

**AN ASSESSMENT OF THE
POTENTIAL TRAFFIC AND PARKING
IMPACTS OF
THE PROPOSED REDEVELOPMENT
OF THE AUSTRALIAN INSTITUTE OF POLICE MANAGEMENT**

Prepared for
Brewster Hjorth Architects

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Report Document Control

<i>Title</i>	An assessment of the potential traffic and parking impacts of the proposed redevelopment of the Australian Institute of Police Management
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TABLE OF CONTENTS

1 INTRODUCTION.....	1
2 EXISTING CONDITIONS.....	2
2.1 Proposed Site.....	2
2.2 Existing parking provision.....	2
2.3 Existing traffic conditions.....	2
3 THE CURRENT PROPOSAL.....	8
4 TRAFFIC AND PARKING IMPACTS OF THE PROPOSED REDEVELOPMENT.....	9
4.1 Existing parking and traffic situation.....	9
4.2 Traffic and parking impacts of the proposed redevelopment.....	10
4.3 Car park design.....	11
5 CONCLUSIONS AND RECOMMENDATIONS.....	12
6 REFERENCES.....	13

Appendix A. Deliveries

Appendix B. Manoeuvring diagrams

1 INTRODUCTION

Plans for the redevelopment of the Australian Institute of Police Management (AIPM) have been prepared by Brewster Hjorth Architects. The proposed redevelopment incorporates construction of new office space, classroom and residential blocks, and the refurbishment of some existing buildings. The present report documents an assessment of the traffic and parking impacts of the proposed new facilities. The work reported herein was

undertaken by TEF Consulting to accompany the Preferred Project Report under instruction from and commission by Brewster Hjorth Architects. During the course of undertaking this work, discussions were held with Mr David Ruckert of AIPM and the Traffic Engineering Manager of Manly Council (MC), who provided a variety of relevant information.

This assistance is gratefully acknowledged.

2 EXISTING CONDITIONS

2.1 Proposed Site

AIPM is a federal facility situated within the Sydney Harbour National Park at the end of Collins Beach Road, Manly.

AIPM provides leadership and management programs, primarily for the Police force, both Australian and

international. It incorporates training, conference, dining, accommodation, administration and library facilities to support the delivery of these programs.

The location of the site is shown in **Figure 1**.



Figure 1. Site and environs

2.2 Existing parking provision

The AIPM provides all the parking on site. There are 37 marked car parking spaces, including one accessible space. As the majority of the course members who attend the AIPM come from interstate, they are brought in by taxis.

The area surrounding AIPM is a national park, with no parking available on Collins Beach Road outside the AIPM site, except three spaces in front of the AIPM gates.

2.3 Existing traffic conditions

Collins Beach Road is the only road to the AIPM. There is no access to any other properties on this road, except a rear access to the service yard of the Manly District Hospital. This access is not available to the public and is used only

by a very limited number of Hospital vehicles. Collins Beach Road is a narrow two way road. To the north of the AIPM, Collins Beach Road forms a T-intersection with North Head Scenic Drive.

Traffic volume counts were undertaken by TEF Consulting at the intersection of Darley Road and Marshall Street, the intersection of North Head Scenic Drive and Collins Beach Road and the entry to the AIPM. The locations of the traffic surveys are shown in **Figure 2**. These counts were carried out on Thursday 10 May 2007 from 6:30 am to 9:30 am and from 2:30 pm to 6:00 pm, and on Sunday 12 May 2007 from 1:00 pm to 6:00 pm. These time periods were chosen to reflect typical commuter peaks on a weekday when AIPM staff arrive and depart and also the usual times of arrival of the course members (Sunday afternoon). There were no course member arrivals on the day of the survey and therefore the results of the traffic counts indicate the levels of general

traffic. The results of the surveys are shown in **Tables 2.1, 2.2, and 2.3** for each of the survey locations respectively. As may be seen from the survey results, peak morning period for traffic generated by the AIPM was between 7:30- 8:45 am, with a total of 19 movements per hour (in and out combined). This peak period coincided with the commuter peak period at the observed intersections. The afternoon peak generated by the AIPM was outside the peak of the other intersections. Of particular interest for the present study is the proportion of the AIPM traffic within the total traffic travelling to and from the Sydney Harbour National Park. **Table 2.4** provides details of these movements.

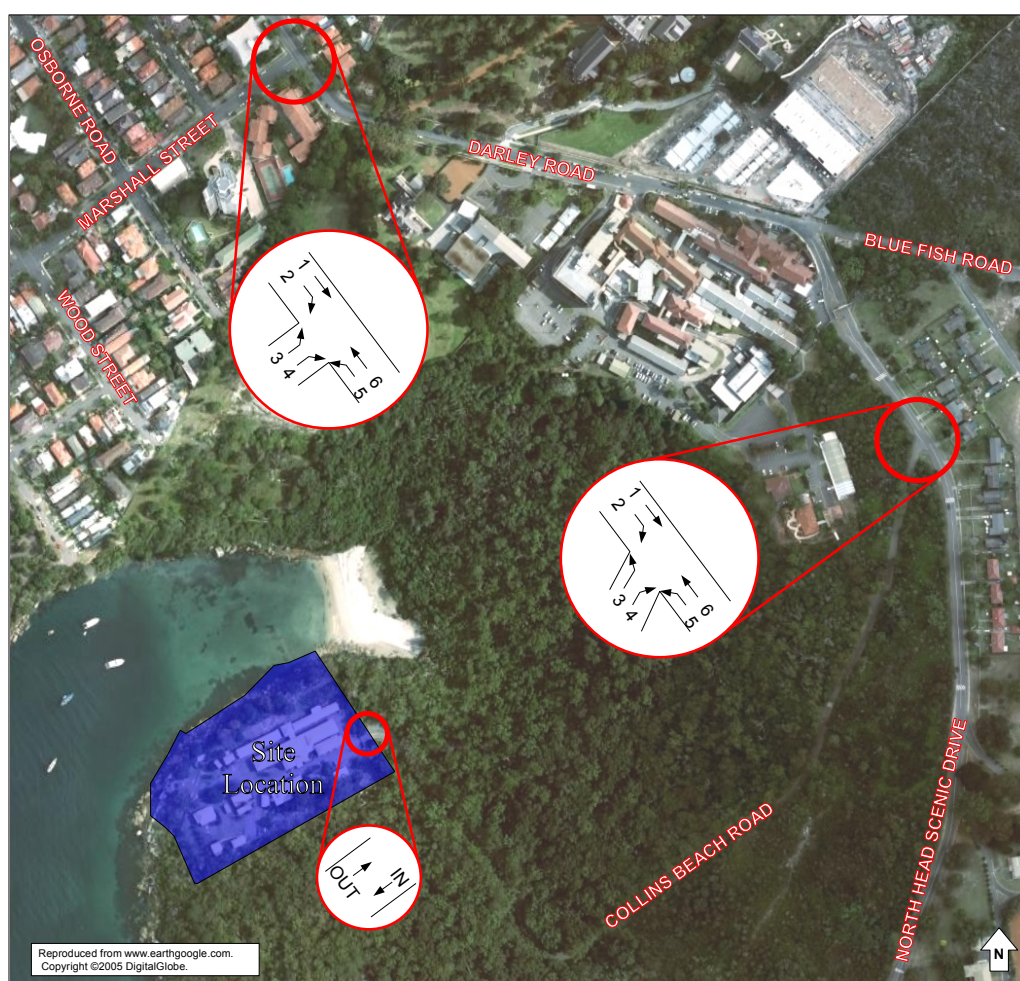
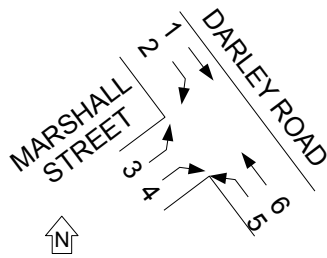


Figure 2. Traffic survey locations and directions

Table 2.1. Results of turning volume counts at Darley Rd / Marshall St Intersection.



LOCATION Darley Rd / Marshall St
SURVEY TYPE Intersection count
DAY, DATE THU - 10/05/07, SUN 13/05/07

INTERSECTION COUNTS

THU 10/05/07	1	2	3	4	5	6	TOTAL
TIME PERIOD	VEH	VEH	VEH	VEH	VEH	VEH	
6:30 - 6:45	67	1	4	8	3	9	92
6:45 - 7:00	95	2	3	8	1	13	122
7:00 - 7:15	56	1	3	14	0	20	94
7:15 - 7:30	42	1	1	7	0	28	79
7:30 - 7:45	68	3	1	22	3	23	120
7:45 - 8:00	102	3	5	15	0	20	145
8:00 - 8:15	67	2	7	12	1	31	120
8:15 - 8:30	71	5	7	13	4	36	136
8:30 - 8:45	82	3	11	16	3	60	175
8:45 - 9:00	70	6	5	10	5	53	149
9:00 - 9:15	55	5	4	9	2	27	102
9:15 - 9:30	46	2	4	14	3	28	97
TOTAL	821	34	55	148	25	348	1431

THU 10/05/07	1	2	3	4	5	6	TOTAL
TIME PERIOD	VEH	VEH	VEH	VEH	VEH	VEH	
14:30 - 14:45	34	2	11	10	3	70	130
14:45 - 15:00	20	6	5	7	10	47	95
15:00 - 15:15	19	6	5	10	9	65	114
15:15 - 15:30	35	6	4	10	10	85	150
15:30 - 15:45	25	3	7	7	5	95	142
15:45 - 16:00	40	3	3	3	4	66	119
16:00 - 16:15	26	10	1	2	10	66	115
16:15 - 16:30	19	9	5	9	7	42	91
16:30 - 16:45	19	3	5	4	11	83	125
16:45 - 17:00	20	4	4	5	7	75	115
17:00 - 17:15	34	7	4	7	3	77	132
17:15 - 17:30	25	15	5	4	2	46	97
17:30 - 17:45	26	3	4	6	7	45	91
17:45 - 18:00	40	5	4	7	3	34	93
TOTAL	382	82	67	91	91	896	1609

SUN 13/05/07	1	2	3	4	5	6	TOTAL
TIME PERIOD	VEH	VEH	VEH	VEH	VEH	VEH	
13:00 - 13:15	32	3	4	5	4	32	80
13:15 - 13:30	36	4	4	3	2	38	87
13:30 - 13:45	30	3	4	6	1	26	70
13:45 - 14:00	44	7	9	5	3	40	108
14:00 - 14:15	36	4	9	7	2	38	96
14:15 - 14:30	40	6	5	10	2	43	106
14:30 - 14:45	29	6	3	6	8	38	90
14:45 - 15:00	25	4	7	7	4	44	91
15:00 - 15:15	37	8	5	5	5	43	103
15:15 - 15:30	28	12	6	8	5	60	119
15:30 - 15:45	34	3	4	6	5	58	110
15:45 - 16:00	39	8	8	8	5	50	118
16:00 - 16:15	15	8	6	6	4	48	87
16:15 - 16:30	17	4	13	5	5	34	78
16:30 - 16:45	27	12	5	4	1	37	86
16:45 - 17:00	29	5	5	7	1	39	86
17:00 - 17:15	33	5	7	6	0	40	91
17:15 - 17:30	28	11	2	4	2	37	84
17:30 - 17:45	16	5	4	2	2	24	53
17:45 - 18:00	10	5	7	3	1	24	50
TOTAL	585	123	117	113	62	793	1793

HOURLY COUNTS

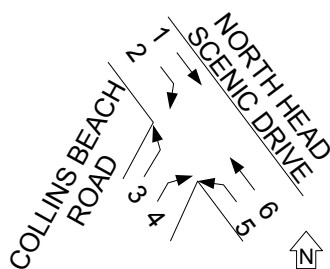
THU 10/05/07	1	2	3	4	5	6	TOTAL
TIME PERIOD	VEH	VEH	VEH	VEH	VEH	VEH	
6:30 - 7:30	260	5	11	37	4	70	387
6:45 - 7:45	261	7	8	51	4	84	415
7:00 - 8:00	268	8	10	58	3	91	438
7:15 - 8:15	279	9	14	56	4	102	464
7:30 - 8:30	308	13	20	62	8	110	521
7:45 - 8:45	322	13	30	56	8	147	576
8:00 - 9:00	290	16	30	51	13	180	580
8:15 - 9:15	278	19	27	48	14	176	562
8:30 - 9:30	253	16	24	49	13	168	523

THU 10/05/07	1	2	3	4	5	6	TOTAL
TIME PERIOD	VEH	VEH	VEH	VEH	VEH	VEH	
14:30 - 15:30	108	20	25	37	32	267	489
14:45 - 15:45	99	21	21	34	34	292	501
15:00 - 16:00	119	18	19	30	28	311	525
15:15 - 16:15	126	22	15	22	29	312	526
15:30 - 16:30	110	25	16	21	26	269	467
15:45 - 16:45	104	25	14	18	32	257	450
16:00 - 17:00	84	26	15	20	35	266	446
16:15 - 17:15	92	23	18	25	28	277	463
16:30 - 17:30	98	29	18	20	23	281	469
16:45 - 17:45	105	29	17	22	19	243	435
17:00 - 18:00	125	30	17	24	15	202	413

SUN 13/05/07	1	2	3	4	5	6	TOTAL
TIME PERIOD	VEH	VEH	VEH	VEH	VEH	VEH	
13:00 - 14:00	142	17	21	19	10	136	345
13:15 - 14:15	146	18	26	21	8	142	361
13:30 - 14:30	150	20	27	28	8	147	380
13:45 - 14:45	149	23	26	28	15	159	400
14:00 - 15:00	130	20	24	30	16	163	383
14:15 - 15:15	131	24	20	28	19	168	390
14:30 - 15:30	119	30	21	26	22	185	403
14:45 - 15:45	124	27	22	26	19	205	423
15:00 - 16:00	138	31	23	27	20	211	450
15:15 - 16:15	116	31	24	28	19	216	434
15:30 - 16:30	105	23	31	25	19	190	393
15:45 - 16:45	98	32	32	23	15	169	369
16:00 - 17:00	88	29	29	22	11	158	337
16:15 - 17:15	106	26	30	22	7	150	341
16:30 - 17:30	117	33	19	21	4	153	347
16:45 - 17:45	106	26	18	19	5	140	314
17:00 - 18:00	87	26	20	15	5	125	278

Table 2.2. Results of turning volume counts at Nth Head Scenic Dr / Collins Beach Rd Intersection.

LOCATION North Head Scenic Dr / Collins Beach Rd
 SURVEY TYPE Intersection count
 DAY, DATE THU - 10/05/07, SUN 13/05/07



INTERSECTION COUNTS

TIME PERIOD	1		2		3		4		5		6		TOTAL
	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	
6:30 - 6:45	6		1		1		0		0		4		12
6:45 - 7:00	8		1		1		0		0				10
7:00 - 7:15	6		3		2		0		0		5		16
7:15 - 7:30	5		2		0		0		0		4		11
7:30 - 7:45	7		1		0		0		0		5		13
7:45 - 8:00	13		5		0		0		0		4		22
8:00 - 8:15	11		8		0		0		1		7		27
8:15 - 8:30	5		4		2		0		0		7		18
8:30 - 8:45	6		1		0		1		0		2		10
8:45 - 9:00	5		2		0		0		0		13		20
9:00 - 9:15	8		3		1		0		0		1		13
9:15 - 9:30	7		2		3		0		0		5		17
TOTAL	87	0	33	0	10	0	1	0	1	0	57	0	189

TIME PERIOD	1		2		3		4		5		6		TOTAL
	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	
14:30 - 14:45	8		2		0		0		0		15		25
14:45 - 15:00	8		2		1		0		0		13		24
15:00 - 15:15	4		0		3		0		0		14		21
15:15 - 15:30	5		1		2		0		0		8		16
15:30 - 15:45	5		0		1		0		0		8		14
15:45 - 16:00	7		2		1		0		0		11		21
16:00 - 16:15	8		1		2		0		0		7		18
16:15 - 16:30	7		0		3		0		0		4		14
16:30 - 16:45	8		0		2		0		0		13		23
16:45 - 17:00	6		1		3		1		0		3		14
17:00 - 17:15	10		1		2		1		1		2		17
17:15 - 17:30	4		1		2		1		2		14		24
17:30 - 17:45	6		1		2		1		1		5		16
17:45 - 18:00	7		0		0		0		0		4		11
TOTAL	93	0	12	0	24	0	4	0	4	0	121	0	258

TIME PERIOD	1		2		3		4		5		6		TOTAL
	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	
13:00 - 13:15	21	1	0		1		0		0		23		46
13:15 - 13:30	19	2	1		3		0		2		15	1	43
13:30 - 13:45	25	1	2		3		0		0		11		42
13:45 - 14:00	20	7	0		1		0		0		27		55
14:00 - 14:15	27	2	2		1		0		3		23	5	63
14:15 - 14:30	25	1	3		2		0		0		33	1	65
14:30 - 14:45	21	1	1		1		1		0		18		43
14:45 - 15:00	17		0		1		0		0		28	4	50
15:00 - 15:15	30	2	0		0		0		0		19	4	55
15:15 - 15:30	20	1	0		3		0		2		32	2	60
15:30 - 15:45	20		2		2		0		1		25	2	52
15:45 - 16:00	23	2	0		2		0		0		28		55
16:00 - 16:15	9		1		0		0		0		24	2	36
16:15 - 16:30	21	2	3		2		1	1	1		25		56
16:30 - 16:45	21		2		1		0		1		29	1	55
16:45 - 17:00	10	3	1		0		0		0	1	21		36
17:00 - 17:15	18		2		2		0		0		20	1	43
17:15 - 17:30	16	1	1		2		0		0		19		39
17:30 - 17:45	5		0		1		0		0		12	1	19
17:45 - 18:00	4		0		0		0		0		7		11
TOTAL	372	26	21	0	28	0	2	1	10	1	439	24	924

HOURLY COUNTS

TIME PERIOD	1		2		3		4		5		6		TOTAL
	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	
6:30 - 7:30	25	0	7	0	4	0	0	0	0	0	13	0	49
6:45 - 7:45	26	0	7	0	3	0	0	0	0	0	14	0	50
7:00 - 8:00	31	0	11	0	2	0	0	0	0	0	18	0	62
7:15 - 8:15	36	0	16	0	0	0	0	0	1	0	20	0	73
7:30 - 8:30	36	0	18	0	2	0	0	0	1	0	23	0	80
7:45 - 8:45	35	0	18	0	2	0	1	0	1	0	20	0	77
8:00 - 9:00	27	0	15	0	2	0	1	0	1	0	29	0	75
8:15 - 9:15	24	0	10	0	3	0	1	0	0	0	23	0	61
8:30 - 9:30	26	0	8	0	4	0	1	0	0	0	21	0	60

TIME PERIOD	1		2		3		4		5		6		TOTAL
	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	
14:30 - 15:30	25	0	5	0	6	0	0	0	0	0	50	0	86
14:45 - 15:45	22	0	3	0	7	0	0	0	0	0	43	0	75
15:00 - 16:00	21	0	3	0	7	0	0	0	0	0	41	0	72
15:15 - 16:15	25	0	4	0	6	0	0	0	0	0	34	0	69
15:30 - 16:30	27	0	3	0	7	0	0	0	0	0	30	0	67
15:45 - 16:45	30	0	3	0	8	0	0	0	0	0	35	0	76
16:00 - 17:00	29	0	2	0	10	0	1	0	0	0	27	0	69
16:15 - 17:15	31	0	2	0	10	0	2	0	1	0	22	0	68
16:30 - 17:30	28	0	3	0	9	0	3	0	3	0	32	0	78
16:45 - 17:45	26	0	4	0	9	0	4	0	4	0	24	0	71
17:00 - 18:00	27	0	3	0	6	0	3	0	4	0	25	0	68

TIME PERIOD	1		2		3		4		5		6		TOTAL
	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	VEH	BIKE	
13:00 - 14:00	85	11	3	0	8	0	0	0	2	0	76	1	186
13:15 - 14:15	91	12	5	0	8	0	0	0	5	0	76	6	203
13:30 - 14:30	97	11	7	0	7	0	0	0	3	0	94	6	225
13:45 - 14:45	93	11	6	0	5	0	1	0	3	0	101	6	226
14:00 - 15:00	90	4	6	0	5	0	1	0	3	0	102	10	221
14:15 - 15:15	93	4	4	0	4	0	1	0	0	0	98	9	213
14:30 - 15:30	88	4	1	0	5	0	1	0	2	0	97	10	208
14:45 - 15:45	87	3	2	0	6	0	0	0	3	0	104	12	217
15:00 - 16:00	93	5	2	0	7	0	0	0	3	0	104	8	222
15:15 - 16:15	72	3	3	0	7	0	0	0	3	0	109	6	203
15:30 - 16:30	73	4	6	0	6	0	1	1	2	0	102	4	199
15:45 - 16:45	74	4	6	0	5	0	1	1	2	0	106	3	202
16:00 - 17:00	61	5	7	0	3	0	1	1	2	1	99	3	183
16:15 - 17:15	70	5	8	0	5	0	1	1	2	1	95	2	190
16:30 - 17:30	65	4	6	0	5	0	0	0	1	1	89	2	173
16:45 - 17:45	49	4	4	0	5	0	0	0	0	1	72	2	137
17:00 - 18:00	43	1	3	0	5	0	0	0	0	0	58	2	112

Table 2.3. Results of traffic volume counts at the AIPM entry gates.

LOCATION AIPM Entry
 SURVEY TYPE Intersection count
 DAY, DATE THU - 10/05/07, SUN 13/05/07

INTERSECTION COUNTS

THU 10/5/07 TIME PERIOD	IN						SUB-TOTAL	OUT						SUB-TOTAL	TOTAL
	car	taxi	bus	van	S/MRV	HRV		car	taxi	bus	van	S/MRV	HRV		
6:30 - 6:45							0							2	2
6:45 - 7:00	1						1	1						1	2
7:00 - 7:15	3						3	1						1	4
7:15 - 7:30	2						2							0	2
7:30 - 7:45	1						1							0	1
7:45 - 8:00	4						4							0	4
8:00 - 8:15	7			1			8							0	8
8:15 - 8:30	3			1			4			2				2	6
8:30 - 8:45	1						1							0	1
8:45 - 9:00	2						2							0	2
9:00 - 9:15	3						3							0	3
9:15 - 9:30	1			2			3	1			1			2	5
TOTAL	28	0	0	4	0	0	32	3	1	0	4	0	0	8	40

THU 10/5/07 TIME PERIOD	IN						SUB-TOTAL	OUT						SUB-TOTAL	TOTAL
	car	taxi	bus	van	S/MRV	HRV		car	taxi	bus	van	S/MRV	HRV		
14:30 - 14:45	1				1		2					1		1	3
14:45 - 15:00	2						2							3	3
15:00 - 15:15							0	3						1	3
15:15 - 15:30							0	1						1	1
15:30 - 15:45							0	1						1	1
15:45 - 16:00	1						1							0	1
16:00 - 16:15	1						1	3						3	4
16:15 - 16:30							0	1						1	1
16:30 - 16:45							0	1						1	1
16:45 - 17:00							0	4						4	4
17:00 - 17:15							0	4						4	4
17:15 - 17:30	2						2	2						2	4
17:30 - 17:45							0							0	0
17:45 - 18:00							0							0	0
TOTAL	7	0	0	0	1	0	8	20	0	0	0	1	0	21	29

SUN 13/05/07 TIME PERIOD	IN						SUB-TOTAL	OUT						SUB-TOTAL	TOTAL
	car	taxi	bus	van	S/MRV	HRV		car	taxi	bus	van	S/MRV	HRV		
13:00 - 13:15							0							0	0
13:15 - 13:30							0	1						1	1
13:30 - 13:45							0	1						1	1
13:45 - 14:00					1		1			1				1	2
14:00 - 14:15							0							0	0
14:15 - 14:30	1						1	1						1	2
14:30 - 14:45							0							0	0
14:45 - 15:00							0	1						1	1
15:00 - 15:15							0							0	0
15:15 - 15:30							0							0	0
15:30 - 15:45							0							0	0
15:45 - 16:00							0							0	0
16:00 - 16:15	1						1							0	1
16:15 - 16:30	2						2							0	2
16:30 - 16:45	1						1							0	1
16:45 - 17:00	1						1							0	1
17:00 - 17:15	2						2	1						1	3
17:15 - 17:30	1						1	1						1	2
17:30 - 17:45							0	1						1	1
17:45 - 18:00							0							0	0
TOTAL	9	0	0	0	1	0	10	7	0	0	0	1	0	8	18

HOURLY COUNTS

THU 10/5/07 TIME PERIOD	IN						SUB-TOTAL	OUT						SUB-TOTAL	TOTAL
	car	taxi	bus	van	S/MRV	HRV		car	taxi	bus	van	S/MRV	HRV		
6:30 - 7:30	6	0	0	0	0	0	6	2	1	0	1	0	0	4	10
6:45 - 7:45	7	0	0	0	0	0	7	2	0	0	0	0	0	2	9
7:00 - 8:00	10	0	0	0	0	0	10	1	0	0	0	0	0	1	11
7:15 - 8:15	14	0	0	1	0	0	15	0	0	0	0	0	0	0	15
7:30 - 8:30	15	0	0	2	0	0	17	0	0	0	2	0	0	2	19
7:45 - 8:45	15	0	0	2	0	0	17	0	0	0	2	0	0	2	19
8:00 - 9:00	13	0	0	2	0	0	15	0	0	0	2	0	0	2	17
8:15 - 9:15	9	0	0	1	0	0	10	0	0	0	2	0	0	2	12
8:30 - 9:30	7	0	0	2	0	0	9	1	0	0	1	0	0	2	11

THU 10/5/07 TIME PERIOD	IN						SUB-TOTAL	OUT						SUB-TOTAL	TOTAL
	car	taxi	bus	van	S/MRV	HRV		car	taxi	bus	van	S/MRV	HRV		
14:30 - 15:30	3	0	0	0	1	0	4	4	0	0	0	1	0	5	9
14:45 - 15:45	2	0	0	0	0	0	2	5	0	0	0	1	0	6	8
15:00 - 16:00	1	0	0	0	0	0	1	5	0	0	0	0	0	5	6
15:15 - 16:15	2	0	0	0	0	0	2	5	0	0	0	0	0	5	7
15:30 - 16:30	2	0	0	0	0	0	2	5	0	0	0	0	0	5	7
15:45 - 16:45	2	0	0	0	0	0	2	5	0	0	0	0	0	5	7
16:00 - 17:00	1	0	0	0	0	0	1	9	0	0	0	0	0	9	10
16:15 - 17:15	0	0	0	0	0	0	0	10	0	0	0	0	0	10	10
16:30 - 17:30	2	0	0	0	0	0	2	11	0	0	0	0	0	11	13
16:45 - 17:45	2	0	0	0	0	0	2	10	0	0	0	0	0	10	12
17:00 - 18:00	2	0	0	0	0	0	2	6	0	0	0	0	0	6	8

SUN 13/05/07 TIME PERIOD	IN						SUB-TOTAL	OUT						SUB-TOTAL	TOTAL
	car	taxi	bus	van	S/MRV	HRV		car	taxi	bus	van	S/MRV	HRV		
13:00 - 14:00	0	0	0	0	1	0	1	2	0	0	0	1	0	3	4
13:15 - 14:15	0	0	0	0	1	0	1	2	0	0	0	1	0	3	4
13:30 - 14:30	1	0	0	0	1	0	2	2	0	0	0	1	0	3	5
13:45 - 14:45	1	0	0	0	1	0	2	1	0	0	0	1	0	2	4
14:00 - 15:00	1	0	0	0	0	0	1	2	0	0	0	0	0	2	3
14:15 - 15:15	1	0	0	0	0	0	1	2	0	0	0	0	0	2	3
14:30 - 15:30	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
14:45 - 15:45	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
15:00 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15 - 16:15	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
15:30 - 16:30	3	0	0	0	0	0	3	0	0	0	0	0	0	0	3
15:45 - 16:45	4	0	0	0	0	0	4	0	0	0	0	0	0	0	4
16:00 - 17:00	5	0	0	0	0	0	5	0	0	0	0	0	0	0	5
16:15 - 17:15	6	0	0	0	0	0	6	1	0	0	0	0	0	1	7
16:30 - 17:30	5	0	0	0	0	0	5	2	0	0	0	0	0	2	7
16:45 - 17:45	4	0	0	0	0	0	4	3	0	0	0	0	0	3	7
17:00 - 18:00	3	0	0	0	0	0	3	3	0	0	0	0	0	3	6

Table 2.4 Comparison of traffic volumes generated by AIPM with general traffic volumes.

	To North Head / AIPM				To Manly			
	Darley Rd at Marshall St	Park Entry	To Collins Beach Rd	AIPM entry	AIPM exit	from Collins Beach Rd	Park Entry	Darley Rd at Marshall St
THU 10/5/07								
TIME PERIOD								
6:30 - 6:45	75	7	1	0	2	1	5	12
6:45 - 7:00	103	9	1	1	1	1	1	14
7:00 - 7:15	70	9	3	3	1	2	7	20
7:15 - 7:30	49	7	2	2	0	0	4	28
7:30 - 7:45	90	8	1	1	0	0	5	26
7:45 - 8:00	117	18	5	4	0	0	4	20
8:00 - 8:15	79	19	8	8	0	0	7	32
8:15 - 8:30	84	9	4	4	2	2	9	40
8:30 - 8:45	98	7	1	1	0	1	2	63
8:45 - 9:00	80	7	2	2	0	0	13	58
9:00 - 9:15	64	11	3	3	0	1	2	29
9:15 - 9:30	60	9	2	3	2	3	8	31
TOTAL	969	120	33	32	8	11	67	373
% of AIPM traffic	3%	27%	97%		73%	12%	2%	
THU 10/5/07								
TIME PERIOD								
14:30 - 14:45	44	10	2	2	0	0	15	73
14:45 - 15:00	27	10	2	2	1	1	14	57
15:00 - 15:15	29	4	0	0	3	3	17	74
15:15 - 15:30	45	6	1	0	1	2	10	95
15:30 - 15:45	32	5	0	0	1	1	9	100
15:45 - 16:00	43	9	2	1	0	1	12	70
16:00 - 16:15	28	9	1	1	3	2	9	76
16:15 - 16:30	28	7	0	0	1	3	7	49
16:30 - 16:45	23	8	0	0	1	2	15	94
16:45 - 17:00	25	7	1	0	4	4	6	82
17:00 - 17:15	41	11	1	0	4	3	4	80
17:15 - 17:30	29	5	1	2	2	3	16	48
17:30 - 17:45	32	7	1	0	0	3	7	52
17:45 - 18:00	47	7	0	0	0	0	4	37
TOTAL	473	105	12	8	21	28	145	987
% of AIPM traffic	2%	8%	67%		75%	14%	2%	
SUN 13/05/07								
TIME PERIOD								
13:00 - 13:15	37	21	0	0	0	1	24	36
13:15 - 13:30	39	20	1	0	1	3	18	40
13:30 - 13:45	36	27	2	0	1	3	14	27
13:45 - 14:00	49	20	0	1	1	1	28	43
14:00 - 14:15	43	29	2	0	0	1	24	40
14:15 - 14:30	50	28	3	1	1	2	35	45
14:30 - 14:45	35	22	1	0	0	2	19	46
14:45 - 15:00	32	17	0	0	1	1	29	48
15:00 - 15:15	42	30	0	0	0	0	19	48
15:15 - 15:30	36	20	0	0	0	3	35	65
15:30 - 15:45	40	22	2	0	0	2	27	63
15:45 - 16:00	47	23	0	0	0	2	30	55
16:00 - 16:15	21	10	1	1	0	0	24	52
16:15 - 16:30	22	24	3	2	0	3	27	39
16:30 - 16:45	31	23	2	1	0	1	30	38
16:45 - 17:00	36	11	1	1	0	0	21	40
17:00 - 17:15	39	20	2	2	1	2	22	40
17:15 - 17:30	32	17	1	1	1	2	21	39
17:30 - 17:45	18	5	0	0	1	1	13	26
17:45 - 18:00	13	4	0	0	0	0	7	25
TOTAL	698	393	21	10	8	30	467	855
% of AIPM traffic	1%	3%	48%		27%	2%	1%	

As may be seen from the survey results included in **Tables 2.1 – 2.4**, AIPM traffic constitutes a very minor proportion of traffic in Darley Road. During the weekday commuter peak periods Collins Beach Road is mostly used by AIPM vehicles, however on Sunday AIPM traffic accounted for only 30% to 50% of all movements, with the majority of these movements generated by course participants arriving to AIPM. The total number of AIPM generated trips was

very low at 3 to 4 one way trips per hour. It must be noted that the surveys have been carried out outside the summer holiday season. In summertime the amount of general traffic would be higher by at least 10% (as advised by Manly Council's Manager, Traffic) and therefore the proportion of AIPM traffic would be less than that stated in **Table 2.4**.

3 THE CURRENT PROPOSAL

The redevelopment proposal includes upgrading the accommodation and training facilities. One purpose of the proposed upgrades is to provide additional study areas and accommodation in order to increase the number of courses.

The following new facilities are proposed.

- new residential accommodation blocks. The total number of existing and new beds after redevelopment will be 54
- new administration and academic offices
- refurbishment of existing buildings for teaching, dining and library services, including the senior

common room

- removal of redundant buildings

In accordance with the Parliamentary Standing Committee on Public Works Report (September 2006) the number of car parking spaces on the AIPM site is restricted to a maximum of 48 spaces. The proposed provision is 34 parking spaces including one accessible space. The total number of spaces marked on the architectural drawings is 35, however one of these spaces is in fact a loading/unloading bay.

The details of the current proposal are depicted in documentation prepared by Brewster Hjorth Architects.

4 TRAFFIC AND PARKING IMPACTS OF THE PROPOSED REDEVELOPMENT

4.1 Existing parking and traffic situation

As stated in **Section 3** of this report, a restriction of 48 parking spaces applies for the AIPM site.

To ascertain the actual parking demand generated by AIPM, TEF Consulting conducted a survey of staff by having them complete a questionnaire form. The respondents were asked questions regarding their status, their arrival and departure times, their mode of travel and, for car drivers, their parking location. A total of 27 staff questionnaires were collected and analysed to provide the necessary basis for further analysis. Car usage rates have been calculated from the results of the questionnaire survey and came out to an average figure of 0.91 cars per person for staff, that is 9 out of 10 staff members drive cars to work. The maximum existing number of staff which can be present on site is 40, which translates into the parking demand of 36 cars. It should be noted that this number of staff does not account for sick days and holidays and staff who work shifts such as kitchen staff and cleaning staff. The actual number of staff on site is typically less than 40.

TEF Consulting also conducted a questionnaire survey of course members (students) using a questionnaire form similar to that for the staff.

Course members were asked questions regarding their mode of travel, number of people that arrive together and, for car drivers, their parking location. A total of 20 questionnaires were collected from 23 course members present at the AIPM on the day of the survey. Travel arrangements for course members are very different from those of staff. Only 7 out of 23 course members arrived by a private/work car. Two of them arrived in the same car. The number of cars parked at the AIPM was therefore 6 for 23 course members. The remaining 16 course members arrived in 11 taxis. The traffic generation by the course members was therefore 17 incoming trips. The course members indicated in their responses that they intended to use the same mode of transport when departing from the AIPM at the end of their course. Based on the information obtained from the AIPM management, the above rate of car usage and parking would be higher than normal. The course members surveyed were mostly from NSW, whereas interstate and international course members are less likely to drive to the AIPM.

It must be noted that the course members of all courses, except day conferences, reside at the AIPM. They typically

arrive on a Sunday afternoon between 1 pm and 7 pm and leave at the completion of their course on Friday after 2 pm. A small number of courses start on Tuesday, Wednesday or Thursday and finish on Friday as well. Day conferences (which run for one to ten days) may be held on any weekday. Course members for day conferences and courses which start midweek arrive in the morning, typically between 7:00 am and 8:30 am and leave in the afternoon.

AIPM management have made available the course timetables with the numbers of course members for each course held in the past 12 months. Details of this information are classified and cannot be reproduced in the present report. However, analyses of these data have been carried out and the results may be summarised as follows.

As noted above, courses run by AIPM can be described as either resident courses or day conferences. All course participants for resident courses reside on the AIPM site for the duration of their courses.

Numbers of course members ranged from 11 to 45 for resident courses and from 12 to 50 for day conferences, with the average number of members being 25 and 24 respectively.

The number of courses held and the number of course members present on any one day are limited firstly by the number of seats in the class rooms (35 in room 1 and 25 in room 2 plus up to 20 in the Syndicate Room for the overlapping day conferences). Secondly, they are limited by the number of beds for course member accommodation (30). When the number of resident course members exceeds the on-site accommodation capacity, they are provided with accommodation at a nearby hotel and are brought in by a maxi-taxi or a mini-bus rented on such occasions.

Therefore, resident courses are not normally held concurrently. They may overlap for one day, which is the last day for one course and the first day for the second course. Day conferences last for two days on average (with the maximum number of 10 days and minimum of 1 day). Typically, there are two to four day conferences held in any calendar month.

As a result of the above arrangements and limitations, the typical number of course members on site on any one day

is currently 25 to 40 for resident courses plus 15 to 25 for day conferences (when the latter are on). Travel arrangements of the resident course members are described above in the present Section of the report. Course members for day conferences are typically local persons who arrive by taxis or use car pool and park on site. Those who come from the Sydney CBD may arrive by ferry, in which case they would be picked up as a group by a mini-bus rented by AIPM when necessary. Sometimes a maxi-cab is arranged for these groups of people.

The total existing maximum parking demand generated by the course members may thus be estimated as 10 to 15 cars. Note that this situation only occurs when day conferences are held; at other times the parking demand is less at 7 to 11 cars.

The total **maximum** parking demand generated by the staff and course members is thus in the order of 50 cars. It is

noted that this parking demand occurs only when two or more courses are held concurrently, at other times the parking demand is less, in the order of 36 to 40 cars.

Traffic counts at the AIPM entry/exit are detailed in **Table 2.3**. These show that there were 19 (17 in / 2 out) and 13 (2 out / 11 in) vehicular movements in the morning and afternoon peak hours respectively. There was a resident course held on the day of the survey and no day conferences. Additional traffic generation by day conference members could be in the order of 15 to 20 inbound movements in the morning and the same number of outbound movements in the afternoon. The total traffic generation on the days when day conferences are held may thus be estimated as 25 to 30 in the morning and 20 to 25 in the afternoon. Note that the resident course members typically arrive on Sundays and leave on Friday afternoons, however their trips are spread over a number of hours with only a few additional trips per hour.

4.2 Traffic and parking impacts of the proposed redevelopment

The proposed redevelopment involves construction of additional accommodation facilities, which will bring on-site accommodation to 54 beds, and an additional 20-seat class room. The existing large classroom is proposed to be relocated to the north residential block where there will be two smaller classrooms. Only one additional small classroom will be added to what currently exists on site. The proposed extensions are primarily designed to satisfy the existing demand for resident courses and to allow for their increase. Day conferences will remain at the same level as that at present. The additional parking demand will be generated by the additional staff (3 staff / 2-3 cars) and the course members. As noted in **Section 4.1** above, currently some resident courses overlap, creating increased parking demand on the day of overlapping. Whilst at present two overlapping resident courses are unlikely to be of more than 30 members each, totalling at about 40 course members together typically, in the future this number may increase to some 54 members on site concurrently. It must be noted that this number is considered to be the maximum achievable due to the limitation imposed by the number of residential suites – 54. It is also of importance that the proposed new courses are designed to be primarily for interstate and overseas course members. These course members tend to have lower on-site car parking demand than those from NSW and ACT because they arrive and leave by air. They are transported from and to the airport by taxis, including maxi-cabs, and/or the AIPM minibus.

The additional traffic volumes generated by the new course members were estimated to be in the order of 14 to 16 trips for the total arrival or departure periods, typically on Sunday and Friday afternoons. As noted before, these periods spread over a number of hours and thus the additional peak hour generation is estimated to be in the order of 3 to 6 car trips. This is an insignificant increase which will not affect the traffic conditions in Collins Beach Road and further in the street network.

The existing AIPM activities involve a variety of deliveries made by different types of commercial vehicles, which range from Small Rigid Vehicles (SRV) to Heavy Rigid Vehicles (HRV). HRVs are the largest vehicles servicing the site. The types and frequencies of deliveries are shown in a Table included in **Appendix A** of the present report. An inspection of this Table reveals that the only increase in the number of trips for servicing vehicles may be that of garbage trucks, which will be required to collect 4 skips instead of the present 3 skips on Sunday and Wednesday afternoons. This is regarded as a very minor change.

The proposed redevelopment is thus regarded as satisfactory on traffic grounds.

Additional parking demand from the course members is likely to be in the order of 2 to 3 cars. Together with the additional staff cars this will amount to the total increase by 4 to 6 cars in addition to some 50 cars (existing

maximum demand). It is noted that the car parking provision on the AIPM site is limited to 48 spaces, with 34 spaces proposed at present. Due to this limitation, it is recommended that arrangements be made by the AIPM to minimise the on-site car parking by course members. This can be done by using a minibus more frequently to pick up the course members from an outside location where they can park their cars for the duration of the course. If

necessary, arrangements can be made with commercial car park operators in the nearby areas. It must be noted that the proposed increase in the number of concurrent courses is not designed to occur at all times, rather it is likely to occur over some 60% of annual program duration.

It may be concluded that the increased parking demand will be of low magnitude and can be managed to achieve a satisfactory outcome.

4.3 Car park design.

The design of the proposed new car parking and loading areas has been checked for compliance with the Australian Standards (AS). It was found to be satisfactory. Turning diagrams showing vehicle manoeuvring within the critical

areas are shown on the drawings included in **Appendix B**. These diagrams have been prepared using AutoTrack 8, vehicle swept path modelling software.

5 CONCLUSIONS AND RECOMMENDATIONS

1. The existing **maximum** parking demand generated by the AIPM is in the order of 50 cars (during busy periods). The existing parking provision is 37 spaces.
 2. The future parking provision at the AIPM is limited to 48 parking spaces, with 34 spaces proposed.
 3. The increased maximum parking demand resulting from the proposed redevelopment of the AIPM would be in the order of 54 to 56 cars if not managed. It is recommended that arrangements be made to pick up the resident course members off site using taxis or a minibus.
 4. The estimated traffic generation from the new development will be a minor addition to the existing traffic volumes and will not change low traffic volume conditions in Collins Beach Road. It will not affect the operation of the existing traffic system.
 5. Overall, the proposal may be supported on traffic and parking grounds.
-

6 REFERENCES

STANDARDS AUSTRALIA (2004). Australian Standard 2890.1 – Parking facilities: Part 1 – Off street parking. Australian Standards Association, Sydney, NSW.

RTA (2002). Guide to traffic generating developments: Issue 2.2. RTA, Sydney, NSW.

SAVOY COMPUTING (2007). User Manual for AutoTrack 8. Vehicle Swept Path Analysis. Savoy Computing Services Limited, Kent, England.

Appendix A

Deliveries

EXISTING			FUTURE		
Deliveries	Frequency	Vehicle Type	Deliveries	Frequency	Vehicle Type
Kitchen			Kitchen		
meat	2 per week	van			
seafood	2 per week	van			
drinks	1 per week	van			
wine	1 to 2 per month, 10 am - 2 pm	van/ HRV			
milk	2 to 3 per week	MRV			
bread	daily	SRV			
dry goods	2 per week	HRV			
paper (toilet/ handtowel)	1 per week or fortnight	SRV			
small goods	anyday	van			
fruit & veg	every second day	1 SRV & 1 MRV			
gas cylinders (3000L tank)	1 per 2 months	HRV	Proposed pipeline for supply		
equipment (cooking)	1 per 2 months	MRV			
Seniors Common Room			Seniors Common Room		
drinks	1 per week (Mon, Wed, or Fri only)	HRV			
Residential Blocks			Residential Blocks		
linen	Mon, Wed, and Fri, 10 am	van			
Garbage			Garbage		
garbage	3 skips, Sun 2 pm and Wed 12 pm	rear loader	garbage	4 skips, Sun 2 pm and Wed 12 pm	rear loader
recycling - cans/ bottles	Tue, 9 am	rear loader			
- paper	Wed, 1 am - 2 pm	rear loader			
grease pump	Sat Morning, 1 per 2 months	HRV	grease pump	Sat Morning, 1 per 2 months	HRV
Mail and Couriers			Mail and Couriers		
Mail	9 am - 9:30 am daily	van			
TNT couriers	9:30 am and 4 - 5 pm	vans			
Other couriers	varies, Mon - Fri	vans			
Coach Buses			Coach Buses		
	1 per week when courses are on				

Note: fields are left blank where there is no change in servicing arrangements.

Appendix B
Manoeuvring diagrams

