance measures. The results of this analysis are summarised in **Table 5** for existing conditions and with the proposed redevelopment. To be on the conservative side, the analysis of future conditions was based on a 300 units' scenario.

Table 5: Performance of Critical Intersections

Intersections	Control	Existing				With Redevelopment			
		Thursday		Saturday		Thursday		Saturday	
		d secs	LoS	d secs	LoS	d secs	LoS	d secs	LoS
Gardeners Rd with Racecourse Pl	Signals	<25	B	<25	B	<25	B	<25	B
Evans Ave with Racecourse Pl	Roundabout	<15	A/B	<15	A/B	<20	B	<20	B
Barber Ave with Evans Ave	Signs	<15	B	<15	B	<15	B	<15	B
Barber Ave with & St Helena	Signs	<15	B	<15	B	<20	B	<20	B

*Source: CBH&K (2110)

CBH&K concluded that currently all surveyed intersections operate at a good level of service "B" or better, and that at the completion of the proposed redevelopment, all intersections would continue to operate the same levels of service "B" or better.

Therefore, the analysis of the proposed redevelopment of the site with 15,000 m² GLA of retail and a maximum of 300 units indicates that it would have minimum impact on the immediate surrounding streets and intersections. Nevertheless, CBH&K have identified the following traffic issues, confirmed at a site inspection on Wednesday 8 December 2010, associated with the existing development:

- Buses have problems negotiating the roundabout at the junction of Racecourse Place with Evans Avenue.
- Queues were observed on occasions along Racecourse Place extending from Gardeners Road to Evans Avenue affecting the operation of the roundabout. The distance between Gardeners Road and the roundabout is about 80 m. The SIDRA analysis, obtained from CBH&K, indicates that the 95% queue length from Gardeners Road is 78 m on Saturday extending to over 100 m at completion of the proposed redevelopment. Thus the operation of the roundabout would be considerable worsened as a result of the proposed redevelopment of the site.

To address these issues, CBH&K have made the following suggestions:

- Reconstruction of the roundabout at the intersection of Racecourse Place with Evans to cater for buses and larger vehicles.
- Widening of Racecourse Place to provide a third exit lane at Gardeners Road.

The reconstruction of the roundabout is considered appropriate and would facilitate the redirection of all semi trailers accessing the site via Gardeners Road and Racecourse Place as discussed in section 2.3.2.

The widening of Racecourse Place would require property acquisition. Consideration should be given to alternative measures such as the provision of a third exit lane by narrowing the southbound carriageway of Racecourse Place to one traffic lane and the relocation of the bus stop to Evans Avenue, west of the roundabout.

If a third exit lane is not provided, traffic accessing Gardeners Road would most likely redirect to Evans Avenue and Maloney Street. CBH&K have identified that about 25 percent of traffic to and from the centre use Evans Avenue west of Racecourse Place.

It is therefore considered necessary that the traffic impacts of the proposed redevelopment of the Shopping Centre on Evans Avenue, Maloney Street and the intersections of Maloney Street with Evans Avenue and with Gardeners Road be assessed during the preparation of the redevelopment Concept Plan. This would include a Sidra analysis of the existing and future operation of the two intersections.

2.5 Pedestrian and Public Transport

2.5.1 Pedestrians

Heavy pedestrian movement have been observed across Evans Avenue at the pedestrian crossing and at the entry/exit driveways. CBH&K (2010) have suggested in conjunction with the redevelopment of the site, the possible signalisation or grade separation of pedestrian access linking the northern and southern sites. The provision of either treatments or the retention of the existing marked crossing should be investigated during the next stage of this application.

2.5.2 Buses

Modal choice is largely unaffected by car availability but is dependent on the availability of public transport and the ability to walk/cycle to work. In this regard, the site is very well catered for by bus services provided by Sydney Buses as follows; bus stops are available on Evans Avenue west of the site, Racecourse Place and Gardeners Road.

- Routes 301 and 303 link Circular Quay to Sans Souci.
- Route 343 operates along Gardeners Road between Kingsford and the City.
- Route 357 operates along Gardeners Road between Bondi Junction and Sydenham.

No service currently operates in Evans Avenue between Racecourse place and Barber Avenue adjacent to the centre.

2.5.3 Taxis

The existing shopping centre does not have adequate taxi and set down / pick up zones for customers in Evans Avenue. This situation should be addressed irrespective of any redevelopment of the site.

2.6 Loading Facilities & Delivery Vehicles

The existing centre generates some 75 service vehicles per day, including 4 to 5 semi trailers. The main traffic issues associated with the current servicing arrangements include:

- Poorly defined and restricted access arrangements to loading docks off Barber Avenue with deliveries vehicles having to reverse into the Loading Docks from Barber Ave.
- Conflict between service vehicles and basement car park movements at the site access on the southern side of Evan Avenue;
- Conflict between service vehicles and car park movements on the northern side of Evan Avenue.

The applicant proposes to provide either at grade or basement service vehicles facilities. The loading facilities would be required to comply with Australian Standards for commercial vehicles facilities (2002) to ensure that all service vehicles enter and exit the site in a forward direction.

Service vehicles primarily access the centre from Gardeners Road, via Racecourse Place. Large service vehicles including semi trailers currently access the centre to/from Maloney Street, via Evans Avenue, Longworth Avenue and Barber Avenue (CBH&K, 2010). This route is used to access the loading docks in Barber Avenue and to avoid travelling along Evans Avenue east of Racecourse Place. This route is through a residential area along generally narrow roads with slowing devices and cycleway.

Access to the loading docks on the southern site should therefore be restricted to Racecourse Place via the proposed fourth arm of the roundabout at Evans Avenue. Loading docks should be located to facilitate this measure.

3. Summary and Recommendations

3.1 Summary

Crown International Holdings Group is proposing the redevelopment of the Eastlakes Shopping Centre. The company has requested the Department of Planning to authorise a Concept Plan to be prepared for the site. The shopping centre, located south of Gardeners Road at Eastlakes, provides some 11,540 m² GLA and parking for some 460 cars. It is now proposed to redevelop the site to provide 15,000 m² GLA together with 200 to 300 residential units.

The proposed development would necessitate the provision of between 945 and 1,260 spaces for 15,000 m² GLA of retail and 300 residential units.

The Shopping Centre currently generates about 700 vehicles per hour two-way on Thursday afternoon, increasing to about 940 vehicles per hour two-way on Saturday morning. Overall, the proposed redevelopment would generate up to 450 additional vehicles per hour two-way which would occur during the Saturday midday period as a result of the retail expansion plus 300 residential units.

3.2 Recommendation for Concept Plan

The analysis of the proposed redevelopment of the site with 15,000 m² GLA of retail and a maximum of 300 units indicates that it would have minimum impact on the immediate surrounding streets and intersections. Nevertheless, a number of issues associated with the existing development have been identified. If approval for the preparation of a Concept Plan is granted, then serious consideration should be given to incorporate the following or similar measures to address these issues.

3.2.1 Parking

- Provision of residential parking in accordance with Botany Council's DCP.
- Provision of parking for the shopping centre in accordance with the RTA Guidelines (2002).
- Consideration could be given to share the retail and residential visitor requirement as their peak demand does not coincide.
- Parking layout for the shopping centre to be in accordance with Class 3A of the Australian Standard 2890.1 for Off street parking.
- Parking layout for the residential component to be in accordance with Class 3 of the Australian Standard 2890.1 for Off street parking.
- Two percent of spaces should be designated and designed as spaces for the "disabled".

3.2.2 Access Arrangement to Car Parks

- Provision of a direct entry point off Gardeners Road via a slip lane to reduce traffic along Racecourse Place and Evans Avenue
- Consolidate the vehicular access from the northern side of Evans Avenue into a single two-way access point.
- The existing access on the southern side of Evans Avenue, close to Racecourse Place, should be relocated as a fourth leg onto the roundabout controlled intersection of Evans Avenue and Racecourse Place.
- The existing access on the northern side of Barber Avenue should be relocated as a fourth leg onto the intersection of Barber Avenue and St. Helena Parade, and the intersection upgraded to a roundabout.

3.2.3 Traffic Measures

- Reconstruction of the roundabout at the intersection of Racecourse Place with Evans to cater for buses and larger vehicles together with the provision of a fourth leg onto the roundabout from the site.
- To minimise the impact of the northbound queue along Racecourse Place onto the roundabout at Evans Avenue, appropriate measures should be investigated including:
 - < The widening of Racecourse Place to provide a third exit lane at Gardeners Road or
 - < the narrowing of the southbound carriageway of Racecourse Place to one traffic lane and the relocation of the bus stop to Evans Avenue, west of the roundabout
- Assessment of the traffic impacts of the proposed redevelopment of the shopping centre on Evans Avenue, Maloney Street and the intersections of Maloney Street with Evans Avenue and with Gardeners Road. This would include a Sidra analysis of the existing and future operation of the two intersections.
- Investigate the feasibility of extending Racecourse Place to St Helena Parade.

3.2.4 Pedestrian Facilities

- Investigate the possible signalisation or grade separation of pedestrian access linking the northern and southern sites, or the retention of the existing marked crossing in Evans Avenue.

3.2.5 Taxis

- Provision of adequate taxi and set down / pick up zones for customers in Evans Avenue.

3.2.6 Loading Facilities

- Loading facilities should be designed to comply with Australian Standards for commercial vehicles facilities and to ensure that all service vehicles enter and exit the site in a forward direction.
- Access to the loading docks on the southern side should be restricted to Racecourse Place via the proposed fourth arm of the roundabout at Evans Avenue. Loading docks should be located to facilitate this measure.

4. References

Colston Budd Hunt & Kafes Pty Ltd (2010). *“Appropriate Traffic and Parking Measures For the Proposed Redevelopment of Eastlakes Shopping Centre.”* Crown International Holdings Group. May

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