

'BURWOOD GRAND'
PROPOSED MIXED USE DEVELOPMENT
BELMORE STREET, CONDER STREET &
WYNNE AVENUE, BURWOOD
S4.55 Application
Assessment of Traffic and
Parking Implications

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(Rev C)

Reference 16239

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1. INTRODUCTION

This report has been prepared to accompany a S4.55 Application to Burwood Council for modifications to the previously approved “Burwood Grand” mixed use complex at Burwood (Figure 1).

The existing consent for development on the site provides for the following outcome:

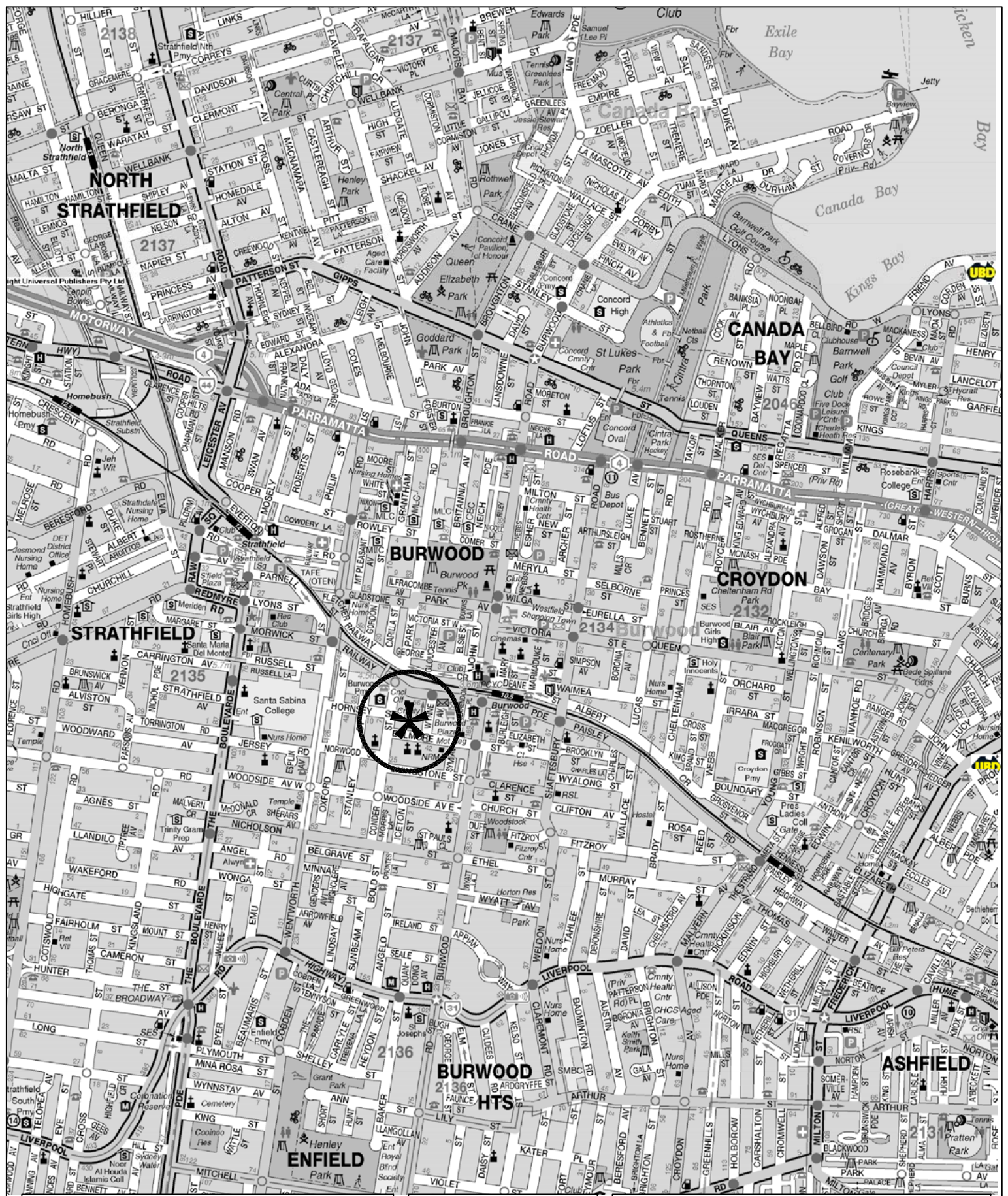
Residential	490 apartments
Retail	1,810m ²
Commercial	4,036m ²
Parking	688 spaces

This S4.55 Application proposes to provide 8 additional apartments as follows:

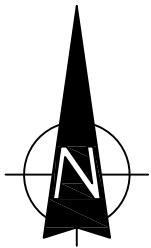
	Building A	Building B	Building C	Total
Residential apartments	88	226	184	498
GFA Retail floor space	272m ²	555m ²	983m ²	1,810m²
Commercial floor space (Council Offices)	4,036m ²	-	-	4,036m²
Parking spaces				688 spaces

The purpose of this report is to:

- * describe the approved development and the proposed S4.55 scheme
- * describe the road network serving the site and the prevailing traffic conditions
- * assess the adequacy of the proposed parking provision
- * assess the potential traffic implications
- * assess the suitability of the proposed vehicle access, internal circulation and servicing arrangements



LEGEND



LOCATION

FIG 1

2. PROPOSED DEVELOPMENT SCHEME

2.1 SITE, CONTEXT AND APPROVED DEVELOPMENT

The site (Figure 2) a consolidation of lots which occupies an area of some 10,149m² located in the south-western part of the Burwood Town Centre. The rectangular shaped allotment has frontages to Belmore Street, Wynne Avenue and Conder Street being adjoined to the north by a multi-level commercial office building and the adjacent historic Council building.

The Burwood Plaza Retail Centre and adjacent Site C are located on the eastern side of Wynne Avenue while the Railway Station and the core retail area is situated just to the north along Burwood Road.

The site comprised:

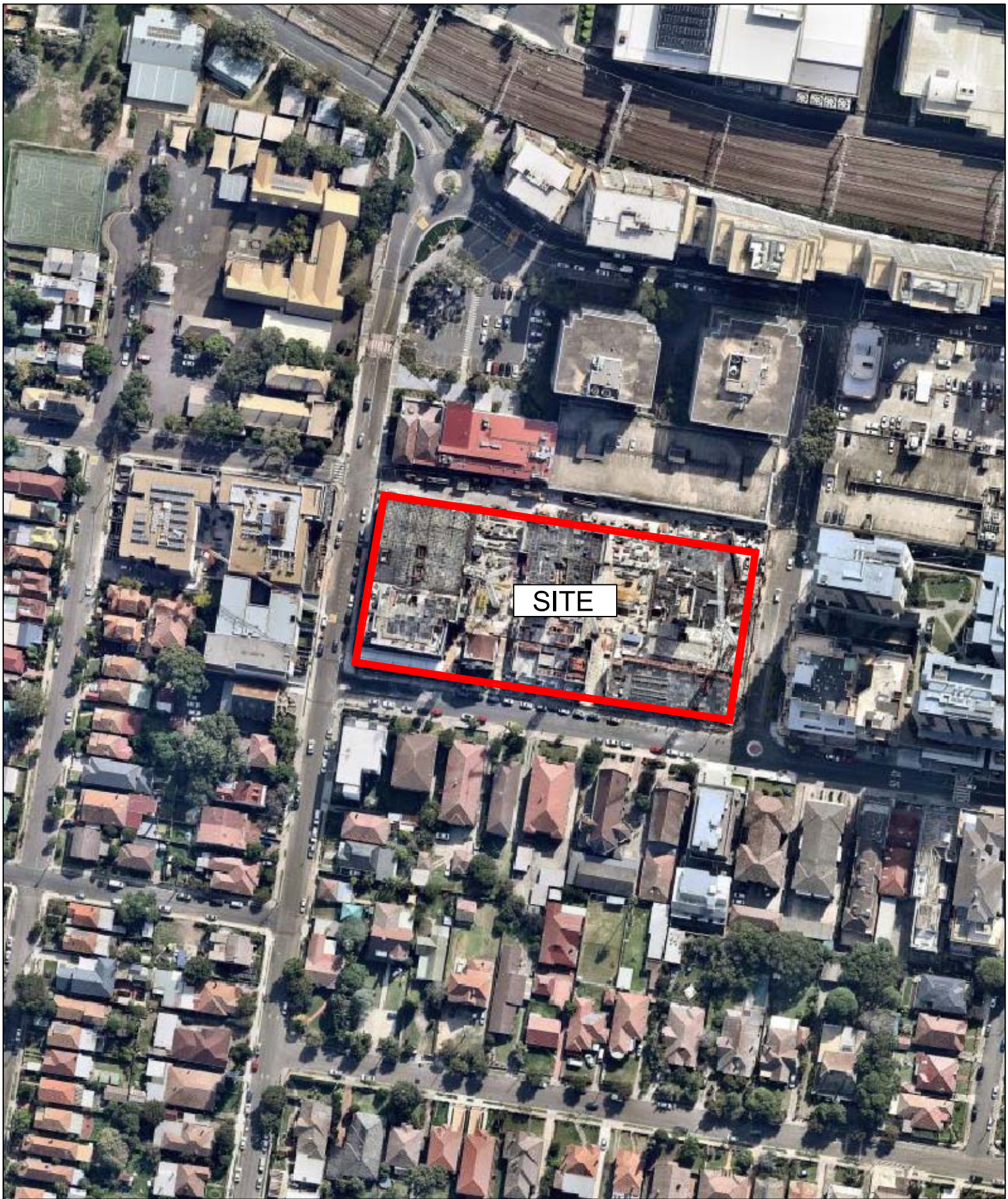
- * a Masonic Hall building
- * residential flat buildings
- * open parking areas

The buildings have been demolished, the site excavated and the construction works substantially commenced.

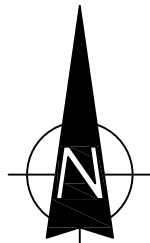
2.2 APPROVED DEVELOPMENT

The approved development comprises:

	Building A	Building B	Building C	Total
Studio Apartments	-	1	-	1
One bed apartments	20	17	28	65
Two bed apartments	66	184	156	406
Three bed apartments	-	16	-	16
Total:	88 apts	218 apts	184 apts	490 apts
Retail floor space	272m ²	555m ²	983m ²	1,810m ²
Commercial floor space	4,036m ²	-	-	4,036m ²



LEGEND



SITE

FIG 2

A total of 688 parking spaces were approved to be provided in the basement levels as follows:

- | | |
|---------------------|------------------------------|
| * 36 retail spaces | * 499 resident spaces |
| * 55 Council spaces | * 98 resident visitor spaces |

**Total 91 spaces accessed on
Wynne Avenue**

**Total 597 spaces accessed on
Conder Street**

A loading dock capable of accommodating garbage trucks and vans etc will be provided on Basement Level 1.

2.3 PROPOSED S4.55 SCHEME

The S4.55 scheme proposes to add 2 levels to Building B to provide 8 additional apartments as follows:

	Building A Serviced	Building B Residential	Building C Residential	Total
Studio Apartments	-	1	-	1
One bed apartments	17	17	28	62
Two bed apartments	71	186	156	413
Three bed apartments	-	22	-	22
Total:	88 apts	222 apts	184 apts	498 apts
Retail floor space	272m ²	226m ²	983m ²	1,810m ²
Commercial floor space	4,036m ²	-	-	4,036m ²

It is not proposed to provide any additional parking or alter the vehicle access and internal circulation or servicing arrangements.

Architectural details of the proposed S4.55 scheme are provided on the plans prepared by the KannFinch Architects which accompany the S4.55 Application.

3. ROAD NETWORK AND TRAFFIC CONDITIONS

3.1 ROAD NETWORK

The roads network which serves the site (Figure 3) comprises:

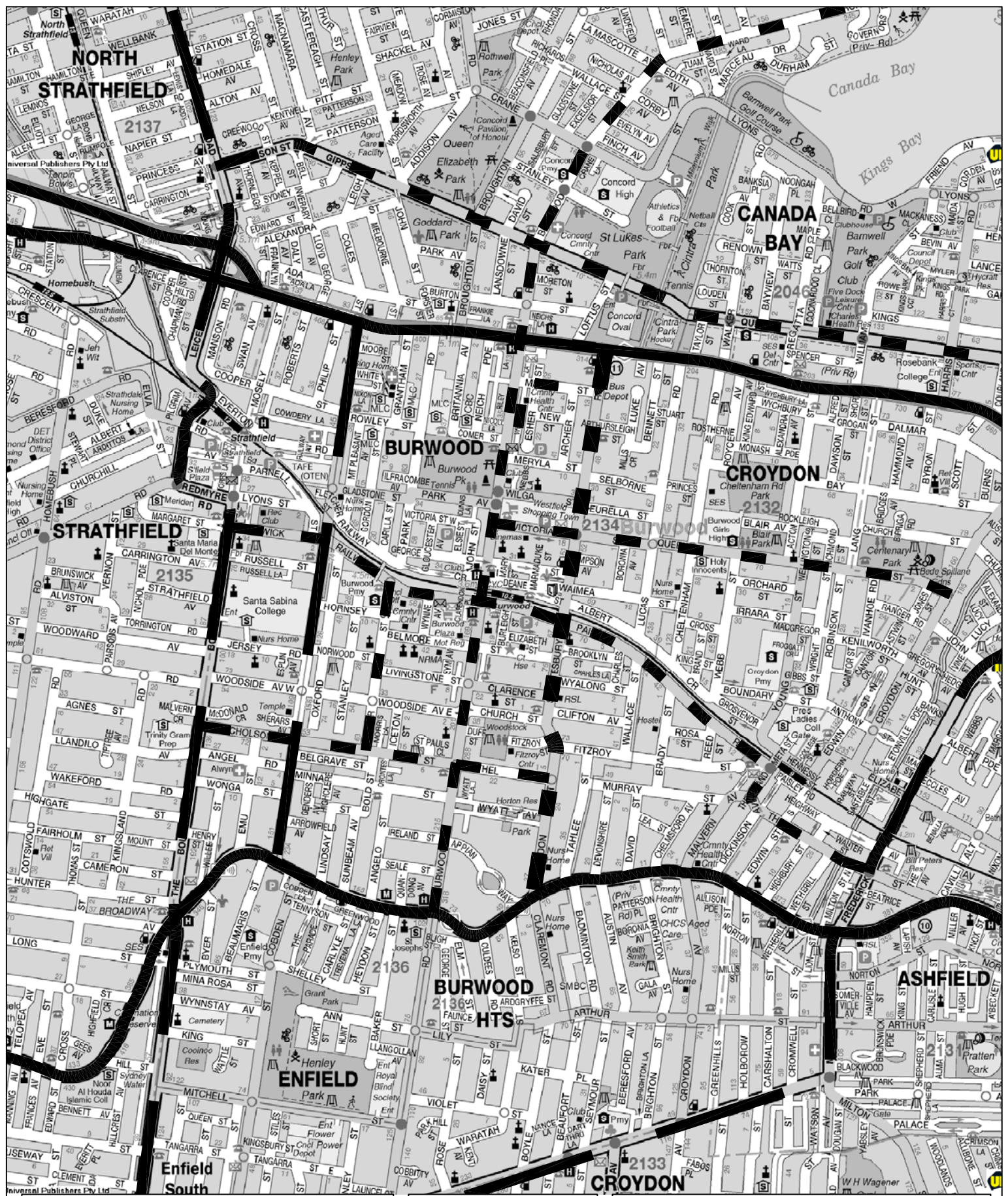
- * *Liverpool Road and Parramatta Road* – the State Highway and arterial routes
- * *Georges River Road and Coronation Parade – The Boulevard* the State Road and sub-arterial routes
- * *Railway Parade* – the Regional Road and collector route
- * *Burwood Road, Shaftsbury Road, Railway Parade and Wentworth Road* – the major collector routes

Belmore Street is part of a minor collector route connecting across Burwood Road and has a roadway some 11 metres wide being relatively straight and level in the vicinity of the site. Wynne Avenue connects between Railway Parade and Belmore Street and is some 12m wide except for the narrower southern section which is 10m wide while Conder Street is some 11 metres wide. The eastern section of Hornsey Street (east of Conder Street) will be closed to form part of the pedestrian corridor.

3.2 TRAFFIC CONTROLS

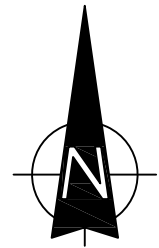
The traffic controls which have been applied to the road system in the vicinity of the site (Figure 4) comprise:

- * the mini roundabout at the Belmore Street and Wynne Avenue intersection
- * the traffic signals on Burwood Road at the Belmore Street and Railway Parade intersections
- * the traffic signals at the Railway Parade and Wynne Avenue intersection



LEGEND

- ARTERIAL
- SUB-ARTERIAL
- COLLECTOR






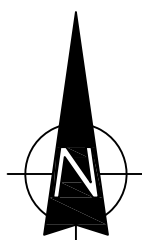
ROAD NETWORK

FIG 3



LEGEND

-  TRAFFIC SIGNAL CONTROL
-  ROUNDABOUT
-  RESTRICTED TURNING MOVEMENT



TRAFFIC CONTROLS

FIG 4

- * the one-way westerly traffic flows on Railway Crescent and Deane Street
- * the roundabouts on Conder Street at the Railway Parade and Woodside Avenue intersections
- * the right-turn prohibitions at the Burwood Road / Railway Parade intersection
- * the marked foot crossings on Wynne Avenue and Conder Street between Railway Parade and Belmore Street

3.3 TRAFFIC CONDITIONS

An indication of traffic conditions in the vicinity of the precinct is provided by data published by RMS and surveys undertaken as part of a previous study.

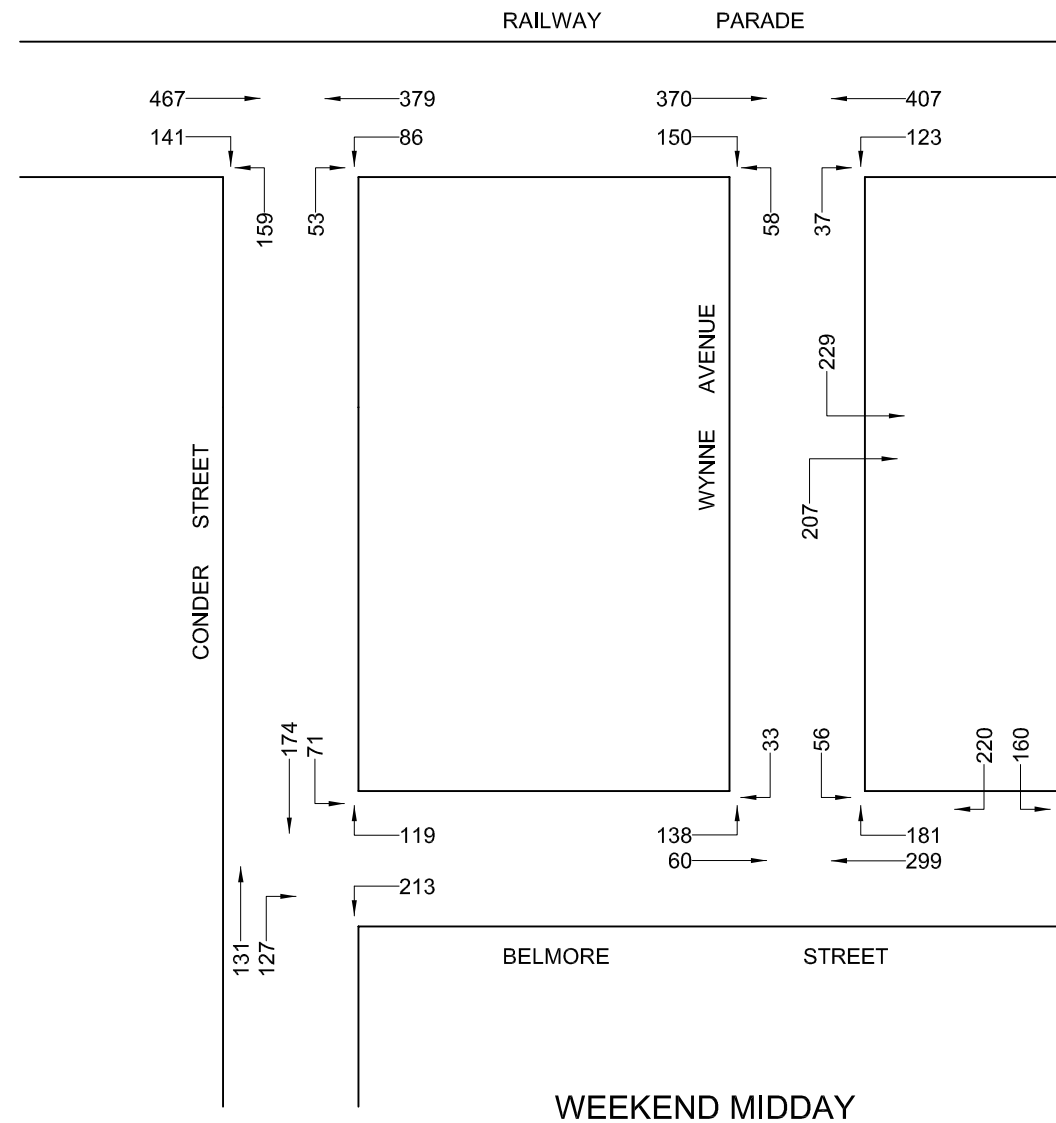
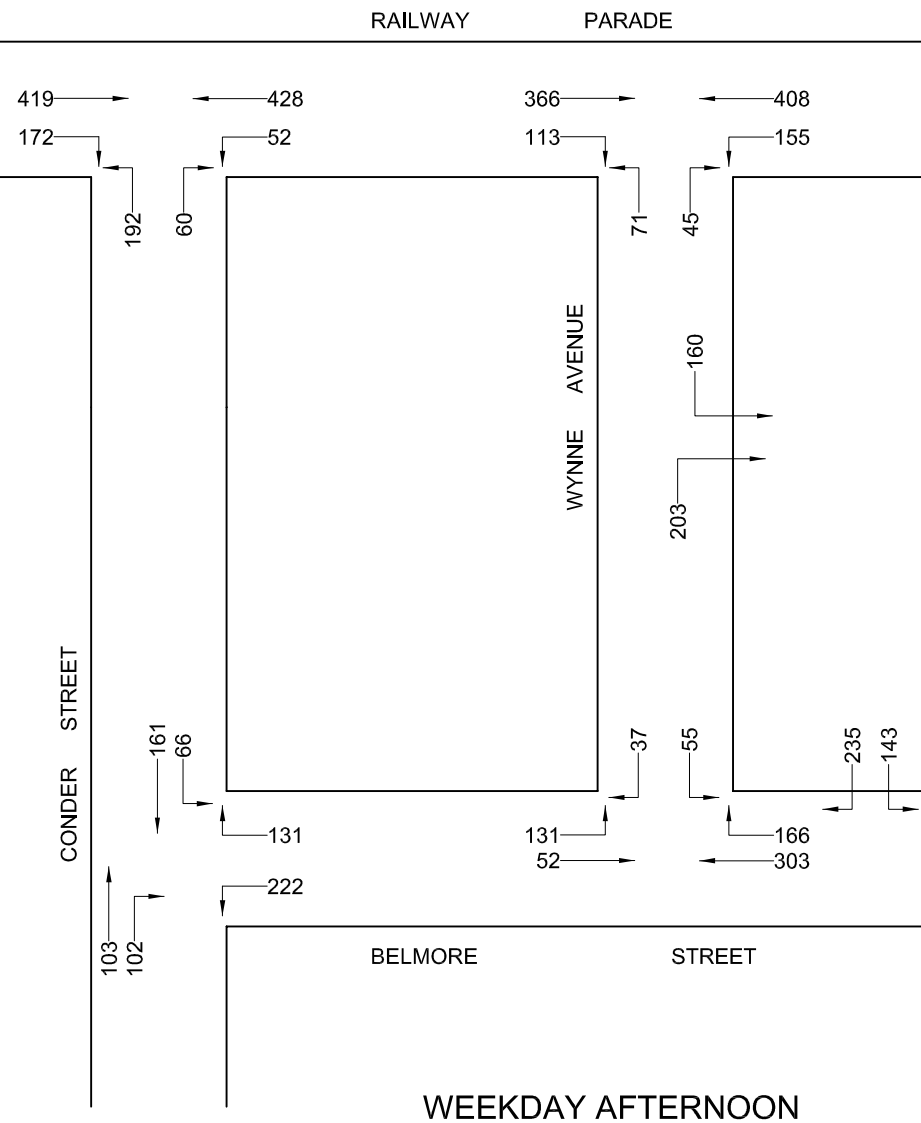
The data published by RMS is expressed in terms of Annual Average Daily Traffic (AADT) and details are provided in the following:

	AADT
Railway Parade at Burwood Road	13,749
Burwood Road at Railway Parade	16,812
Wentworth Road at Railway Parade	8,961
Railway Parade at Wentworth Road	16,359

Details of the intersection traffic movement volumes during the weekday afternoon and Saturday midday peak periods in the area are provided in Figure 5.

The operational performance of relevant intersections during the morning and afternoon peak periods was assessed using the SIDRA program in a study¹ undertaken for Council. The results are provided in the following and the criteria for interpreting the modelling results is reproduced in part overleaf.

¹ *Burwood Town Centre Development
Assessment of Road Network and Traffic Implications*



LEGEND



EXISTING PEAK TRAFFIC FLOWS

FIG 5

	WD PM			WE MD		
	LOS	DS	AVD	LOS	DS	AVD
Burwood Road/Belmore Street (signals)	B	0.67	25	B	0.63	27
Railway Parade/Wynne Avenue (signals)	B	0.82	22	A	0.33	11
Belmore Street/Wynne Avenue (roundabout)	A	0.06	3.7	A	0.10	4.1

The operational performance of the road system is dominated by the arterial traffic flows on Parramatta Road however conditions the precinct is relatively satisfactory apart from some delays and congestion that occur along Burwood Road particularly at peak retail trading times.

3.4 TRANSPORT SERVICES

The Burwood Centre is very well served by public transport services comprising:

- * the high frequency rail services accessed at Burwood Railway Station located within a short walk of the site
- * the numerous State Transit bus services which run along Burwood Road and other routes to/from or through the centre

Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good	Good
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
'C'	Satisfactory	Satisfactory but accident study required
'D'	Operating near capacity	Near capacity and Accident Study required
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below, which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals**¹ both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

¹ the values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs

4. PARKING

Whilst the approved car parking provision had regard for Council's DCP and agreement with Council (i.e. in relation to parking for the commercial floorspace), the latest consent merely perpetuated the original development assessment. The advent of the Department of Planning's "Apartment Design Guide" presents a new basis for assessing parking requirements for high density residential apartments located in close proximity to a railway station. In the RMS Development Guideline study for "high density residential apartments", Burwood was classified as a Sub Regional Centre and the ADG (RMS Sub Regional) parking criteria is as follows:

Minimum Parking Provision

One Bed	- 0.6 spaces
Two Bed	- 0.9 spaces
Three Bed	- 1.4 spaces
Visitors	- 1 space per 5 apartments

Application of this criteria to the S4.55 scheme apartments would indicate the following:

63 x Studio/One Bed	- 38 spaces
413 x Two Bed	- 372 spaces
22 x Three Bed	- 31 spaces
Visitors (498)	- 100 spaces
Total	- 541 spaces

The existing consent is for 597 spaces for residents and visitors and it is apparent that this provision is consistent with the "minimum" parking provision specified in the ADG (RMS Sub Regional) criteria. The provision for residential visitors at 1 space per 5 apartments is relatively high for a location with excellent/convenient public transport services as well as access to public parking stations. Also, the quantum of visitor spaces becomes "out of proportion" (skewed) where there is a large number of residential apartments and 100 spaces for some 500 apartments is considered to be

excessive as the greater the number of spaces, the greater flexibility there is to accommodate demand fluctuations.

If the provision of parking spaces for residents is maintained at the DCP rate, the following would apply:

63 x Studio/One Bed @ 1 space	- 63 spaces
413 x Two Bed	- 413 spaces
22 x Three Bed	- 33 spaces
Total	- 509 spaces

This would leave 88 spaces for residential visitors equating to 1 space per 5.66 apartments and it is apparent that this would be quite an appropriate outcome. Thus the now proposed parking provision is as follows:

Residents	- 509 spaces
Visitors	- 88 spaces
Retail	- 36 spaces
Commercial	- 55 spaces

The approved provision for bicycle parking spaces is very generous and it is considered that the S4.55 scheme for only 8 additional apartments does not create a need for more bicycle spaces.

5. ACCESS, INTERNAL CIRCULATION AND SERVICING

The approved arrangements for vehicle access, internal circulation and servicing will remain unchanged with the proposed S4.55 scheme.

6. TRAFFIC

It is proposed to provide 8 additional apartments and while the number of resident parking spaces will not change, this could be seen to result in an increased traffic generation. The RMS Development Guidelines specify a peak traffic generation criteria for these high density apartments of:

AM	- 0.19 vtpd per apartment
PM	- 0.15 vtpd per apartment

Thus, the assessed additional traffic generation is as follows:

AM	- 1.52 vtpd
PM	- 1.2 vtpd

The assessed traffic generation of the approved development was:

AM	- 210 vtpd
PM	- 240 vtpd

It is apparent that the proposed S4.55 scheme will only generate a totally imperceptible quantum of additional traffic movements that will not have adverse traffic impacts.

7. CONCLUSION

The proposed S4.55 modifications to the approved “Burwood Grand” mixed development with residential apartments, commercial office and retail elements have been assessed and this assessment has concluded that:

- * the development will not present any adverse traffic implications
- * the proposed parking provision will be quite appropriate and adequate for the uses
- * the vehicle access, internal circulation and servicing arrangements will continue to be quite suitable and satisfactory