

TRAFFIC REPORT

Adamstown DCP

September 2002

**Prepared for
Defence Housing Authority**

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1. Introduction

Masson Wilson Twiney has been commissioned to study the traffic aspects of a proposed DCP for land to allow a residential development on the corner of Brunner Road and Military Road in Adamstown.

Our study report is presented through the following chapters:-

- Chapter 2 - describes the existing situation
- Chapter 3 - assesses the implications of a development of some 70 lots.

Appended is detail of local traffic counts and information on bus routes.

2. Existing Situation

Site Location

The site is located on the corner of Bruncker Road and Military Road in Adamstown as shown in Figure 1.

The site is not currently developed.

Road Network

Bruncker Road has a sub-arterial function and links between the Pacific Highway and Lambton Road (to the north).

Bruncker Road has a single traffic lane in each direction plus parallel parking and a bicycle lane on each side. There are no kerbside parking controls.

Military Road is a private local road providing access to the Army Training Depot to the south. Military Road has a priority intersection with Bruncker Road.

Rifle Street has a collector level function and has a priority intersection with Bruncker Road.

Traffic Flows

Traffic surveys are undertaken during morning and afternoon peak periods of a weekday. The results are shown in Figures 2 and 3 for the morning and afternoon peak hours respectively.

During the morning peak hour:-

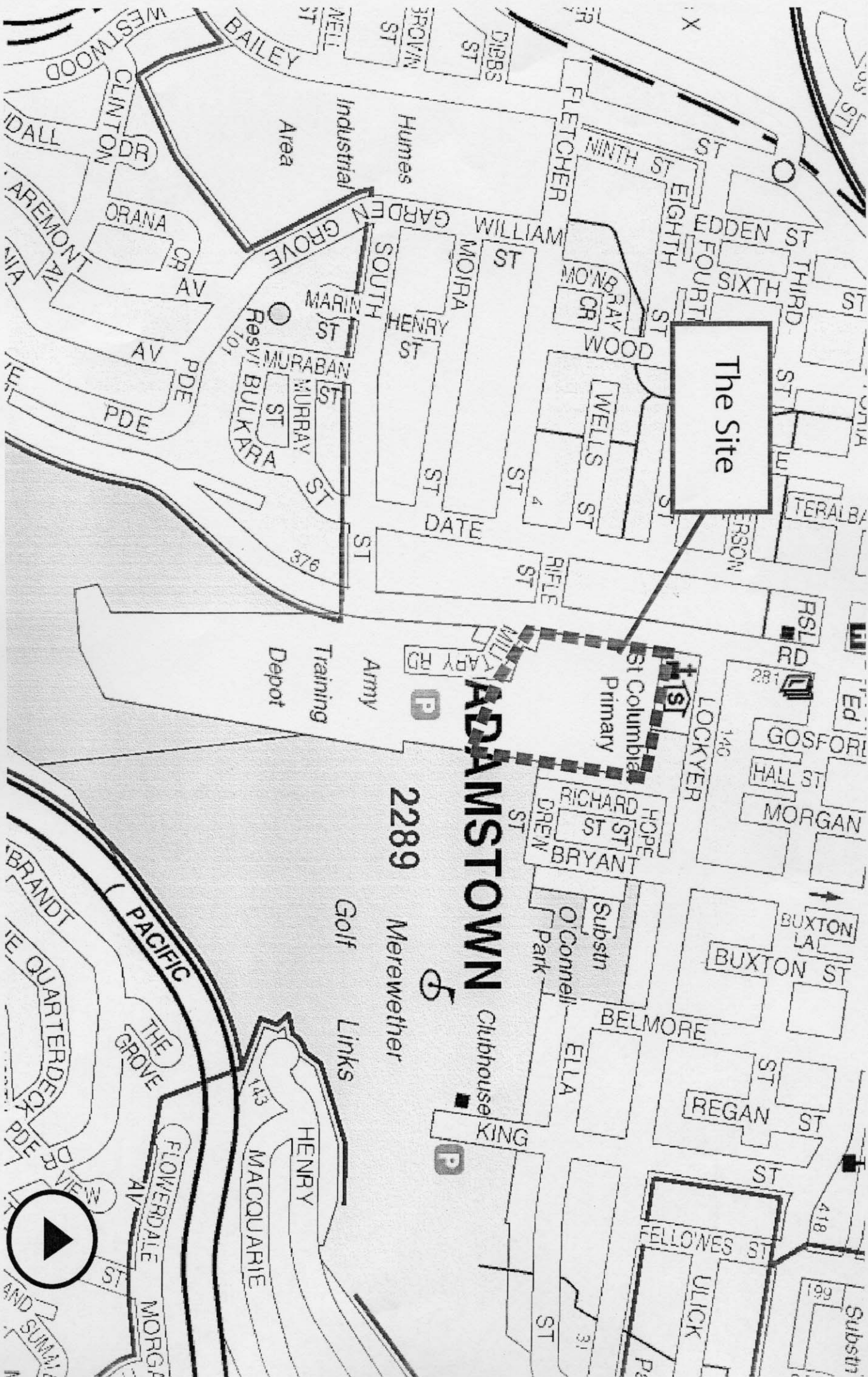
- Bruncker Road carries some 1200 vehicles with a northbound bias
- Rifle Street carries some 350 vehicles
- Military Road carries some 20 vehicles.

During the afternoon peak hour:-

- Bruncker Road carries some 1200 vehicles with a southbound bias
- Rifle Street carries some 300 vehicles
- Military Road carries some 7 vehicles.

Intersection Operations

The operation of the existing priority intersections on Bruncker Road have been modelled by means of the INTANAL program.



The Site

ADAMSTOWN

2289

Merewether

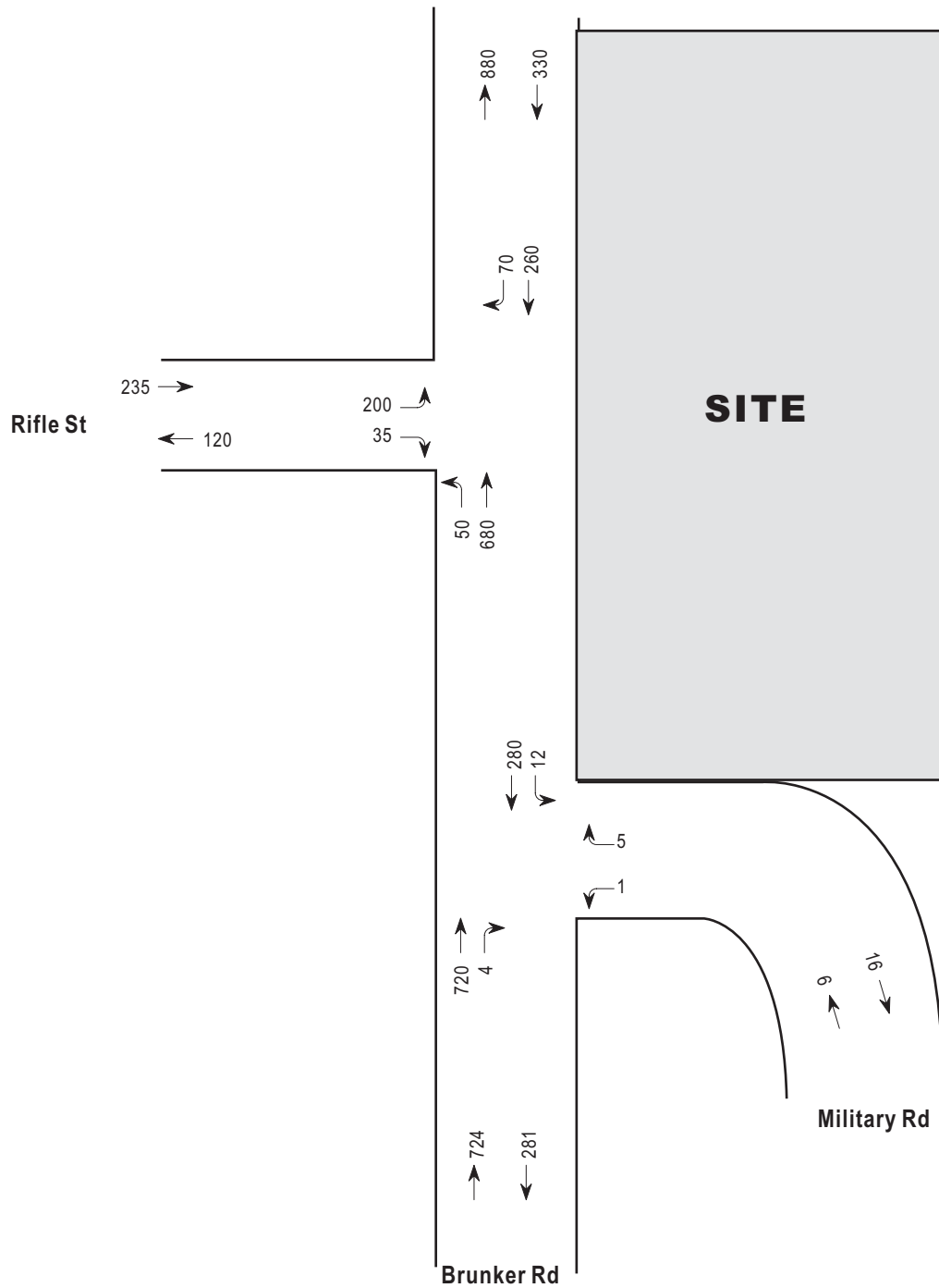
Golf Links

Clubhouse



TRAFFIC FLOWS

AM PEAK (0800-0900 HRS)



TRAFFIC FLOWS

PM PEAK (1645-1745 HRS)

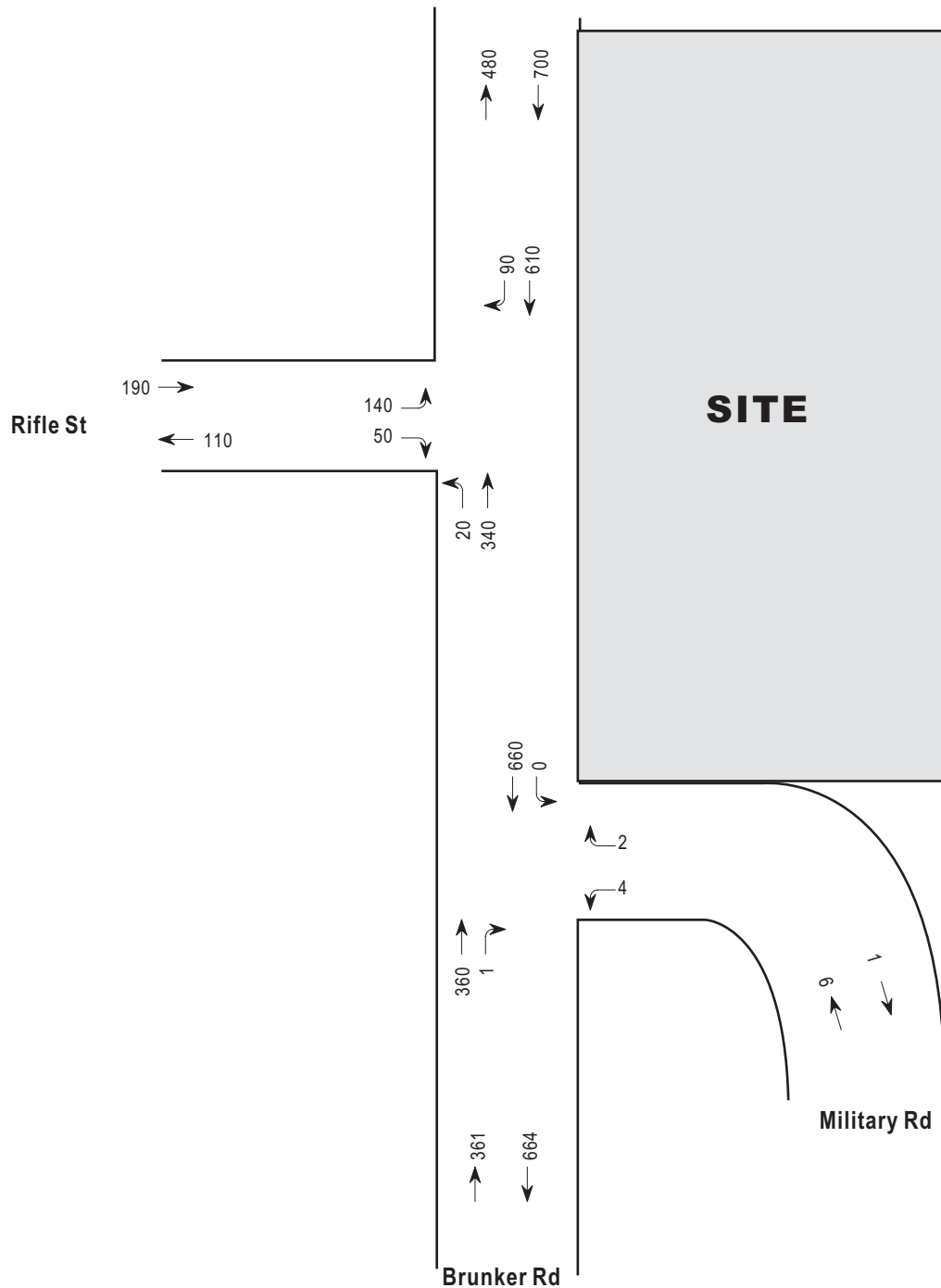


Table 2.1 - Level of Service Criteria

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

Adapted from RTA Guide to Traffic Generating Developments, 1993

The results of the INTANAL analysis are shown in Table 2.2.

Table 2.2 – INTANAL Analysis Results

Intersection		Average Delay ⁽¹⁾	Worst Delayed Movement ⁽¹⁾	LOS
Brunker Road-Rifle Street	AM	4.1	20.7	B
	PM	2.4	12.7	A
Brunker Road-Military Road	AM	0.3	10.4	A
	PM	0.2	13.9	A

(1) secs/veh

It can be seen that these intersections have an overall reasonable level of service. However there are some delays for right turning movements in peak periods.

Bus Services

Adamstown lies on the following bus services:-

- 224 Wallsend to Newcastle
- 225 Jesmond to Newcastle
- 334 Glendale to Newcastle
- 349 Swansea North to Newcastle
- 350 Swansea Heads to Newcastle

There are bus stops on Brunker Road (between Rifle Street and Military Road) which are within convenient walking distance of the site.

More detail of bus services are given in Appendix B.

3. Implications of Proposal

The Proposal

The proposal is for a DCP to allow residential development to serve some 70 lots.

The implications of the proposal are assessed through the following sections:-

- access arrangements
- traffic generation and effects
- access and layout
- summary.

Access Arrangements

We do not consider it practical for there to be vehicular access to the north east or south.

We consider there are two possible access options:

- opposite Rifle Street
- further north in Brunker Street at or near the crest of the hill.

Rifle Street

From our experience a roundabout would be required at a new access opposite Rifle Street in order to avoid excessive delays for traffic leaving the subject site (see next section).

A roundabout would be advantageous in:-

- slowing traffic on approach to Adamstown and St Columba School
- allowing retention of bicycle lanes (with appropriate design)
- providing pedestrian refuge island to facilitate crossing of Brunker Road
- retaining on-street parking in Brunker Road.

Crest of The Hill

A 'T' intersection near the crest of the hill would at a minimum require a right turn bay or 'seagull' treatment to provide for turning movements but would still be likely to suffer long delays for right turns out of the site unless a roundabout were constructed.

Turn bays would result in some loss of on-street parking (in the vicinity of the Medical Centre) and would not have the same traffic slowing effect of a four legged roundabout.

Turn bays would also not provide any pedestrian crossing facility of Brunker Road.

We consider that a roundabout controlled intersection at Rifle Street is preferable to a priority intersection (or roundabout) at a location near the crest of the hill on Brunker Road.

Traffic Generation and Effects

Assuming a total development of some 70-80 dwellings then based on the RTA guide to traffic generating developments the weekday peak traffic generation would be some 0.85 vehicle trips/hour or a total of some 60-68 vehicle trips/hour.

It is assumed that some 90% of vehicle trips would be outbound in the morning peak and inbound in the afternoon. It is also assumed that the majority of traffic would turn right (towards Newcastle CBD) in the morning and do the opposite in the afternoon.

Based on the assumptions the operation of the recommended site access at Rifle Street has been analysed by means of the INTANAL program. The results are shown in Table 3.1.

Table 3.1 – INTANAL Results

Intersection		Average Delay (secs/veh)	Worst Delayed Movement (secs/veh)	LOS
Brunker-Rifle – Site Access				
Priority	AM	2.7	16.4	B
	PM	4.4	23.9	B
Roundabout	AM	5.0	10.4	A
	PM	5.7	13.1	A

It can be seen that a roundabout would have a reasonable level of service and would have less delay for right turning movements than a priority intersection (and a better level of service).

Access and Layout

The provision of a roundabout controlled access to the DCP area allows a simple site access which does not affect existing residential areas.

A roundabout with an overall diameter of 20 metres and a central island of some 10 metres diameter is considered appropriate. Subject to study of services relocations etc the cost of such a roundabout would be in the order \$60,000.

It is recommended that the internal layout be in accord with AMCORD standards for residential development.

Summary

It is proposed to develop some 70 lots on land on the corner of Brunker Road and Military Road.

It is recommended access to the land be taken via a roundabout controlled intersection opposite Rifle Street.

This access arrangement has pedestrian speed control and cycling advantages and is modelled as displaying a good future level of traffic operations.

It is recommended the development layout be to AMCORD standards.

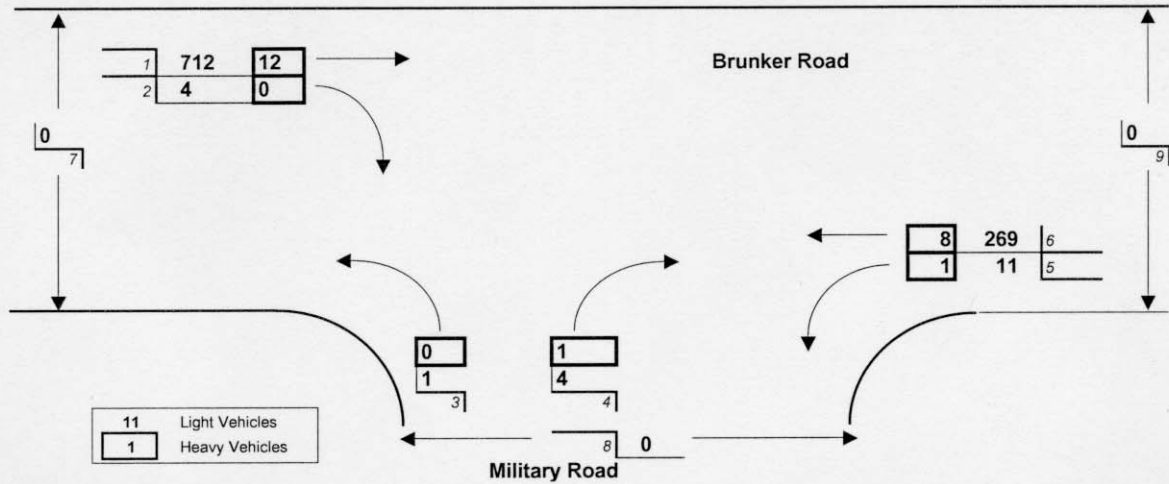
Appendix A - Traffic Counts

25/7/2002 - Bruner Road / Military Road, Adamstown

9:00 <<< HOUR ENDING

Thursday

Summary:	
Bruner Road / Military Road	
1001	Total Light Vehicles
22	Total Heavy Vehicles



25/7/2002 - Bruner Road / Military Road, Adamstown

	Light Vehicles									Totals	
	1	2	3	4	5	6	7	8	9	15 MIN	HOURLY
07:15	63	0	0	0	2	24	0	0	0	89	
07:30	102	2	0	0	4	34	0	0	0	142	
07:45	92	0	0	1	10	40	0	0	0	143	
08:00	141	9	0	1	11	44	0	0	0	206	580
08:15	155	1	1 <	4 <	4 <	60	0	0	0	225	716
08:30	184	0	0 <	0 <	2	56	0	0	0	242	816
08:45	193	3 <	0 <	0	0	86	0	0	0	282	955
09:00	180 <	0	0 <	0	5	67	0	0	0	252	1001 <
09:15	116	0	0	2	2	80	0	0	0	200	976
09:30	105	0	1 <	1	2	59 <	0	0	0	168	902
09:45	0	0	0 <	0	0	0	0	0	0	0	620
10:00	0	0	0 <	0	0	0	0	0	0	0	368

	Heavy Vehicles						Totals	
	1	2	3	4	5	6	15 MIN	HOURLY
07:15	2	0	0	0	0	3	5	
07:30	3	0	0	0	1	2	6	
07:45	1	0	0	0	0	1	2	
08:00	1	0	0	0	0 <	5 <	6	19
08:15	3	0	0	1 <	0 <	0	4	18
08:30	1	0	0	0 <	1 <	1	3	15
08:45	5	0	0	0 <	0 <	2	7	20
09:00	3	0	0	0 <	0 <	5	8	22
09:15	7	0	0	1 <	0 <	0	8	26
09:30	4 <	0	0	0 <	0	3	7	30 <
09:45	0	0	0	0 <	0	0	0	23
10:00	0	0	0	0 <	0	0	0	15

	All Vehicles									Totals	
	1	2	3	4	5	6	7	8	9	15 MIN	HOURLY
07:15	65	0	0	0	2	27	0	0	0	94	
07:30	105	2	0	0	5	36	0	0	0	148	
07:45	93	0	0	1	10	41	0	0	0	145	
08:00	142	9	0	1	11	49	0	0	0	212	599
08:15	158	1	1 <	5 <	4 <	60	0	0	0	229	734
08:30	185	0	0 <	0 <	3	57	0	0	0	245	831
08:45	198	3 <	0 <	0	0	88	0	0	0	289	975
09:00	183 <	0	0 <	0	5	72	0	0	0	260	1023 <
09:15	123	0	0	3	2	80	0	0	0	208	1002
09:30	109	0	1 <	1	2	62 <	0	0	0	175	932
09:45	0	0	0 <	0	0	0	0	0	0	0	643
10:00	0	0	0 <	0	0	0	0	0	0	0	383

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

25/7/2002 - Brunner Road / Military Road, Adamstown

17:45 <<< HOUR ENDING

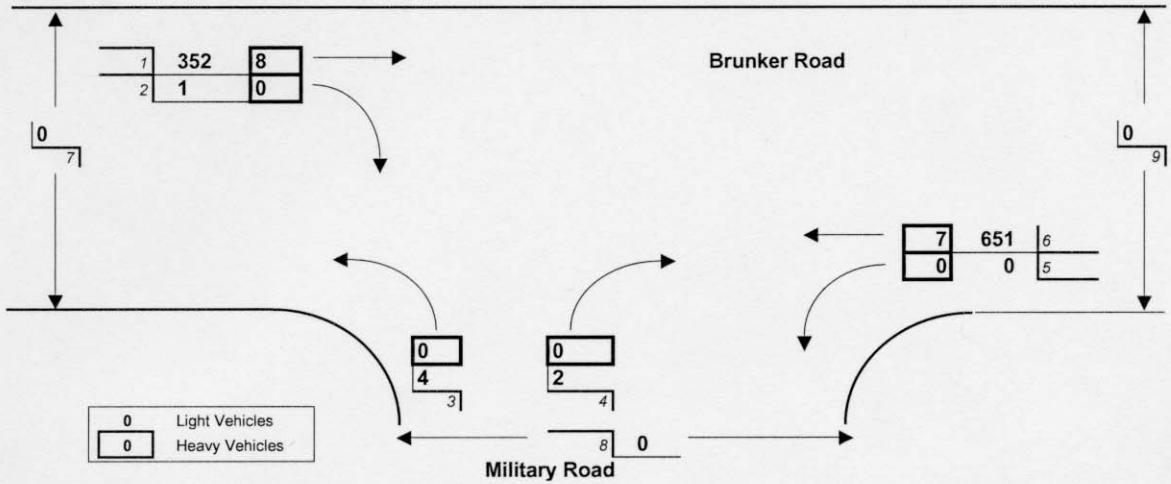
Thursday

Summary:

Brunner Road / Military Road

1010 Total Light Vehicles

15 Total Heavy Vehicles



25/7/2002 - Brunner Road / Military Road, Adamstown

	Light Vehicles									Totals	
	1	2	3	4	5	6	7	8	9	15 MIN	HOUR
15:15	95	1	1	1	1	118	0	0	0	217	
15:30	65	1	1	2	3	131	0	0	0	203	
15:45	84	0	0	4	1	133	0	0	0	222	
16:00	109	0 <	1	5	1 <	118	0	0	0	234	876
16:15	86	0	4	8	0	139	0	0	0	237	896
16:30	85	0	2 <	6 <	2	129	0	0	0	224	917
16:45	88	0	0 <	3	0	148	0	0	0	239	934
17:00	84	0	0	1	0	157	0	0	0	242	942
17:15	91	0	1	0	0	172	0	0	0	264	969
17:30	95	1	3	1	0	161	0	0	0	261	1006
17:45	82	0	0	0	0	161 <	0	0	0	243	1010 <
18:00	138 <	1 <	2	0	0	92	0	0	0	233	1001

	Heavy Vehicles						Totals	
	1	2	3	4	5	6	15 MIN	HOUR
15:15	8	0	0	0	1	5	14	
15:30	4	0	0	0	0	5	9	
15:45	2	0	0	0	0	8	10	
16:00	3 <	0	0	0	0 <	4 <	7	40 <
16:15	3	0	0	0	0	3	6	32
16:30	2	0	0	0	0	3	5	28
16:45	1	0	0	0	0	0	1	19
17:00	2	0	0	0	0	2	4	16
17:15	0	0	0	0	0	2	2	12
17:30	2	0	0	0	0	0	2	9
17:45	4	0	0	0	0	3	7	15
18:00	0	0	0	0	0	0	0	11

	All Vehicles									Totals	
	1	2	3	4	5	6	7	8	9	15 MIN	HOUR
15:15	103	1	1	1	2	123	0	0	0	231	
15:30	69	1	1	2	3	136	0	0	0	212	
15:45	86	0	0	4	1	141	0	0	0	232	
16:00	112	0 <	1	5	1 <	122	0	0	0	241	916
16:15	89	0	4	8	0	142	0	0	0	243	928
16:30	87	0	2 <	6 <	2	132	0	0	0	229	945
16:45	89	0	0 <	3	0	148	0	0	0	240	953
17:00	86	0	0	1	0	159	0	0	0	246	958
17:15	91	0	1	0	0	174	0	0	0	266	981
17:30	97	1	3	1	0	161	0	0	0	263	1015
17:45	86	0	0	0	0	164 <	0	0	0	250	1025 <
18:00	138 <	1 <	2	0	0	92	0	0	0	233	1012

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

25/7/2002 - Bruncker Road / Rifle Street, Adamstown

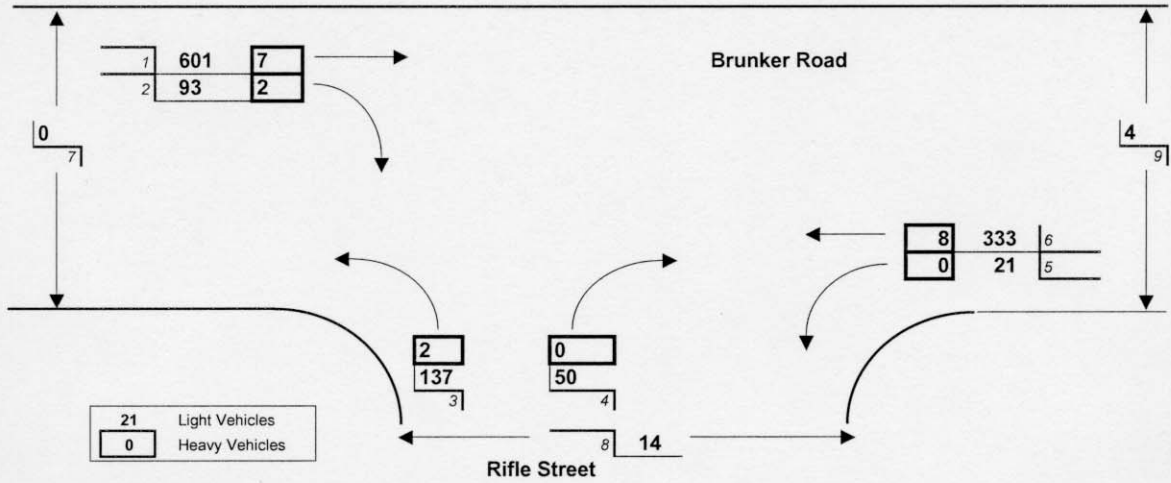
17:45 <<< HOUR ENDING

Thursday

Summary:

Bruncker Road / Rifle Street

1235 Total Light Vehicles
19 Total Heavy Vehicles



25/7/2002 - Bruncker Road / Rifle Street, Adamstown

	Light Vehicles									Totals	
	1	2	3	4	5	6	7	8	9	15 MIN	HOURLY
15:15	110	58	43	9	8	88	0	1	0	317	
15:30	118	33	45	16	4	63	0	2	1	282	
15:45	121	27	34	13	2	86	0	0	0	283	
16:00	111	23 <	33 <	8	8	106	0	1	0	290	1172
16:15	132	19	32	7	9	85	0	1	1	286	1141
16:30	120	25	41	11	2	89	0	2	0	290	1149
16:45	135	20	33	13	8 <	83	0	1	0	293	1159
17:00	145	22	27	12	3	82	0	7	1	299	1168
17:15	162	15	49	10	5	86	0	5 <	1	333	1215
17:30	152	22	27	9	9	87	0	2 <	2 <	310	1235
17:45	142 <	34	34	19 <	4	78	0	0	0 <	311	1253 <
18:00	84	18	39	8	9 <	129 <	0	0	0	287	1241

	Heavy Vehicles						Totals	
	1	2	3	4	5	6	15 MIN	HOURLY
15:15	5	1	1	1	0	8	16	
15:30	3	0	0	2	1	3	9	
15:45	8	1	2	0	0	2	13	
16:00	3 <	0 <	1 <	1 <	0 <	3 <	8	46 <
16:15	2	1 <	1 <	1 <	0 <	3	8	38
16:30	3	0 <	0 <	0	0	2	5	34
16:45	0	1 <	1	0	0	1	3	24
17:00	2	0 <	0	0	0	2	4	20
17:15	2	1 <	1	0	0	0	4	16
17:30	0	0 <	0	0	0	2	2	13
17:45	3	1 <	1	0	0	4	9	19
18:00	0	0 <	0	0	0	0	0	15

	All Vehicles									Totals	
	1	2	3	4	5	6	7	8	9	15 MIN	HOURLY
15:15	115	59	44	10	8	96	0	1	0	333	
15:30	121	33	45	18	5	66	0	2	1	291	
15:45	129	28	36	13	2	88	0	0	0	296	
16:00	114	23 <	34 <	9 <	8	109	0	1	0	298	1218
16:15	134	20	33	8	9	88	0	1	1	294	1179
16:30	123	25	41	11	2	91	0	2	0	295	1183
16:45	135	21	34	13	8 <	84	0	1	0	296	1183
17:00	147	22	27	12	3	84	0	7	1	303	1188
17:15	164	16	50	10	5	86	0	5 <	1	337	1231
17:30	152	22	27	9	9	89	0	2 <	2 <	312	1248
17:45	145 <	35	35	19 <	4	82	0	0	0 <	320	1272 <
18:00	84	18	39	8	9 <	129 <	0	0	0	287	1256

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

25/7/2002 - Bruner Road / Rifle Street, Adamstown

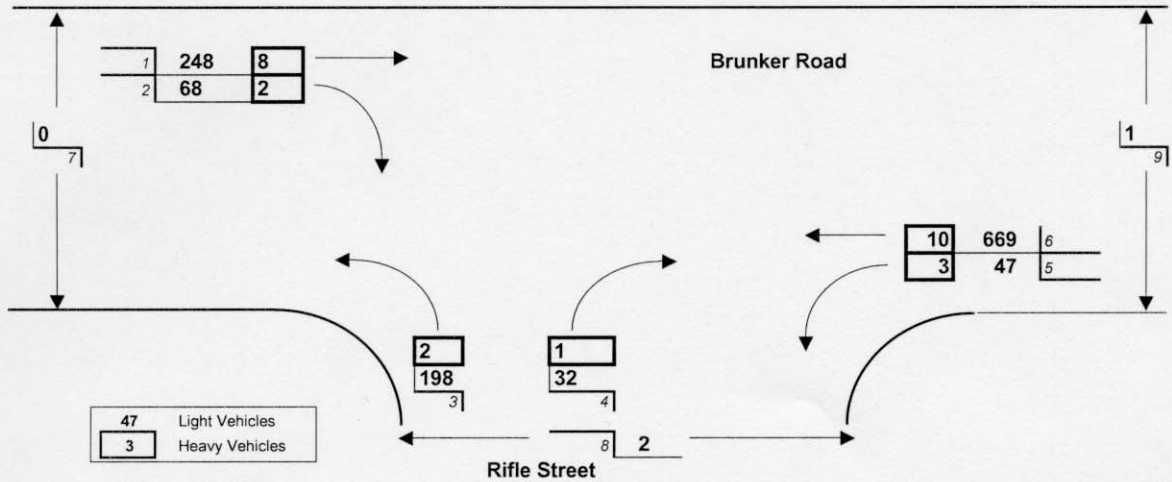
9:00 <<< HOUR ENDING

Thursday

Summary:

Bruner Road / Rifle Street

1262 Total Light Vehicles
26 Total Heavy Vehicles



25/7/2002 - Bruner Road / Rifle Street, Adamstown

	Light Vehicles									Totals	
	1	2	3	4	5	6	7	8	9	15 MIN	HOUR
07:15	23	2	14	3	2	61	0	1	0	106	
07:30	30	6	13	8	3	99	0	1	1	161	
07:45	43	6	20	7	4	89	0	1	1	171	
08:00	36	10	31	19	9	133	0	0 <	0 <	238	676
08:15	55	11	38	9 <	8	151	0	1 <	0 <	273	843
08:30	52	16	43	6	10	174	0	1 <	0	302	984
08:45	79	19	61	7	12	181	0	0	1	360	1173
09:00	62	22	56	10	17 <	163 <	0	0	0	330	1265
09:15	75	32 <	45 <	7	4	114	0	1	0	278	1270 <
09:30	54 <	12	31	7	5	101	1 <	0	0	211	1179

	Heavy Vehicles						Totals	
	1	2	3	4	5	6	15 MIN	HOUR
07:15	3	0	1	0	0	2	6	
07:30	2	1	0	1	0	3	7	
07:45	1	1	1	0	0	1	4	
08:00	4 <	0 <	2 <	1 <	0	1	8	25
08:15	0	0 <	0	0 <	0	4	4	23
08:30	2	0	0	0	0	1	3	19
08:45	2	2 <	1	0	2	3	10	25
09:00	4	0 <	1	1	1	2	9	26
09:15	0	0 <	1	0	1	7	9	31
09:30	3	0 <	1 <	0	1 <	3 <	8	36 <

	All Vehicles									Totals	
	1	2	3	4	5	6	7	8	9	15 MIN	HOUR
07:15	26	2	15	3	2	63	0	1	0	112	
07:30	32	7	13	9	3	102	0	1	1	168	
07:45	44	7	21	7	4	90	0	1	1	175	
08:00	40	10	33	20	9	134	0	0 <	0 <	246	701
08:15	55	11	38	9 <	8	155	0	1 <	0 <	277	866
08:30	54	16	43	6	10	175	0	1 <	0	305	1003
08:45	81	21	62	7	14	184	0	0	1	370	1198
09:00	66	22	57	11	18 <	165 <	0	0	0	339	1291
09:15	75	32 <	46 <	7	5	121	0	1	0	287	1301 <
09:30	57 <	12	32	7	6	104	1 <	0	0	219	1215

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

Appendix B - Bus Services



[Home](#)

[Timetables](#)

[Get Timetable](#)

[Route Maps](#)

[Get Map](#)

NEWCASTLE BUS ROUTES: Effective March 3rd 2002

Number	Days/Hours of Operation	Route
100	7 days and nights	Glendale to Newcastle East via Elermore Vale, Wallsend, Jesmond, University of Newcastle, Mayfield, Mayfield East, Islington and Newcastle West
104	Monday - Saturday daytime Jesmond - Newcastle Sunday & Public Holidays daytime Waratah - Newcastle only Monday - Saturday evenings Carrington - Newcastle only	Jesmond to Newcastle via University of Newcastle, Waratah, Mayfield, Mayfield East, Carrington and Wickham
106	7 days daytime	Wallsend to Newcastle East via Jesmond, Birmingham Gardens, Shortland, Sandgate, Warrabrook, Mayfield, Mayfield East, Islington and Newcastle West
111	Monday - Saturday daytime	Charlestown to Newcastle West (Marketown) via Adamstown Heights, Garden City, New Lambton, Waratah (K Mart), Mater Hospital, Mayfield West, Mayfield, Tighes Hill and Maryville
201	Monday - Friday daytime Hamilton - Carrington Saturday, Sunday & Public Holidays daytime Hamilton -	Hamilton to Carrington via Hamilton South, Glebe, Merewether, The Junction, Bar Beach, The Hill, Newcastle Station, Newcastle West (Marketown). Wickham and Carrington

	Newcastle West (Marketown) only	
223	Monday - Saturday daytime	Charlestown to Wallsend via Garden Suburb, New Lambton Heights, Rankin Park and Elermore Vale
224	Monday - Saturday daytime and early evening Sunday & Public Holidays daytime Wallsend - Newcastle	Wallsend to Newcastle via Elermore Vale, Rankin Park, John Hunter Hospital, Kotara, Garden City, Adamstown, Glebe and Newcastle West
225	Monday - Friday daytime and early evening Jesmond to Newcastle	Jesmond to Newcastle via University of Newcastle, Waratah West, Waratah, Lambton, New Lambton, Garden City, Adamstown, Glebe, Merewether, The Junction and Cooks Hill
226	Monday - Saturday daytime and early evening Sunday & Public Holidays daytime	Charlestown to Newcastle via Garden Suburb, John Hunter Hospital, North Lambton, Jesmond, University of Newcastle, Waratah, Georgetown, Broadmeadow, Hamilton and Newcastle West
230	7 days and nights	Wallsend to Newcastle East via Birmingham Gardens, Jesmond, Lambton, New Lambton, Broadmeadow, Hamilton and Newcastle West
231	7 days daytime	Wallsend to Newcastle East via Elermore Vale, Jesmond, Lambton, Broadmeadow, Hamilton and Newcastle West
235	7 days daytime	Wallsend to Newcastle via Jesmond, Lambton, Sunnyside, Hamilton and Newcastle West
310	Monday - Saturday day and night Sunday & Public Holidays daytime and early evening	Belmont to Newcastle via Valentine, Eleebana Heights, Lake Fair, Windale, Gateshead West, Charlestown, Highfields, Merewether Heights, Merewether, The Junction and Cooks Hill
313	Monday - Saturday daytime Belmont to Charlestown Monday - Saturday early evening and Sunday & Public Holidays Warners Bay -	Belmont to Charlestown via Valentine, Eleebana, Warners Bay and Hillsborough

	Charlestown only	
315	Monday - Saturday daytime	Valentine to Charlestown via Croudace Bay, Tingira Heights, Lake Fair and Gateshead
317	Monday - Saturday daytime and early evening Sunday & Public Holiday daytime	Belmont to Newcastle via Belmont North, Floraville, Tingira Heights, Windale, Lake Fair, Mount Hutton, Charlestown, Garden Suburb, Kotara South, Garden City, New Lambton, Broadmeadow, Hamilton and Newcastle West
322	7 days daytime and early evening	Belmont to Newcastle via Belmont North, Jewells, Redhead, Dudley, Whitebridge, Charlestown, Kahibah, Highfields, Garden City, New Lambton, Broadmeadow, Hamilton and Newcastle West
334	7 days daytime	Glendale to Newcastle via Cardiff, Macquarie Hills, Cardiff South, Garden Suburb, Garden City, Adamstown, Broadmeadow, Hamilton and Newcastle West
339	Monday - Friday daytime and early evening Saturday daytime	Charlestown to Glendale via Hillsborough, Cardiff South and Cardiff
345	Monday - Saturday daytime	Swansea to Belmont via Blacksmiths and Marks Point
349	7 days daytime	Swansea North to Newcastle via Swansea, Pelican, Belmont, Charlestown and Broadmeadow
350	7 days and nights	Swansea Heads to Newcastle via Swansea, Belmont, Charlestown and Broadmeadow
351	Monday - Friday peak hour express	Swansea Heads to Newcastle via Swansea, Belmont and Charlestown, then express to Museum
363	7 days and nights	Warners Bay to Newcastle via Lakelands, Speers Point, Boolaroo, Cockle Creek, Glendale, Cardiff, Cardiff Heights, New Lambton Heights, John Hunter Hospital, New Lambton, Broadmeadow, Hamilton and Newcastle West