

Envisaged RACF & ILU DEVELOPMENT

58 Laitoki Road, Terrey Hills

Traffic and Parking Assessment

Ref: 18006
Date: September 2020
Issue: A

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1.0 Introduction

This report has been prepared to accompany an application to DPIE for a Site Compatibility Certificate for an envisaged aged care and accommodation complex on a large site on the corner of Laitoki Road and Cooyong Road at Terrey Hills (Figure 1).

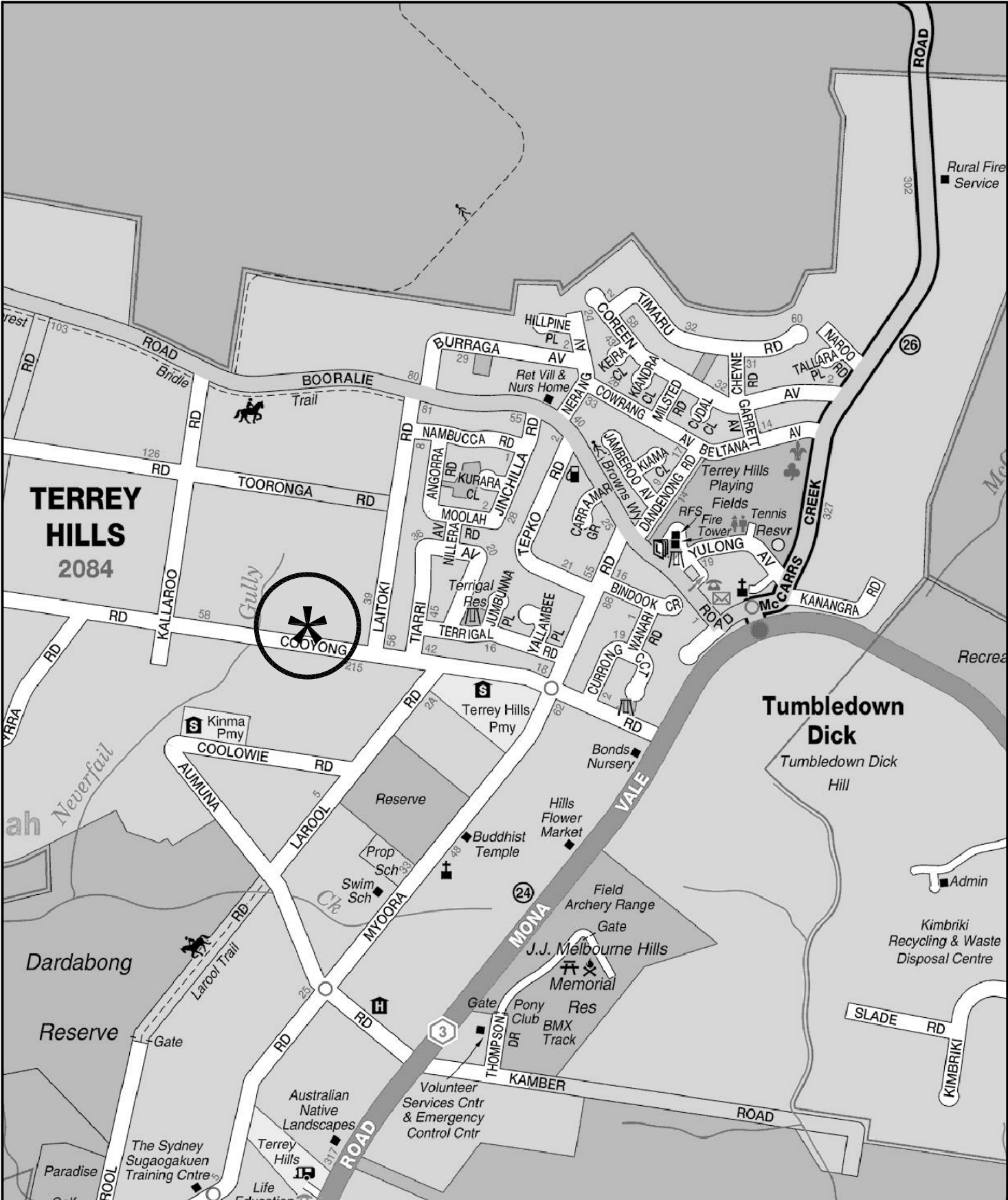
There is an increasing need to provide care and accommodation for the aging population particularly in established urban areas. The large landholding at Terrey Hills is ideally located in quiet and peaceful surrounds with access to public transport services. The envisaged development scheme comprises:

- 90 RACF beds
- 48 ILU's
- internal access road system
- extensive landscaped areas

A Site Compatibility Certificate has previously been issued for an identified envisaged development, however due to circumstances beyond control of the developer that Certificate has lapsed.

DPIE have advised that the new SCC application is required to:

- provide a Cumulative Impact Assessment
- take into account the capacity of existing or future services/facilities (e.g. public transport)
- take into account the capacity of existing and future infrastructure to accommodate any increase in traffic as a result of new development



LEGEND



LOCATION

FIG 1

The purpose of this report is to:

- ❖ describe the site, its context and the proposed development scheme and any other proposed development in the area
- ❖ describe the road network serving the site and the prevailing traffic conditions
- ❖ assess the adequacy of the envisaged parking provision
- ❖ assess the potential traffic and transport implications having regard for any other pending development proposals in the area
- ❖ assess the suitability of the envisaged access, internal circulation and servicing arrangements

2.0 Envisaged Development Scheme

2.1 Site, Context and Existing Circumstances

The site (Figure 2) is Lot 368 in DP752017 which occupies a generally rectangular area of 19,536m² with frontages to Laitoki Road and Cooyong Road.

The surrounding area comprises:

- ❖ residential dwellings extending to the east
- ❖ rural residential to the south and adjoining to the north and west
- ❖ Katz Stables to the north
- ❖ Kallaroy Park Equestrian Centre to the west

The site is currently a rural residential property with stables, arena and horse facilities which involve staff and customer visitation.

2.2 Envisaged Development

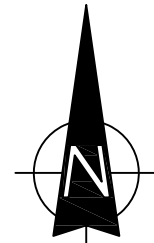
It would be proposed to demolish the existing buildings, clear the site and undertake some earthworks to provide for basement parking, level building platforms and the access road and hardstand areas. The envisaged development comprises:

Independent Living Apartments	45 x Two-bed & 3 x One-bed (48)
Residential Aged Care Facility	90 beds (22 dementia)
Administration	30 staff (maximum shift)
Ancillary Facilities	
Carparking	81 spaces (Basement and at-grade)
Vehicle Accesses	Cooyong Road

Details of the envisaged development are provided on the plans prepared by Calder Flower which accompany the Application and are reproduced in part in Appendix A.



LEGEND



LOCATION

FIG 2

2.3 Other Development

It is understood that the only other currently proposed or envisaged development in the vicinity of the site at Terrey Hills involves an application for a SCC for 25 Laitoki Road.

This application envisages a Seniors Living complex with 54 dwellings on a large site of some 20,200m².

Details of this envisaged development are provided on the plans provided in Appendix B.

3.0 Road Network and Traffic Conditions

3.1 Road Network

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

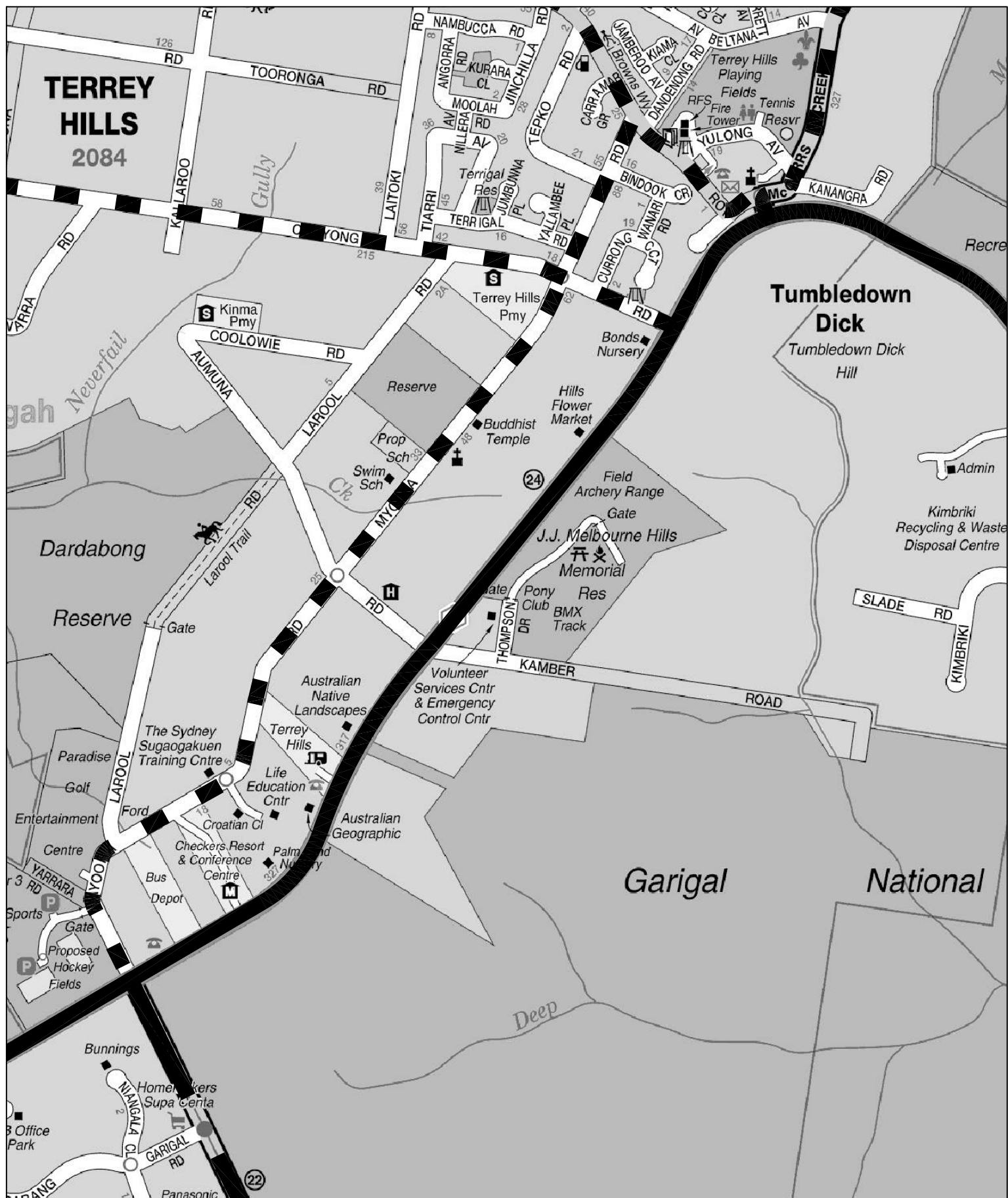
- ❖ *Mona Vale Road* – a State Road and arterial route connecting between the Pacific Highway at Gordon and Pittwater Road at Mona Vale
- ❖ *Forest Way* – a State Road and arterial route connecting between Mona Vale Road and Warringah Road
- ❖ *McCarrs Creek Road* – a State Road and major collector route linking between Terrey Hills and Church Point
- ❖ *Booralie Road* – a collector road providing access to Terrey Hills and Duffys Forest
- ❖ *Myoora Road* – a collector road connecting between Mona Vale Road at Forest Way and Booralie Road
- ❖ *Cooyong Road* – a minor collector road which runs to the west of Mona Vale Road

Cooyong Road has a relatively straight alignment with levels falling to the west with one traffic lane in each direction while Laitoki Road is a local access road with a traffic lane in each direction.

3.2 Traffic Controls

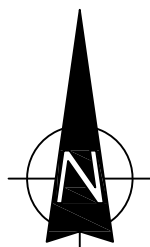
The existing traffic controls which have been applied to the roads in the vicinity of the site (Figure 4) include:

- ❖ traffic signals at the Mona Vale Road, Forest Way and Myoora Road intersection which incorporate the prohibition of the right-turn movement from Mona Vale Road to Myoora Road



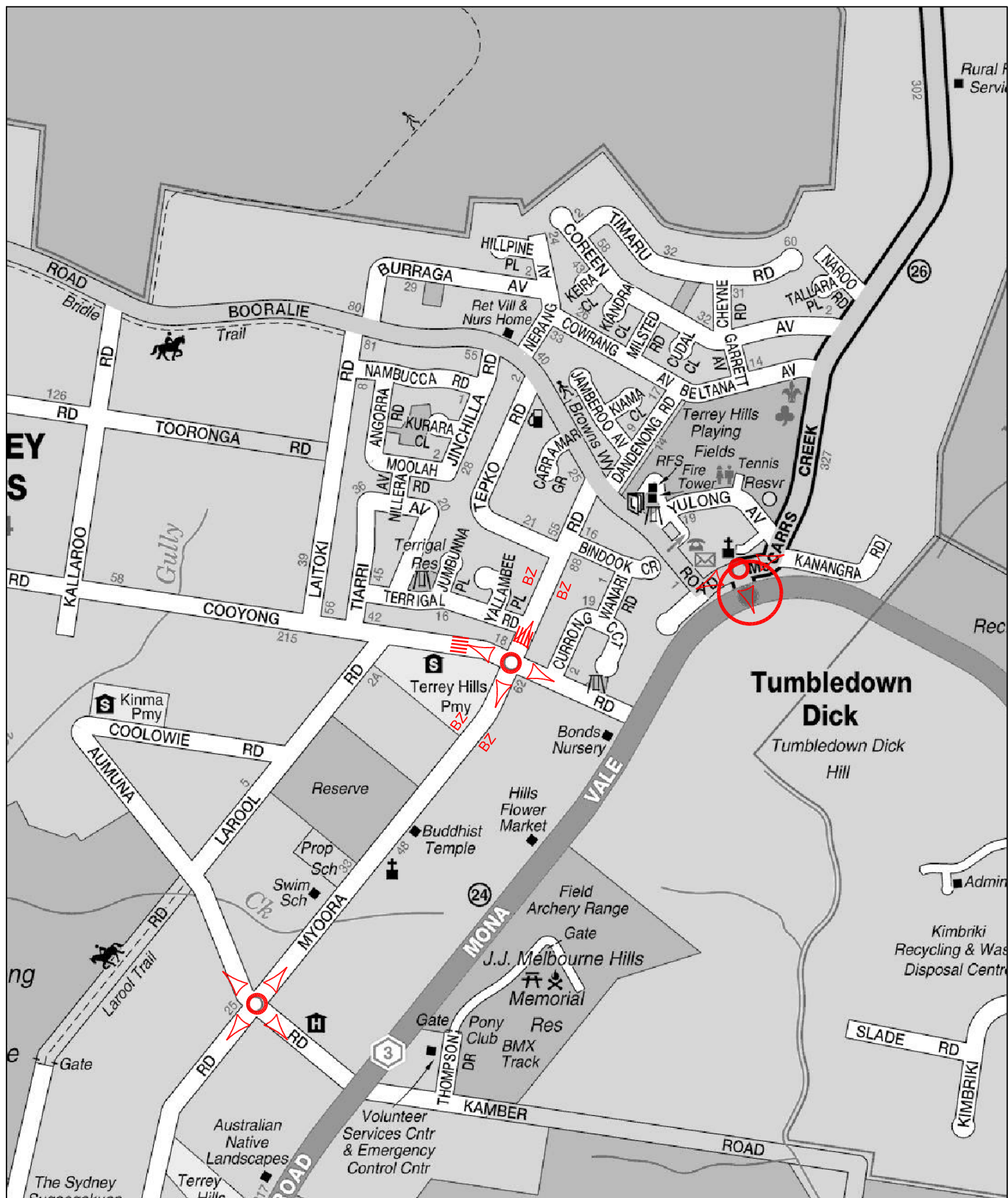
LEGEND

- ARTERIAL
- SUB-ARTERIAL
- COLLECTOR








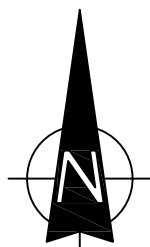
ROAD NETWORK

FIG 3



LEGEND

-  TRAFFIC SIGNAL CONTROL
-  ROUNDABOUT
-  RESTRICTED TURNING MOVEMENT
-  PEDESTRIAN CROSSING
-  BUS ZONE



TRAFFIC CONTROLS

FIG 4

- ❖ the traffic signals at the Mona Vale Road and McCarrs Creek Road intersection
- ❖ the roundabout at the Booralie Road and McCarrs Creek Road intersection
- ❖ the roundabout at the Myoora Road and Cooyong Road intersection
- ❖ the bus stops on both sides of Myoora Road to the north and south of Cooyong Road
- ❖ the marked pedestrian crossings on Cooyong Road and Myoora Road near the intersections of those roads
- ❖ the 50kmph speed restriction on Myoora Road, Cooyong Road and Laitoki Road with sections of 40 kph school speed zone on the two former road at the Primary School frontage

3.3 Traffic Conditions

An indication of the existing traffic conditions in the vicinity of the site is provided by data published by TfNSW and surveys undertaken as part of this assessment. The data published by TfNSW is expressed in terms of Annual Average Daily Traffic (AADT) and the most recently available data is summarised in the following:

Location	AADT
Mona Vale Road west of Forest Way	32,812

Traffic surveys have been undertaken at the Cooyong Road/Laitoki Road and Laitoki Road/Booralie Road intersections during the AM and PM peak periods. The results of these surveys are provided in Appendix C and summarised in the following:

	AM	PM
Cooyong		
EB	100	66
LT	-	1
WB	122	80
RT	17	28

Laitoki		
RT	-	-
LT	30	11
<hr/>		
Booralie		
EB	288	233
RT	4	2
WB	345	130
LT	7	22
Laitoki		
RT	14	18
LT	8	10

These peak traffic movements are quite minor, particularly along Laitoki Road and it is apparent that the intersections in the area operate quite satisfactorily at the present time with substantial spare capacity and an absence of any queuing or delay.

3.4 Future Circumstances

TfNSW has commenced the long-awaited upgrade of Mona Vale Road which will provide 2 lanes in each direction between Terrey Hills and Mona Vale (see details overleaf).

Completion of this work will provide significant relief to the existing congestion and safety circumstances on this section of road. Mona Vale Road already has 2 lanes in each direction between Terrey Hills and Belrose and the Mona Vale Road/Forestway/Myoora Road intersection has recently been upgraded with road widening works.

Mona Vale Road West

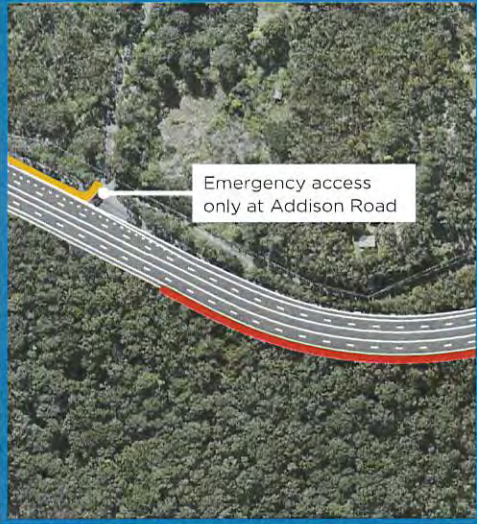
1 - Kimbriki Road intersection



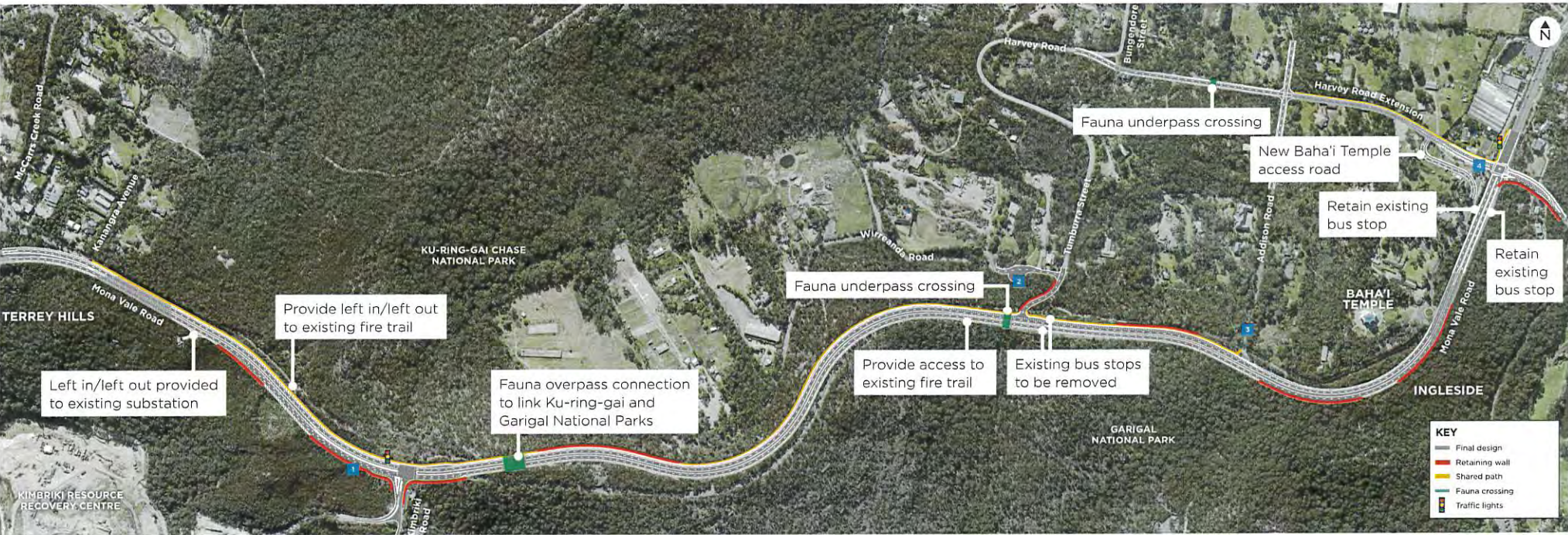
2 - Tumburra Street intersection



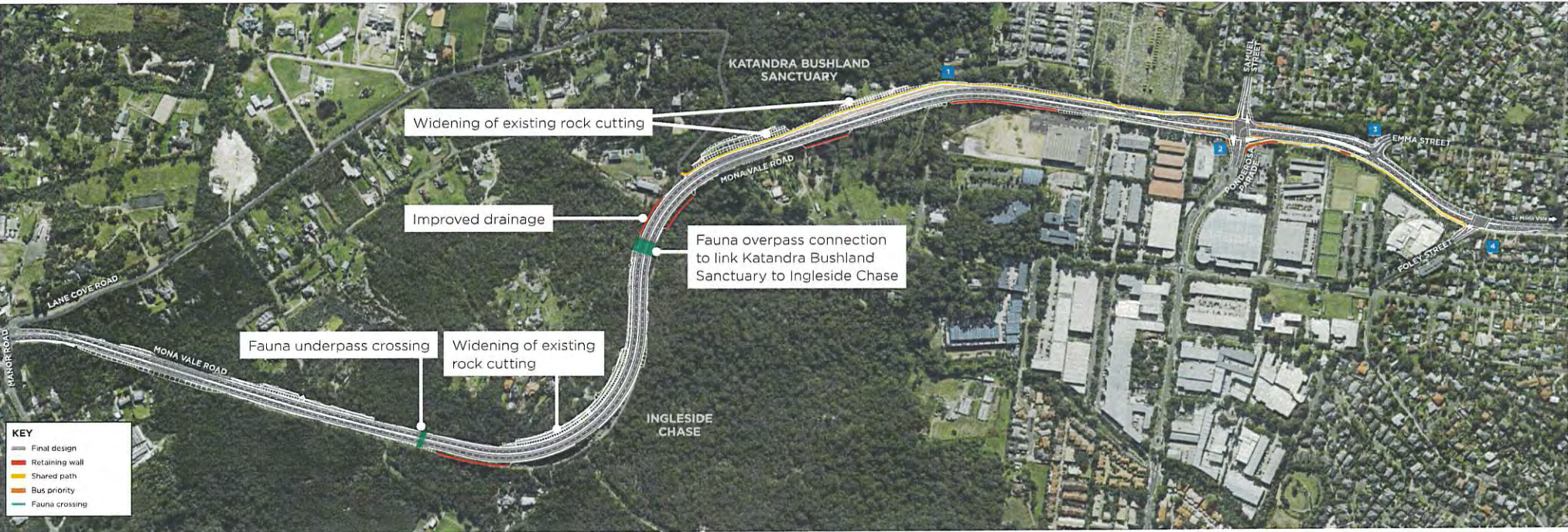
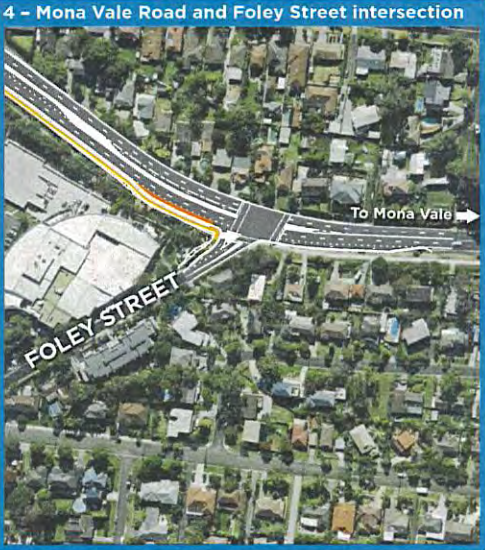
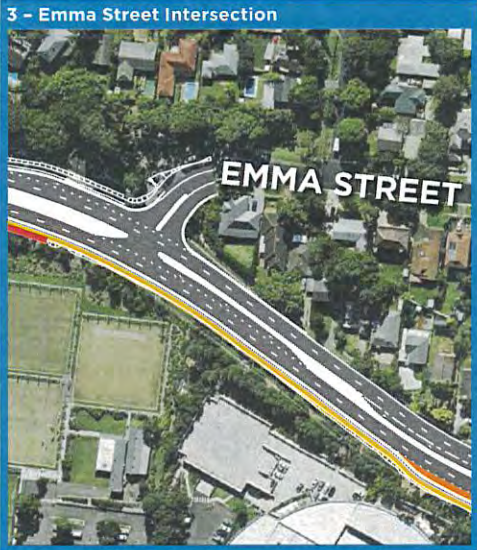
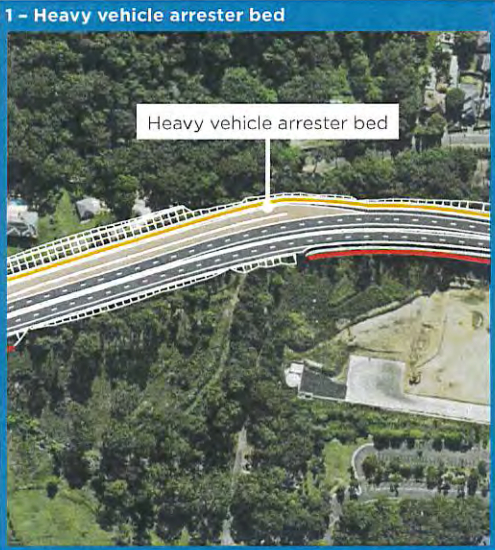
3 - Addison Road



4 - Powderworks Road intersection



Mona Vale Road East



4.0 Transport Services

There are a total of 7 bus routes operating along Myora Road terminating at Booralie Road (except for 1 route which continues to Duffys Forest and 2 which continue to Mona Vale) as indicated on the route maps provided in Appendix D.

These services comprise:

		Frequency
Route 196	Mona Vale to Gordon	20 min & 60 min
Route 197	Mona Vale to Macquarie University	30 min & 60 min
Route 260	Terrey Hills to North Sydney	20 min AM & PM
Route 270	Terrey Hills to City	30 min
Route L70	Terrey Hills to City	20 min AM
Route 271	Terrey Hills to City	30 min early & late
Route 284	Duffy Forest to Chatswood	2 AM & PM

The frequency of these routes varies; however, they are arranged to provide a consistent arrival and departure (e.g. 271 is for the early morning and late evening periods only). There are bus stops located within 400m of the Laitoki Road site and Forest Coach Lines have advised that there is significant spare seating capacity on these services.

In combination however, they provide very frequent services particularly to/from the City and residents will be readily able to walk to/from the bus stops and particular features are:

- ❖ the paved footpaths along Laitoki Road and Booralie Road between the northern boundary of the site and the bus stops and this would be extended across the site frontage
- ❖ the bus shelters and seating provided at the outbound bus stops
- ❖ the marked pedestrian crossing across Booralie Road

Transport and Traffic Planning Associates

- ❖ the kerb ramps provided at all road crossings
- ❖ the “splitter” islands at the Myoora Road and Cooyong Road intersection roundabout which act as “refuge” islands for pedestrians who choose to cross at this intersection
- ❖ the good street lighting
- ❖ the speed limit is 50 kmph with 40 kmph school zone restrictions on Myoora Road and Cooyong Road

It is also envisaged an “on demand” mini bus service would be provided and operated by the development and this would transport staff and residents to/from the bus stops as well as shops and other services.

5.0 Traffic

The TfNSW Development Guidelines (TDT 2013-46) provide traffic generation criteria in relation to aged persons accommodation however unfortunately the data results are aggregated between the different classes of accommodation (i.e. RACF, ILU's, etc.) and do not provide an accurate definition in relation to the proposed development.

TTPA have undertaken survey and assessment of numerous RACF and Independent Living Unit developments particularly for major developers including BaptistCare and Anglicare.

The results of recent comprehensive surveys undertaken by TTPA indicate the following generation rates:

	AM	PM
RACF	0.17 vtph/bed	0.22 vtph/bed
ILU homes (separate/attached)	0.25 vtph/dwelling	0.25 vtph/dwelling
ILU apartments	0.20 vph/apartment	0.20 vtph/apartment

Application of this criteria to the envisaged development and the 25 Laitoki Road development would indicate the following:

	AM	PM
58 Laitoki Road		
90 beds	15 vtph	20 vtph
48 Apts @ 0.20	10 vtph	10 vtph
25 Laitoki Road		
54 townhouses @ 0.25	14 vtph	14 vtph
Total:	39 vtph	44 vtph

The projected distribution of movements during the peak periods is as follows:

AM		PM	
IN	OUT	IN	OUT
23	16	17	27

These access movements will be distributed over the proposed to access driveways and the majority of movements will be to/from the east (i.e. Myoora Road and Mona Vale Road). This projected traffic generation would be discounted by that of the existing uses on the two sites (particularly the equestrienne activity of No. 58).

The projected traffic movements will not present any adverse access, delay or capacity implications and the traffic outcome will be entirely compatible with the existing road network particularly as a result of the traffic signal-controlled access intersections on Mona Vale Road (i.e. McCarrs Creek Road and Myoora Road) and the roundabout controls on intersections along Myoora Road all of which operate at present with significant spare capacity.

6.0 Bush Fire Safety

Assessment of the proposed development in relation to Clauses 27 (2) f & g of the SEPP (Housing for Seniors or People with Disability 2004) is as follows:

- (f) *the road network within the locality and the capacity of the road network to cater for traffic to and from existing development if there were a need to evacuate persons from the locality in the event of a bush fire,*

The road network serving the site includes:

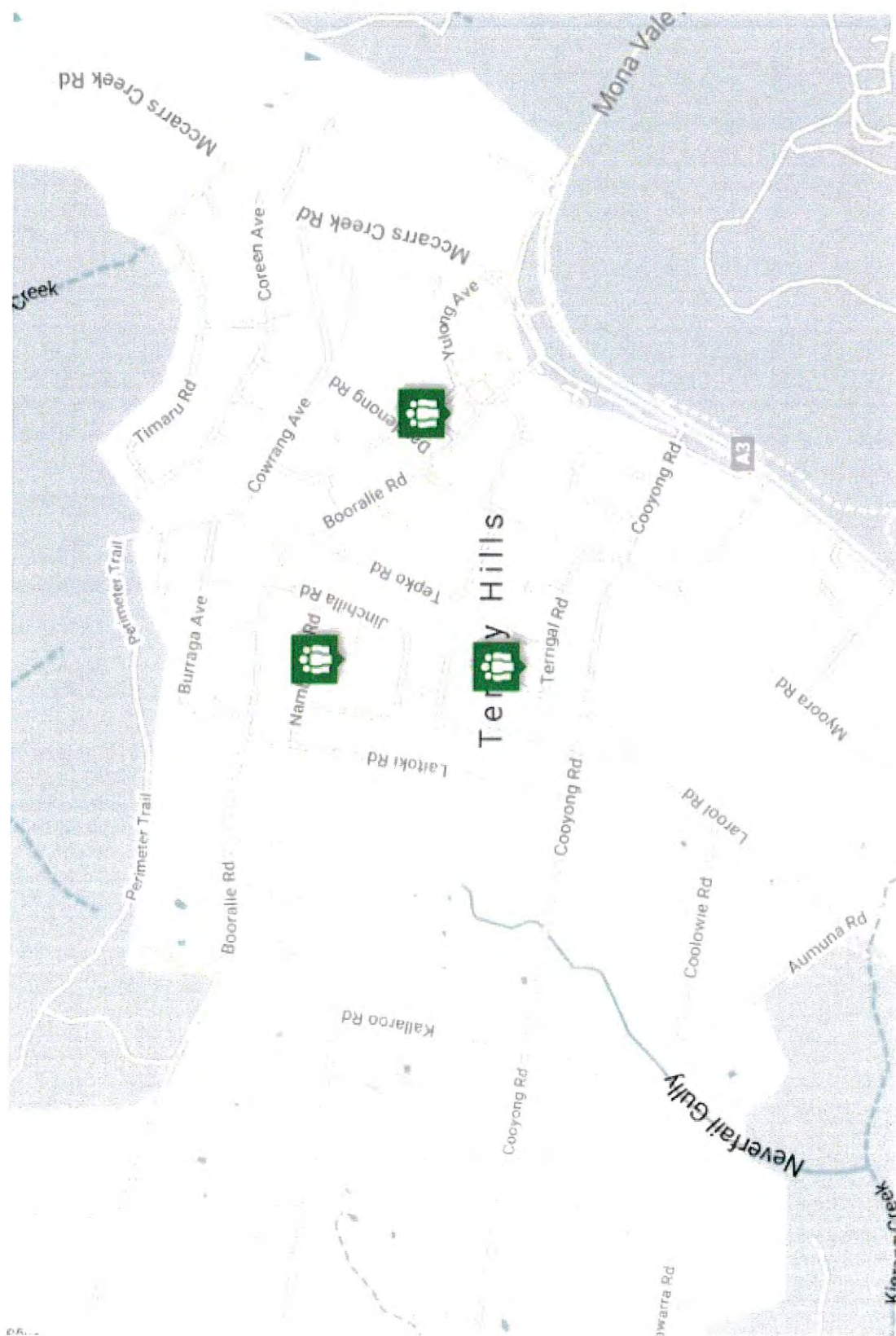
- 4 access intersections on Mona Vale Road including 2 which have traffic signal control (see Appendix E aerial images)
- Roundabout controls on 3 access intersections

The site is situated only some 900m from Mona Vale Road (i.e. along either Cooyong Road or Booralie Road) and these roadways have a wide single bitumen through lane in each direction with a capacity exceeding 1,000 vph.

Accordingly, there is immediate ready access to the high capacity arterial road available for emergency egress in the case of a bush fire event together with ready access to the potential safety areas of Terrigal Reserve – Terrigal Road, Kurara Reserve – Kurara Close, Frank Beckman Reserve – Yulong Avenue (see details overleaf).

It is apparent that the existing road/intersection access provisions have more than adequate capacity to provide for an emergency evacuation circumstance.

- (g) *the adequacy of access to and from the site of the proposed development for emergency response vehicles,*



The availability of the existing vehicle access provisions specified in the foregoing will also ensure that adequate access will be available for emergency response vehicle to attend the site.

The road access is straight and relatively level and wide enough to accommodate Fire appliances traffic in each direction at the same time. In addition, there will be a wide access driveway on the Cooyong Road frontage with connecting internal driveways extending across the width of the site which will readily accommodate Fire appliance access.

7.0 Access, Internal Circulation and Servicing

Access

Vehicle access would be provided by two 6m wide combined ingress/egress driveways on the Cooyong Road frontage. The design of the driveways would comply with the requirements of AS2890.1 and there will be satisfactory sight distances available due to the straight alignment of the roadway.

Internal Circulation

The carparking areas would be designed to accord with AS2890.1 and AS2890.6 and the simple two-way arrangements within the carpark area and access driveway system will provide a very flexible and accessible outcome.

Servicing

Deliveries and refuse removal would be undertaken in the loading bay and provision is made for vehicles up to 10.2 metres to access this bay.

Service personnel and small delivery vehicles will also be able to utilise the visitor spaces.

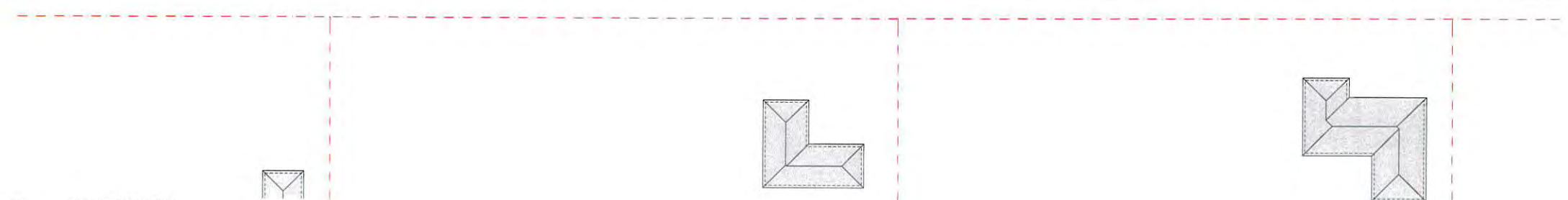
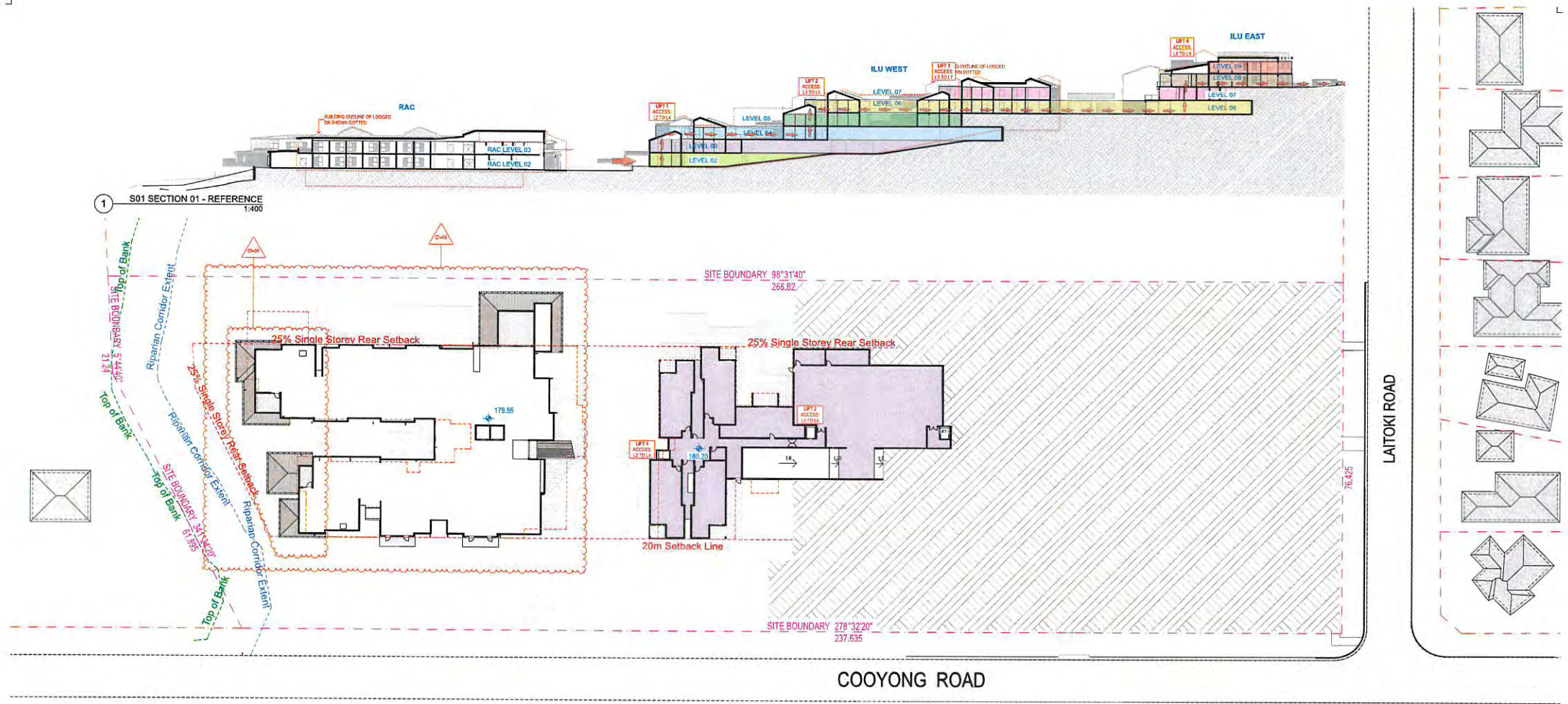
8.0 Conclusion

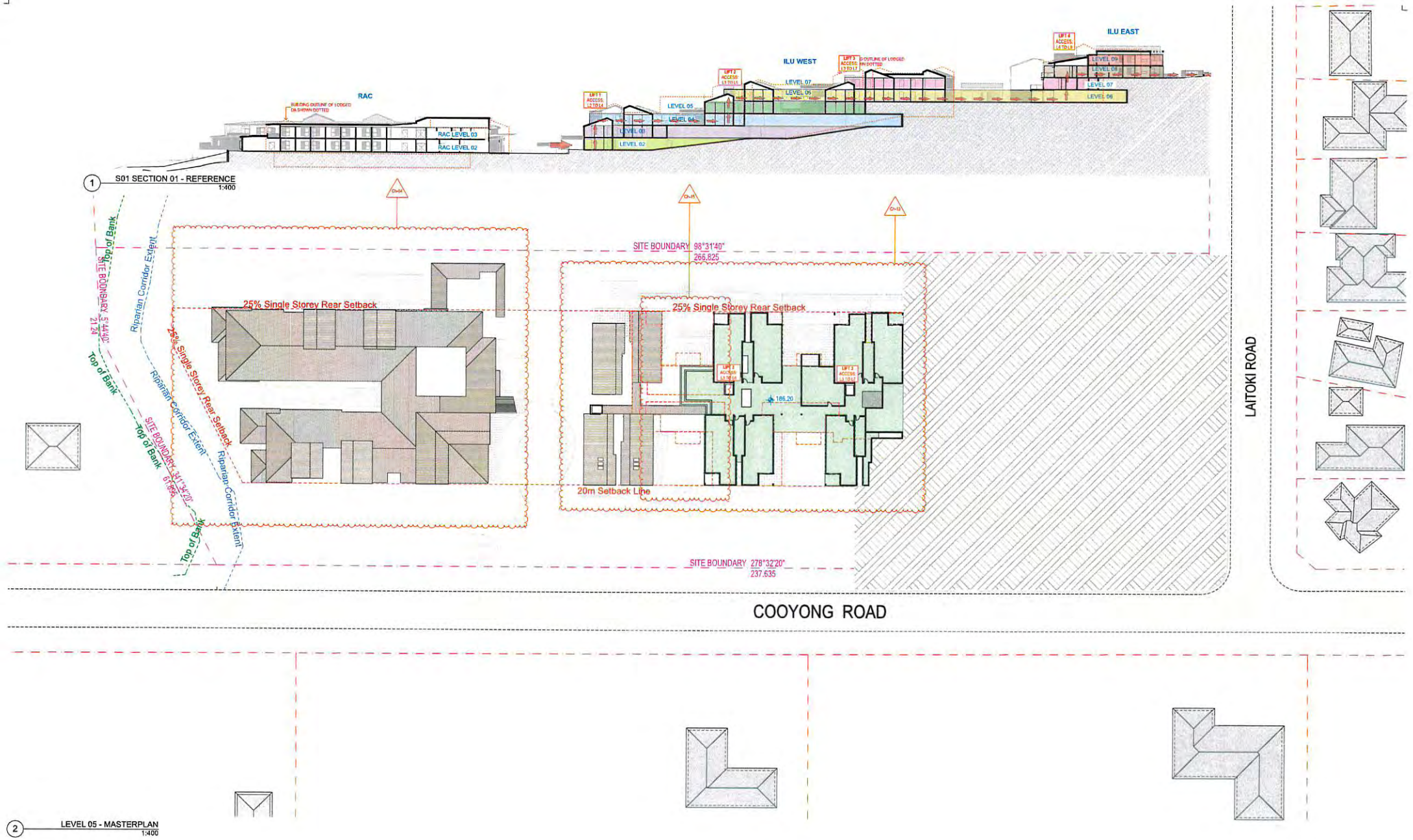
The envisaged aged persons complex at 58 Laitoki Road, Terrey Hills would provide for the aging population in the Northern Beaches Peninsula. Assessment of the potential cumulative, traffic and transport implications of the envisaged scheme has concluded that:

- * there will be no adverse or unsatisfactory traffic implications and there is quite adequate capacity on the existing (and future) road system to accommodate the traffic generated by the envisaged developments
- * the transport needs of residents, visitors and staff will be adequately catered for by the available bus services and the “on demand” mini bus service operated by the development
- * the envisaged vehicle access, internal circulation and servicing provisions will be quite suitable and appropriate

Appendix A

Concept Plan





2 LEVEL 05 - MASTERPLAN
1:400

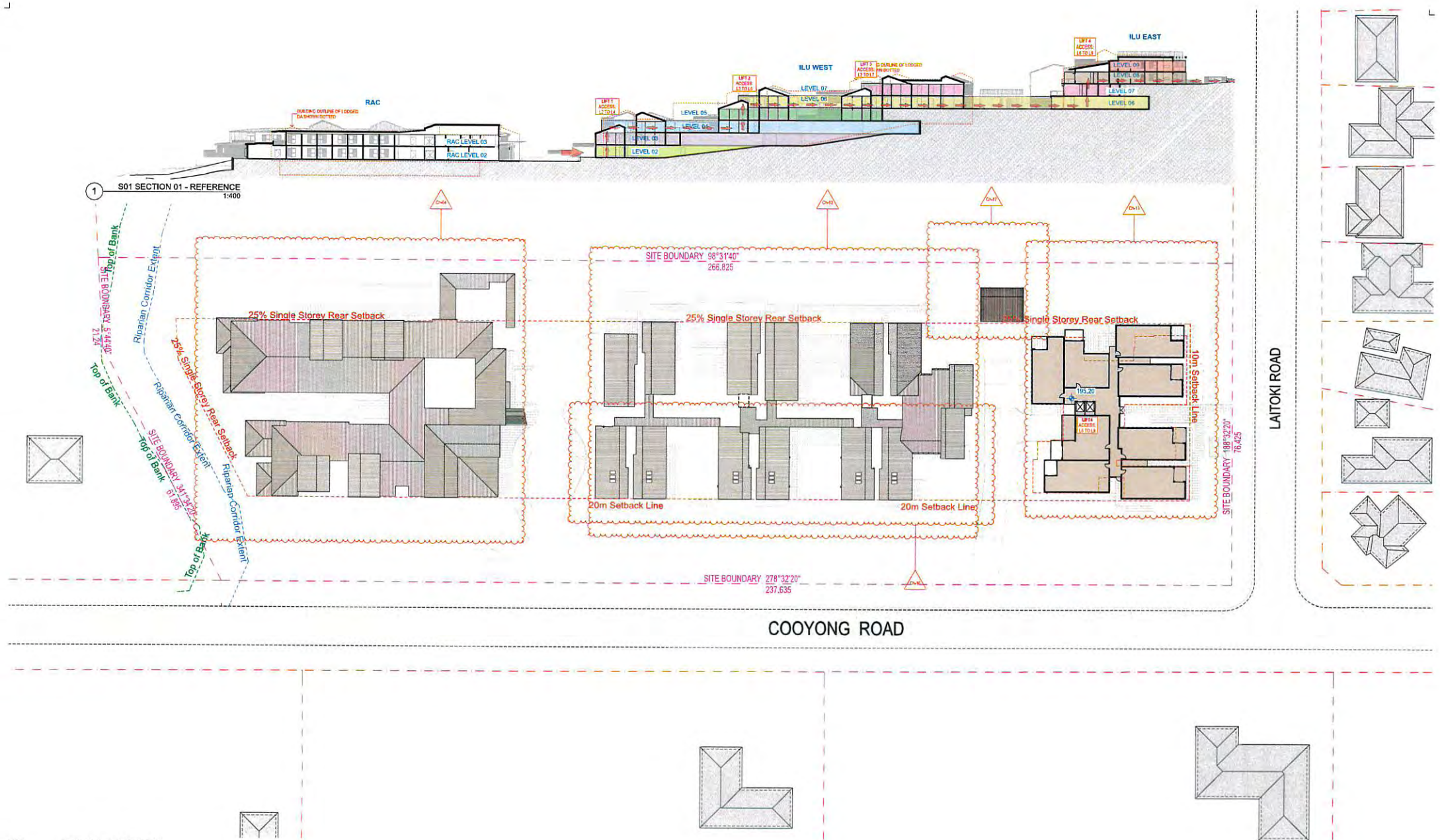
CLIENT:
Tolucy Pty Limited

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 1. AMENDMENT 1
 2. AMENDMENT 2
 3. AMENDMENT 3
 4. AMENDMENT 4
 5. AMENDMENT 5
 6. AMENDMENT 6
 7. AMENDMENT 7
 8. AMENDMENT 8
 9. AMENDMENT 9
 10. AMENDMENT 10

NO.	DESCRIPTION	DATE	BY	CHECKED BY
1	Issue for LEC Determination	10/10/2024	DA	DA
2	Issue for Development Application	10/10/2024	DA	DA
3	Issue for Construction	10/10/2024	DA	DA
4	Issue for Completion	10/10/2024	DA	DA

NOTES:
 - Do not scale from this drawing. Use figure dimensions only.
 - Contact the Calder Flower Architects for clarifications if required.
 - Calder Flower Architects are not liable for any loss, damage, claim, cost or expense as a result of the use or receipt of drawings issued in DMS format.
 - Refer to Landscape Documentation for external works and all base information and external information.

PROJECT:
TERREY HILLS PROPOSED SENIORS COMMUNITY
 58 LAITOKI ROAD TERREY HILLS, NSW 2084
 DRAWING TITLE:
SITE PLAN - MASTER PLAN LEVEL 05



2 LEVEL 08 - MASTERPLAN
1:400

NO.	DESCRIPTION	DATE	BY	CHECKED BY	APPROVED BY
1	Issue for LEC Determination	11/11/2020	AF	CF	CF
2	Issue for LEC Determination	11/11/2020	AF	CF	CF
3	Issue for LEC Determination	11/11/2020	AF	CF	CF
4	Issue for LEC Determination	11/11/2020	AF	CF	CF
5	Issue for LEC Determination	11/11/2020	AF	CF	CF
6	Issue for LEC Determination	11/11/2020	AF	CF	CF
7	Issue for LEC Determination	11/11/2020	AF	CF	CF
8	Issue for LEC Determination	11/11/2020	AF	CF	CF
9	Issue for LEC Determination	11/11/2020	AF	CF	CF
10	Issue for LEC Determination	11/11/2020	AF	CF	CF

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NOT FOR CONSTRUCTION

PROJECT:
TERREY HILLS PROPOSED SENIORS COMMUNITY
 58 LAITOKI ROAD TERREY HILLS, NSW 2084

DRAWING TITLE:
SITE PLAN - MASTER PLAN LEVEL 08

Appendix B

Plans of Other Development

02 First Floor Plan

Scale: 1:500



Appendix C

Traffic Survey Results

Location Booralie Road Duration 7:00 - 9:00
Booralie Road 16:00 - 18:00
Laitoki Road
Booralie Road
Suburb TERREY HILLS Day/Date Thursday, 31 October 2019
Weather -

All Vehicles											NORTH											EAST														
											L			I			R														TOTAL		TOTAL			
											LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ												TOTAL	LIGHT	HEAVY	TOTAL		
7:00 - 8:00																				12	1	13	211	10	221						234	390	15	405		
7:15 - 8:15																				10	1	11	237	11	248						259	413	17	430		
7:30 - 8:30																				12	1	13	280	17	297						310	466	30	496		
8:00 - 9:00																				7	0	7	319	26	345						352	615	51	666		
Period End																																				
16:00 - 17:00																				22	0	22	127	3	130						152	407	8	415		
16:15 - 17:15																				16	0	16	112	4	116						132	367	7	374		
16:30 - 17:30																				16	0	16	106	4	110						126	349	7	356		
17:00 - 18:00																				12	0	12	128	2	130						142	351	5	356		
Period End																																				

All Vehicles Time Per Hour	SOUTH Laitoki Road												WEST Booralie Road														
	L			I			R			TOTAL	L			I			R			TOTAL	TOTAL		TOTAL				
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY					
7:00 - 8:00	3	0	3	0	0	0	13	0	13	16	0	0	0	148	4	152	3	0	3	155	390	15	405				
7:15 - 8:15	3	0	3	0	0	0	13	0	13	16	0	0	0	148	5	153	2	0	2	155	413	17	430				
7:30 - 8:30	3	0	3	0	0	0	7	0	7	10	0	0	0	163	12	175	1	0	1	176	466	30	496				
7:45 - 8:45	6	0	6	0	0	0	10	0	10	16	0	0	0	232	18	250	3	0	3	253	584	43	627				
8:00 - 9:00	8	0	8	0	0	0	14	0	14	22	0	0	0	263	25	288	4	0	4	292	615	51	666				
Period End																											
16:00 - 17:00	10	0	10	0	0	0	18	0	18	28	0	0	0	228	5	233	2	0	2	235	407	8	415				
16:15 - 17:15	7	0	7	0	0	0	13	0	13	20	0	0	0	218	3	221	1	0	1	222	367	7	374				
16:30 - 17:30	6	0	6	0	0	0	12	0	12	18	0	0	0	208	3	211	1	0	1	212	349	7	356				
16:45 - 17:45	6	0	6	0	0	0	14	0	14	20	0	0	0	205	3	208	3	0	3	211	356	5	361				
17:00 - 18:00	5	0	5	0	0	0	17	0	17	22	0	0	0	185	3	188	4	0	4	192	351	5	356				
Period End																											

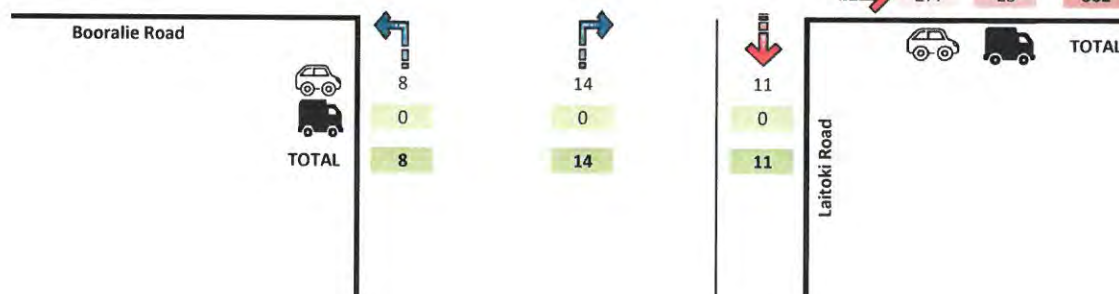
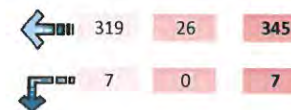
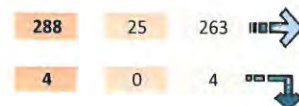
Location _____
 _____ Booralie Road
 _____ Laitoki Road
 _____ Booralie Road
 Suburb _____ TERREY HILLS

Duration 7:00 - 9:00
 16:00 - 18:00

 Day/Date Thursday, 31 October 2019
 Weather _____

DATA SELECTION
 Select Time: PEAK

TIME RANGE		
PEAK	-	AM
PEAK		
8:00	-	9:00



Traffic Information Specialist

ABN: 42 613 389 923
 Email info@tistrffic.com.au

Location _____
 _____ Booralie Road
 _____ Laitoki Road
 _____ Booralie Road
 Suburb _____ TERREY HILLS

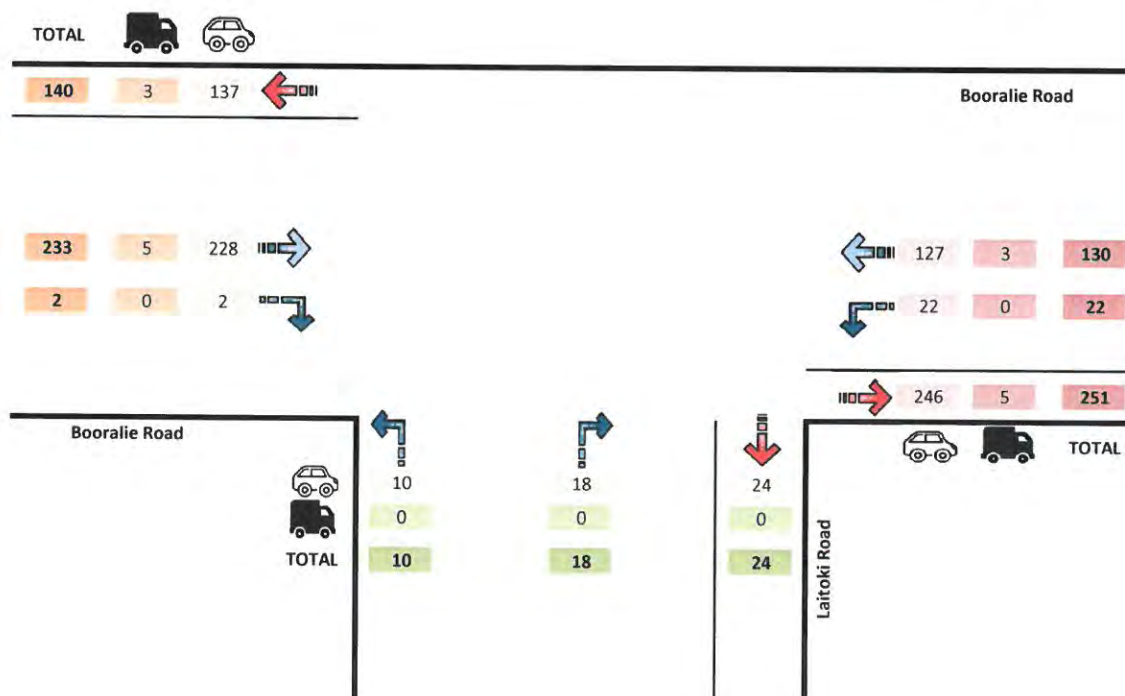
Duration 7:00 - 9:00
 16:00 - 18:00

 Day/Date Thursday, 31 October 2019
 Weather _____

DATA SELECTION

Select Time: PEAK ▼

TIME RANGE		
PEAK	-	PM
PEAK		
16:00	-	17:00



Traffic Information Specialist

ABN: 42 613 389 923

Email info@tistraffic.com.au

Location	Laitoki Road	Duration	7:00 - 9:00
	Cooyong Road		16:00 - 18:00
	-		-
	Cooyong Road	Day/Date	Thursday, 31 October 2019
Suburb	TERREY HILLS	Weather	-

All Vehicles		NORTH										EAST												
Time Per Hour		Laitoki Road										Cooyong Road												
		L			I			R			TOTAL	L			I			R			TOTAL	TOTAL		TOTAL
		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	
7:00	- 8:00	33	2	35				1	0	1	36				66	1	67	9	1	10	77	157	7	164
7:15	- 8:15	32	1	33				1	0	1	34				83	1	84	9	1	10	94	174	5	179
7:30	- 8:30	32	2	34				1	0	1	35				102	0	102	11	1	12	114	203	4	207
7:45	- 8:45	28	2	30				0	0	0	30				124	3	127	12	1	13	140	236	6	242
8:00	- 9:00	30	1	31				0	0	0	31				119	3	122	16	1	17	139	263	7	270
Period End																								
16:00	- 17:00	7	1	8				0	0	0	8				65	2	67	28	0	28	95	176	6	182
16:15	- 17:15	8	0	8				0	0	0	8				67	1	68	29	0	29	97	171	5	176
16:30	- 17:30	11	0	11				0	0	0	11				79	1	80	28	0	28	108	183	3	186
16:45	- 17:45	12	0	12				1	0	1	13				75	1	76	32	0	32	108	175	3	178
17:00	- 18:00	15	0	15				1	0	1	16				67	0	67	31	0	31	98	168	1	169
Period End																								

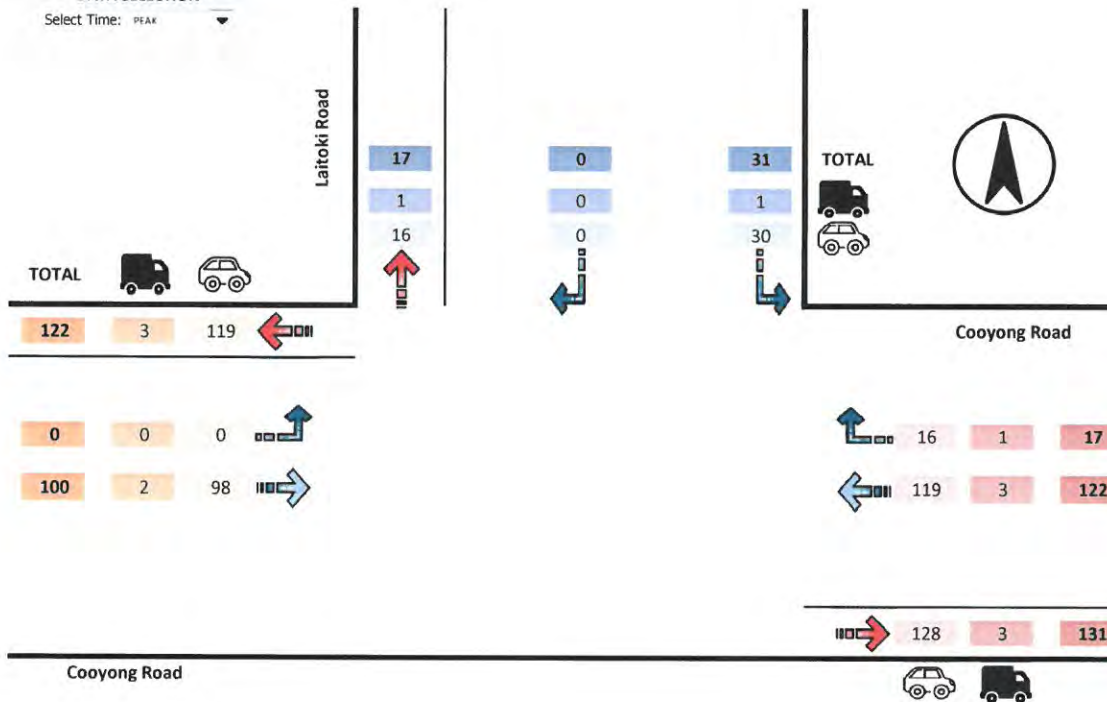
All Vehicles		SOUTH										WEST												
Time Per Hour		-										Cooyong Road												
		L			I			R			TOTAL	L			I			R			TOTAL	TOTAL		TOTAL
		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ		LIGHT	HEAVY	
7:00	- 8:00											2	0	2	46	3	49				51	157	7	164
7:15	- 8:15											0	0	0	49	2	51				51	174	5	179
7:30	- 8:30											0	0	0	57	1	58				58	203	4	207
7:45	- 8:45											0	0	0	72	0	72				72	236	6	242
8:00	- 9:00											0	0	0	98	2	100				100	263	7	270
Period End																								
16:00	- 17:00											3	0	3	73	3	76				79	176	6	182
16:15	- 17:15											2	0	2	65	4	69				71	171	5	176
16:30	- 17:30											1	0	1	64	2	66				67	183	3	186
16:45	- 17:45											0	0	0	55	2	57				57	175	3	178
17:00	- 18:00											0	0	0	54	1	55				55	168	1	169
Period End																								

Location Laitoki Road
Cooyong Road
-
Cooyong Road
Suburb TERREY HILLS

Duration 7:00 - 9:00
16:00 - 18:00
-
Day/Date Thursday, 31 October 2019
Weather -

DATA SELECTION

Select Time: **PEAK**



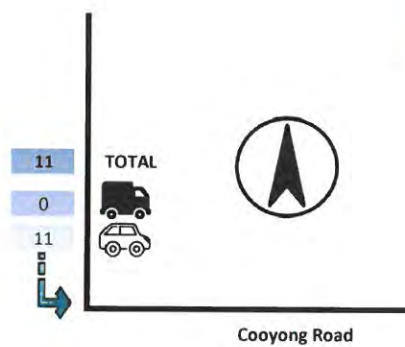
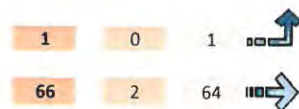
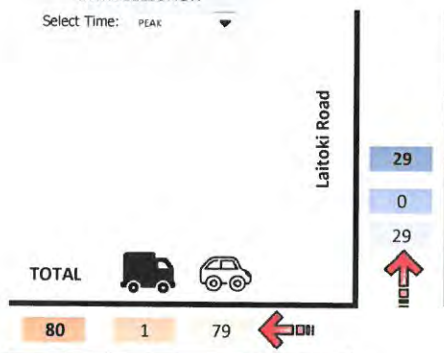
TIME RANGE		
PEAK	-	AM
PEAK		
8:00	-	9:00

Traffic Information Specialist

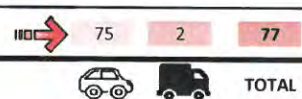
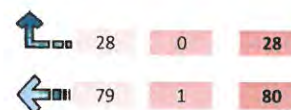
Location	Laitoki Road
	Cooyong Road
	-
	Cooyong Road
	TERREY HILLS
Suburb	

Duration	7:00 - 9:00
	16:00 - 18:00
	-
Day/Date	Thursday, 31 October 2019
Weather	-

DATA SELECTION

Select Time: PEAK 

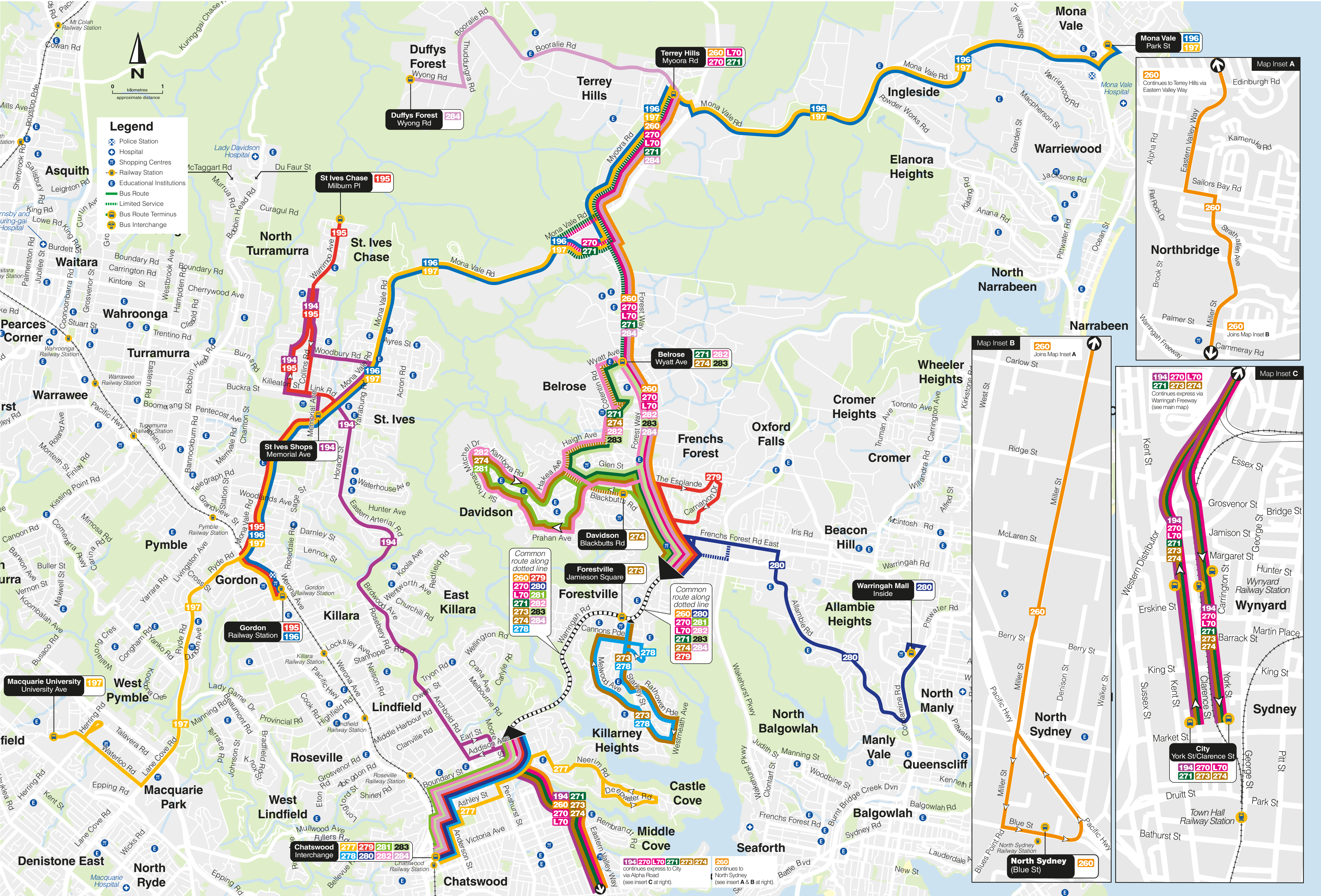
TIME RANGE		
PEAK	-	PM
PEAK		
16:30	-	17:30



Appendix D

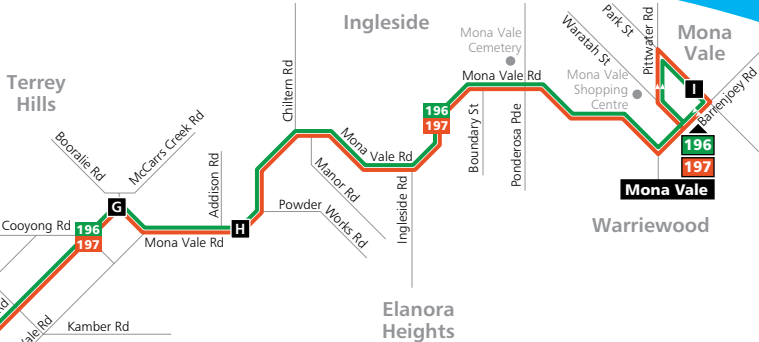
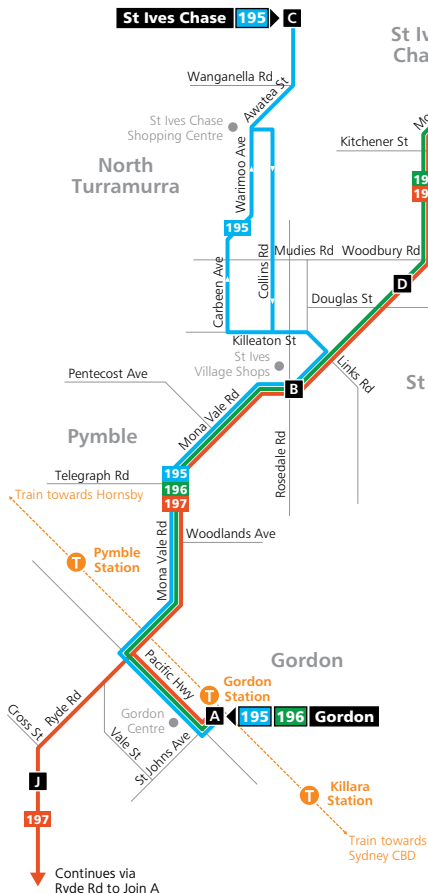
Bus Route Details

Network Map



Explanation of definitions and symbols

- A Journey diverts via Link Road, Killeaton Street, Carbeen Avenue and Warrimoo Avenue to St Ives Chase before proceeding to Gordon.
- C Journey continues beyond Dalton Road to Milburn Place only if required, then travels to Austlink before returning to Gordon Station.
- D Change buses for travel to Duffys Forest.
- S Bus operates on school days only.
- X Change buses for travel to Gordon.
- ... Bus does not stop at this timing point.



Route 195, 196 & 197 services

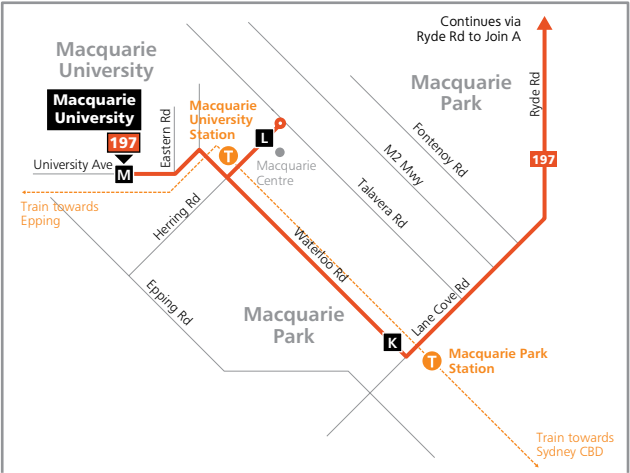
The **Routes 195, 196 & 197** service the corridor of Monvale Road and Ryde Road providing a link with the North Shore Railway at Gordon Station.

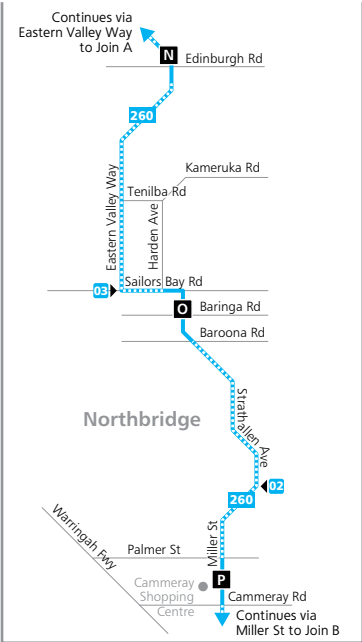
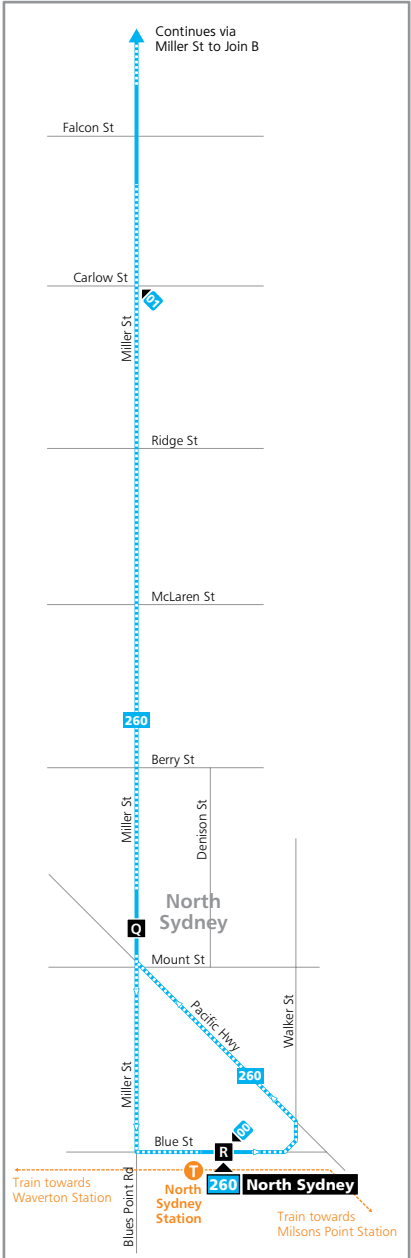
The **Route 195** operates between St Ives Chase and Gordon Station via St Ives Village Shops. It joins Monvale Road at Link Road and forms a common route with the Route 196.

The **Route 196** operates between Monvale and Gordon Station via Austlink Business Park and St Ives Village Shops. Services at Monvale stop at a common point with State Transit services to facilitate transfers with other services along Pittwater Road.

The **Route 197** operates between Monvale and Macquarie University via Austlink Business Park, St Ives Village Shops and Gordon Station. Services at Monvale stop at a common point with State Transit services to facilitate transfers with other services along Pittwater Road.

The **Route 194** City Express information is available on a separate timetable.





- Legend**
- Bus route
 - Express route
 - Connecting route
 - Bus route number
 - Timing point
 - Section point
 - Train line/station

Diagrammatic Map
Not to Scale

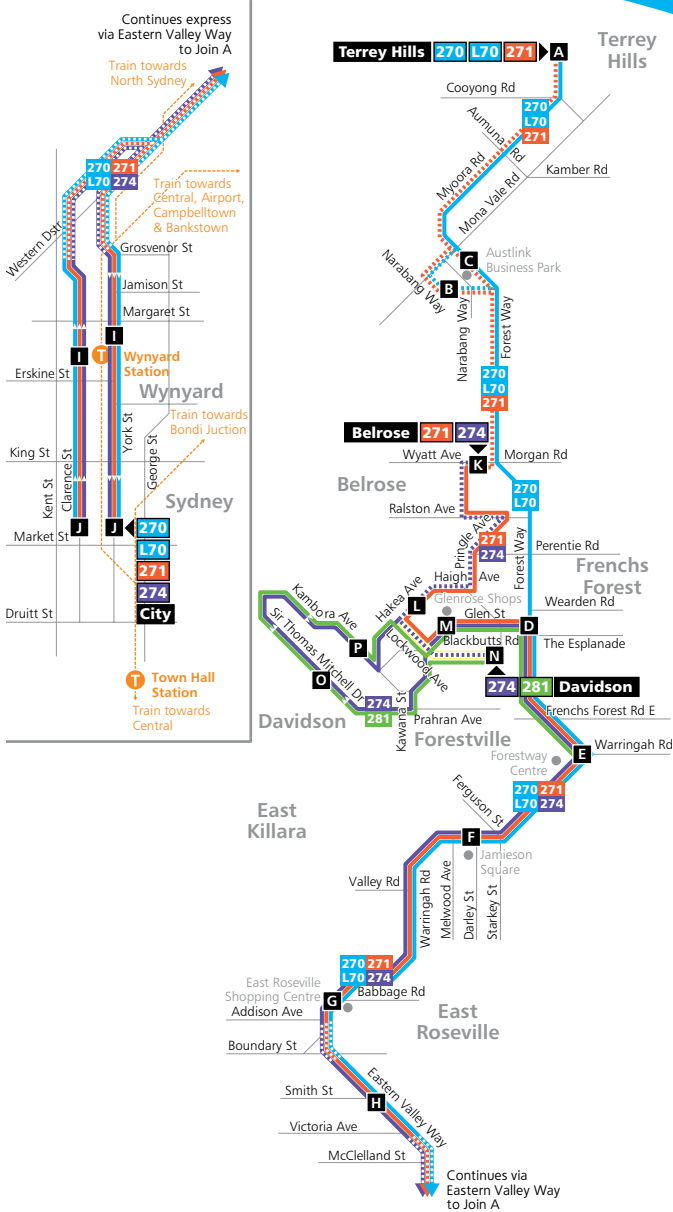


Timing Points

- A** Terrey Hills Myoora Rd & Booralie Rd
- B** Austlink Minna Close
- C** Austlink Forest Way
- D** Glen Street & Forest Way
- E** Frenchs Forest Forestway Centre
- F** Forestville Jamieson Square
- G** East Roseville Babbage Road
- H** Eastern Valley Way & Smith Street
- I** City - Wynyard
- J** City
- K** Belrose Wyatt Avenue
- L** Hakea Avenue & Haigh Avenue
- M** Glenrose Shops
- N** Blackbutts Road & Pringle Avenue
- O** Davidson Sir Thomas Mitchell Drive
- P** Frenchs Forest Cemetery

Bus route map

270, L70, 271, 274



Legend

- Bus route
- Express route
- Bus route number
- Timing point
- Train line/station
- Route 270 occasional journey, operating PM peak trips on weekdays only
- Route 271 occasional journey, operating early morning/late night only
- Route 274 occasional journey, operating AM peak trips on weekdays only
- Route 274 occasional journey, operating PM peak trips on weekdays only

Diagrammatic Map
Not to Scale





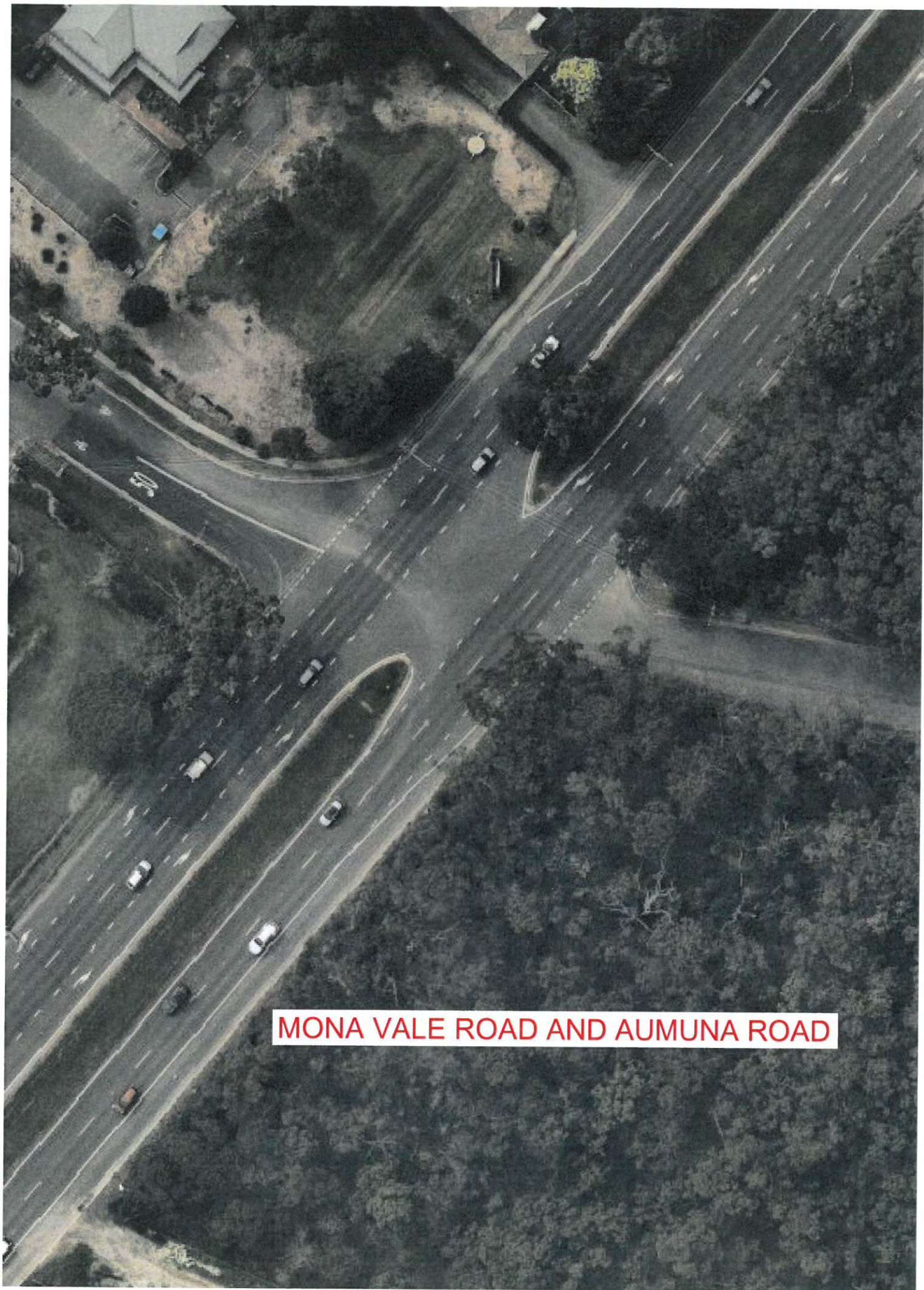
Appendix E

Aerial Images

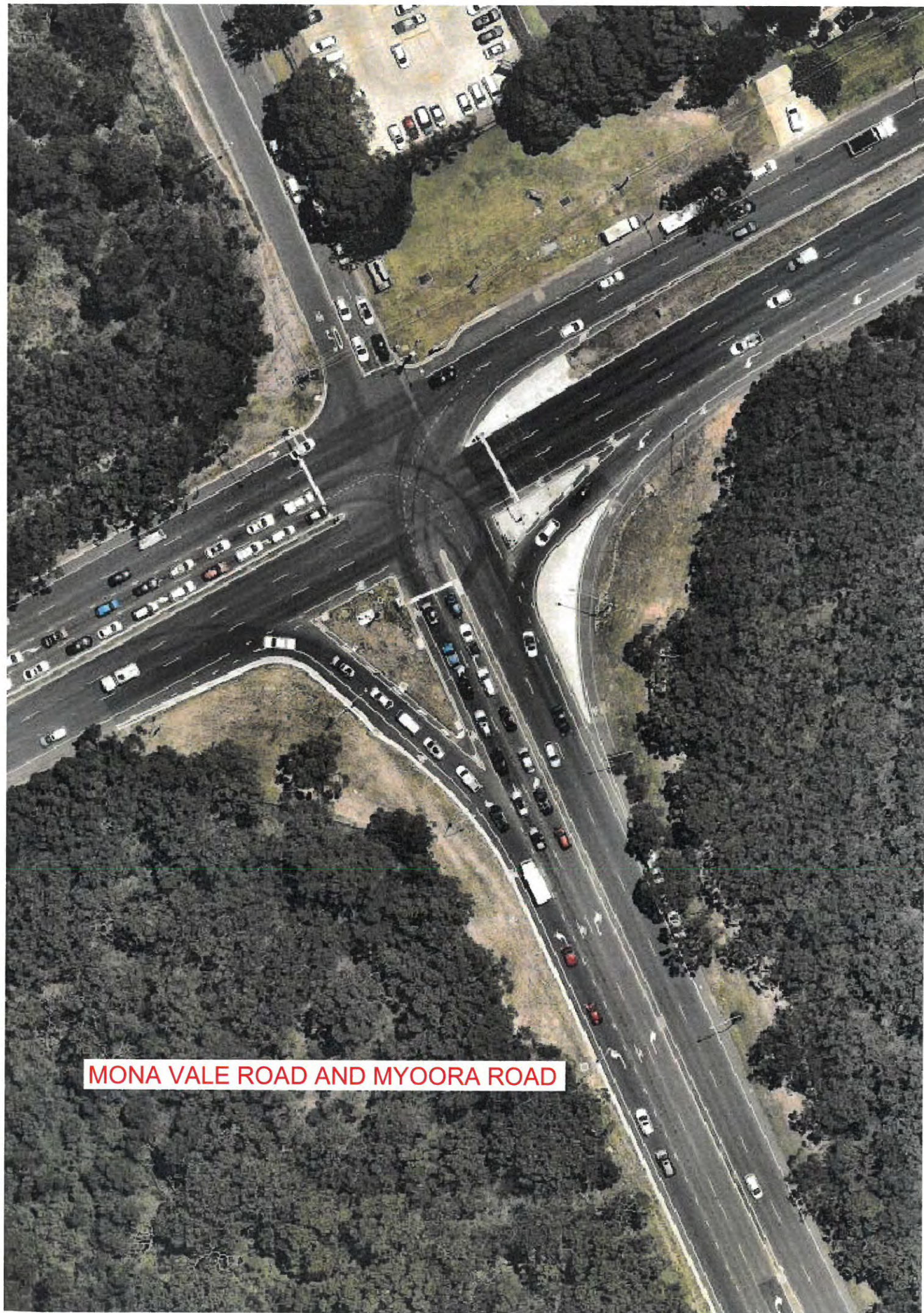


MONA VALE ROAD AND McCARRS CREEK ROAD





MONA VALE ROAD AND AUMUNA ROAD



MONA VALE ROAD AND MYOORA ROAD