

**PLANNING PROPOSAL TO PERMIT
ADDITIONAL RESIDENTIAL DEVELOPMENT**

86 – 88 CENTENARY DRIVE, STRATHFIELD

***Assessment of Traffic and
Parking Implications***

December 2017
(Rev E)

Reference 17233 (A)

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1. INTRODUCTION

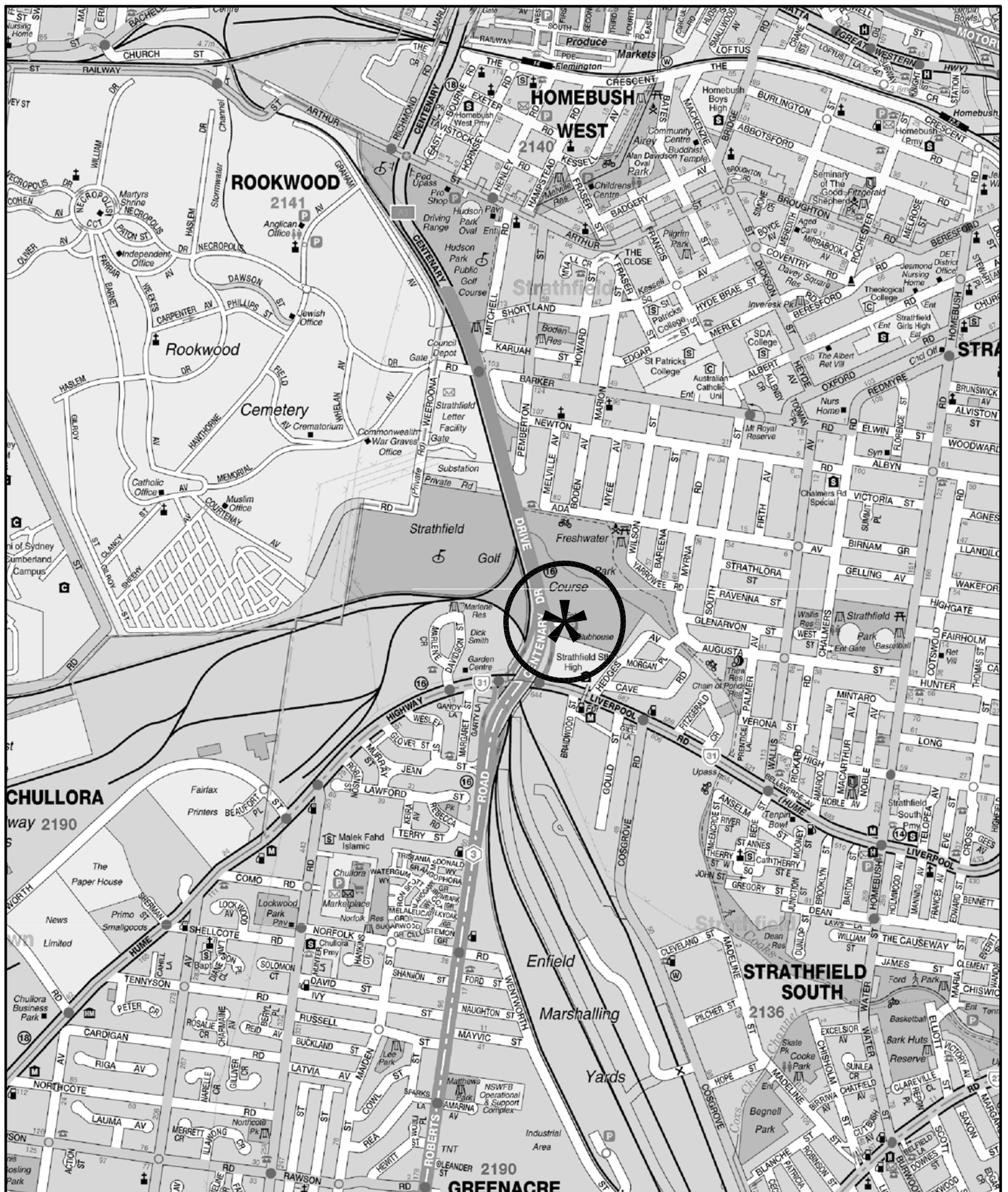
This report has been prepared to accompany a Planning Proposal to the Strathfield Council for modification of the planning controls to permit increased residential development on a site which was formerly part of the Strathfield Golf Club site on Centenary Drive at Strathfield (Figure 1).

Many precincts throughout the Sydney Metropolitan Area, are experiencing ongoing redevelopment as part of the urban consolidation process. The subject site was superfluous to the needs of the Golf Club and its subdivision and sale provided much needed funds for the club to upgrade its facilities. Consent was initially granted for a rezoning of the site to Medium Density Residential on the central and eastern part and B4 Mixed Use on the western part. Subsequently consent was granted to a Development Application which comprised 178 residential apartments and 50 townhouses and those townhouses are currently being constructed.

The decision to relocate the Golf Clubhouse and not proceed with the development of other uses (i.e. non residential) as foreshadowed in the Planning Proposal and permitted in the B4 zoning has promoted the desire to increase the number of proposed residential apartments. The Planning Proposal seeks to:

- * Increase the FSR applicable to the site to 1.82:1
- * Increase the permitted building heights to 36.6m for Tower A and 64m for Tower B

These proposed changes would enable the number of residential apartments to increase to 297.



LEGEND



LOCATION

FIG 1

The purpose of this report is to:

- * describe the site, the previous approvals and the envisaged development outcome with the new Planning Proposal
- * describe the road network and traffic conditions on the road system serving the site
- * assess the suitability of the vehicle access and the potential traffic implications
- * assess the suitability of the envisaged parking, internal circulation and servicing implications

2. PROPOSED DEVELOPMENT SCHEME

2.1 SITE, CONTEXT AND EXISTING CIRCUMSTANCES

The total development site (Figure 2) is Lot 300 in DP1208910 and Lot 3012 in DP1233238 being a large irregular shaped area of some 2.16ha with frontage to the eastern side of Centenary Drive. The site is bound to the south by Strathfield South High School and to the north by the golf course and the surrounding uses include:

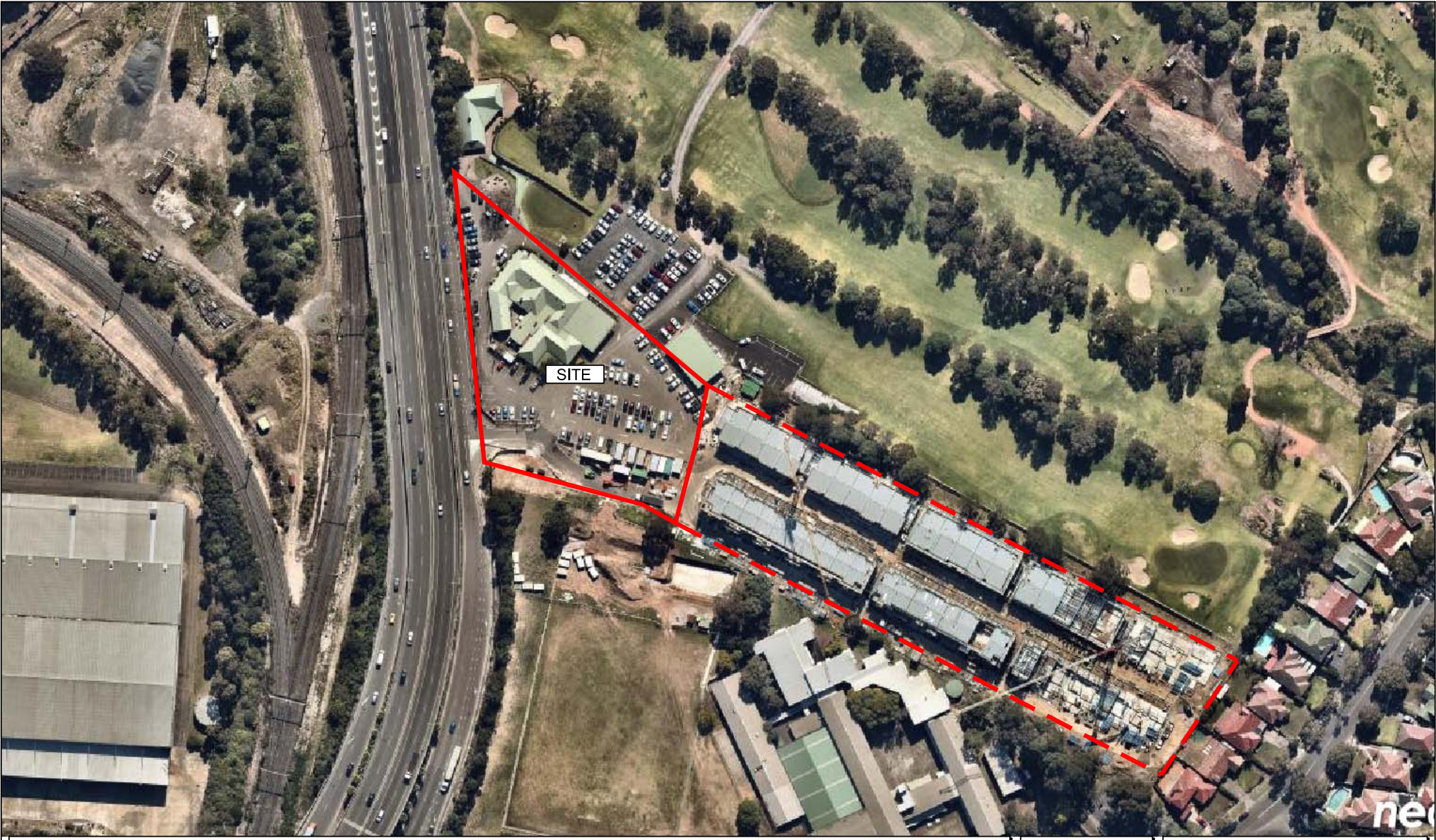
- * the residential development extending to the north and east
- * the industrial area and Enfield Marshalling Yards to the south
- * the mixed residential, industrial and commercial uses extending along the highway
- * Rookwood Cemetery which extends to the west

The current uses on the site comprise the Golf Clubhouse and car park located on the western part (which is the subject of the Planning Proposal) and the townhouses under construction on the central and eastern part. Vehicle access is provided by a left turn IN/OUT connection to the Off Ramp from Centenary Drive to Hume Highway.

2.2 REZONING AND APPROVED DEVELOPMENT

The 2013 Planning Proposal and approved rezoning involved the following envisaged outcome:

- * A Medium Density Residential Zone on the central and eastern part of the site providing for some 100 dwellings
- * An R4 Mixed Use Zone on the western part retaining the Golf Clubhouse as well as providing for some 8,100m² for potential function centre and motel uses or a wide range of other permitted uses
- * Vehicle accesses on Centenary Drive and Hedges Avenue (with the latter available for the eastern residential part only) and a new internal access road running along the southern boundary



LEGEND



SITE

FIG 2

Subsequent to the rezoning approval an application was submitted for subdivision of the site from the Golf Course landholding however a Condition to the subdivision approval denies any development access to Hedges Avenue.

In 2015 a Development Application was approved which comprised:

- 178 residential apartments on the western part of the site
- 50 townhouses on the central and eastern part of the site
- Vehicle access restricted to the existing Centenary Drive connection

The traffic assessment which accompanied the Development Application provided the following traffic generation projection for the proposed development:

	AM Peak	PM Peak
Townhouses	15 vtpH	21 vtpH
Apartments	50 vtpH	73 vtpH
Total	65 vtpH	94 vtpH

2.3 PLANNING PROPOSAL

The Planning Proposal seeks to amend the planning controls to permit an FSR of 1.82:1 and building heights of 36.6m for Tower A and 64m for Tower B.

The envisaged development, subject to the Planning Proposal, is to provide for some 297 apartments (as well as the 50 approved townhouses) comprising:

	South Tower	North Tower
One Bed Apartments	37	54
Two Bed Apartments	73	103
Three Bed Apartments	13	17
Total:	123 apartments	174 apartments
Retail	333m ²	-
Food and Beverage	-	116m ²

The Clubhouse will be relocated to another part of the Golf Course landholding with its own separate vehicle access while the development will utilise the existing access on Centenary Drive. A total of some 410 parking spaces are envisaged in 3 basement levels with access connecting to the new internal road running along the southern site boundary.

Details of the envisaged development consequential to the Planning Proposal are provided on the plans prepared by Woods Bagot Architects which are reproduced in part in Appendix A.

3. ROAD NETWORK AND TRAFFIC CONDITIONS

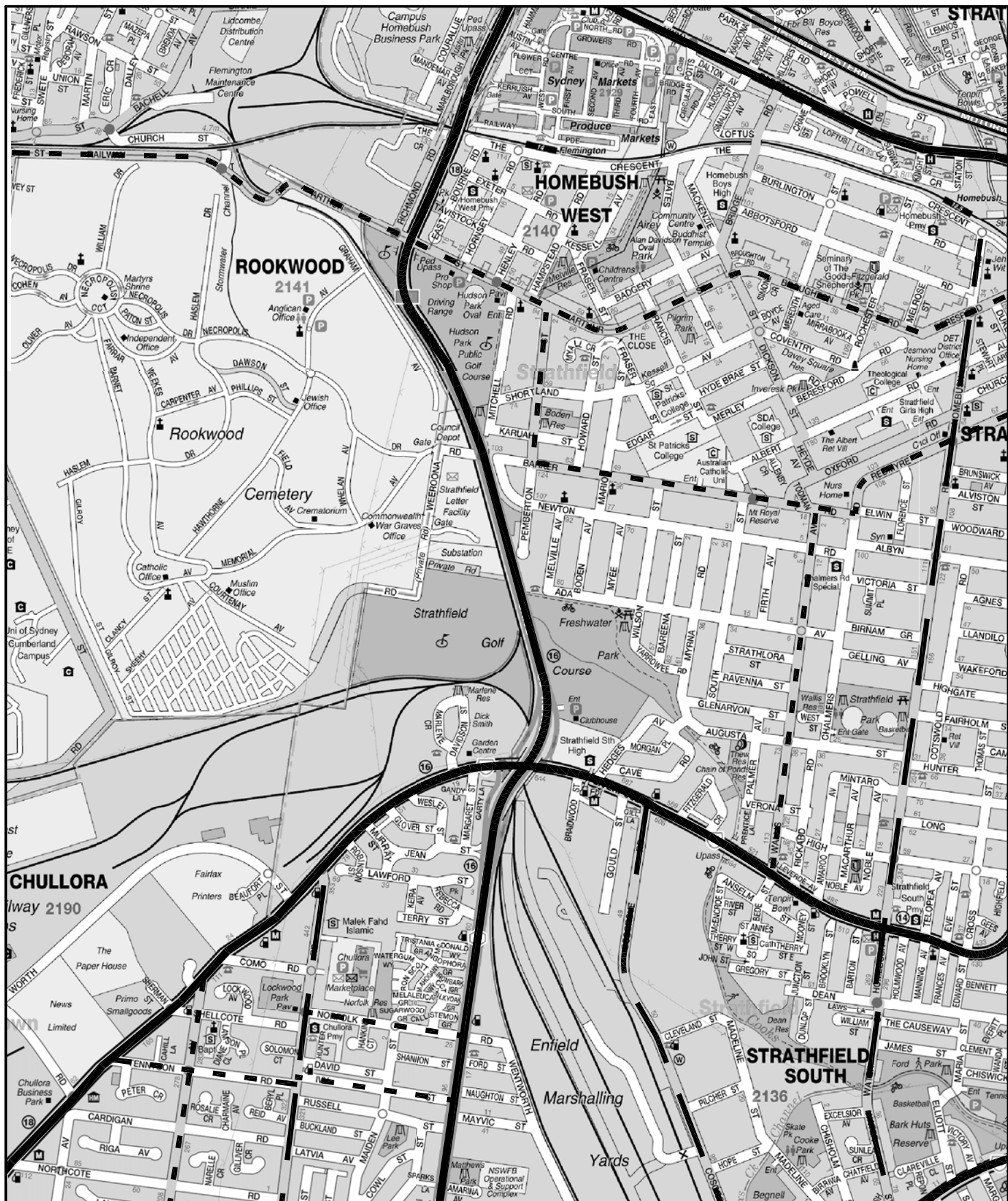
3.1 ROAD NETWORK

The road network serving the site (Figure 3) comprises:




- * *A3 Homebush Bay Drive / Centenary Drive / Roberts Road etc.* – a State Road and north-south arterial route connecting across the Metropolitan Area between Pymble and Blakehurst
- * *A22 Liverpool Road (Hume Highway)* – a State Road and east-west arterial route connecting between the City and Liverpool
- * *Cosgrove Road* – a Regional Road and major collector road route connecting between Punchbowl Road and Hume Highway
- * *Homebush Road* – a Regional Road and collector road connecting between Lidcombe Road and Strathfield
- * *Arthur Street* – a Regional Road and collector road route connecting between Lidcombe Road and Strathfield
- * *Pemberton Street, Barker Road and Wallis Avenue* – minor collector roads running through the area to the north of the site
- * *Hedges Avenue and Augusta Street* – local access roads to the east of the site

Centenary Avenue in the vicinity of the site comprises:

- * 2 through lanes in each direction travelling to/from the Hume Highway over pass
- * Separate ON and OFF ramps with the OFF ramp along the site frontage comprising:



LEGEND

-  ARTERIAL
-  SUB-ARTERIAL
-  COLLECTOR



ROAD NETWORK

FIG 3



- Left turn deceleration lane for site access
- 1 south bound lane with a bike lane developing into 3 lanes to the south (1 left turn and 2 right turn at the highway intersection) see details overleaf

3.2 TRAFFIC CONTROLS

The traffic controls on the road network in the area (Figure 4) include:

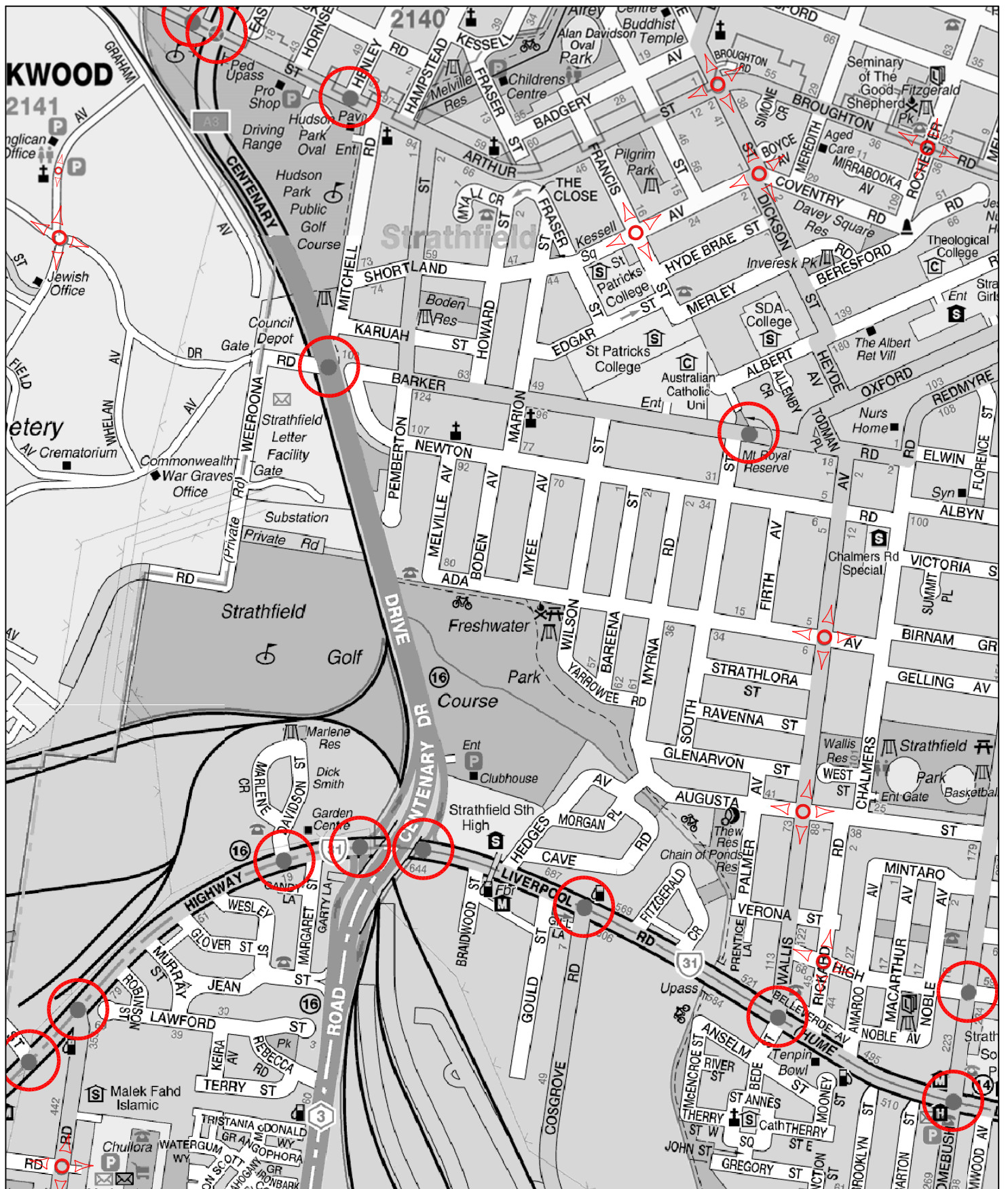
- * the traffic signals at the Hume Highway and the Centenary Drive ON & OFF ramp intersections
- * the other traffic signals along the highway including the Cosgrove Road and Wallis Avenue intersections
- * the traffic signals along Centenary Road including the Rockwood Centenary access and Arthur Street intersections
- * the roundabouts along Wallis Avenue at the Ada Avenue and Augusta Street intersections
- * the 70 kmph speed limit on Centenary Drive south bound traffic movement

There is a pedestrian bridge over the Hume Highway on the western side of the Hedges Avenue intersection with adjacent bus stops.




3.3 TRAFFIC CONDITIONS

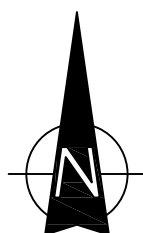
An indication of the traffic conditions on the road network in the area is provided by the RMS published AADT data and other relevant traffic data. The recorded data is as follows:

	AADT
Hume Highway East of Centenary Drive	53,000 approx.
Homebush Bay Drive North of Parramatta Road	95.000 approx.



LEGEND

-  TRAFFIC SIGNAL CONTROL
-  ROUNDABOUT
-  RESTRICTED TURNING MOVEMENT



TRAFFIC CONTROLS

FIG 4

Centenary Drive OFF Ramp:

	AM PEAK	PM PEAK
LT to Hume Highway	560	481
RT to Hume Highway	712	798
U turn	3	19
Total	1275 vph	1298 vph

Vehicle speeds along the OFF Ramp are constrained in the morning and afternoon peak periods and queues extend back from the Hume Highway intersection generally for some 120 to 150 m while the Golf Course access is located some 190m north of the intersection. Surveys of the egress movement from the Golf Course access reveal average delays in the peak period of only some 20 seconds with maximum delays less than 60 seconds. As is the case with most busy arterial roads drivers are able to echelon into the through flows in low speed circumstances with some reliance on the courtesy of the main stream drivers.

3.4 TRANSPORT SERVICES

There are high frequency local and regional bus services operating along the Hume Highway immediately south of the Site (with bus stops located just to the east of the Centenary Drive off-ramp). Buses operate the following routes along the Hume Highway:

- Route M90 between Liverpool and Burwood;
- Route 913 between Bankstown and Strathfield; and
- Route 914 between Greenacre and Strathfield

Route M90 provides 10 minute services in both directions during peak commuter periods with service frequencies reducing to 15-20 minutes during other periods and the service provides key connections to rail services at Liverpool, Bankstown, Strathfield and Burwood. The local routes operate at a lower frequency on weekdays, but also provide key connections to rail interchanges.



Parramatta, Bankstown and Liverpool bus network map



NORTH



Diagrammatic Map
Not to Scale

Proudly operated by
Transdev NSW



Parramatta Inset



Fairfield Inset



Bankstown Inset



Liverpool Inset



* The line on the map shows the routes of buses departing Liverpool. For buses arriving in Liverpool, please refer to individual timetables.

Key

- Bus route
- Occasional journey
- Bus terminus
- Train line/station

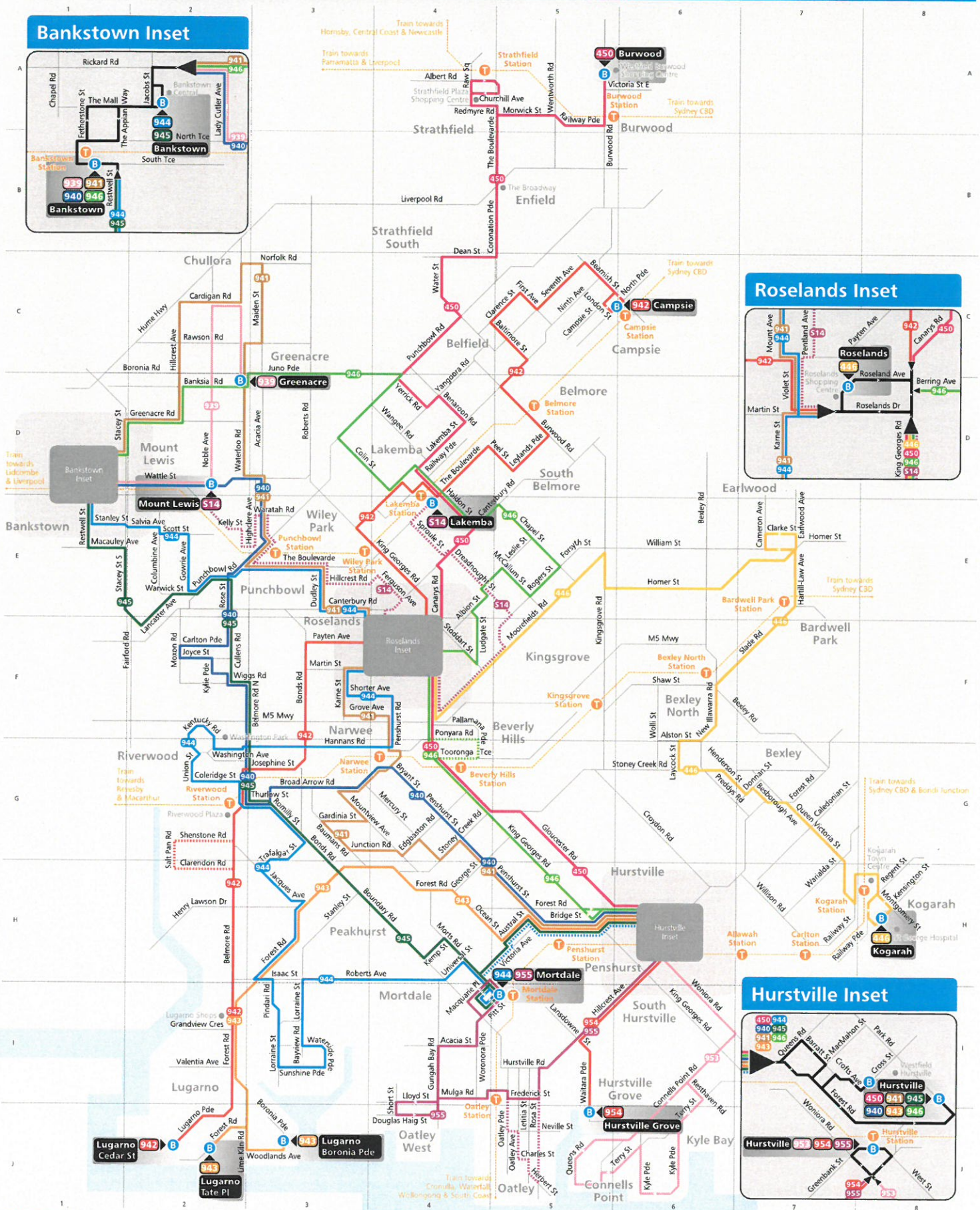
Effective from 20 November 2016

It's easy to plan your trip

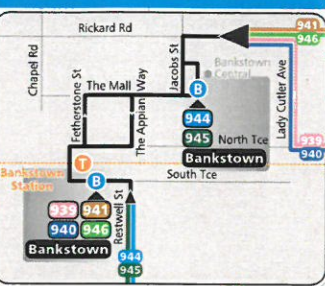
On the web
transportnsw.info



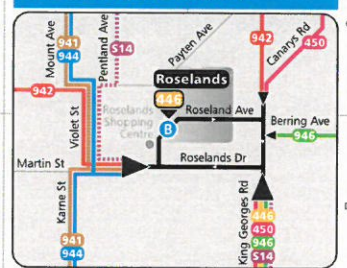
Questions and feedback
Phone 131 500
NRS 133 677



Bankstown Inset



Roselands Inset



Hurstville Inset



Key

- Bus route
- Occasional journey
- Bus route number
- Bus terminus
- Train line/station

It's easy to plan your trip



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Questions and feedback
Phone 131 500
NRS 133 677

3.5 PEDESTRIANS AND CYCLISTS

The Bay to Bay shared path route runs through Freshwater Park immediately to the north of the site connecting to the Regional cycle and pedestrian network. The existing footway along the OFF Ramp (together with the pedestrian bridge over the Highway) provides convenient access between the site and the bus stops on the highway.

4. TRAFFIC

The traffic assessment undertaken for the 2013 Rezoning and Planning Proposal envisaged a traffic outcome generated by some 100 dwellings, the Golf Club and Mixed Use development of some 8100 m². A detailed assessment of this potential development outcome was provided in the subsequent traffic assessment¹ for the approved Development Application as follows:

	AM PEAK	PM PEAK
Residential	30	30
Golf Club	50	60
Mixed Use	40	40
Total	120 vtp	130 vtp

That assessment also identified a projected traffic generation for the proposed residential development as follows:

	AM PEAK	PM PEAK
50 Townhouses	15	21
178 Apartments	50	73
Total	65 vph	94 vph

This assessment adopted the RMS published data² for high density development at Liberty Grove of 0.28 vtp and 0.41 vtp per apartment for the AM and PM peaks respectively. However, the RMS data shown on the extract overleaf is flawed for a number of sites.

¹ Proposed Residential Development
Centenary Drive Strathfield
Traffic Impact Assessment
ARC Traffic + Transport
August 2015 (supp. Jan 2016)

² High Density Residential Trip Generation
Survey Data Analysis Report
GHD September 2012

The aggregated RMS data specifies a traffic generation of 0.19 vtpd per apartment in the AM and 0.15 vtpd in the PM whilst the 3 sites shown overleaf have results which vary markedly from the “norm” and the reasons for this are:

- The Liberty Grove site has an error in the analysis. The peak traffic generation is designated as the traffic generation which occurs during the 1 hour peak traffic movement on the adjacent road system. The data provided in the study for the adjacent road (which is supported by the data for the adjacent Homebush Bay Drive) shows that the PM peak is clearly 5.0-6.0pm. Yet the selected PM peak on Table 32 is 6.0-7.0pm while the recorded traffic generation for 5.0-6.0pm is 12vt which for the 64 apartments equates to a generation of 0.19 vtpd per apartment.
- The Rockdale and Parramatta sites have retail/commercial elements with related on-site parking which were not taken into account

The earlier former RTA study for High Density Residential included sites which were remote from a railway station (e.g. 2 sites at Sans Souci) and the criteria of 0.29 vtpd per apartment is considered to be appropriate to the Strathfield circumstance and this also equates to the recorded Liberty Grove generation for the period 5.30-6.30pm. Application of that criteria to the Planning Proposal for 297 apartments indicates the following projected total traffic generation outcome.

	AM PEAK	PM PEAK
Townhouses	15	21
Apartments	86	86
Total	101 vpd	107 vpd

Thus, the traffic generation outcome with the Planning Proposal will be somewhat less than that assessed for the rezoning scheme (AM & PM) and somewhat more than that (in the AM and slightly more in the PM) of the approved development.

It is apparent that the traffic outcome for the envisaged development under the new Planning Proposal will be similar to (if slightly better than) that for development under the previous approvals.

Table 4 - Summary of Surveyed Trip Generation Rates

Site No.	Sydney Metropolitan Area							
	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 10
Location	St Leonards	Chatswood	Cronulla	Rockdale	Parramatta	Liberty Grove	Strathfield	Pymont
Weekday								
AM Peak Person Trips per Unit	0.64	0.64	0.32	0.81	0.95	0.72	0.52	0.69
AM Peak Person Trips per Car Space	0.39	0.51	0.22	0.47	0.50	0.62	0.43	0.30
AM Peak Person Trips per Bedroom	0.29	0.30	0.13	0.39	0.45	0.29	0.26	0.46
PM Peak Person Trips per Unit	0.54	0.82	0.14	0.53	0.65	0.91	0.42	0.46
PM Peak Person Trips per Car Space	0.54	0.82	0.14	0.53	0.65	0.91	0.42	0.46
PM Peak Person Trips per Bedroom	0.24	0.39	0.06	0.26	0.31	0.37	0.21	0.30
Daily Person Trips per Unit	3.49	5.35	2.96	5.36	5.01	6.50	4.16	3.05
Daily Person Trips per Car Space	2.52	3.35	4.61	4.83	3.85	4.47	4.30	2.01
Daily Person Trips per Bedroom	1.56	2.51	1.19	2.61	2.39	2.67	2.08	2.01
AM Peak Vehicle Trips per Unit	0.14	0.14	0.07	0.32	0.27	0.28	0.10	0.18
AM Peak Vehicle Trips per Car Space	0.10	0.09	0.11	0.29	0.20	0.19	0.10	0.12
AM Peak Vehicle Trips per Bedroom	0.06	0.07	0.03	0.16	0.13	0.12	0.05	0.12
PM Peak Vehicle Trips per Unit	0.07	0.12	0.11	0.18	0.12	0.41	0.06	0.10
PM Peak Vehicle Trips per Car Space	0.05	0.07	0.17	0.17	0.09	0.28	0.07	0.07
PM Peak Vehicle Trips per Bedroom	0.03	0.05	0.04	0.09	0.06	0.17	0.03	0.07
Daily Vehicle Trips per Unit	0.77	1.23	0.93	2.25	1.67	3.14	1.16	1.03
Daily Vehicle Trips per Car Space	0.56	0.77	1.44	2.03	1.29	2.16	1.20	0.68
Daily Vehicle Trips per Bedroom	0.35	0.58	0.37	1.10	0.80	1.29	0.58	0.68
Saturday								
Peak Hour Person Trips per Unit	3.10	1.02	0.82	0.77	0.84	1.00	1.00	0.79
Peak Hour Person Trips per Car Space	2.24	0.64	1.28	0.70	0.65	0.69	1.03	0.52
Peak Hour Person Trips per Bedroom	0.68	0.33	0.33	0.32	0.40	0.38	0.44	0.32
Daily Person Trips per Unit	10.20	6.12	4.14	5.44	5.87	6.67	7.52	4.86
Daily Person Trips per Car Space	7.36	3.83	6.44	4.89	4.51	4.59	7.77	3.20
Daily Person Trips per Bedroom	4.58	2.87	1.66	2.65	2.80	2.74	3.76	3.20
Peak Hour Vehicle Trips per Unit	0.31	0.21	0.18	0.23	0.22	0.31	0.32	0.19
Peak Hour Vehicle Trips per Car Space	0.23	0.13	0.28	0.21	0.17	0.22	0.33	0.13
Peak Hour Vehicle Trips per Bedroom	0.14	0.10	0.07	0.11	0.10	0.13	0.16	0.13
Daily Vehicle Trips per Unit	1.89	1.41	0.61	1.68	1.39	2.02	1.65	1.11
Daily Vehicle Trips per Car Space	1.36	0.88	0.94	1.52	1.06	1.39	1.70	0.73
Daily Vehicle Trips per Bedroom	0.85	0.66	0.24	0.82	0.66	0.83	0.82	0.73

RMS Av. including
to questionable sites

0.19

0.15

3.1.6 Site 6: 10 Wentworth Drive, Liberty Grove

Table 32 - Site 6 Survey Results (Weekday Hourly)

	Non-Commercial Vehicles			Occupants			Commercial Vehicles			Occupants			Total Vehicles			Total Person (include pedestrians)			Visitors Cars Outside
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	
6:00 - 7:00	1	15	16	1	19	20	0	0	0	0	0	0	1	15	16	2	27	29	0
6:15 - 7:15	1	14	15	1	18	19	0	0	0	0	0	0	1	14	15	2	27	29	0
6:30 - 7:30	1	24	25	1	31	32	0	0	0	0	0	0	1	24	25	2	41	43	0
6:45 - 7:45	2	35	37	2	42	44	0	0	0	0	0	0	2	35	37	3	56	59	0
7:00 - 8:00	1	37	38	1	47	48	0	0	0	0	0	0	1	37	38	2	64	66	0
7:15 - 8:15	2	35	37	2	47	49	0	0	0	0	0	0	2	35	37	2	66	68	0
7:30 - 8:30	7	28	35	7	36	43	0	0	0	0	0	0	7	28	35	7	66	73	0
7:45 - 8:45	6	18	24	6	24	30	0	0	0	0	0	0	6	18	24	6	49	55	0
8:00 - 9:00	6	12	18	6	14	20	0	0	0	0	0	0	6	12	18	6	40	46	0
8:15 - 9:15	5	14	19	5	15	20	0	0	0	0	0	0	5	14	19	7	47	54	0
8:30 - 9:30	0	12	12	0	16	16	0	0	0	0	0	0	0	12	12	2	38	40	0
8:45 - 9:45	4	11	15	5	15	20	0	0	0	0	0	0	4	11	15	7	34	41	0
9:00 - 10:00	5	10	15	6	14	20	0	0	0	0	0	0	5	10	15	10	28	38	0
9:15 - 10:15	6	8	14	7	12	19	0	0	0	0	0	0	6	8	14	9	16	25	0
9:30 - 10:30	9	6	15	13	7	20	0	0	0	0	0	0	9	6	15	17	12	29	0
9:45 - 10:45	5	4	9	8	5	13	0	0	0	0	0	0	5	4	9	15	9	24	0
10:00 - 11:00	6	3	9	10	4	14	0	0	0	0	0	0	6	3	9	15	8	23	0
10:15 - 11:15	7	2	9	11	12	23	0	0	0	0	0	0	7	2	9	17	23	40	0
10:30 - 11:30	4	2	6	5	12	17	0	0	0	0	0	0	4	2	6	9	20	29	0
10:45 - 11:45	6	3	9	7	13	20	0	0	0	0	0	0	6	3	9	8	24	32	0
11:00 - 12:00	6	5	11	7	16	23	0	0	0	0	0	0	6	5	11	13	26	39	0
11:15 - 12:15	4	4	8	5	5	10	0	0	0	0	0	0	4	4	8	13	9	22	0
11:30 - 12:30	5	4	9	6	5	11	0	0	0	0	0	0	5	4	9	15	10	25	0
11:45 - 12:45	4	4	8	5	5	10	0	0	0	0	0	0	4	4	8	17	7	24	0
12:00 - 13:00	5	4	9	7	4	11	0	0	0	0	0	0	5	4	9	15	6	21	0
12:15 - 13:15	5	3	8	7	3	10	0	0	0	0	0	0	5	3	8	12	7	19	0
12:30 - 13:30	4	6	10	6	5	11	0	0	0	0	0	0	4	6	10	10	8	18	0
12:45 - 13:45	5	7	12	8	6	14	0	0	0	0	0	0	5	7	12	9	9	18	0
13:00 - 14:00	2	5	7	3	4	7	0	0	0	0	0	0	2	5	7	3	7	10	0
13:15 - 14:15	4	5	9	7	4	11	0	0	0	0	0	0	4	5	9	7	4	11	0
13:30 - 14:30	5	3	8	9	4	13	0	0	0	0	0	0	5	3	8	10	4	14	0
13:45 - 14:45	4	1	5	7	2	9	0	0	0	0	0	0	4	1	5	8	2	10	0
14:00 - 15:00	5	3	8	9	4	13	0	0	0	0	0	0	5	3	8	10	4	14	0
14:15 - 15:15	6	6	12	9	9	18	0	0	0	0	0	0	6	6	12	14	9	23	0
14:30 - 15:30	6	6	12	8	8	16	0	0	0	0	0	0	6	6	12	13	11	24	0
14:45 - 15:45	8	9	17	12	12	24	0	0	0	0	0	0	8	9	17	22	16	38	0
15:00 - 16:00	11	7	18	17	10	27	0	0	0	0	0	0	11	7	18	34	15	49	0
15:15 - 16:15	8	4	12	13	5	18	0	0	0	0	0	0	8	4	12	32	13	45	0
15:30 - 16:30	9	5	14	15	9	24	0	0	0	0	0	0	9	5	14	35	22	57	0
15:45 - 16:45	10	4	14	15	9	24	0	0	0	0	0	0	10	4	14	35	22	57	0
16:00 - 17:00	9	5	14	14	10	24	0	0	0	0	0	0	9	5	14	29	23	52	0
16:15 - 17:15	10	7	17	15	13	28	0	0	0	0	0	0	10	7	17	33	31	64	0
16:30 - 17:30	11	8	19	17	15	32	0	0	0	0	0	0	11	8	19	46	27	73	0
16:45 - 17:45	7	7	14	12	12	24	0	0	0	0	0	0	7	7	14	41	24	65	0
17:00 - 18:00	5	7	12	7	13	20	0	0	0	0	0	0	5	7	12	34	26	60	0
17:15 - 18:15	9	6	15	13	12	25	0	0	0	0	0	0	9	6	15	36	20	56	0
17:30 - 18:30	14	5	19	17	9	26	0	0	0	0	0	0	14	5	19	33	17	50	0
17:45 - 18:45	16	7	23	20	14	34	0	0	0	0	0	0	16	7	23	33	24	57	0
18:00 - 19:00	18	8	26	23	14	37	0	0	0	0	0	0	18	8	26	36	22	58	0
Peak	18	37	38	23	47	49	0	0	0	0	0	0	18	37	38	46	66	73	0

Peak 1-hour period for car trips/person trips

Morning Peak Hour on Adjacent Road

Evening Peak Hour on Adjacent Road

HOURLY TRAFFIC VOLUMES

Station No. 29.001.N

HOMEBUSH BAY DR,MR200

CONCORD WEST-S OF MR200,CONCORD RD

HOUR comm.	MON 12/08	TUE 13/08	WED 14/08	THU 15/08	FRI 16/08	SAT 17/08	SUN 18/08	WEEKDAYS			WEEKEND (+HOLIDAYS)			WHOLE WEEK		
								TOTAL	MEAN	%	TOTAL	MEAN	%	TOTAL	MEAN	%
0	160	143	159	160	187	326	398	809	162	0.46	724	362	1.43	1533	219	0.67
1	90	84	87	95	111	212	246	467	93	0.26	458	229	0.90	925	132	0.40
2	96	79	94	113	112	127	170	494	99	0.28	297	149	0.58	791	113	0.35
3	98	105	95	118	125	121	162	541	108	0.30	283	142	0.56	824	118	0.36
4	212	215	226	239	207	164	121	1099	220	0.62	285	143	0.56	1384	198	0.61
5	753	688	773	772	765	443	195	3751	750	2.11	638	319	1.26	4389	627	1.92
6	2481	2552	2451	2499	2554	1292	418	12537	2507	7.06	1710	855	3.37	14247	2035	6.24
7	3450	3289	3333	3358	3322	1253	482	16752	3350	9.43	1735	868	3.42	18487	2641	8.09
8	3200	3166	3185	3467	3311	1524	697	16329	3266	9.19	2221	1111	4.37	18550	2650	8.12
9	1980	2447	2851	2329	2259	1747	1074	11866	2373	6.68	2821	1411	5.55	14687	2098	6.43
10	2456	1855	1953	1777	1961	1829	1352	10002	2000	5.63	3181	1591	6.26	13183	1883	5.77
11	1533	1685	1739	1743	1888	2016	1596	8588	1718	4.83	3612	1806	7.11	12200	1743	5.34
12	1669	1589	1680	1702	1846	2076	1831	8486	1697	4.78	3907	1954	7.69	12393	1770	5.43
13	1655	1652	1737	1857	2005	2038	1787	8906	1781	5.01	3825	1913	7.53	12731	1819	5.57
14	1710	1887	1867	1925	2134	1939	1769	9523	1905	5.36	3708	1854	7.30	13231	1890	5.79
15	1960	2145	2257	2140	2255	1885	1871	10757	2151	6.06	3756	1878	7.40	14513	2073	6.35
16	2246	2390	2386	2368	2384	1861	2166	11774	2355	6.63	4027	2014	7.93	15801	2257	6.92
17	2805	2855	2987	2956	2863	2034	1884	14466	2893	8.14	3918	1959	7.71	18384	2626	8.05
18	2166	2135	2287	2260	2265	1485	1366	11113	2223	6.26	2851	1426	5.61	13964	1995	6.11
19	1140	1281	1272	1254	1498	1048	946	6445	1289	3.63	1994	997	3.93	8439	1206	3.69
20	702	801	751	850	904	671	798	4008	802	2.26	1469	735	2.89	5477	782	2.40
21	619	721	750	850	1098	612	721	4038	808	2.27	1333	667	2.62	5371	767	2.35
22	498	553	632	609	825	600	538	3117	623	1.75	1138	569	2.24	4255	608	1.86
23	293	309	304	358	500	542	356	1764	353	0.99	898	449	1.77	2662	380	1.17
DAY																
TOT	33972	34626	35856	35799	37379	27845	22944	177632	35526	100.00	50789	25395	100.00	228421	32632	100.00
MAX	3450	3289	3333	3467	3322	2076	2166	AWT =	35526		AWE =	25395		ADT =	32632	

HOURLY TRAFFIC VOLUMES for Week commencing MON 12/08/02

Station No. 29.001.S

HOMEBUSH BAY DR,MR200

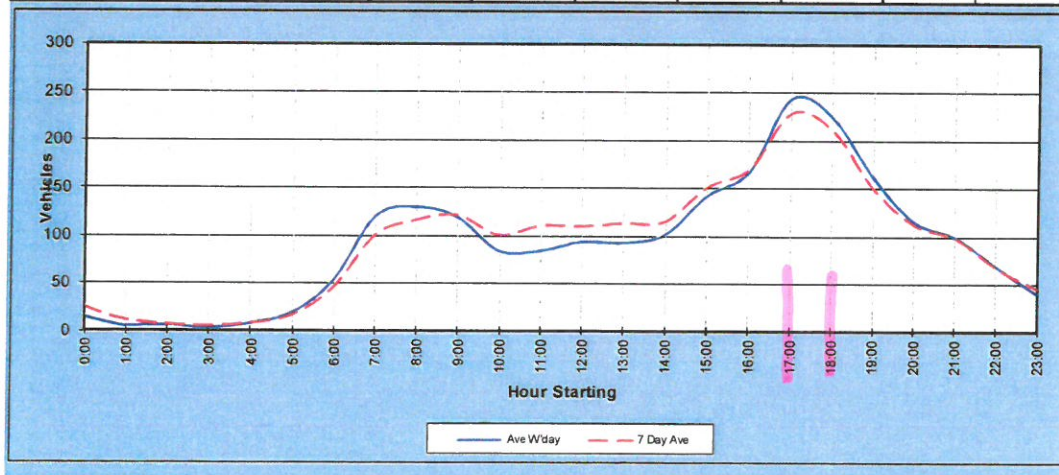
CONCORD WEST-S OF MR200,CONCORD RD

HOUR comm.	MON 12/08	TUE 13/08	WED 14/08	THU 15/08	FRI 16/08	SAT 17/08	SUN 18/08	WEEKDAYS			WEEKEND (+HOLIDAYS)			WHOLE WEEK		
								TOTAL	MEAN	%	TOTAL	MEAN	%	TOTAL	MEAN	%
0	210	265	319	286	368	479	501	1448	290	0.80	980	490	1.82	2428	347	1.04
1	169	139	158	175	195	267	370	836	167	0.46	637	319	1.18	1473	210	0.63
2	159	102	138	165	166	253	226	730	146	0.41	479	240	0.89	1209	173	0.52
3	146	148	172	158	212	211	196	836	167	0.46	407	204	0.75	1243	178	0.53
4	267	204	265	220	308	209	141	1264	253	0.70	350	175	0.65	1614	231	0.69
5	567	509	547	558	592	419	172	2773	555	1.54	591	296	1.10	3364	481	1.44
6	1398	1451	1400	1397	1413	854	356	7059	1412	3.92	1210	605	2.24	8269	1181	3.53
7	2669	2675	2664	2613	2610	1225	680	13231	2646	7.35	1905	953	3.53	15136	2162	6.47
8	2802	2835	2903	2756	2750	1716	1020	14046	2809	7.80	2736	1368	5.07	16782	2397	7.17
9	2088	2259	2173	2094	2240	1995	1440	10854	2171	6.03	3435	1718	6.36	14289	2041	6.11
10	1612	1777	1901	1876	2078	2211	1853	9244	1849	5.14	4064	2032	7.53	13308	1901	5.69
11	1619	1691	1720	1892	1998	2315	2137	8920	1784	4.96	4452	2226	8.25	13372	1910	5.72
12	1698	1813	1835	1814	2135	2244	2082	9295	1859	5.16	4326	2163	8.02	13621	1946	5.82
13	1824	1928	1932	1983	2144	2280	1824	9811	1962	5.45	4104	2052	7.60	13915	1988	5.95
14	1963	2061	2117	2055	2434	2059	1685	10630	2126	5.91	3744	1872	6.94	14374	2053	6.14
15	2588	2758	2703	2834	2852	1970	1708	13735	2747	7.63	3678	1839	6.82	17413	2488	7.44
16	2739	2848	2875	2906	2931	1774	1536	14299	2860	7.94	3310	1655	6.13	17609	2516	7.53
17	2812	2935	2921	2974	3010	1899	1756	14652	2930	8.14	3655	1828	6.77	18307	2615	7.82
18	2529	2584	2766	2546	2792	1544	1268	13217	2643	7.34	2812	1406	5.21	16029	2290	6.85
19	1379	1446	1501	1458	1798	999	949	7582	1516	4.21	1948	974	3.61	9530	1361	4.07
20	951	953	1090	1122	953	670	771	5069	1014	2.82	1441	721	2.67	6510	930	2.78
21	828	892	914	1023	746	624	737	4403	881	2.45	1361	681	2.52	5764	823	2.46
22	628	710	723	793	773	722	577	3627	725	2.02	1299	650	2.41	4926	704	2.11
23	400	429	454	490	666	695	349	2439	488	1.36	1044	522	1.93	3483	498	1.49
DAY																
TOT	34045	35412	36191	36188	38164	29634	24334	180000	36000	100.00	53968	26984	100.00	233968	33424	100.00
MAX	2812	2935	2921	2974	3010	2315	2137	AWT =	36000		AWE =	26984		ADT =	33424	

3.2.6 Site 5: 10 Wentworth Drive, Liberty Grove

Road	10 Wentworth Drive	Average Weekday	2223
Location	Liberty Grove	7 Day Average	2265
Site No.	7	Weekday Heavy's	1.3%
Start Date	Sunday 13-May-12	7 Day Heavy's	1.0%
Direction	Combined		

Time	Day of Week							Ave Wday	7 Day Ave
	Mon 14-May	Tue 15-May	Wed 16-May	Thu 17-May	Fri 18-May	Sat 19-May	Sun 20-May		
AM Peak	130	144	116	143	138	181	175		
PM Peak	192	236	252	232	312	219	173		
0:00	16	15	14	17	18	42	60	16	26
1:00	7	4	9	2	11	31	25	7	13
2:00	10	9	5	11	4	13	8	8	9
3:00	5	3	6	4	4	13	10	4	6
4:00	10	5	7	11	13	9	10	9	9
5:00	21	21	19	20	21	16	7	20	18
6:00	58	60	47	56	50	29	28	54	47
7:00	121	117	110	119	138	54	53	121	102
8:00	130	135	115	143	134	97	68	131	117
9:00	118	144	116	127	96	136	121	120	123
10:00	89	87	87	70	93	170	118	85	102
11:00	80	76	98	77	96	181	175	85	112
12:00	79	108	97	97	94	160	143	95	111
13:00	89	100	89	92	100	165	166	94	114
14:00	96	102	107	91	118	174	128	103	117
15:00	154	146	144	136	135	207	142	143	152
16:00	140	172	157	156	215	195	161	168	171
17:00	192	236	252	229	312	219	163	244	229
18:00	192	220	251	232	228	182	173	225	211
19:00	128	203	155	141	187	132	110	163	151
20:00	108	105	126	127	116	100	110	116	113
21:00	91	104	114	113	77	97	97	100	99
22:00	65	62	71	67	83	81	49	70	68
23:00	26	37	35	37	69	82	34	41	46
Total	2025	2271	2231	2175	2412	2585	2159	2223	2265
% Heavy's	1.2%	1.5%	1.2%	1.4%	1.1%	0.6%	0.3%	1.3%	1.0%



6. PARKING

Councils DCP 2005 generally specifies the following parking criteria for residential apartments:

One Bedroom	1 space
Two Bedroom	1.5 spaces
Three Bedroom	2.0 spaces
Visitors	1 space per 5 apartments

It is noted however that for specific precincts in the Council area different criteria have been applied as follows:

	Parramatta Road Corridor	Strathfield Triangle
One Bedroom	1 space	1 space
Two Bedroom	1 space	1 space
Three Bedroom	1.5 space	1 space
Visitors	1 per 5 apartments	1 per 10-20 apartments

In relation to DCP N° 25 (Homebush West) and N° 14 (Greenacre) there is no specific numerical criteria. At the same time the criteria specified in the RMS Development Guidelines is as follows:

One Bedroom	0.6 space
Two Bedroom	0.9 spaces
Three Bedroom	1.4 spaces
Visitors	1 space per 5-7 apartments

The DCP specifies the circumstances where the amount of parking may be reduced and amongst the relevant considerations are the following:

- *The projected requirements of people occupying the development, taking into account, age, car ownership details, life cycle and other relevant factors, confirm the likely needs will be less than the minimum required by the schedule;*
- *Reduce parking requirements of comparable developments have not generated significant impacts; and*
- *The site layout and location maximises opportunity for use of public transport*

In this regard it has been “bought out” in the previous planning assessments for this site that due to its co-location with the golf course it presents a “resort style” environment that would be popular with “downsizing” mature residents. Whilst not being a designated “seniors living” development it is apparent that a significant percentage of residents would be “mature age” and most likely to only own 1 car particularly for 2 bedroom apartments.

The convenient access to high frequency bus services is also a relevant factor in relation to car ownership for residents in the development and in this regard, it is noted that the site is essentially within the 180m distance specified in Part A of the DA. It is therefore proposed to provide parking for the apartments on the following basis:

One Bedroom	1 space
Two Bedroom	1 space
Three Bedroom	2 spaces
Visitors	1 space per 5 apartments

Application of this criteria to the envisaged development would indicate the following provision:

91 x One Bedroom	91 spaces
176 x Two Bedroom	176 spaces
30 x Three Bedroom	60 spaces
Visitor (297)	60 spaces
Total	387 spaces

The DCP criteria for the other proposed elements is as follows:

Retail	- 6.2 spaces per 100m ²
Food & Beverage	- 1 space per 40m ²

Application of this criteria to the envisaged elements would indicate the following:

Retail 333m ²	- 20.6 spaces
Food & Beverage 116m ²	- 2.9 spaces

It is envisaged that a total of 410 spaces would be provided as follows:

Residents	- 327 spaces
Visitors	- 60 spaces
Retail + F&B	- 23 spaces

It is envisaged that an appropriate component of accessible spaces, bicycles and a wash bay will also be provided.

6. ACCESS, INTERNAL CIRCULATION AND SERVICING

The vehicle access, internal circulation and provision for service vehicles will remain essentially as previously approved. The approved basement carpark will be extended however the design will comply with the requirements of AS 2890.1 & 6.

7. CONCLUSION

The Planning Proposal for development on land that was formerly part of the Strathfield Golf Club landholding will enable additional residential apartments. However assessment of the envisaged development has concluded that:

- The traffic generation will not be any greater than that which was assessed and approved under previous application and as a consequence there will not be any adverse traffic implications as a result of development under the Planning Proposal
- The vehicle access, internal circulation, parking and servicing provisions will be satisfactory

APPENDIX A

CONCEPT PLANS

