

---

# ATTACHMENTS

---

WORKS AND SERVICES  
COMMITTEE MEETING

**9 September 2015**

5.30pm

City of Albany Council Chambers

## TABLE OF CONTENTS

<b>ATTACHMENT</b>	<b>REPORT NO.</b>	<b>DESCRIPTION</b>	<b>PG #</b>
<b>C</b>	<b>WS</b>	<b>Works and Services Committee</b>	
	WS085	<ul style="list-style-type: none"><li>• Mount Elphinstone to CBD Cycle Link Feasibility Study</li></ul>	1
	WS086	<ul style="list-style-type: none"><li>• Albany Motorcross Noise Management Plan</li></ul>	55

Council Report

# **Mount Elphinstone to CBD Cycle Link**

## **Feasibility Study**

© City of Albany 2015

102 North Road, Yakamia WA 6330 | PO Box 484, ALBANY WA 6331

Tel: (08) 9841 9333 | Fax: (08) 9841 4099 | Email: [staff@albany.wa.gov.au](mailto:staff@albany.wa.gov.au) | Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)

# TABLE OF CONTENTS

1	Introduction .....	4
2	Study Area .....	4
3	Existing Situation .....	6
3.1	Existing Road Network .....	6
3.1.1	Hanrahan Road – Princess Royal Drive.....	6
3.1.2	Carlisle Street .....	7
3.1.3	Festing Street .....	7
3.1.4	Frenchman Bay Road.....	7
3.1.5	Grey Street West.....	8
3.1.6	Lower Denmark Road.....	8
3.1.7	Vancouver Street.....	9
3.1.8	Woolstores Place.....	9
3.2	Existing Cycle Facilities.....	13
3.3	Crash History.....	13
3.4	Existing Cycle / Pedestrian Trails.....	13
3.5	Rail Corridor .....	14
4	Previous & Current Proposals .....	15
4.1	Albany Harbours Dual Use Path Planning Strategy (DUPPS).....	15
4.2	Main Roads WA.....	17
4.3	Grange Resources Pipeline .....	19
5	Suitability of existing roads and opportunities for cycle infrastructure improvements.....	22
5.1	Hanrahan Road – Princess Royal Drive.....	22
5.2	Carlisle Street .....	23
5.3	Festing Street .....	23
5.4	Frenchman Bay Road.....	23
5.5	Grey Street West.....	23
5.6	Lower Denmark Road.....	24
5.7	Vancouver Street.....	24
5.8	Woolstores Place.....	24
6	Options for cycle infrastructure improvements.....	27
6.1	Route for confident cyclists .....	27
6.2	Route options for less confident cyclists. ....	29
6.2.1	Option 1 .....	29
6.2.2	Option 2 .....	29
7	Stakeholder Engagement.....	35
8	Recommendations.....	36
8.1	Route for Confident Cyclists.....	36
8.1.1	Short Term (within 12 months) .....	36
8.1.2	Medium term (1-3 years) .....	36
8.1.3	Long Term .....	36

8.2	Routes for Less Confident Cyclists .....	37
8.2.1	Short Term (within 12 months) .....	37
8.2.2	Medium Term (1-3 years) .....	37
8.2.3	Long Term .....	37
	Appendices.....	38
	Appendix A – Extracts from Cycle City Albany 2014-2019 Strategy.....	39
	Appendix B – Extracts from Albany Harbours Dual Use Path Planning Strategy .....	46
	Appendix C - Stakeholder Feedback.....	50

## LIST OF FIGURES

Figure 1 - Study Area.....	5
Figure 2 - Existing Road Network, Cycle Infrastructure and Long Distance Trails .....	10
Figure 3 - Main Roads WA Recently Constructed Cycle Lanes. Princess Royal Drive .....	11
Figure 4 - Albany Harbours DUPPS. Preferred and Alternative Path Alignments .....	16
Figure 5 - Albany Ring Road Proposed Alignment and Recommended Modifications .....	18
Figure 6 - Grange Resource. Proposed Alignment of Slurry Pipeline .....	20
Figure 7 - Slurry Pipeline Preferred Embankment Widening Option (Option A) .....	21
Figure 8 - Opportunities and Constraints. Routes for Confident Cyclists .....	25
Figure 9 - Opportunities and Constraints. Routes for Less Confident Cyclists .....	26
Figure 10 - Recommended Route for Confident Cyclists .....	28
Figure 11 - Route Options for Less Confident Cyclists.....	31
Figure 12 - Option 1 – Detailed Assessment (Sheet 1 of 3).....	32
Figure 13 - Option 1 – Detailed Assessment (Sheet 2 of 3).....	33
Figure 14 - Option 1 – Detailed Assessment (Sheet 3 of 3).....	34

## LIST OF TABLES

Table 1 - Existing Road Infrastructure. ....	12
Table 2 - Existing Rail Crossing Facilities .....	14

## 1 Introduction

City of Albany published the Cycle City Albany 2014-2019 Strategy (CCA) in October 2014. The Strategy has a bold vision “to transform Albany into one of Australia’s best cycling destinations, including both on and off road cycling”. To achieve this the Strategy “aims to improve cycling infrastructure, encourage cycling as a legitimate mode of transport, improve the culture surrounding cycling by encouraging ‘sharing the road’ and provide more cycle tourism”.

As part of the plan, extensive stakeholder consultation was undertaken including the formation of a Project Control Group (PCG), blank slate community consultation comprising surveys and community workshops, as well as a public submission period following the adoption by Council of a draft Bike Plan in February 2014.

Appendix C – Bike Plan Community Engagement Report of the CCA Strategy provides a detailed summary of the stakeholder consultation. Appendix C states that 90% of respondents to the Draft Bike Plan (approximately 130 submissions received in total) believed that the Princess Royal Drive/wool stores missing link is one of the most significant areas for improvement.

The Strategy also includes a detailed schedule of recommended bicycle infrastructure improvements which have been prioritised for implementation over the short, medium and long term.

The issue of Princess Royal Drive is discussed in detail in section 1.5.9 of the Strategy report and is reproduced in Appendix A of this study.

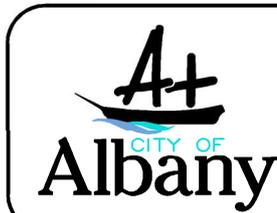
The Strategy recognised that “The ultimate solution for this section requires significant engineering investigation and is therefore outside the scope of this Strategy” and recommended that “a comprehensive feasibility study” is undertaken “to determine a preferred suite of short term and long term improvements”.

## 2 Study Area

The area covered by the Feasibility Study is shown in Figure 1. It is discussed in detail in Sections 1.5.9 and 1.5.11 of the Strategy (also project numbers 28, 28a, 56, 57 and 58 which can be found in Appendix F of the Strategy) and Appendix A of this study.

The study area includes the following roads:

- Hanrahan Road from the end of the existing sealed shoulders, north of the entrance to CSBP fertiliser works, to Frenchman Bay Road;
- Princess Royal Drive from Frenchman Bay Road to Residency Road;
- Frenchman Bay Road from Woolstores Place to Princess Royal Drive;
- Lower Denmark Road from Frenchman Bay Road to a point 500m west;
- Woolstores Place from Frenchman Bay Road to its end.
- Arterial roads into the CBD for which we have included:
  - Carlisle Street;
  - Festing Street;
  - Grey Street West, up to the intersection with Collie Street;
  - Vancouver Street.



102 NORTH ROAD, YAKAMIA WA 6330  
 PO BOX 484 ALBANY WA 6331  
 Tel: (08) 9841 9333  
 Fax: (08) 9841 4099  
 Email: cityassets@albany.wa.gov.au  
 Website: www.albany.wa.gov.au

## STUDY AREA



FIGURE 1

### 3 Existing Situation

#### 3.1 Existing Road Network

The existing road network within the study area is shown in Figure 2. A detailed description of each road is given below and summarised in Table 1 at the end of this section.

##### 3.1.1 Hanrahan Road – Princess Royal Drive

Hanrahan Road and Princess Royal Drive form the main access route to the Albany Port and are the responsibility of Main Roads WA (MRWA). They are part of the MRWA Restricted Access Vehicle Network having a network 7 classification. This allows for vehicles up to 107.5 tonnes mass and 36.5m in length to use the road.

Traffic data provided by MRWA shows that at the intersection with Frenchman Bay Road Hanrahan Road currently carries 6,770 vehicles per day (vpd) with 9% heavy vehicles and Princess Royal Drive carries 8,150 vpd with 6% heavy vehicles. The number of heavy vehicles accessing the port can vary considerably depending on shipping movements and seasonal requirements.

The length of Hanrahan Road within the study area is 250m from the intersection with Frenchman Bay Road to the start of the sealed shoulders just north of the entrance to the CSBP fertiliser works. The road has lane widths of between 3.5m and 4.5m, is kerbed both sides and has a large chip seal surface finish. The speed limit on this section of road is 70km/h.

There are no existing pedestrian or cyclist facilities along this section of Hanrahan Road

Princess Royal Drive is a continuation of Hanrahan Road, starting at the intersection of Frenchman Bay Road through to Residency Road, a distance of 2.2km. The road heads east from Frenchman Bay Road with intersections at Carlisle Street and Festing Street before passing over the rail line on a bridge. It then continues along on an embankment for approximately 1km before diverting around the northern edge of the Anzac Peace Park.

The road has a speed limit of 70km/h from Frenchman Bay Road to a point 260m west of Residency Road where it drops to 60km/h.

The Munda Biddi Trail utilises the northern verge of Princess Royal Drive between the Grey Street West Road reserve and Festing Street as discussed in Section 3.4.

The road varies in width from approximately 9.5m west of the rail line to 7.0m along the embankment section. At the intersections with Frenchman Bay Road and Carlisle Street median islands create pinch points and are of great concern for cyclists.

Also the bridge over the railway forms another squeeze point with a width of only 9.5m between the faces of the safety barrier creating a further hazard for cyclists.

Main Roads WA have recently completed construction of cycle lanes, 1.5m wide, on both sides of Princess Royal Drive from a point 180m east of Frenchman Bay Road to Festing Street as shown in Figure 3. The work involved alteration to the existing kerb lines and median islands to provide adequate lane widths as well as installing green lane treatments at the intersection with Carlisle St and the access driveway to the railway land to the south.

Cyclists have raised concerns over the rough surface finish, the level difference between the road surface and drainage grates as well as the height of the new kerb.

### **3.1.2 Carlisle Street**

Carlisle Street runs west to east from Princess Royal Drive for 630m where it becomes Grey Street West. The road has a speed limit of 60km/h and carries approximately 2,700 vpd. The road is a main connector for traffic from Frenchman Bay Road to the CBD. Over its length, the road climbs 29m in height with a maximum gradient of 9%. The road has a constant width of 8 metres, is kerbed both sides and is surfaced with chip seal. There are no existing pedestrian or cycle facilities along Carlisle Street.

### **3.1.3 Festing Street**

Festing Street runs from Princess Royal Drive through to Parade Street, a distance of 1.2km, where it becomes Stirling Terrace. The road is used as part of the route of the Munda Biddi Trail.

The road varies in width from a minimum of 7.1m to a maximum of 8m and has a fairly gentle grade for most of its length apart from the section between Melville Street and Parade Street where the road rises by 15m with a maximum gradient of 10%.

The road has a speed limit of 50km/h and has an asphalt surface finish.

Traffic flows of 800vpd were recorded on Festing Street, west of Parade Street, with an 85% speed of 58km/h. An 85% speed of 64km/h was recorded on Festing Street 200m east of the intersection with Princess Royal Drive.

There are no existing cycle facilities along the road. There is a footway along the north side of Festing Street westward from Parade Street for 110m which then becomes a gravel verge through to Melville Street.

### **3.1.4 Frenchman Bay Road**

Frenchman Bay Road is an important corridor in the Albany road network providing the only link between the suburbs and tourist areas around Princess Royal Harbour with Albany, with a total length of 18km.

It runs south from the intersection with Hanrahan Road/Princess Royal Drive across the rail line before intersecting with Lower Denmark Road, all within the space of 100m. This section has 2 lanes in each direction separated by a 1.2m wide median with each carriageway being 7.2m wide and kerbed.

The road then reduces to a single lane carriageway 7.0m wide with unsealed shoulders through to Woolstores Place, a total distance of 590m.

This section of Frenchman Bay Road has a 70km/h speed limit with traffic flows of 6,400vpd although this can increase significantly during the peak tourist season. It is also part of the MRWA Restricted Access Vehicle (RAV) Network and has a Network 2 classification. This allows access for trucks up to 27.5m in length and 87.5 tonnes to use the road.

The road is fairly level for most of its length but rises about 8 metres on the approach to the Hanrahan Road/Princess Royal Drive intersection. There have been 21 recorded crashes along this road in the 5 years from 2009-2013, none involving cyclists.

The road is popular with cyclists of all confidence levels with an existing 2.0m shared path running south from Woolstores Place through to Little Grove. There are plans to continue this path through to Goode Beach and Frenchman Bay as part of the Albany Harbours Dual Use Path Planning Strategy.

There are no on-road cycle facilities along its entire length.

### 3.1.5 Grey Street West

The Grey Street West road reserve runs from Princess Royal Drive, 150m southeast of the Frenchman Bay Road intersection, through to Collie Street, a total distance of 1.97km.

- ***Princess Royal Drive to Spearwood Road***

This section is 310m long and forms part of the Bibbulmun Track. It consists of a rough track currently suitable for use only by walkers and mountain bike riders. The track climbs steeply with gradients of up to 16% with a total height difference of 26m.

- ***Spearwood Road to Carlisle Street***

This section consists of a formed gravel road with widths ranging from 3m to 11m. Over its distance of 580m the road climbs up to 13m in height. The Bibbulmun Track continues along this section of road before using existing bush tracks, joining Grey Street West again at Bay Street.

- ***Carlisle Street to Collie Street***

Here Grey Street West is a continuation of Carlisle Street and maintains a similar width of 8m until it widens out west of Melville Street to 11m through to Collie Street, a total distance of 1.08km.

The road carries around 2800vpd and is surfaced with asphalt. The gradient between Carlisle Street and Mill Street is fairly level. This then rises to around 3% from Mill Street to half way between Parade Street and Collie Street, before increasing to 7% for the final 80m to Collie Street.

Between Parade Street and Collie Street there are marked parking bays on both sides of the road. These bays are rarely fully utilised as they are located just outside of the CBD in a predominately residential area. There are existing footpaths on both sides of Grey Street West from Collie Street out to Melville Street with the path on the south side continuing through to Bay Street. No pedestrian facilities exist west of Bay Street and there are no existing cycle facilities for the entire length of Grey Street West. The Bibbulmun Track uses this section of Grey Street West from Bay Street through to Parade Street.

The speed limit along Grey Street West from Carlisle Street to a point 70m west of Parade Street is 60km/h; this then reduces to 50km/h through to Collie Street.

### 3.1.6 Lower Denmark Road

Lower Denmark Road runs westward from Frenchman Bay Road through to South Coast Highway east of Denmark, a total distance of 37km. The road is a popular tourist route between Albany and Denmark via Cuthbert, Elleker, Torbay and Youngs Siding. The section within the study area is the first 500m from Frenchman Bay Road which is covered by a 70km/h speed limit and carries 3,100 vpd.

The road has recently been upgraded along this section and now has a 7.0m wide asphalt seal and is kerbed both sides.

The road is level for most of its length but does rise at the western section by 4m with a gradient of 4%.

Lower Denmark Road is also part of the Main Roads Restricted Access Vehicle Network and has a Network 2 classification allowing trucks up to 67.5 tonnes and 20m in length to use it.

There are no pedestrian or cyclist facilities along this section of Lower Denmark Road although the road is a popular route with local cycle groups/clubs. There have been a number of requests for this section of road to be widened to include sealed shoulders/cycle lanes.

### **3.1.7 Vancouver Street**

Vancouver Street runs parallel to and south of Grey Street West between Festing Street and Collie Street, a distance of 820m. Vancouver Street is relatively narrow with a road reserve width of only 10m and a road carriageway width of 6.2m. It is kerbed on both sides and has a mixture of asphalt and chip seal surface finish. The road is subject to a speed limit of 50km/h and traffic volumes of 930vpd. The road is within a residential area with limited off-street parking resulting in on-street parking being commonplace.

From Festing Street, the road rises at an 8% gradient with gentle grades for the remainder of its length. There is a narrow footpath on the north side for the entire length of the road and a footpath on the south side between Parade Street and Cuthbert Street as well as between Melville Street and the Vancouver Arts Centre, 80m east of Festing Street. There are no existing cycle facilities along Vancouver Street.

### **3.1.8 Woolstores Place**

Woolstores Place is a 250m long cul-de-sac providing access to the redundant wool stores warehouse complex.

The road is gated at the entrance to the wool stores with the road reserve continuing a further 130m up to the railway reserve.

The gradient of the road is less than 3% and is between 6.0m and 6.5m in width with a chip seal surface finish up to the gate. Beyond the gate the surface is rough and uneven, petering out to an unsealed track before the railway reserve. Traffic volumes are low with less than 100 vpd using the road. The speed limit is 50km/h.

The existing shared path on the south side of Frenchman Bay Road terminates at Woolstores Place but there are no existing pedestrian or cyclist facilities along Woolstores Place itself.

As can be seen in Figure 2, both the Munda Biddi Trail and Bibbulmun Track utilise Woolstores Place as part of their route between Frenchman Bay Road and the CBD.

Woolstores Place is also proposed to be used for the route of the Grange Resources slurry pipeline from their Southdown Magnetite Mine as discussed in Section 4.3.

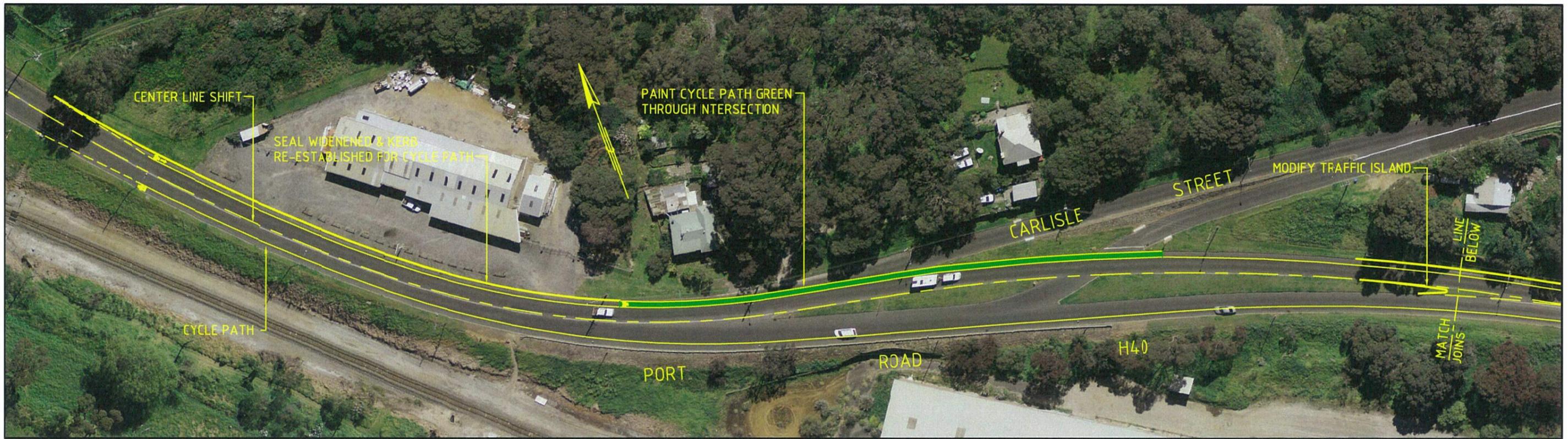


## EXISTING ROAD NETWORK, CYCLE INFRASTRUCTURE AND LONG DISTANCE TRAILS

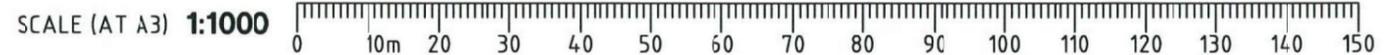
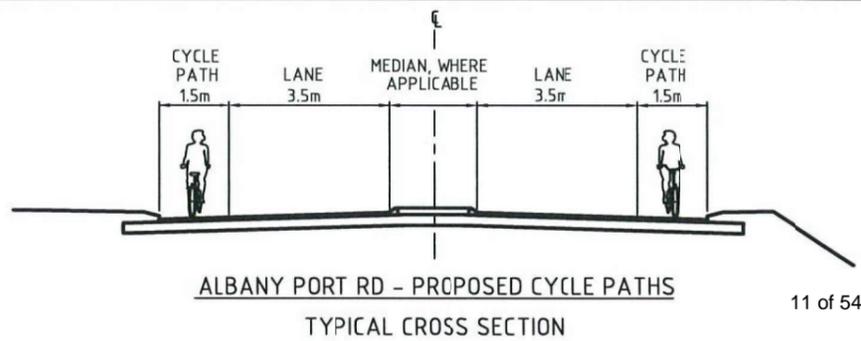
NOT TO SCALE



FIGURE 2



**MAIN ROADS WA.  
 RECENTLY CONSTRUCTED  
 CYCLE LANES.  
 PRINCESS ROYAL DRIVE**



LEGEND	
CYCLE PATH EDGE	—
GREEN PAINTED CYCLE PATH	—
MODIFIED CENTER LINE	—
NEW KERB LINE	—

FIGURE 3

**Table 1 - Existing Road Infrastructure.**

Road name	From / To	Road Authority	Length (within study area)	Widths	Elevation (m AHD)			Surface finish	Max Gradient	Traffic Volume (7 day average)	85th Percentile speed	Crashes. Total No. (involving cycles) 2009-2013 inclusive	Existing cycle facilities	Existing footpaths	Speed Limit
					start	end	max								
Hanrahan Road	Frenchman Bay Road to end of existing sealed shoulders	Main Roads WA	250m	9.4m - 12.3m	12	17	17	Large chip seal	4%	6180 vpd	None available	36 (0)	None	None	70km/h
Princess Royal Drive	Frenchman Bay Road to Residency Road	Main Roads WA	2220m	8.0m - 11.0m	12	15	3	Large chip seal	5%	7300 vpd	66km/h		None	None	70km/h <sup>1)</sup> 60km/h <sup>2)</sup>
Carlisle Street	Princess Royal Drive to Grey Street West	City of Albany	630m	8.0m	11	40	40	Chip seal	9%	2700vpd	None available	1 (0)	None	None	60km/h
Festing Street	Princess Royal Drive to Stirling Terrace	City of Albany	1170m	7.1m - 8.0m	16	8	22	Asphalt	10%	800 vpd	58km/h	2 (0)	None	North (110m)	50km/h
Frenchman Bay Road	Hanrahan Road/Princess Royal Drive to Woolstores Place	City of Albany	590m	7.0m - 14.0m	12	3	12	Asphalt / chip seal	<3%	6400 vpd	None available	21 (0)	None	None	70km/h
Grey Street West	Princess Royal Drive to Spearwood Road	City of Albany	310m	Not applicable	11	35	37	Unformed	16%	Not applicable	Not applicable	N/A	None	Track	Not applicable
	Spearwood Road to Carlisle Street	City of Albany	530m	3m - 11m	35	39	48	Gravel	10%	None available	None available	0 (0)	None	None	None
	Carlisle Street to Collie Street	City of Albany	1080	8.0m - 11.0m	40	25	42	asphalt	7%	2670 vpd	68km/h in 60km/h zone. 58km/h in 50km/h zone.	10 (0)	None	North (500m) South (750m)	60km/h <sup>3)</sup> 50km/h <sup>4)</sup>
Lower Denmark Road	Frenchman Bay Road to a point 500m west	City of Albany	500m	7.0m	10	11	14	Asphalt	4%	3110 vpd	85km/h	7 (0)	None	None	70km/h
Vancouver Street	Festing Street to Collie Street	City of Albany	820m	6.2m	21	18	30	Asphalt / chip seal	8%	927 vpd	45km/h	4 (0)	None	North (810m) South (300m)	50km/h
Woolstores Place	Frenchman Bay Road to gate	City of Albany	310m	6.0m - 6.3m	3	3	3	Chip seal	<3%	None available	None available	0 (0)	None	None	50km/h

Notes:

- 1) From Frenchman Bay Road to a point 260m west of Residency Rd  
 2) From a point 260m west of Residency Road to York Street

- 3) Carlisle Street to a point 70m west of Parade Street  
 4) From a point 70m west of Parade Street to Collie Street

### 3.2 Existing Cycle Facilities

As mentioned in section 3.1.1 Main Roads WA have recently completed construction of cycle lanes, 1.5m wide, on both sides of Princess Royal Drive from a point 180m east of Frenchman Bay Road to Festing Street. There are no other existing cycle facilities within the study area. There are cycle facilities that link to the study area as shown in Figure 2, as follows:

- There is a 2.0m wide shared path along the eastern side of Frenchman Bay Road that terminates at Woolstores Place. This path forms part of the route proposed in the Albany Harbours Dual Use Path Planning Strategy as detailed in Section 4.1, and continues around to the suburb of Little Grove, some 5km to the south. This is a popular route for cyclists and walkers and also forms part of the Munda Biddi trail and Bibbulmun Track as discussed in Section 3.4.
- A 2.5m wide shared path runs along the south side of the ANZAC Peace Park between the jetty and the performance space adjacent to the memorial wall.
- There are sealed shoulders (1.5m wide) along both sides of Hanrahan Road from Menzies Street through to a point just north of the entrance to the CSBP fertiliser works.

### 3.3 Crash History

Crash data has been obtained from the Main Roads WA Crash Analysis database for all of the roads within the study area. This data covers the 5 year period from 2009-2013 inclusive and is summarised in Table 1.

It can be seen from Table 1 that there have been a total of 81 recorded crashes within the study area but there have been no recorded crashes involving cyclists. However, this is more likely to be due to the relatively low number of cyclists riding through the area rather than a reflection of the adequacy of some of the roads in regard to their provision for cyclists.

### 3.4 Existing Cycle / Pedestrian Trails

Both the Munda Biddi Trail and Bibbulmun Track pass through the study area. The alignments of both trails are shown in Figure 2.

The Munda Biddi Trail is a 1000km off/on road cycle trail between Mundaring and Albany. The trail passes through the study area utilising Frenchman Bay Road and Woolstores Place before crossing the rail line and Princess Royal Drive. It then continues east along the northern verge of Princess Royal Drive, Festing Street and Stirling Terrace.

The Bibbulmun Track is a long distance walking trail between Kalamunda and Albany, a distance of nearly 1,000km. The track uses Frenchman Bay Road and Woolstores Place before crossing the rail line and Princess Royal Drive. It then climbs the lower part of Mount Melville using the unconstructed section of the Grey Street West road reserve to Maxwell Street where it then follows a bush track to the north of the road reserve before rejoining Grey Street West at Bay Street through to Parade Street. The track then continues down Parade Street, crosses Festing Street and the rail line before continuing eastward along the northern verge of Princess Royal Drive.

Comments have been received from the Department of Parks and Wildlife (DPAW) regarding issues with the existing alignment of both the Munda Biddi Trail and the Bibbulmun Track through the study area.

Comments include:

- Pedestrian only rail crossing at the end of Woolstores Place has not been upgraded by Brookfield Rail to include for cyclists.
- Brookfield Rail is seeking to have the crossing at the end of Woolstores Place closed and combined with adjacent road crossing (assumed to be Frenchman Bay Road).
- A 2-way cycle facility along Princess Royal Drive would be preferred to what is currently in place.
- Future plans for the upgrade of Princess Royal Drive and Frenchman Bay Road as part of the Albany Ring Road should cater for users of both long distance trails.

### 3.5 Rail Corridor

The rail line that passes through the study area provides access for freight trains carrying grain and woodchip to Albany port.

The line is single track narrow gauge and is managed by Brookfield Rail on a 50 year lease from the WA State Government.

The rail line runs parallel to Lower Denmark Road before crossing over Frenchman Bay Road as shown in Figure 2. It then runs between Princess Royal Drive and the wool stores before passing through a steep sided cutting and under Princess Royal Drive. It continues eastwards on an embankment to the south of Festing Street, crossing Parade Street, Residency Road and York Street before entering the port area.

Existing road and path crossing locations within the study area are detailed below in Table 2.

**Table 2 - Existing Rail Crossing Facilities**

Crossing location	At-grade or grade separated	Road or path	Pedestrian / cyclist facilities provided	Level of protection
Frenchman Bay Road	At-grade	Road	No	Boom gates
170m east of Frenchman Bay Road <sup>1)</sup>	At-grade	Path	Yes	Pedestrian maze
Princess Royal Drive	Grade separated	Road	No	Over bridge
Parade St <sup>2)</sup>	At-grade	Path	Yes	Pedestrian maze
Residency museum - 50m west of Residency Road	At-grade	Path	Yes	Pedestrian maze
Residency Road	At-grade	Road	No	Boom gates

Notes

- 1) Route of Munda Biddi Trail and Bibbulmun Track.
- 2) Route of Bibbulmun Track.

As can be seen in Table 2 crossing facilities for pedestrians and cyclists are limited. There are no specific facilities at any of the existing road crossings.

The existing path crossing, located 170m east of Frenchman Bay Road, is used by the route of both the Munda Biddi Trail and the Bibbulmun Track. The crossing is accessed from the south via a rough grassed track from the end of Woolstores Place. On the north side of the crossing users have to negotiate a steep unconstructed path to gain access to Princess Royal Drive.

As mentioned in Section 3.4 advice from the Department of Parks and Wildlife who manage both the Munda Biddi Trail and Bibbulmun Track suggests that Brookfield Rail intend to close this crossing point and combine it with the existing Frenchman Bay Road crossing to the west.

Recent feedback provided by Public Transport Authority (PTA) and Brookfield Rail indicates that any proposal to utilise the rail corridor as a route for cycle/pedestrian infrastructure, including the cutting under Princess Royal Drive as recommended in the Albany Harbours Dual Use Path Planning Strategy (discussed in Section 4.1), can no longer be considered feasible. Consideration will be given for any new/amended crossing points.

## **4 Previous & Current Proposals**

### **4.1 Albany Harbours Dual Use Path Planning Strategy (DUPPS)**

The Albany Harbours DUPPS was published in 1996 and aimed to produce a strategic plan for the construction of a dual-use (shared) path around the shores of the Albany Harbours, from Lower King to Whale World, a total distance of some 35km.

A number of alignments between York Street and the wool stores were considered and are shown in Figure 4. Extracts from the Albany Harbours DUPPS relevant to this section are reproduced in Appendix B.

As can be seen in Figure 4 the preferred alignment runs along Woolstores Place and along the south side of the rail reserve all the way through to Amity Quays. The route then passes between the Amity replica and the museum before crossing Residency Road and continuing through to York Street using the vacant land between the rail line and Princess Royal Drive.

Where the rail line passes under Princess Royal Drive, through a steep sided cutting, at Melville Point the proposal was to take the path through the cutting alongside the rail line. The Strategy states that “preliminary investigations carried out by the Town of Albany staff in conjunction with civil engineers and Westrail indicates that it is feasible for a path, with necessary safeguards, to be constructed through the cutting”.

It should be noted that the option of aligning a path through the railway cutting is no longer considered feasible and that even having a path alignment within the rail reserve is unlikely. This is discussed in more detail in Section 3.5.

An alternative alignment around the wool stores was also suggested in the strategy. This would utilise a “narrow band of vacant crown land on the foreshore side of the reclaimed land upon which the wool stores are situated”. However recent investigations show that this strip of land is not wide enough to accommodate a path and that the existing sea wall upon which it is built on is in poor state of repair.

Two other alignments were considered for the section between York Street and Melville Point. These were along the north side and south side of Princess Royal Drive. The alignment on the north side would follow the same route through the railway cutting and east of Amity Quays as the preferred alignment. The alignment along the south side of Princess Royal Drive required widening of the existing road embankment and the construction of a section of boardwalk before passing across Melville Point.




 102 NORTH ROAD, YAKAMIA WA 6330  
 PO BOX 484 ALBANY WA 6331  
 Tel: (08) 9841 9333  
 Fax: (08) 9841 4099  
 Email: [cityassets@albany.wa.gov.au](mailto:cityassets@albany.wa.gov.au)  
 Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)

ALBANY HARBOURS D.U.P.P.S.  
 PREFERRED AND ALTERNATIVE PATH ALIGNMENTS

NOT TO SCALE



FIGURE 4

The report dismisses the option to the south of Princess Royal Drive as being not feasible due to the great expense involved in widening the road embankment and associated sea wall. However, it should be noted that this alignment is identical to the one proposed to be constructed as part of the Grange Resources slurry pipeline project. It should now be considered an option as the widening of the road embankment and construction of a shared path between the Anzac Peace Park and a point west of Melville Point will be funded by Grange Resources as discussed in Section 4.3.

## 4.2 Main Roads WA

As mentioned in Section 3.1.1 Main Roads WA (MRWA) are responsible for both Hanrahan Road and Princess Royal Drive and have provided the following information regarding provision for on-road cyclists:

- Minimum road width requirements for the provision of on-road cycle lanes are 3.5m traffic lanes and 1.5m wide cycle lanes giving a total minimum carriageway width of 10.0m.
- A cycle lane on the existing bridge over the railway is not feasible.
- Support the use of Carlisle Street or Festing Street as an alternative to using Princess Royal Drive east of Festing Street

As discussed in Section 3.1.1 Main Roads WA have recently completed construction of cycle lanes, 1.5m wide, on both sides of Princess Royal Drive from a point 180m east of Frenchman Bay Road to Festing Street. A future extension of these cycle lanes, westward, through to the existing sealed shoulders on Hanrahan Road is also being considered by MRWA. This extension is somewhat more involved than the recently completed section as it requires alteration to the existing intersection with Frenchman Bay Road.

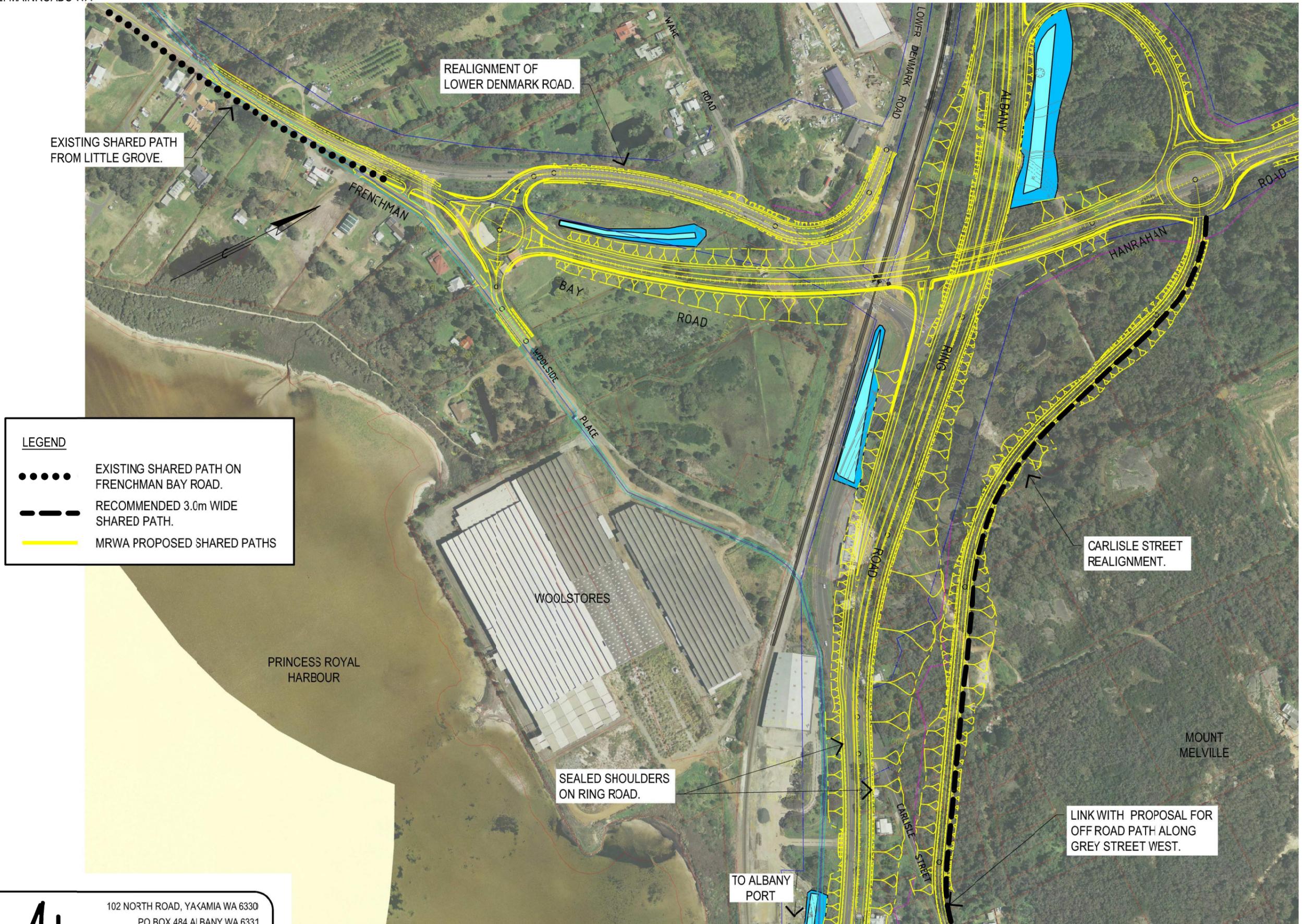
Discussion has also taken place regarding a suitable location for a crossing point for a shared path within the vicinity of the Princess Royal Drive, Frenchman Bay Road intersection. The preferred location is at the end of the Grey Street West road reserve 130m east of Frenchman Bay Road, although a crossing point at the intersection is also being investigated as an alternative.

There are long standing proposals for the construction of a ring road around Albany. This would provide direct access to the port for road trains removing the need for them to use the Chester Pass Road – North Road – Albany Highway – Hanrahan Road roundabout. So far the only section to have been completed is Menang Drive from Chester Pass Road through to Albany Highway. The remaining sections from Albany Highway through to South Coast Highway, and South Coast Highway through to Princess Royal Drive, are still in the early stages of design. The proposal also includes for the upgrade of Princess Royal Drive, through to the port, to a four lane divided road. Figure 5 shows the current proposal for the intersection of the Ring Road with Frenchman Bay Road and Hanrahan Road which would become a grade separated intersection. This would see Frenchman Bay Road passing over the Ring Road and continuing on to become Hanrahan Road. Roundabouts on Frenchman Bay Road and Hanrahan Road would provide access down onto the Ring Road and Carlisle Street, which would be realigned to intersect directly with Hanrahan Road.

As can be seen in Figure 5 there are proposals for the construction of an off-road shared path, continuing from the existing shared path along the eastern side of Frenchman Bay Road through to the sealed shoulders on Hanrahan Road. Also proposed is the construction of sealed shoulders (2m wide) along the Ring Road itself.

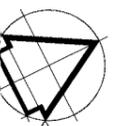
The widening of Princess Royal Drive would also include the construction of a new bridge over the railway, replacing the existing one at Melville Point, which would also include sealed shoulders providing confident cyclists with a high quality continuous route.

MRWA are currently progressing with the design of the Ring Road although there is no proposed timeline for its construction and so it shouldn't be relied upon for providing a short or medium term solution to the existing cycling issues within the study area.




 102 NORTH ROAD, YAKAMIA WA 6330  
 PO BOX 484 ALBANY WA 6331  
 Tel: (08) 9841 9333  
 Fax: (08) 9841 4099  
 Email: [cityassets@albany.wa.gov.au](mailto:cityassets@albany.wa.gov.au)  
 Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)

## ALBANY RING ROAD PROPOSED ALIGNMENT AND RECOMMENDED MODIFICATIONS



### **4.3 Grange Resources Pipeline**

There are plans for the construction a Magnetite mine approximately 70km east of Albany near Wellstead. Part of the proposal is for the magnetite to be transported to the port of Albany as slurry via buried pipelines.

The proposed route for the pipeline is shown in Figure 6 and utilises Frenchman Bay Road and Woolstores Place before crossing the rail line. It then runs along the northern boundary of the rail reserve behind the salvage yard before crossing back across the rail line and through Melville Point. The pipelines then continue eastward along the south side of Princess Royal Drive within a proposed widened road embankment.

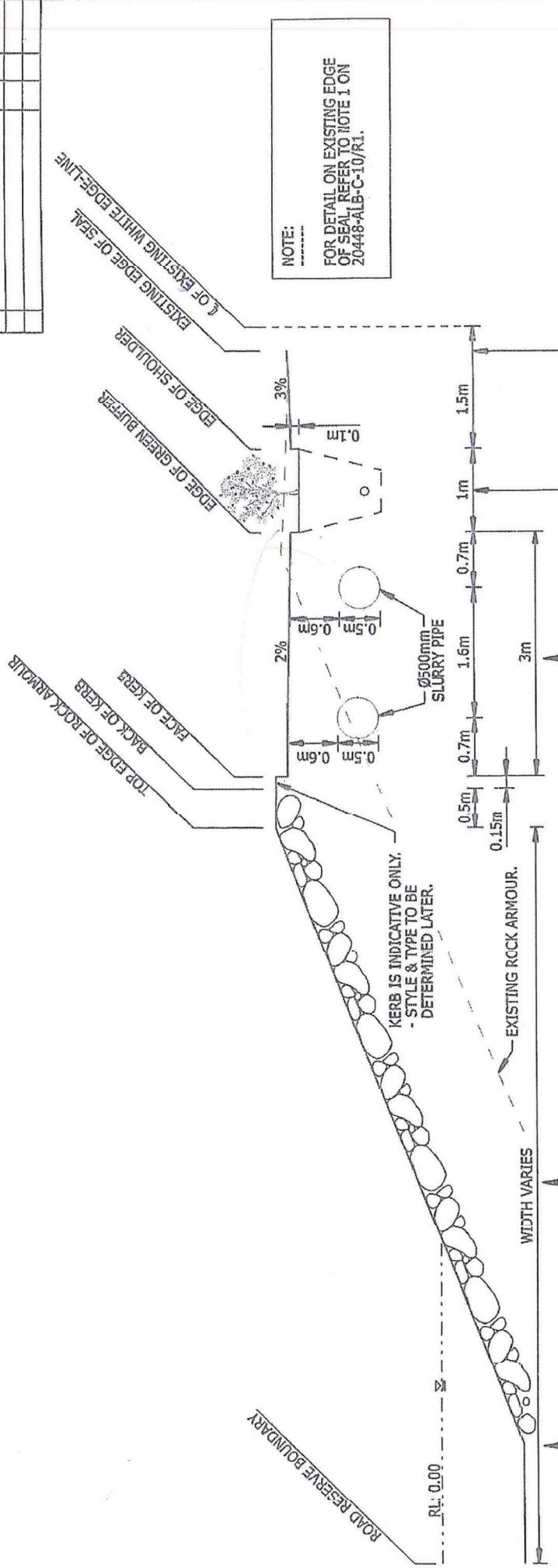
In 2008, Wood and Grieve Engineers were commissioned by Grange Resources to produce a report investigating options for the construction of the slurry pipelines on the south side of Princess Royal Drive between Albany Peace Park and Melville Point. The report includes concept drawings for 2 options to widen the embankment on the south side of Princess Royal Drive. The preferred embankment widening option (Option A) is shown in Figure 7. This would involve moving the existing seawall southwards by 5m to accommodate the slurry pipelines.

As part of the proposals Grange Resources would also construct a 3m wide shared path from the ANZAC Peace Park through to where the pipelines cross over the rail line west of Melville Point as shown in Figure 6. The shared path would be separated from the adjacent road by a 1m wide vegetated buffer as shown in Figure 7. It is understood that the construction of a shared path west of this point would not be the responsibility of Grange Resources.

Even though the proposal to construct the magnetite mine has been around for a number of years there is no fixed date as to when project will commence and it should not be relied upon to provide the sole solution.



REV	DESCRIPTION	DATE	BY	APP'D
A	ORIGINAL			



NOTE:  
FOR DETAIL ON EXISTING EDGE OF SEAL REFER TO NOTE 1 ON 20448-ALB-C-10/RL.

TOE ASSUMED TO MEET SEA BED AT NOMINAL 1m DEPTH, ie RL: -1.00m

**ROCK ARMOUR**  
- EXISTING ROCK ARMOUR IS APPROXIMATELY 1:2.5 GRADE.  
- DESIGN ROCK ARMOUR IS AT 1:2.5 GRADE.

**DUAL USE FOOTPATH**  
- COA RECOMMENDS MIN 3.0m PEDESTRIANS RECOMMEND 3.0m MIN WHERE TWO-WAY CYCLISTS AND PEDESTRIANS ARE COMMON.

**GREEN BUFFER**  
- NOMINAL WIDTH VEGETATION NO GREATER THAN 1m TALL.  
- UNDERLYING AMENDED SOILS TRENCH WITH SUBSOIL DRAINAGE LINE INTERCONNECTED WITH GULLY GRATES TO THE EXISTING CULVERTS.

**SEALED SHOULDER = 1.5m**  
- AS PER MRWA DOCUMENT # 67-08-62D, REV 28 'SELECTION OF CROSS SECTIONAL ELEMENTS' - TABLE 3.1 FOR ASSUMED FUTURE DUAL CARRIAGEWAY.  
- CURRENT PRINCESS ROYAL DRIVE UPGRADE TO ALBANY WATERFRONT DEVELOPMENT HAS 1.5m SEALED SHOULDER APPROVED BY MRWA.

FIGURE 7

SLURRY PIPELINE PREFERRED EMBANKMENT WIDENING OPTION (OPTION A)



WOOD & GREEN ENGINEERS  
GRANGE RESOURCES  
PROPOSED SLURRY PIPELINE - PHASE 2  
APPENDIX A  
TYPICAL BATTER CROSS SECTION

CLIENT	GRANGE RESOURCES
PROJECT	PROPOSED SLURRY PIPELINE - PHASE 2
TITLE	APPENDIX A TYPICAL BATTER CROSS SECTION
DRAWN	DATE
CHECKED	DATE
APPROVED	DATE
PROJECT NO.	20448-ALB-C-10/RA
SCALE	A

## **5 Suitability of existing roads and opportunities for cycle infrastructure improvements**

This section provides an assessment of the existing roads with regards to their suitability for cyclists of different confidence levels as well as exploring opportunities and constraints for the provision of on-road and off-road cycle infrastructure.

These are then graphically represented in Figures 8 and 9 giving an overall picture of the opportunities and constraints within the study area for providing routes for both confident and less confident cyclists.

This then forms the basis for the development of the proposed options in Section 6.

### **5.1 Hanrahan Road – Princess Royal Drive**

Apart from the section with the recently completed cycle lanes the existing road is clearly unsuitable as a proposed route for cyclists of all confidence levels with even the most experienced and confident feeling unsafe.

It would be possible to extend the recently constructed cycle lanes westward up to the existing sealed shoulders on Hanrahan Road. This would require some further modification to the existing kerb lines as well as the median islands at the intersection with Frenchman Bay Road. Relocation of some power poles may also be required.

Providing for cyclists east of Festing Street where Princess Royal Drive crosses the rail line would require the widening of the existing bridge, or construction of separate cycle bridges and approach embankments, and is not considered feasible due to the great cost of such works.

Along the embankment between the rail bridge and Anzac Peace Park the existing road shoulder could be sealed to provide 1.5m cycle lanes.

The opportunities discussed above are relevant for confident cyclists only. Provision for less confident ones is discussed below.

A shared path could be constructed along either verge of Hanrahan Road from north of the entrance to the CSBP fertiliser works to the intersection with Frenchman Bay Road. This could then be continued along the northern side of Princess Royal Drive through to Carlisle Street. Between Carlisle Street and Festing Street the steep drop offs on the south side of the road make the provision of an off-road path not feasible. On the north side the ground rises steeply in places and would require the construction of some sizeable retaining structures as well as the need to place the existing power lines underground. Although feasible the cost of this work would be expensive and the path would be located up against the kerb with little separation from adjacent traffic.

East of Festing Street the rail line again provides a barrier to the provision of facilities for less confident cyclists as described above.

East of the rail line a shared path could be constructed along either side of Princess Royal Drive with little modification required to provide one on the north side of the road reserve. However substantial widening of the existing embankment and sea wall would be required for a path on the south side of the road. This proposal was investigated as part of the Albany Harbours Dual Use Path Planning Strategy as discussed in Section 4.1. However it was not considered feasible due to the great expense involved.

As discussed in Section 4.3, a path to the south side of Princess Royal Drive will be provided by Grange Resources as part of the construction of the slurry pipelines.

## 5.2 Carlisle Street

Although it is the most direct route between Frenchman Bay Road and the CBD, avoiding continuing along Princess Royal Drive, its steep grade combined with relatively high traffic volume and 60km/h speed limit make Carlisle Street unattractive for all but the most confident cyclists.

Between Princess Royal Drive and the Castle Street road reserve, the ground slopes steeply on either side making it unfeasible to widen the road to provide cycle lanes or off-road cycle facilities. Between Castle Street and Grey Street West the road levels out and an opportunity exists to construct an off-road path along the verge/bush on the north side of the road.

Most of the land to the north of Carlisle Street is unallocated Crown Land. It would be feasible to construct an off-road path through this Crown Land, as well as utilising a section of the Carlisle Street verge at the top of the hill, down to the intersection of Princess Royal Drive and the unconstructed section of the Grey Street West road reserve, a distance of 600m. The level difference between these two points is 29m resulting in a constant grade of about 5%. This is slightly steeper than what would be considered acceptable.

However, to the north of the Grey Street West road reserve is Lot 893 Hanrahan Road. Located within this lot are a number of decommissioned oil storage tanks. By utilising Lot 893 the shared path could be taken through to the intersection of Princess Royal Drive and Frenchman Bay Road. This would extend the length of the path to 700m reducing its grade to a more acceptable 4%. As Lot 893 is privately owned an agreement with the landowner would need to be made if a path is to be constructed through the lot.

## 5.3 Festing Street

With low traffic volumes and gentle grade for most of its length the existing road is suitable for cyclists with higher confidence levels without modification. The steep grade west of Parade Street makes the section between Parade Street and Melville Street unsuitable for less confident riders. A reduction in the speed of traffic more in line with the existing speed limit would also be beneficial.

## 5.4 Frenchman Bay Road

The Cycle City Albany 2014-2019 Strategy recommended installing 1.5m wide cycle lanes along both sides of Frenchman Road (Sections 1.5.12 and project no.32 in Appendix F of the Strategy). This would provide an ideal facility for more confident riders. For the first 300m north from Woolstores Place providing the lanes is a simple case of widening and sealing the existing road shoulders. Where the lanes approach the intersection with Lower Denmark Road and Hanrahan Road the existing kerbs will need moving to provide adequate width for cycle lanes as well as the traffic lanes. Reducing the number of traffic lanes to accommodate the cycle lanes shouldn't be considered feasible as this would impact on the capacity of the intersections to function adequately. Amendments to the rail crossing would also be required.

For less confident cyclists there is ample room within the verge on the eastern side of Frenchman Bay Road to continue the existing shared path from south of Woolstores Place up to Princess Royal Drive. A suitable rail crossing would need to be provided adjacent to the existing road level-crossing. With Woolstores Place having such low traffic volumes and with the existing path terminating some 35m from the hold line with Frenchman Bay Road there would be an opportunity to provide a priority shared path crossing across Woolstores Place.

## 5.5 Grey Street West

- ***Princess Royal Drive to Spearwood Road***

The steep grade means this section of Grey Street is unsuitable as a cycle route even if a road or surfaced path were to be constructed.

- ***Spearwood Road to Carlisle Street***

The existing gravel surface makes the current road unsuitable as a route for cyclists of all confidence levels. Even if sealed the steep grade would not suit less confident cyclists and should not be considered suitable as an option.

- ***Carlisle Street to Collie Street***

With its fairly level grade and generous widths, this section of Grey Street West provides an ideal environment for confident cyclists but less confident ones may find the higher traffic speeds west of Parade Street intimidating.

The Cycle City Albany Strategy recommends that cycle lanes be provided in both directions between York Street and Collie Street and that a westbound only cycle lane is installed between Collie Street and Melville Street to allow cyclists to climb the hill with protection from vehicle conflicts.

The generous road and verge width between Collie Street and Bay Street coupled with the lack of parking demand provides an opportunity for the construction of an off-road shared path or two-way separated cycle path for use by less confident cyclists along the northern side of this section of Grey Street West.

West of Bay Street the Cycle Strategy proposes using the service road along the south side of Grey Street West as a two-way cycle route. Although feasible it requires east bound cyclists to cross over Grey Street West twice creating a discontinuous route. Although no other option exists within the road reserve along this section, due to the steep topography of the land either side, there is an opportunity for a path through the existing bushland immediately to the north. Behind the embankment upon which the power poles are located are what appear to be three old pits, possibly used for quarrying rock. By connecting these pits together a shared path of suitable width and level gradient could be constructed all the way through to Maxwell Street. The path would need to pass over the existing above ground water main near Bay Street on a suitable structure or the main be placed underground.

## **5.6 Lower Denmark Road**

The relatively high speed limit and traffic volumes result in the existing road being unsuitable for all but the most confident cyclists.

Scope exists to widen the road to provide 1.5m wide cycle lanes or sealed shoulders as recommended in section 1.5.11 (project 28 in Appendix F) of the Cycle City of Albany Strategy. Widening on the north side only would remove the need to construct piped drainage on the south side, which would be an expensive exercise over such a distance.

## **5.7 Vancouver Street**

With low traffic volumes and speeds, along with gentle gradients Vancouver Street in its existing form is suitable for cyclists of all confidence levels.

## **5.8 Woolstores Place**

The low traffic volumes and flat grade make Woolstores Place, between Frenchman Bay Road and the gate at the entrance to the wool stores ideal for cyclists of all confidence levels. Beyond the gate, reconstruction of the road or construction of a shared path would be required to provide a suitable running surface.



**OPPORTUNITIES AND CONSTRAINTS  
ROUTES FOR CONFIDENT CYCLISTS**

NOT TO SCALE


 102 NORTH ROAD, YAKAMIA WA 6330  
 PO BOX 484 ALBANY WA 6331  
 Tel: (08) 9841 9333  
 Fax: (08) 9841 4099  
 Email: [cityassets@albany.wa.gov.au](mailto:cityassets@albany.wa.gov.au)  
 Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)



**FIGURE 8**




 102 NORTH ROAD, YAKAMIA WA 6330  
 PO BOX 484 ALBANY WA 6331  
 Tel: (08) 9841 9333  
 Fax: (08) 9841 4099  
 Email: [cityassets@albany.wa.gov.au](mailto:cityassets@albany.wa.gov.au)  
 Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)

## OPPORTUNITIES AND CONSTRAINTS ROUTES FOR LESS CONFIDENT CYCLISTS

NOT TO SCALE



**FIGURE 9**

## 6 Options for cycle infrastructure improvements

This section details the possible options for routes for cyclists of different confidence levels which are also shown in Figures 10 and 11.

### 6.1 Route for confident cyclists

Figure 10 illustrates a proposed route for confident cyclists including modifications to the existing road network where required.

Proposals include:

- Cycle lanes (1.5m wide) on both sides of Lower Denmark Road between Frenchman Bay Road and the end of the kerbed section. These would then tie into the sealed shoulders that are proposed for Lower Denmark Road within the Cycle City Albany Strategy.
- Cycle lanes (1.5m wide) along both sides of Frenchman Bay Road from a point south of Woolstores Place up to Princess Royal Drive with “green lane” treatments across the intersections of Woolstores Place, Ware Road and Lower Denmark Road. Adjustments to the existing rail crossing will be required to accommodate the additional carriageway width. Where there are 2 traffic lanes in either direction these could be reduced to 3.25m each meaning that the resulting carriageway widening would be less than 1m.
- Cycle lanes (1.5m wide) along Hanrahan Road and Princess Royal Drive from the end of the existing sealed shoulders, north of the entrance to CSBP fertiliser works, to a point 180m east of Frenchman Bay Road. These would tie in with the recently constructed cycle lanes on Princess Royal Drive.
- Utilising the existing Festing Street roadway to avoid the narrow bridge on Princess Royal Drive. This route along Festing Street should be signed from Princess Royal Drive at its intersection with Festing Street and Residency Road to encourage cyclists, especially those unfamiliar with the area to use it.
- Sealed shoulders (1.5m-2.0m wide) on Princess Royal Drive between Residency Road and a point to the east of the bridge approach ramp. It would be possible to designate these as cycle lanes. However, this is not being proposed as it would promote the use of this section of Princess Royal Drive by all cyclists and bring them to a point where they had no option but to run the gauntlet of crossing the rail line on the narrow bridge. Sealed shoulders however will provide a safer road for those riders who choose to use this section of Princess Royal Drive without encouraging its use as a recommended cycle route.



### RECOMMENDED ROUTE FOR CONFIDENT CYCLISTS

NOT TO SCALE


 102 NORTH ROAD, YAKAMIA WA 6330  
 PO BOX 484 ALBANY WA 6331  
 Tel: (08) 9841 9333  
 Fax: (08) 9841 4099  
 Email: [cityassets@albany.wa.gov.au](mailto:cityassets@albany.wa.gov.au)  
 Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)



FIGURE 10

## **6.2 Route options for less confident cyclists.**

### **6.2.1 Option 1**

This option is 2.6km in length and is shown in its entirety in Figure 11. It is then illustrated in more detail in Figures 12, 13 and 14. It proposes the construction of an off-road shared path along the southeast side of Frenchman Bay Road from the end of the existing shared path at Woolstores Place, across the rail line and up to Princess Royal Drive. This then crosses Princess Royal Drive, runs through the existing Wesfarmers/CSBP land (Lot 893 Hanrahan Road) and unallocated crown land up to the top of Carlisle Street at a gradient of 4%. It then continues along the verge/bush on the north side of Carlisle Street and Grey Street West through to Melville Street. From here, the path continues along the north side of Grey Street West through to Collie Street but becomes a separate cycle/pedestrian facility rather than a shared one. Beyond Collie Street the path would tie into cycle routes being considered for the CBD although further work is required regarding their development.

Option 1 provides a direct link to the heart of the CBD, terminating close to the library, Town Hall and newly developed Town Square. It also compliments proposals to relocate the Visitors Centre from the current location at the old railway station to the Library.

The alignment provides a route that is sheltered from the elements where it passes through the bushland to the north of Grey Street West and Carlisle Street, where there are also opportunities to provide scenic views over Princess Royal Harbour.

Careful design of the section from Princess Royal Drive to the top of Carlisle Street is essential to ensure a constant gentle grade is achieved. The City has undertaken a topographical survey of this section to confirm that a constant grade of 4% can be achieved avoiding residential properties and rock outcrops. A retaining structure would be required where the route passes in front of 273 Grey Street West and over the existing water main.

The alignment of the route provides an opportunity for it to be used by both the Munda Biddi Trail and Bibbulmun track avoiding the less than desirable current alignments along Woolstores Place and Princess Royal Drive as well as a much improved rail crossing.

The alignment of Option 1 does require the crossing of both the rail line and Princess Royal Drive and careful selection of crossing type and location is required to achieve the best outcome for path users. Discussions are ongoing with Main Roads WA and Public Transport Authority / Brookfield Rail regarding these issues.

Where the route runs along the north side of Grey Street West between Collie Street and Parade Street there would be a loss of 13 parking spaces. These spaces are rarely fully utilised and drivers could still park within the parking bays on the south side of Grey Street West.

### **6.2.2 Option 2**

This option is similar to one of the routes investigated as part of the Albany Harbours Dual Use Path Planning Strategy and is 2.5km in length. It was originally considered as being unfeasible due to the great expense of widening the embankment and sea wall south of Princess Royal Drive. However, as discussed in Section 4.3, Grange Resources have committed to constructing a 3.0m wide shared path on top of the route of the pipeline between the ANZAC Peace Park and a point west of Melville Point.

The remainder of the route would need to be constructed / funded separately to the Grange Resources section but should be built at the same time so as to provide a continuous route between Frenchman Bay Road and the Peace Park.

Between the Grange Resources pipeline section and Woolstores Place, the path would run to the south of the existing rail line outside the rail corridor and then around the south side of the wool stores. It would continue along the western side of the wool stores, within the unconstructed road reserve, before joining Woolstores Place west of the existing gate. The section along Woolstores Place could use the existing roadway between the gate and the existing path along Frenchman Bay Road. The section along the southern edge of the wool stores would require the widening of the existing embankment and reconstruction of the sea wall which is in poor condition. However, any future development of the wool stores site should include for a shared path to be provided.

The alignment of option 2 maintains a level grade except for the section over Point Melville. It is a desirable route for tourists as it provides outstanding views of Princess Royal Harbour to the south, although the section past the wool stores is unsightly in its current state, and links in to the ANZAC Peace Park at its western end. However, its location along the shores of the harbour mean it will be exposed to the worst of the weather and even moderate winds will make riding more challenging.

The route doesn't require a crossing of the rail line or Princess Royal Drive, although path users travelling to/from the CBD will need to cross both at some point. Also the alignment doesn't provide good connectivity for cyclists travelling to/from CBD locations west of Parade Street as they have to back track to the east.

It should be noted that if Grange Resources do not construct the slurry pipeline then the cost of building this option will be prohibitive.



### ROUTE OPTIONS FOR LESS CONFIDENT CYCLISTS

NOT TO SCALE


 102 NORTH ROAD, YAKAMIA WA 6330  
 PO BOX 484 ALBANY WA 6331  
 Tel: (08) 9841 9333  
 Fax: (08) 9841 4099  
 Email: [cityassets@albany.wa.gov.au](mailto:cityassets@albany.wa.gov.au)  
 Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)



FIGURE 11

THIS MAP HAS BEEN PRODUCED BY THE CITY OF ALBANY USING DATA FROM A RANGE OF AGENCIES. THE CITY BEARS NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION AND ACCEPTS NO RESPONSIBILITY FOR ITS USE BY OTHER PARTIES.

NEW RAIL CROSSING IN CONSULTATION WITH RAIL AUTHORITY.

CROSSING OF PRINCESS ROYAL DRIVE. EXACT LOCATION TO BE DETERMINED IN CONSULTATION WITH MRWA

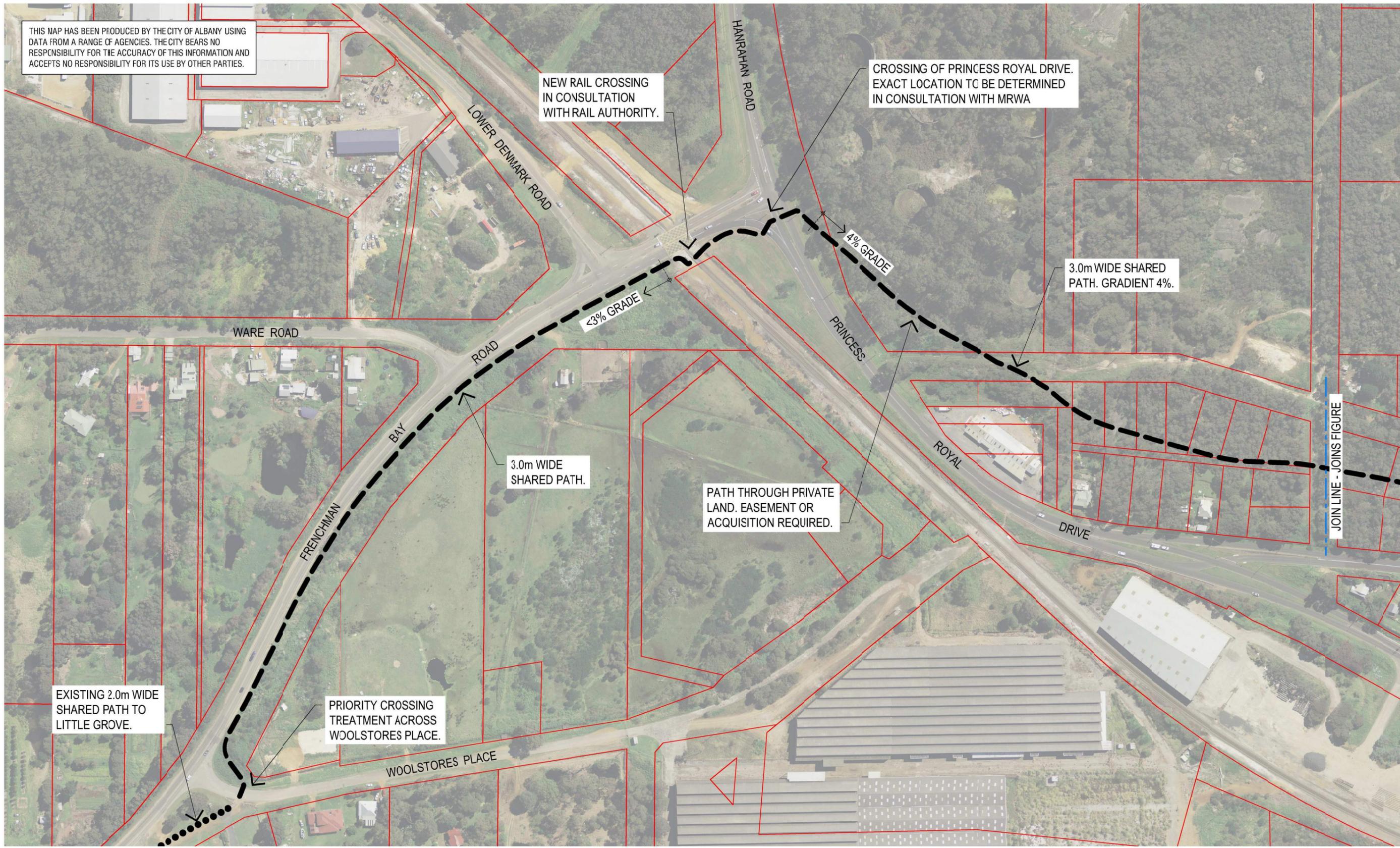
3.0m WIDE SHARED PATH. GRADIENT 4%.

3.0m WIDE SHARED PATH.

PATH THROUGH PRIVATE LAND. EASEMENT OR ACQUISITION REQUIRED.

EXISTING 2.0m WIDE SHARED PATH TO LITTLE GROVE.

PRIORITY CROSSING TREATMENT ACROSS WOOLSTORES PLACE.



102 NORTH ROAD, YAKAMIA WA 6330  
PO BOX 484 ALBANY WA 6331  
Tel: (08) 9841 9333  
Fax: (08) 9841 4099  
Email: cityassets@albany.wa.gov.au  
Website: www.albany.wa.gov.au

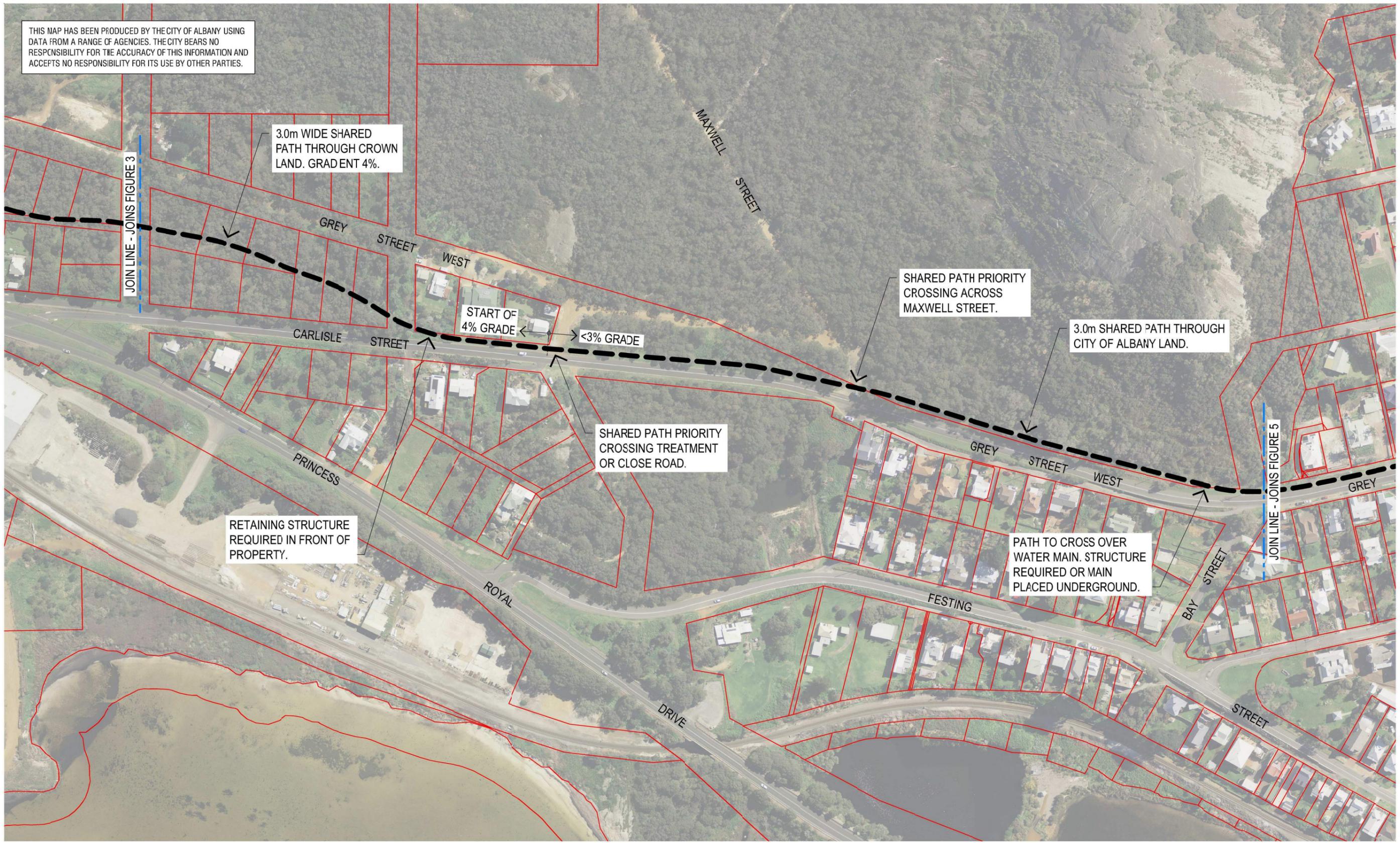
### OPTION 1 - DETAILED ASSESSMENT (SHEET 1 OF 3)

SCALE 1:2500



FIGURE 12

THIS MAP HAS BEEN PRODUCED BY THE CITY OF ALBANY USING DATA FROM A RANGE OF AGENCIES. THE CITY BEARS NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION AND ACCEPTS NO RESPONSIBILITY FOR ITS USE BY OTHER PARTIES.



### OPTION 1 DETAIL ASSESSMENT (SHEET 2 OF 3)

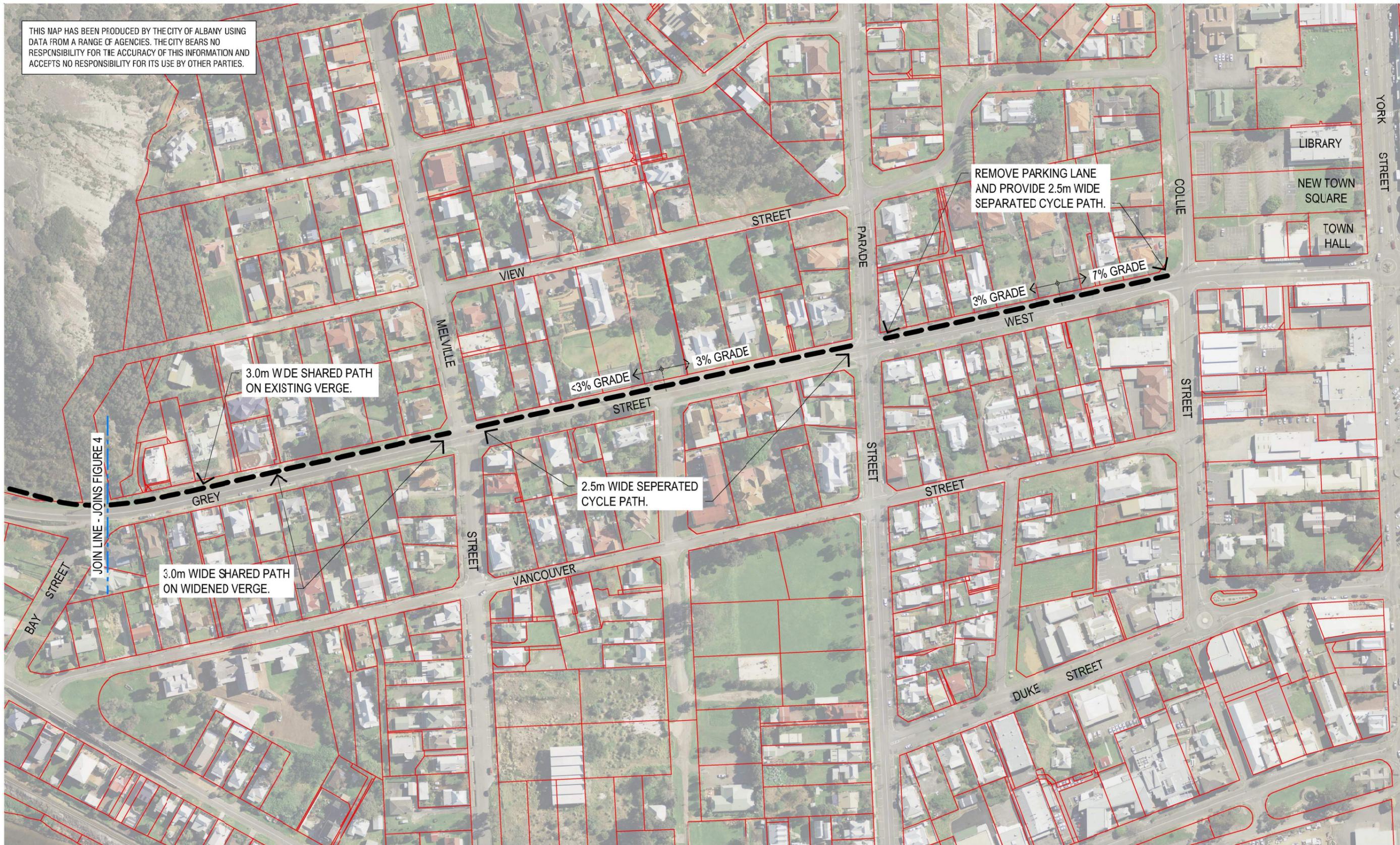
SCALE 1:2500

  
102 NORTH ROAD, YAKAMIA WA 6330  
PO BOX 484 ALBANY WA 6331  
Tel: (08) 9841 9333  
Fax: (08) 9841 4099  
Email: [cityassets@albany.wa.gov.au](mailto:cityassets@albany.wa.gov.au)  
Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)



FIGURE 13

THIS MAP HAS BEEN PRODUCED BY THE CITY OF ALBANY USING DATA FROM A RANGE OF AGENCIES. THE CITY BEARS NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION AND ACCEPTS NO RESPONSIBILITY FOR ITS USE BY OTHER PARTIES.



  
102 NORTH ROAD, YAKAMIA WA 6330  
PO BOX 484 ALBANY WA 6331  
Tel: (08) 9841 9333  
Fax: (08) 9841 4099  
Email: [cityassets@albany.wa.gov.au](mailto:cityassets@albany.wa.gov.au)  
Website: [www.albany.wa.gov.au](http://www.albany.wa.gov.au)

OPTION 1 DETAIL ASSESSMENT  
(SHEET 3 OF 3)  
SCALE 1:2500



FIGURE 14

## **7 Stakeholder Engagement**

In May 2015 City of Albany formed a Working Group with representatives from a variety of stakeholders including:

- Albany Bicycle User Group (ABUG)
- Albany Cycle Club (ACC)
- Brookfield Rail
- Department of Transport
- Grange Resources
- Main Roads WA (MRWA)
- Over 50's Cycle Group

The Working Group was tasked with providing advice for the feasibility study and was responsible for:

- Providing local advice to the City of Albany on proposed strategies for improvements.
- Ensuring all views are appropriately represented during the developmental phase.
- Providing guidance and assistance in regards to communication and consultation with stakeholders.
- Providing advice and assist with the collection of data and local contextual information, as requested.

A workshop/presentation was held at the City of Albany offices on 12 May 2015 and the group was presented with, and discussed, the various draft options and recommended routes. Plans were provided for comment and the group also undertook a site visit. Feedback was received and incorporated into a draft report.

The working group met once again in June 2015 and were presented with the draft report for further comment. The feedback from the various stakeholder groups is included in Appendix C.

## **8 Recommendations**

The recommendations listed below are subject to any necessary approvals and funding and being made available.

### **8.1 Route for Confident Cyclists**

#### **8.1.1 Short Term (within 12 months)**

It is recommended that:

- Signage is installed on Princess Royal Drive at the intersections of Festing Street and Residency Road to encourage cyclists to use Festing Street as an alternative to crossing the rail line using the narrow bridge on Princess Royal Drive.
- City of Albany undertake design of cycle lanes (1.5m wide) on Frenchman Bay Road from Princess Royal Drive up to and including the intersection of Woolstores Place.
- City of Albany liaise with Public Transport Authority and Brookfield Rail regarding modifications to the existing rail crossing that will be required from widening Frenchman Bay Road to accommodate proposed cycle lanes.
- City of Albany undertake design of cycle lanes (1.5m wide) on Lower Denmark Road from the intersection of Frenchman Bay Road to the end of the kerbed section (500m).

#### **8.1.2 Medium term (1-3 years)**

It is recommended that:

- MRWA construct cycle lanes (1.5m wide) on both sides of Hanrahan Road, from the end of the existing sealed shoulders through to the recently constructed cycle lanes on Princess Royal Drive shown in Figure 3.
- MRWA provide sealed shoulders (1.5m-2.0m wide) between Residency Road and the start of the rail bridge approach embankment.
- MRWA review the existing 70km/h speed limit on Princess Royal Drive following implementation of the cycle lanes.
- City of Albany construct cycle lanes (1.5m wide) along Frenchman Bay Road from Princess Royal Drive up to and including the intersection with Woolstores Place.
- City of Albany constructs cycle lanes (1.5m wide) on both sides of Lower Denmark Road from Frenchman Bay Road up to the end of the kerbed section (500m).

#### **8.1.3 Long Term**

It is recommended that:

- MRWA include on-road sealed shoulders / cycle lanes in the design and construction of the Albany Ring Road as shown in Figure 5 and that these are continued along Princess Royal Drive through to York Street.
- MRWA include cycle lanes (1.5m wide) on the realigned sections of Lower Denmark Road, Frenchman Bay Road and Hanrahan Road as part of the Albany Ring Road construction.

## **8.2 Routes for Less Confident Cyclists**

### **8.2.1 Short Term (within 12 months)**

It is recommended that:

- City of Albany undertake design and obtain necessary approvals for route Option 1 as shown in Figure 11 and in more detail in Figures 12,13 and 14.

### **8.2.2 Medium Term (1-3 years)**

It is recommended that:

- (2016-17) City of Albany undertakes construction of route Option 1 from Woolstores Place through to Castle Street, a distance of 1.3km.
- (2017-18) City of Albany undertakes construction of route Option 1 from Castle Street through to Collie Street, a distance of 1.3km.
- City of Albany investigates designs for the section of route Option 2 from Frenchman Bay Road through to the section being undertaken by Grange Resources.

### **8.2.3 Long Term**

It is recommended that:

- MRWA include shared paths in the construction of the Albany Ring Road as shown in Figure 6.
- A shared path is included alongside the realignment of Carlisle Street, as shown in Figure 6, to tie in with the shared path shown in route Option 1.
- Grange Resources construct a 3m wide shared path at the same time as, and along the alignment of, the proposed slurry pipeline from Anzac Peace Park through to where the pipeline crosses to the north of the rail line, west of Melville Point as shown in Figure 11 (route Option 2).
- City of Albany construct the remaining section of route Option 2 as shown in Figure 11.

# Appendices

**Appendix A – Extracts from Cycle City Albany 2014-2019 Strategy**

## 1.5.9 Hanrahan Road/Princess Royal Drive

Hanrahan Road and Princess Royal Drive form the current road train route to/from the Port. However they also form part of popular cycling routes. Princess Royal Drive, between Frenchman Bay Road and Carlisle Street, is also the only cycling access between Albany Central Area and Lower Denmark and Frenchman Bay Roads, making it a critically important link in the network. It is traversed by a wide range of cyclists – mountain bikers, medium confidence level riders (e.g. the Over 50's cycle club), experienced cyclists (e.g. road riders) as well as walkers following the Bibbulmun Track and more recently Munda Biddi riders.

Currently, some cyclists use informal routes to avoid the risk of interacting with heavy vehicle traffic. Informal routes used by less confident cyclists include the use of Woolstores Place and private land to cross the railway line and enter Princess Royal Drive via the driveway east of Carlisle Street. These routes, aside from traversing private property, involve dismounting to cross the railway line and the risk of injury and damage to bicycles.

The community consultation process identified that Princess Royal Drive/Hanrahan Road was one of the most significant areas for improvement and an additional 66 responses specifically commented on safety issues on Princess Royal Drive/Woolstores/Frenchman Bay Road. (See Appendix A and C)

East of Carlisle Street, cyclists are forced to ride on the road carriageway. This section is narrow, with an unbroken centreline, and a crest at the railway bridge, which creates a significant pinch point.

Hanrahan Road has sealed shoulders along most of its length and, whilst rougher than desirable, these are generally adequate. However, at the northern end of Hanrahan Road, the shoulders disappear, leaving cyclists to mix with traffic in very wide lanes

At the southern end of Hanrahan Road, the cycle lanes disappear at the entrance to the CSBP plant. From this point onwards, cyclists are required to ride in the traffic lane, mixing with road trains and general traffic. In many locations, e.g. between Carlisle Street and Festing Street, and at the railway bridge, there is insufficient width for vehicles to pass safely, particularly road trains, which results in a very dangerous situation for cyclists.



Project	Hanrahan Road / Princess Royal Drive
Responsibility	Main Roads
Reference	56,57,58
Links to Objectives	Cycle Tourism, Cycling Network, Safety and Respect for all Users
Possible Solutions / Treatments	<p>It is recommended that the northbound sealed shoulders on Hanrahan Road be continued through the Menzies Street intersection as far as Parker Street, where an optional path transition should be provided.</p> <p>For southbound cyclists, the existing sealed shoulders should be extended north from Menzies Street as far as Parker Street, with a 45 degree connection provided from the existing path Both these recommendations could be achieved by adjustments to line-marking only.</p> <p>Fixing the section of road, particularly between Frenchman Bay Road and Festing Street, is considered to be one of the highest priority cycling works due to the inherent risks associated with the existing environment.</p> <p>There is no easy fix solution, though some short term improvements are possible. Short term improvements may include the provision of paths, changes to line-marking, and/or signage to manage conflicts between road users until an ultimate solution can be implemented.</p> <p>The ultimate solution for this section requires significant engineering investigation, and is therefore outside of the scope of this Strategy. However, several preliminary options have been considered at a strategic level and an indicative solution at this time consists of:</p> <p>Mixed traffic operation along Woolstores Place</p> <p>New shared path along the western boundary of the Woolstores site</p> <p>3.5m wide shared path, on a combined bridge/pontoon structure, from Woolstores to Anzac Peace Park. This structure should have several lookout bays constructed at particularly scenic locations to cater for pedestrians admiring the scenery</p> <p>Investigation into the most appropriate route to cater for less confident cyclists between Anzac Peace Park and the beginning of the shared path at Bridges Street.</p> <p>This option is expected to accommodate most cyclist types, however very experienced road riders may continue using Princess Royal Drive.</p>
Recommendations	
Short	<p>A comprehensive Feasibility Study, lead by the City to determine a preferred suite of short term and long term improvements, with a view to commencing short term improvements in the 2015/16 FY. The study to include the arterial roads into the CBD.</p> <p>On Hanrahan Rd, northbound sealed shoulders be continued through the Menzies Street intersection as far as Parker Street, by adjustments to line-marking only</p> <p>On Hanrahan Rd, southbound, the existing sealed shoulders should be extended north from Menzies Street as far as Parker Street, by adjustments to line-marking with a 45 degree connection provided from the existing path.</p>
Medium	
Long	

### 1.5.11 Lower Denmark Road

Lower Denmark Road is a popular recreational road riding route, ridden by experienced road cyclists, and recreational cyclists (such as the Over 50s Cycling Club) as well as being a commuter corridor for residents of Elleker and beyond.

The recent installation of kerbing along Lower Denmark Road westward for 500m from Frenchman Bay Road has generated significant feedback from cyclists. They have commented on safety issues as they felt it prevented cyclists from being able to leave the roadway onto the unsealed shoulder. It is noted that the seal is now significantly wider than previously and has been asphalted.

Project	Lower Denmark Road
Responsibility	City of Albany/Main Roads
Reference	27,28,29, 289
Links to Objectives	Cycling Network Safety and Respect for all Users Cycle Participation Cycle Tourism
Possible Solutions / Treatments	<p>Given the number of complaints received about this section of road, and the safety risks due to high traffic volume and high cyclist volume, widening of the carriageway to provide minimum 1.5m wide sealed shoulders is recommended. This work should be extended beyond the end of the kerbed section, taking advantage of the existing unsealed shoulders, as funding permits.</p> <p>Improvement of the George and Robinson Road section would enable cyclists to avoid the section of Lower Denmark Road east of George Street, travelling via Robinson Road instead, until such time that the section east of George Street can have its safety issues addressed.</p> <p>Long term, combined with the previous described work on South Coast Highway, this would open up a long loop ride, as well as potential cycling tourism synergies with the Shire of Denmark. At present the route is generally not suitable for use by all but the most confident cyclists.</p>
Recommendations	
Short	<p>Investigate, as part of the Hanrahan/Princess Royal Drive Feasibility Study, options to improve cycling safety along Lower Denmark Road for 500m.</p> <p>Widening of the carriageway to provide minimum 1.5m wide sealed shoulders between George and Robinson Road,</p> <p>As part of the new Signage Strategy consider:</p> <p>Review of the existing signage along Lower Denmark Road and 'Share the Road' type signage at intervals no greater than 5km, particularly on the approach to pinch points (e.g. uphill grades)</p>
Medium	As part of the Ring Road, Main Roads to consider as per their policy, including cycling infrastructure.
Long	<p>Beyond Robinson Road, and beyond Elleker, it is recommended that Lower Denmark Road progressively be widened to provide a minimum 1.5m wide sealed shoulders in both directions.</p> <p>With the completion of Albany Ring Road, review the use of existing road for local access and encourage cycling from George Street to Frenchman Bay Road.</p>

Reference Number	Details	Indicative Cost at 2014
------------------	---------	-------------------------

26  \$7,000,000

Street Name		From		To	
South Coast Hwy		George St		City Boundary	
Type	Surface	Width	Length	Area	Rating %
On-road	Chip seal	2.0	35,000.0	70000	48.00
Priority	Comments/Actions				
Long	Widen and seal shoulders (MRWA)				

27  \$180,000

Street Name		From		To	
Lower Denmark Rd		George St		Robinson Rd	
Type	Surface	Width	Length	Area	Rating %
On-road	Chip seal	1.5	1,000.0	1500	58.00
Priority	Comments/Actions				
Short	Widen and seal shoulders				

28  \$800,000

Street Name		From		To	
Lower Denmark Rd		Frenchman Bay Rd		George St	
Type	Surface	Width	Length	Area	Rating %
On-road	Chip seal	1.5	4,400.0	6600	58.00
Priority	Comments/Actions				
Short	Widen and seal shoulders				

28a  \$10,000

Street Name		From		To	
Lower Denmark Rd		Frenchman Bay Rd		5km west	
Type	Surface	Width	Length	Area	Rating %
On-road			5,000.0		
Priority	Comments/Actions				
Short	Review signage, install symbols,				

Reference Number	Details	Indicative Cost at 2014
------------------	---------	-------------------------

55a

Street Name		From		To	
Albany Hwy		Chester Pass Rd		York St	
Type	Surface	Width	Length	Area	Rating %
On-road	Asphalt	1.5	2,500.0	3750	76.00
Priority	Comments/Actions				
Medium	Investigate on road cycle lanes				

55b

Street Name		From		To		\$710,000
Albany Hwy		Chester Pass Rd		York St		
Type	Surface	Width	Length	Area	Rating %	
Shared	Asphalt	2.5	2,500.0	6250	80.00	
Priority	Comments/Actions					
Short	Construct 2.5m wide asphalt shared path					

56



Street Name		From		To		\$12,000
Hanrahan Rd		Albany Hwy		Frenchman Bay Rd		
Type	Surface	Width	Length	Area	Rating %	
On-road					78.00	
Priority	Comments/Actions					
Short	Linemark to provide sealed shoulder for cyclists MRWA)					

57



Street Name		From		To		\$80,000
Princess Royal Dr		Frenchman Bay Rd		York St		
Type	Surface	Width	Length	Area	Rating %	
Shared			800.0	0	66.00	
Priority	Comments/Actions					
Short	Feasibility Study into best options (MRWA)					

Reference Number	Details	Indicative Cost at 2014
------------------	---------	-------------------------

58



Street Name		From		To	
Princess Royal Dr		Railway Bridge		York St	
Type	Surface	Width	Length	Area	Rating %
On-road			1,200.0	0	56.00
Priority	Comments/Actions				
Short	Feasibility Study into best options MRWA)				

60



Street Name		From		To	
Elizabeth St		Paul Terry Dr		The Esplanade	
Type	Surface	Width	Length	Area	Rating %
Shared	Asphalt	2.5	900.0	2250	62.00
Priority	Comments/Actions				
Long					

\$260,000

61



Street Name		From		To	
Paul Terry Dr (future extension)		Berliner St		Flinders Park Primary	
Type	Surface	Width	Length	Area	Rating %
Shared	Asphalt	2.5	2,000.0	5000	61.00
Priority	Comments/Actions				
Long	Condition of subdivisional development				

63



Street Name		From		To	
Warden Ave		Collingwood Rd		Hardie Rd	
Type	Surface	Width	Length	Area	Rating %
Shared	Asphalt	2.5	650.0	1625	69.00
Priority	Comments/Actions				
Short	Construction of shared path - western side				

\$185,000

## Appendix B – Extracts from Albany Harbours Dual Use Path Planning Strategy

Page	Section No and title	Extract
7	2 Background	<i>This report is not about the selection of a route for commuter cyclists. It is about selecting the best alignment for a path which will have a multitude of users. Therefore the width, grade, elevation, alignment, surface material and 'all-weather useability' of the path needs to be appropriate for the range of probable users.</i>
8	3.1 Community Consultation	<p><i>A public workshop held in Albany on 23 August 1994 (under the auspices of the Albany Regional Alternative Transport Taskforce) elicited many comments about walking and cycling in Albany, from the 70+ residents who attended. As a result of that public workshop, a list of proposals, suggestions and ideas about new facilities was compiled, including:</i></p> <ul style="list-style-type: none"> <li><i>• greater education needed for all road users (motorists and cyclists) and dual use path users (pedestrians and cyclists)</i></li> <li><i>• better parking facilities required for cyclists</i></li> <li><i>• better signage needed along dual use paths and other trails</i></li> <li><i>• need to establish a comprehensive network of dual use paths, including the continuation of the establishment of the dual use path from Lower King through the town to Frenchman Bay (ie. around the harbours)</i></li> <li><i>• wider paths needed</i></li> <li><i>• high speed commuter cyclist routes needed on major roads</i></li> <li><i>• rest areas along paths are required</i></li> <li><i>• all further work should be properly planned, with more community involvement in the planning</i></li> <li><i>• concern over impact that future dual use paths may have on wildlife habitat at Rushy Point</i></li> </ul>
21	4.10 Issues	<i>Alternative routes should be provided for certain users (eg. 'commuter' type cyclists) who have the potential for high speed, which may not be appropriate in an environment more suited for recreational pursuits. High speed cyclists require high standard, direct routes and will usually not use a foreshore dual use path or trail if a better (usually on-road) alternative exists.</i>
22	4.12 Issues	<i>Though the path will be constructed close to the foreshore of the harbours, and will be many kilometres in length, the alignment and location of the path should service nearby educational, commercial and residential activities - both existing and proposed. The foreshore dual use path should connect with the existing dual use path network, other (on-road) cycle routes and pedestrian paths, and should take into account dual use paths proposed within future urban development areas.</i>
25	5.3 Environmental Review	<p><i>The consultants concur with AWMA's recommendations for DUPs and pathways in foreshore areas and concluded that:</i></p> <ul style="list-style-type: none"> <li><i>(i) a multi-use Trail can be constructed between the Wool Stores and Harding Road with minimal environmental impacts along the foreshore and wildlife; and</i></li> <li><i>(ii) (ii) a commuter-style DUP should be developed along Frenchman Bay Road and Woolstores Place as the obvious extension of the existing DUP.</i></li> </ul>

27	5.4 Environmental Review	<p><b>Foreshore Area 2 - The Wool Stores to the Town Centre</b></p> <p><i>The consultants noted that most of the foreshore vegetation has been cleared in this area and almost all of that remaining is Salt-marsh vegetation. In recommending an alignment for a dual use path through this area, the consultants believe the obvious west to east alignment for a DUP, 2.5 m wide and commencing at the eastern end of Woolstores Place, is along the rear of the Wool Stores, through Reserve 22837 (for Railway Purposes) and parallel to Princess Royal Drive to the Albany Town Centre. This alignment is fairly direct, involves only small gradients and over most of its route offers attractive vistas south across Princess Royal Harbour.</i></p> <p><i>The consultants made the following observations:</i></p> <ul style="list-style-type: none"> <li>• <i>Reserve 22837 appears to include at least two railway tracks which are overgrown by bush and grass. Much of the reserve is bordered on the south side by a narrow strip of bush, up to 3m high;</i></li> <li>• <i>the railway line cutting, which is crossed by Princess Royal Drive, offers a more direct and easier alignment than an alternative to the south around Melville Point;</i></li> <li>• <i>the feasibility of constructing a DUP, fully protected by a strong mesh fence from railway traffic, on the south side of the cutting should be investigated, with consideration being given, if necessary, to widening of the cutting or raising the DUP well above the railway line;</i></li> <li>• <i>the foreshore, which adjoins Princess Royal Drive on the eastern side of the cutting, is very exposed to the elements between Melville Point and Residency Road and hence a DUP aligned to the north of that major road would provide more protection;</i></li> <li>• <i>the land on both sides of the two foreshore lakes appears suitable for development of a DUP, with most of that on the northern side of the larger lake being Vacant Crown Land, Reserve 6791 and Road Reserve, and freehold areas being Exempt for Sale (presumably available for acquisition, in whole or part, through the planning process); and</i></li> <li>• <i>a DUP, if aligned next to the two foreshore lakes and close to the replica of the Brig Amity near Residency Road, would have a most attractive setting and provide many superb vistas across the foreshore, over Princess Royal Harbour and towards the Town Centre.</i></li> </ul>
39	6.8 Alternative Alignments	<p><b>York Street to Wool Stores</b></p> <p><i>Between York Street and the Wool Stores three alternative alignment options exist, each with components which could be included in other options.</i></p>
39 & 40	6.8.1 Alternative Alignments	<p><b>South side Princess Royal Drive</b></p> <p><i>This alignment utilises the (currently) narrow section of road shoulder between Princess Royal Drive and Princess Royal Harbour. This option makes good sense if the DUP around the northern side of Foreshore Redevelopment Project is used as an integral component of the Albany Harbours DUP. Rather than crossing over to the north side of Princess Royal Drive, it would be logical to keep the DUP on the southern side. Much of the southern verge of Princess Royal Drive, between York Street and the railway cutting, is too narrow in its present state for a dual use path to be</i></p>

		<p>constructed along it. As the causeway, upon which Princess Royal Drive is constructed, is fill retained by a rock wall on the Princess Royal Harbour side, it would be possible for the rock retaining wall to be relocated 2 - 3 metres out into Princess Royal Harbour, and backfilled, to create a wider verge upon which a DUP could be constructed.</p> <p>The DUP would require some structures (eg. boardwalk) through portions of Melville Point. Beyond Melville Point, the alignment would utilise a corridor currently occupied by disused railway tracks on the foreshore side of the operating railway. Minimal clearing of foreshore vegetation would be required along this stretch of the foreshore. The environmental consultants report (for Foreshore Area 2) indicates that two overgrown railway tracks exist in this location.</p> <p>It is feasible to follow the railway reserve all the way to Woolstores Place or, alternatively, to utilise a narrow band of vacant crown land on the foreshore side of the reclaimed land upon which the Wool Stores are situated.</p> <p>This option of using the southern verge of Princess Royal Drive would be expensive, and the lower costs associated with other possible alignments from York Street to the Wool Stores make this option not feasible.</p>
41 & 42	6.8.2 Alternative Alignments	<p><i>North side Princess Royal Drive</i></p> <p>Between York Street and the Amity replica the DUP alignment would be on the southern side of the Residency Museum, using the wide, grassed forecourt of the Museum grounds, and passing between the Amity and the Museum buildings themselves. Between the Amity and the western-most lake, the path would follow the recently built service road north of Princess Royal Drive, and follow through vacant land up to the eastern edge of the lake.</p> <p>The Town of Albany has plans for the modification of the lakes along Princess Royal Drive. It would be possible for works involved in the modifications of the lakes to incorporate a formation / embankment for a dual use path.</p> <p>In its current state the northern verge of Princess Royal Drive is sufficiently wide for much of the distance between the lake and the railway cutting for a DUP. At the railway cutting, a structure would be required to swing the path around the embankment to the cutting. Preliminary investigations carried out by Town of Albany staff, in consultation with civil engineers and Westrail, indicates that it is feasible for a path, with necessary safeguards, to be constructed through the cutting.</p> <p>On the southern side of the cutting, the DUP would follow the alignment set out in Section 6.8.1. Again, there are choices around the Wool Stores, using either the narrow foreshore reserve (vacant crown land), or following the railway reserve through to Woolstores Place.</p> <p>Though not confirmed, there are reports that Main Roads WA has plans for the duplication or widening of Princess Royal Drive (on its northern side). The proposals are, however, long term and would not preclude this option (as any path or structure built now would be available for use for many years until the road project was implemented).</p>

42	6.8.3 Alternative Alignments	<p><i>South side of Railway Reserve</i></p> <p><i>This option proposes the use of land on the south side of the railway between the eastern end of the lake, and the railway cutting. As the environmental consultants report indicates, the land on the north side of the lake appears suitable for development of a DUP. Most of the land immediately south of, and abutting, the railway reserve is Vacant Crown Land, Reserve 6791 and Road Reserve, and some portions of privately owned land. The freehold areas are Exempt for Sale (presumably available for acquisition, in whole or part, through the planning process).</i></p> <p><i>As discussed in Section 6.8.2, the Town of Albany has plans for the modification of the lakes along Princess Royal Drive. It would be possible for works involved in the modifications of the lakes to incorporate a formation / embankment for a dual use path on the northern reaches of the lake, to avoid land which is privately owned.</i></p> <p><i>The environmental consultants also state that this alignment would have a most attractive setting and provide many superb vistas across the foreshore, over Princess Royal Harbour and towards the Town Centre.</i></p> <p><i>Modification of the lake to create an embankment upon which a dual use path could be constructed would be the most cost effective solution to establishing a path between the Amity and the railway cutting and through the railway cutting.</i></p>
52	7 Preferred Alignment	<p><b>Preferred Alignment</b> <i>York Street to Wool Stores</i></p> <p><i>An alignment which utilises the vacant crown land and reserves on the south side of the railway tracks, north of the lake, is the preferred route. The proposed modifications to the lake will provide an opportunity to create a suitable alignment for a DUP on Council controlled land to avoid some private land holdings which exist on the south side of the railway. This alignment provides the best approach and simplest route for utilising the railway cutting under Princess Royal Drive. From the cutting, the preferred route would follow the disused railway tracks to the vicinity of the Wool Stores. At the Wool Stores the DUP should continue following the railway reserve to Woolstores Place.</i></p>

## Appendix C - Stakeholder Feedback

Respondent	Comments
ABUG	<p>ABUG response to the City of Albany, on their report “Mount Elphinstone to CBD Cycle Link Feasibility Study”, based on feedback received from ABUG members.</p> <p><b>8.1.1 Confident Cyclists : Short Term (within 12 months)</b></p> <ol style="list-style-type: none"> <li>1. <i>MR extend the proposed 1.5m wide cycle lanes on PRD, eastward to Festing St intersection and include appropriate signage.</i> Strong support for the improvement of facilities for cyclists who choose to ride on the road. Preference for wider cycle lanes (and associated traffic lane where applicable) where possible, to provide sufficient safe room for cyclists and separation from heavy vehicles, although general acceptance that “something is <u>far</u> better than nothing”. Strong Support for review of speed limit to reduce impact of ‘buffeting’ from heavy vehicles, improve heavy vehicle tracking within lane maximizing offset from cyclist and reduce risk of collision.</li> <li>2. <i>Signage be installed on PRD at Festing St and Residency Rd to encourage alternative route to crossing railway line and narrow bridge on PRD.</i> Strong Support.</li> <li>3. <i>COA undertake design of cycle lanes (1.5 m) wide on FBR from PRD up to and including intersection of Woolstores Place.</i> Strong Support.</li> <li>4. <i>COA liaise with PTA and Brookfield regarding modifications to rail crossing to accommodate cycle lanes.</i> Supported. See additional comments regarding crossing location for less confident cyclists.</li> <li>5. <i>COA undertake design of cycle lanes (1.5m wide) on LDR from intersection of FBR for 500m.</i> Support for rectification of current hazard posed by narrow pavement surface width and high barrier kerb.</li> </ol> <p><b>8.1.2 Confident Cyclists : Medium Term (1-3 years)</b></p> <ol style="list-style-type: none"> <li>6. <i>MR construct cycle lanes (1.5m wide) on both sides of Hanrahan Rd from end of existing sealed shoulders through to the currently proposed cycle lanes.</i> Strong support for the improvement of facilities for cyclists who choose to ride on the road. Preference for wider cycle lanes (and associated traffic lane where applicable) where possible, to provide sufficient safe room for cyclists and separation from heavy vehicles, although general acceptance that “something is <u>far</u> better than nothing”.</li> <li>7. <i>MR provide sealed shoulders (1.5m-2.0m) between Residency Rd and start of rail bridge.</i> Support for the improvement of facilities for cyclists who choose to ride on the road.</li> <li>8. <i>MR review existing 70km/hr speed limit on PRD following implementation of cycle lanes.</i> Strong support for review of speed limit through the narrow sections of PRD (FBR to CBD) to reduce impact of ‘buffeting’ from heavy vehicles, improve heavy vehicle tracking within lane thereby maximizing offset from cyclists and reduce risk of collision.</li> </ol>

ABUG (cont...)

9. *COA construct cycle lanes (1.5m wide) along FBR from PRD up to and including intersection with Woolstores Place.*

Support for the improvement of facilities for cyclists who choose to ride on the road. Preference for wider cycle lanes (and/or wider associated traffic lane) where possible, to provide sufficient safe room for cyclists and separation from heavy vehicles, although general acceptance that “something is far better than nothing”.

10. *COA construct cycle lanes (1.5m wide) on both sides of LDR from FBR to for 500m.*

Support for the improvement of facilities for cyclists who choose to ride on the road. Preference for wider cycle lanes (and/or wider associated traffic lane) where possible, to provide sufficient safe room for cyclists and separation from heavy vehicles, although general acceptance that “something is far better than nothing”.

### **8.1.3 Confident Cyclists : Long Term**

11. *MR include sealed shoulders/cycle lanes on Albany Ring Road.*

Support. Preference for wider cycle lanes (and associated traffic lane where applicable) where possible, to provide sufficient safe room for cyclists and separation from heavy vehicles, although general acceptance that “something is far better than nothing”.

12. *COA include cycle lanes (1.5m wide) on both sides of LDR.*

Support for the improvement of facilities for cyclists who choose to ride on the road. Preference for wider cycle lanes (and associated traffic lane where applicable) where possible, to provide sufficient safe room for cyclists and separation from heavy vehicles, although general acceptance that “something is far better than nothing”.

#### **Other Comments:**

Support for the “confident/less confident cyclist” approach. Some difference of opinion about the naming, but general agreement that;

- (1) the optimum solution (reflected in international best practice) is for cycle paths that are totally/physically separated from vehicular traffic (where speed is over 30km/h or comprising of high number of heavy vehicles) and pedestrians, but an acknowledgment that;
- (2) on-road infrastructure (cycle lanes/sealed shoulders) are still required as some cyclists will always choose to ride on-road even if there is a high quality alternative.

### **8.2.1 Less Confident Cyclist Short Term (within 12 months)**

13. *COA undertake design and obtain approvals for Option 1.*

Strong support. ABUG recommends the crossing of PRD be separated from the intersection of LDR/PRD (moved east) to reduce risk of car on bike collisions. Also, to achieve the safest crossing of PRD an alternative crossing point over the railway may be desirable (perhaps in the location of the current Munda Bidi crossing). Brookfield Rail should be pressured to accommodate reasonable requests which provide clear net safety gains.

<p>ABUG (cont...)</p>	<p><b>8.2.2 Less Confident Cyclist Medium Term (1-3 years)</b></p> <p>14. (2016/17) COA undertake construction of Option 1 from Woolstores to Castle St. Strong Support.</p> <p>15. (2017/18)COA undertake construction of Option 1 from Castle St to Collie St. Strong Support.</p> <p>16. COA investigate designs for Option 2 from FBR to the section being undertaken by Grange. Strong Support and suggestion that the investigation cover Option 2 all the way to the Peace Park. The Grange Project is uncertain and an alternative funding plan should be developed. Even with Option 1 constructed, Option 2 remains a highly desirable link with major tourism (and safety) benefits. Preliminary work should be completed to facilitate the pursuit of funding should the opportunities arise, and allow appropriate development conditions on relevant properties.</p> <p><b>8.2.3 Less Confident Cyclist Long Term</b></p> <p>17. MR include shared path construction in Albany Ring Rd. Strong Support. Cycle paths may also be appropriate.</p> <p>18. A shared path be included alongside the realignment of Carlisle St, to tie in with the shared path in Option 1. Strong Support. Cycle paths may also be appropriate.</p> <p>19. Grange Resources construct a 3m wide shared path at the same time as, and along the alignment of the proposed slurry pipeline from Anzac PP to the north of the rail line. Strong Support. Furthermore and as per point 16, the Grange Project is uncertain and an alternative funding plan should be developed. Even with Option 1 constructed, Option 2 remains a highly desirable link with major tourism (and safety) benefits. Preliminary work should be completed to facilitate the pursuit of funding should the opportunities arise, and allow appropriate development conditions on relevant properties.</p> <p>20. COA construct the remaining section of Option 2. Strong Support, and further comments about connection to Anzac PP as per 16 and 19.</p>
<p>Albany Cycle Club</p>	<p>We had our committee meeting on Monday night and the committee were fine with everything in the draft report and appreciative for the recommendation in the report to MRWA to provide sealed shoulders between Residency Rd and the start of the Railway bridge approach embankment on Princess Royal Drive. I explained that is only a recommendation and then it'd be up to MRWA to source funding amongst other priorities and the committee understood that.</p> <p>One question was raised however in relation to the signage. In the list of recommendations there is only mention of signage to be installed on the corner of Princess Royal Drive and Festing St &amp; Residency Rd. From my recollection of what you or Andrew Greenwood said at the meeting it was advised that signage was to be recommended to be put in place along the lines of a "Share the Road" message. That is not noted in the recommendations section. Would you please advise where in the draft report that is mentioned or did I get the wrong impression?</p>

<p>Albany Cycle Club (cont...)</p>	<p>In relation to the signage recommended as per the report – there was some concern expressed amongst the committee that with the signage “encouraging cyclists to use Festing St as an alternative to using Princess Royal Drive” that there is potential for motorists to direct abuse at individual cyclists and groups who continue to use Princess Royal Drive after Festing St, as the club proposes to do so re our Thursday morning club rides and other unofficial group &amp; individual rides that occur during the week. We therefore request that the Albany Cycling Club, &amp; other local cycling groups, to be consulted re the wording &amp; look of these proposed signs.</p> <p>If you have any questions in relation to this feedback then please contact me.</p> <p>Regards</p> <p>Paul Terry C/- Albany Cycling Club</p>
<p>Brookfield Rail</p>	<p>The main point which was stated at the Workshop, is that there can be no cycle path within any section of the rail corridor in Albany. All other options which are outside of the rail corridor could be supported. Greater detail would be require if/and when, path routes are agreed and may need to cross rail at dedicated road crossings. At that point BR would consider how this may work and provide all the safety information.</p> <p>Regards</p> <p>Laura Adair Manager Network Lease &amp; Property</p>
<p>Department of Transport</p>	<p>The Department of Transport is very pleased to see community involvement in the process and reasoning behind the design and alignment of paths the community will be using. Subject to receiving favourable response from the community groups the Department has no objections with the projects progressing to the next stage.</p> <p>Regards</p> <p>Noel Chambers Operations Manager   Regional Services   Department of Transport</p>
<p>Grange Resources</p>	<p>As cycling is not our area of expertise, I don't think it would be appropriate for me to comment on any of the concepts apart from where they interface with our project, and I'm very comfortable, from the workshop, that those interfaces are fine.</p> <p>I hope that helps.</p> <p>Kind regards</p> <p>Glenda Stirling B.Com(Acc) CPA CMC   Community Liaison Manager   Grange Resources</p>

<p>Main Roads WA</p>	<p>Main Roads supports the concept / alignments presented and, as always, will work with the City of Albany to manage the implementation (ie delivery of works on PRD and the review of signage and speed zones on the various routes etc).</p> <p>Regards.</p> <p>Andrew Duffield Regional Manager Great Southern Region</p>
<p>Over 50's Cycle Group</p>	<p>Thanks for organising the meeting on 3 June and presenting the draft feasibility study document, which is comprehensive and makes interesting reading.</p> <p>I confirm that the Albany Over 50s Cycle Group supports the recommendations in the study. Our group is also supportive of the suggestions from Albany Cycle Club regarding cyclist-specific signage.</p> <p>I'm pleased to note that work that has started on the Princess Royal Drive cycle lane and commend the City of Albany and Main Roads WA for attending to this so promptly.</p> <p>Kind regards Denis Sawers Albany Over 50s Cycle Group representative</p>



Lloyd George Acoustics

PO Box 717

Hillarys WA 6923

T: 9300 4188 F: 9300 4199

E: [daniel@lgacoustics.com.au](mailto:daniel@lgacoustics.com.au) W: [www.lgacoustics.com.au](http://www.lgacoustics.com.au)

# Noise Management Plan

**Albany Motorcycle Club  
Proposed Motocross Venue  
Chester Pass Road**

**Reference: 13072454-01**

**Prepared for:**  
City of Albany



Member Firm of Association of Australian Acoustical  
Consultants

<b>Lloyd George Acoustics Pty Ltd</b> ABN: 79 125 812 544  PO Box 717 Hillarys WA 6923				
<b>Offices:</b>	<b>Ocean Reef</b>	<b>Padbury</b>	<b>Scarborough</b>	<b>Heathridge</b>
Phone:	9300 4188	9401 7770	9245 3223	0412 611 330
Fax:	9300 4199	9401 7770	9300 4199	9300 4199
Email:	<a href="mailto:daniel@lgacoustics.com.au">daniel@lgacoustics.com.au</a>	<a href="mailto:terry@lgacoustics.com.au">terry@lgacoustics.com.au</a>	<a href="mailto:mike@lgacoustics.com.au">mike@lgacoustics.com.au</a>	<a href="mailto:matt@lgacoustics.com.au">matt@lgacoustics.com.au</a>
Mobile:	0439 032 844	0400 414 197	0438 201 071	0412 611 330
Member of the Association of Australian Acoustical Consultants – (AAAC)				

This report has been prepared in accordance with the scope of services described in the contract or agreement between Lloyd George Acoustics Pty Ltd and the Client. The report relies upon data, surveys, measurements and results taken at or under the particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. Furthermore, the report has been prepared solely for use by the Client, and Lloyd George Acoustics Pty Ltd accepts no responsibility for its use by other parties.

<b>Prepared By:</b>	Daniel Lloyd	
<b>Position:</b>	Project Director	
<b>Verified</b>	Terry George	
<b>Date:</b>	6 May 2014	

## Table of Contents

1	INTRODUCTION	1
2	NOISE PREDICTION METHODOLOGY	2
2.1	Site Measurements	2
2.2	Noise Modelling	2
2.2.1	Meteorological Information	3
2.2.2	Topographical Data	4
2.2.3	Ground Absorption	4
2.2.4	Source Sound Levels	4
3	NOISE MODELLING RESULTS	5
4	DISCUSSION	11
5	NOISE MANAGEMENT MEASURES	11
5.1	Noise Testing of Motorcycles	11
5.2	Operating Times	12
5.2.1	Events	12
5.2.2	Training Days	12
5.3	Notification of Events and Operating Times	12
5.4	Complaint Response	13
5.5	Responsibilities	13

## List of Tables

Table 2-1	Modelling Meteorological Conditions	3
Table 2-2	Source Sound Power Levels, dB(A)	4

## List of Figures

Figure 1-1	Location of the Proposed Motocross Track	1
Figure 1-2	Proposed Track Layout	2
Figure 2-1	Dominant Wind Direction during the Winter Months at Albany Airport	4
Figure 2-2	Ground Contour Map	5
Figures 3-1 to 3-4	Predicted Noise Levels	7 to 10

## Appendices

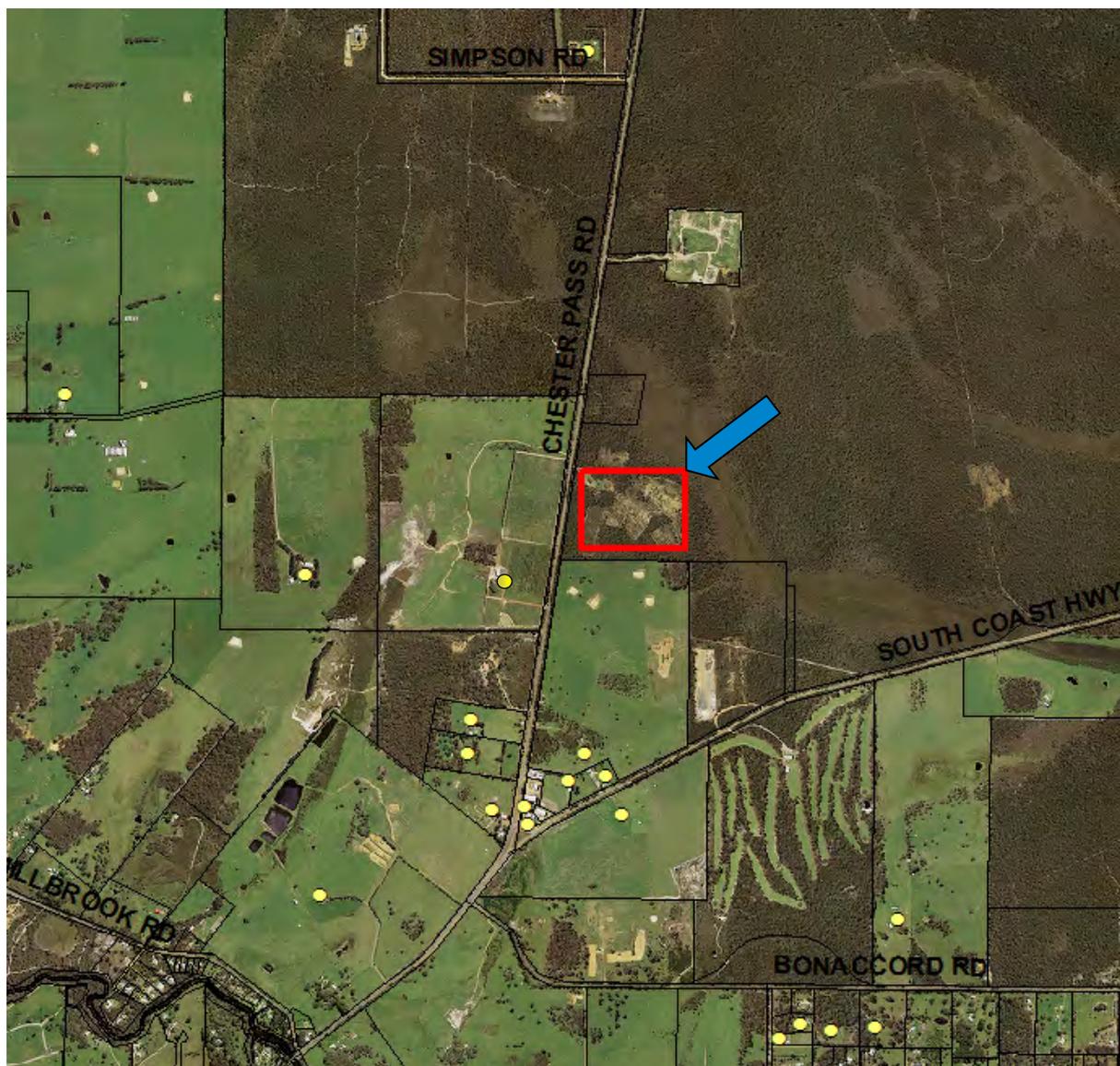
A	Details of Track Usage Plan
B	Terminology

# 1 INTRODUCTION

The Albany Motorcycle Club is proposing to relocate its motocross track to Chester Pass Road, just north of the South Coast Highway. The location of the Motocross track is shown in *Figure 1-1* and the proposed track layout is shown in *Figure 1-2*.

This Noise Management Plan (NMP) has been prepared to ensure that any noise impacts to neighbouring properties are minimised as far as practicable. The plan includes predicted noise levels during racing and provides details of the Club's commitments in managing the noise emissions.

*Appendix B* contains a description of some of the terminology used throughout this report.



*Figure 1-1* Location of the Proposed Motocross Track



Figure 1-2 Proposed Track Layout

## 2 NOISE PREDICTION METHODOLOGY

### 2.1 Site Measurements

Noise resulting from a typical motocross race was measured on 2 August 2009, at the previous Albany Motorcycle Club on Roberts Road, Albany. The results of these measurements have been used as a basis for the noise modelling and are considered typical for motocross racing. Further verification show these results correlate well with the German national database of noise emissions.

### 2.2 Noise Modelling

Computer modelling has been used to support the hand held measurements. The advantage of modelling is that it is not affected by background noise sources and can provide the noise level for various weather conditions. It can also evaluate the effect of noise bunds and other noise amelioration methods.

The software used to predict the noise was SoundPLAN 7.2 together with the CONCAWE algorithms. These algorithms have been selected as they include the influence of wind and atmospheric stability. Input data required in the model are:

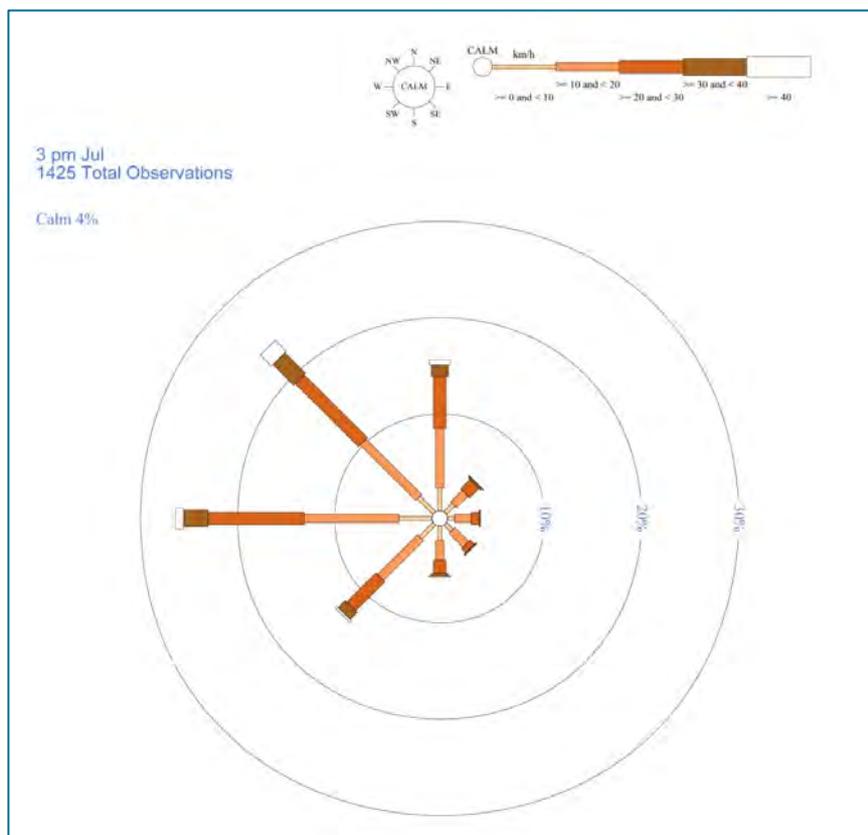
- ❑ Meteorological Information;
- ❑ Topographical data;
- ❑ Ground Absorption; and
- ❑ Source sound power levels.

### 2.2.1 Meteorological Information

Meteorological information utilised is based on that specified in the *EPA draft Guidance for the Assessment of Environmental Factors No.8 Environmental Noise*. These conditions approximate the typical worst-case for enhancement of sound propagation. For this assessment we have assessed the noise for the wind in all directions and for the wind coming from the west, which is the dominant direction for the winter months. The meteorological conditions used in the modelling are provided in *Table 2.1* and the dominant wind directions during the racing season (Bureau of Meteorology - Albany Airport) is shown in *Figure 2.1*. It should be noted that at wind speeds greater than those shown in *Table 2.1*, sound propagation may be further enhanced, however background noise from the wind itself and from local vegetation is likely to be elevated and dominate the ambient noise levels.

**Table 2-1 Modelling Meteorological Conditions**

Parameter	Day (0700-1900)
Temperature (°C)	20
Humidity (%)	50
Wind Speed (m/s)	4
Wind Direction*	All & NW
Pasquil Stability Factor	E



**Figure 2-1 Dominant Wind Direction during the Winter Months at Albany Airport**

Courtesy of Bureau of Meteorology

**2.2.2 Topographical Data**

Ground contour data was provided by the City of Albany. The contours were in 5 metre intervals and are shown in *Figure 2-2*.

**2.2.3 Ground Absorption**

Ground absorption varies from a value of 0 to 1, with 0 being for an acoustically reflective ground (e.g. water or bitumen) and 1 for acoustically absorbent ground (e.g. grass, trees). As this area is predominantly rural, a value of 1.0 has been used for the study area.

**2.2.4 Source Sound Levels**

Table 3.2 shows the sound power levels used in the modelling. As described previously, this data was obtained from measurements undertaken at the previous Albany Motorcycle Club track on Roberts Road, Albany.

**Table 2-2 Source Sound Power Levels, dB(A)**

Description	One-third Octave Band Frequency (Hz, dBA)								Overall
	63	125	250	500	1k	2k	4k	8k	
Motorcross Race (Senior Division)	75	97	105	117	117	121	117	104	128
	82	102	113	116	118	120	114	100	
	91	100	117	114	119	120	109	97	
Motorcross Race (Junior Division)	72	81	87	105	104	105	103	94	114
	75	81	92	102	103	104	100	91	
	78	87	99	100	103	105	98	90	



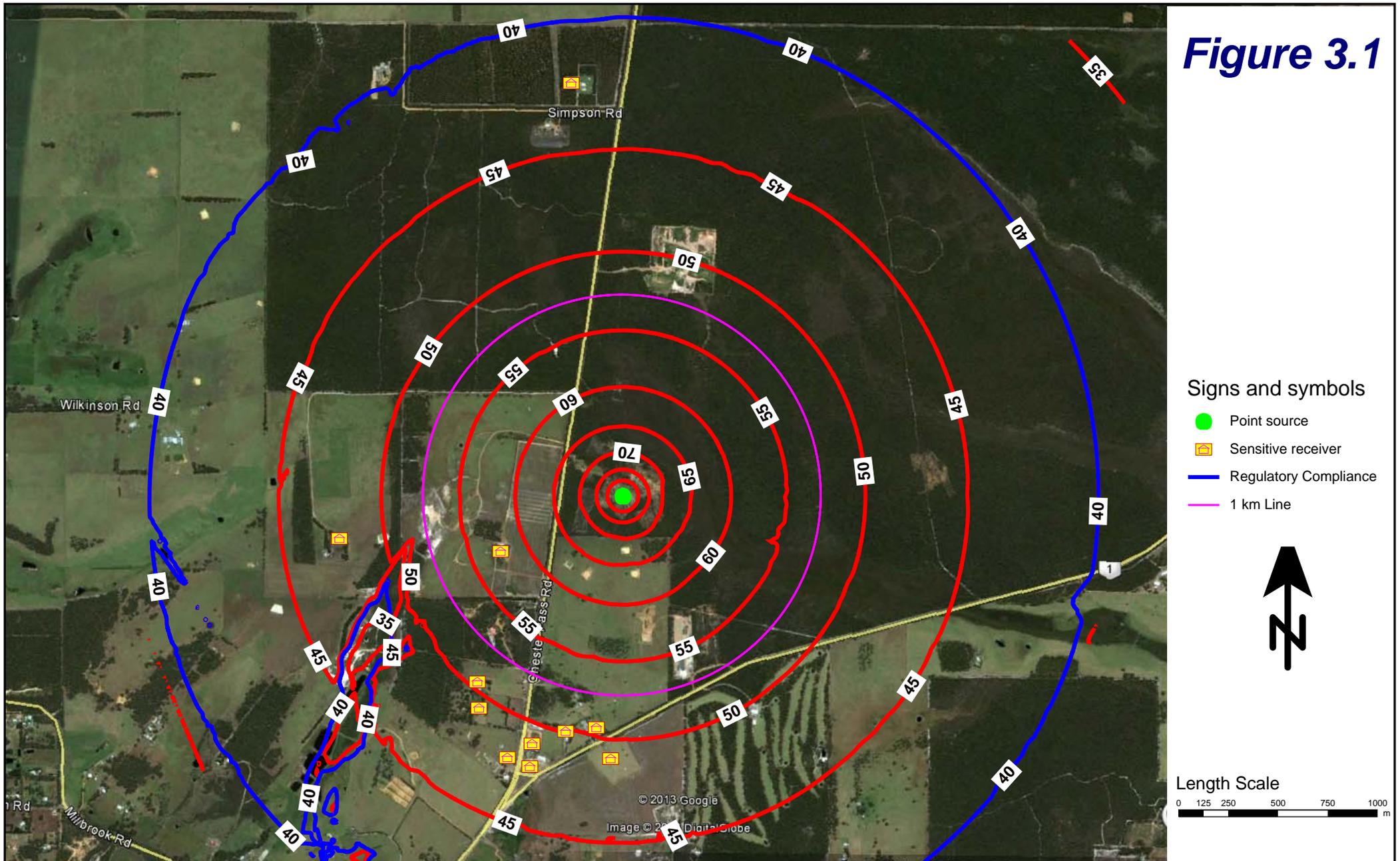
Figure 2-2 Ground Contour Map

### 3 NOISE MODELLING RESULTS

The results of the noise modelling, together with the location of the nearest noise sensitive premises, are provided in *Figures 3.1 to 3.4*. The figures show the following scenarios:

- *Figure 3.1*      *Noise from a Senior Division Race with Wind from All Directions;*
- *Figure 3.2*      *Noise from a Junior Division Race with Wind from All Directions;*
- *Figure 3.3*      *Noise from a Senior Division Race with Wind from the West; and*
- *Figure 3.4*      *Noise from a Junior Division Race with Wind from the West.*

Figure 3.1



Signs and symbols

- Point source
- Sensitive receiver
- Regulatory Compliance
- 1 km Line



Length Scale

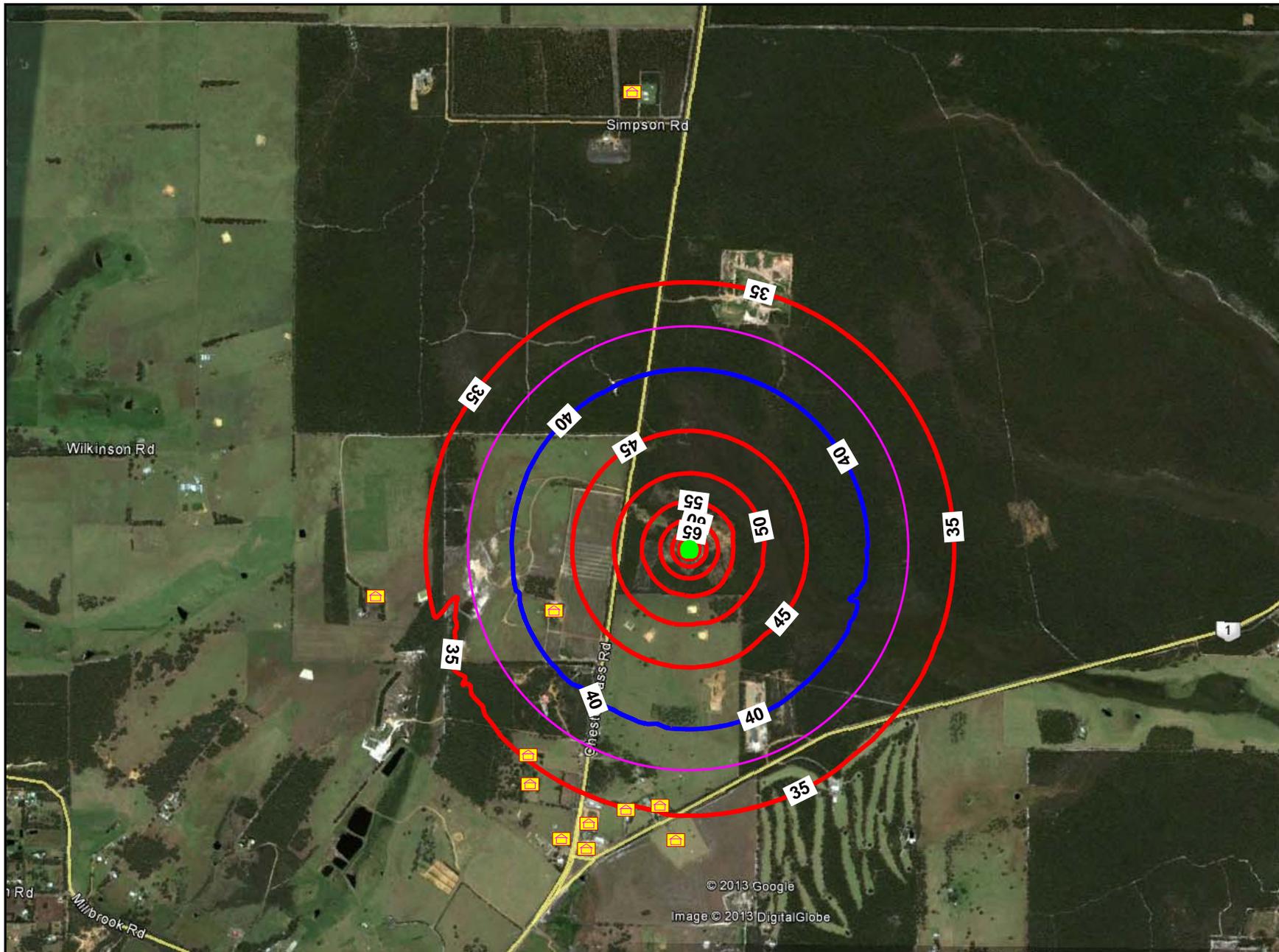


Proposed Albany Motorcross Track - Assumes Seniors Motorcross Racing  
Predicted  $L_{A10}$  Noise Levels - Wind From All Directions



**Lloyd George Acoustics**  
by Daniel Lloyd  
daniel@lgacoustics.com.au  
(08) 9300 4188

# Figure 3.2



- Signs and symbols
- Point source
  - Sensitive receiver
  - Regulatory Compliance
  - 1 km Line

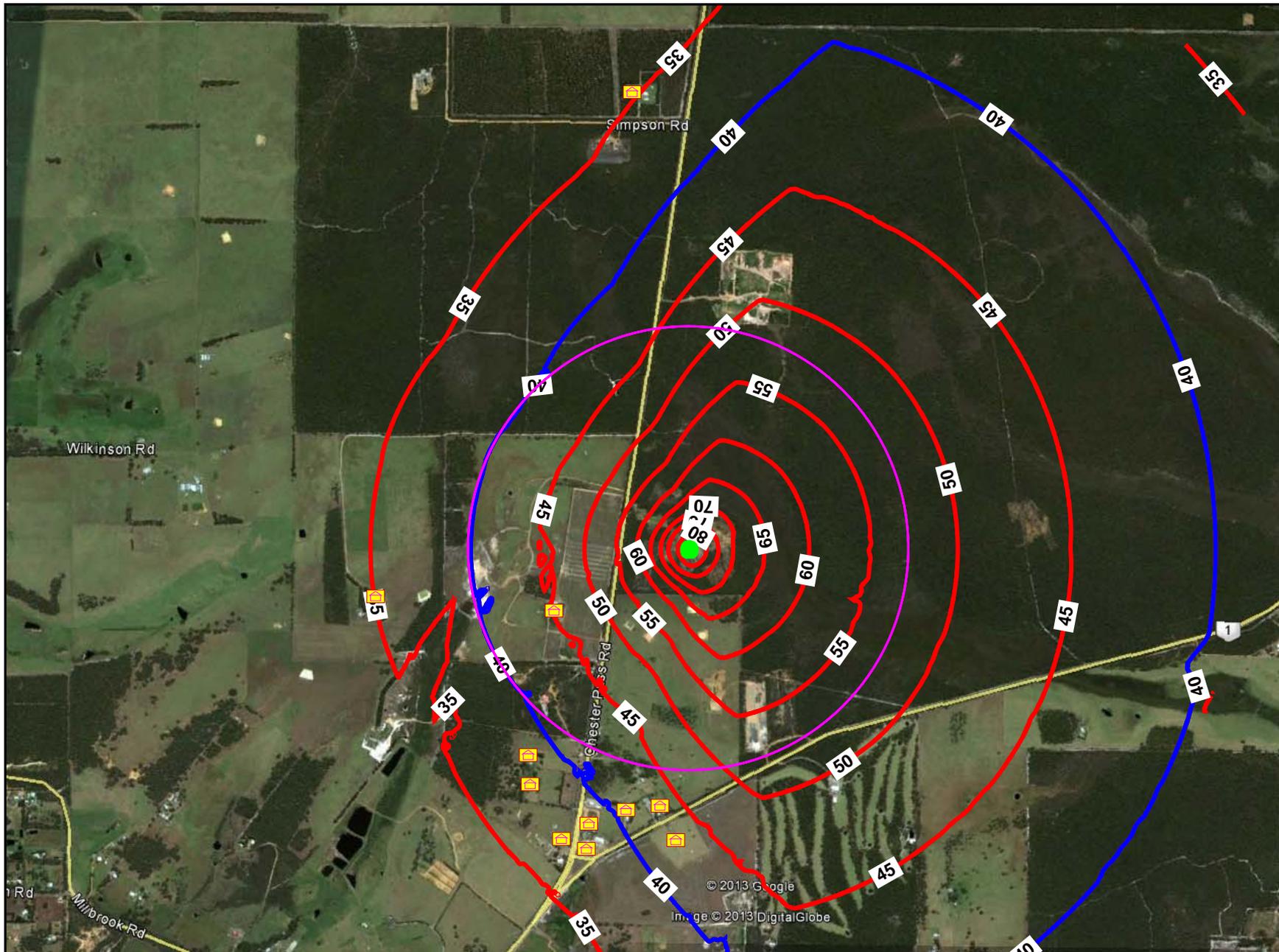


Proposed Albany Motorcross Track - Assumes Juniors Motorcross Racing  
Predicted  $L_{A10}$  Noise Levels - Wind From All Directions



**Lloyd George Acoustics**  
by Daniel Lloyd  
daniel@lgacoustics.com.au  
(08) 9300 4188

# Figure 3.3



### Signs and symbols

- Point source
- Sensitive receiver
- Regulatory Compliance
- 1 km Line



### Length Scale

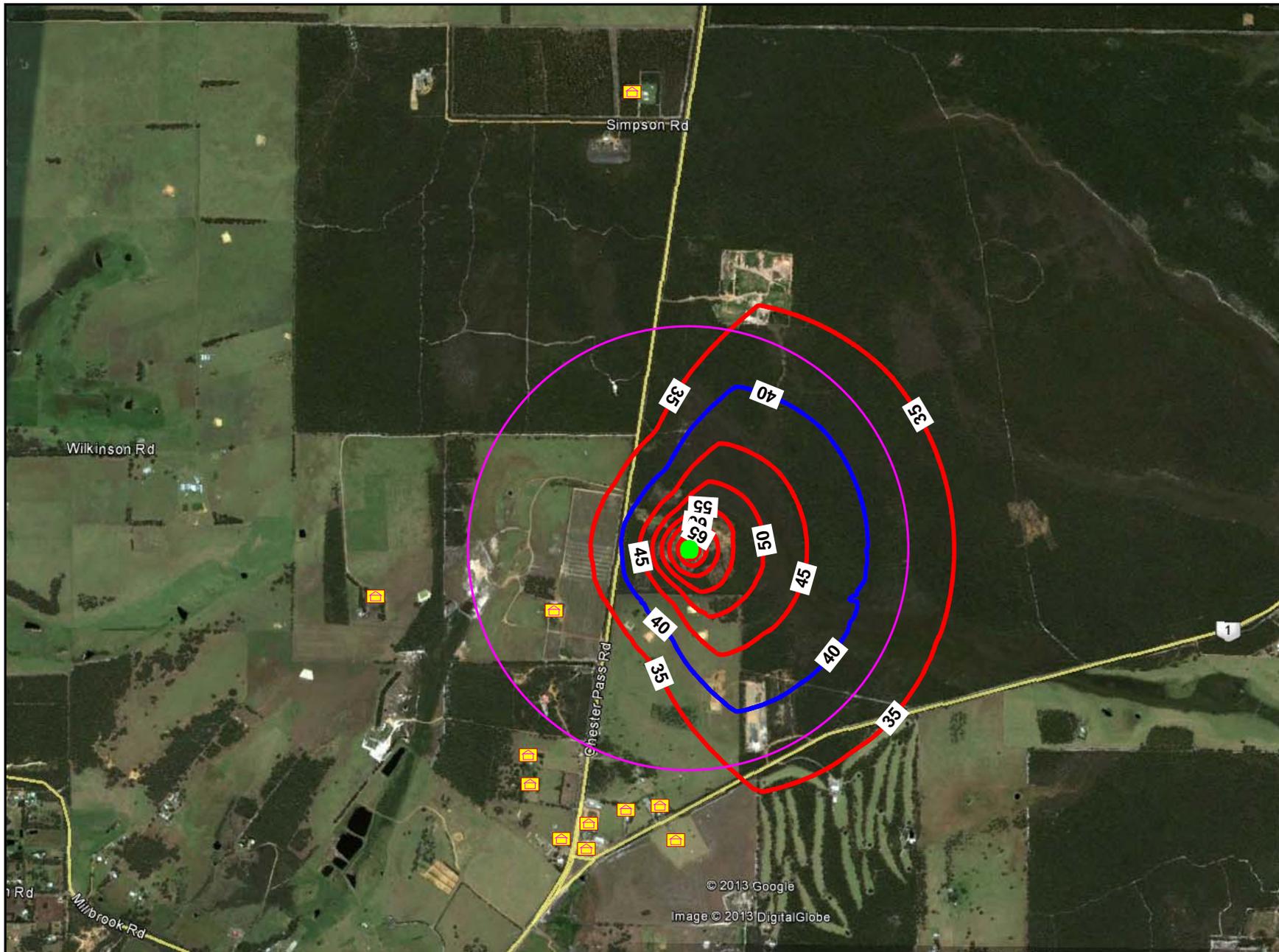


Proposed Albany Motorcross Track - Assumes Seniors Motorcross Racing  
Predicted  $L_{A10}$  Noise Levels - Wind from the Predominant Direction (Westerly)



**Lloyd George Acoustics**  
by Daniel Lloyd  
daniel@lgacoustics.com.au  
(08) 9300 4188

# Figure 3.4



### Signs and symbols

- Point source
- Sensitive receiver
- Regulatory Compliance
- 1 km Line



### Length Scale



Proposed Albany Motorcross Track - Assumes Juniors Motorcross Racing  
Predicted  $L_{A10}$  Noise Levels - Wind from the Predominant Direction (Westerly)



**Lloyd George Acoustics**  
by Daniel Lloyd  
daniel@lgacoustics.com.au  
(08) 9300 4188

## 4 DISCUSSION

From *Figures 3.1 to 3.4*, it can be seen that the noise from the Albany Motorcycle Club Motocross track is predicted to be approximately  $L_{A10}$  58 dB at the closest receiver, being a caretaker's residence. This noise level would also be audible at nearby residential premises and exceeds the assigned levels under Regulation 7 of the *Environmental Protection (Noise) Regulations 1997 (Amended 2014 [the Regulations])*, during worst-case winds (from the track towards the receiver).

It is widely recognised that noise from motorsport venues results in an impact over a large area and compliance with the Regulations is often problematic. It is also recognised that motor racing venues are a community benefit. To achieve a balance between impact and benefit, Regulation 16A of the Regulations allows certain motorsport venues to be exempt from the assigned levels, provided that the Local Authority CEO has approved a noise management plan and that the motor sport is being conducted in accordance with that regulation.

Detailed below are the noise control measures developed by the Albany Motorcycle Club that should address the requirements of such a management plan.

## 5 NOISE MANAGEMENT MEASURES

To minimise the impact of noise, the following management measures will be enforced by the Albany Motorcycle Club at all racing (club and state races), training, practice sessions, exhibitions and special events.

Generally, the most effective noise management techniques for motocross venues are:

- Ensure noise emissions for motorcycles are within best practice guidelines;
- Limit the use of the track to prescribed times only;
- Ensuring PA systems are designed to minimise impacts to sensitive receivers; and
- Undertake community consultation and provide a complaints management system.

The Club will provide all Club members with a written instruction explaining the noise issues, the member's responsibility to maintain the NMP requirements and penalties that apply for breaches of these requirements.

### 5.1 Noise Testing of Motorcycles

All motorcycles using the track will be tested to ensure that they comply with Motorcycling Australia and FIM (Federation of International Motocross) Guidelines on noise output. The club has a sound level meter for this purpose and a number of club members are accredited Noise Control Officers.

Testing will also be carried out randomly or on motorcycles suspected of exceeding the Guidelines. Any motorcycles failing the test will not be permitted to race until they conform to the Guidelines. A record of non-complying racing vehicles will be kept for a period of 2 years.

The record will include:

- Details of the racing vehicle;
- The racing vehicle's owner
- Date and time that non-compliance was determined;
- The action taken by the owner following the request to cease racing; and
- The action taken by the owner to remedy the excessive noise emissions.

If requested by the CEO, these records are to be made available within 21 days.

## **5.2 Operating Times**

The track will only be open at prescribed times. When the track is closed, it will be securely locked and riding will be strictly prohibited. The track may be opened for maintenance purposes, however riding will be prohibited during this time.

On race or practice days, access to the site will be via a controlled key entry system. Riders (as directed by Motorcycling WA) may only enter the track with an official present. The ration will be kept at one (1) official per five (5) riders. All practice activity is recorded with riders and officials details entered into a log book. The officials present for practice will ensure that curfew times are adhered to.

The Albany Motorcycle Club has a five-year plan in place that incorporate State Title Event and Open Events.

### **5.2.1 Events**

Apart from two special events to be held on Sunday, all racing will be held on Saturday. Race days start after 8.30 am and conclude by 5.00 pm.

### **5.2.2 Training Days**

From 1 March to 31 November, training will occur on three days per week between 12.00 pm and 6.30 pm (curfew time will be drastically reduced in mid winter due to daylight).

From 1 December of one year to 28 February the following year, training will occur on two days per week between 12.00 pm and 6.30 pm.

The Albany Motorcycle Club commits to supplying our neighbours with a copy of our race calendar at the beginning of our season. The club will also inform neighbours of any changes to the calendar that may occur during the year.

## **5.3 Notification of Events and Operating Times**

The Albany Motorcycle Club will provide information on race dates and operating times to all affected residents. Should any unexpected changes to the calendar occur, the revised times will be conveyed to all affected residents at least one week before the event where practicable.

Event details will be published in the local newspaper one week before the event day. The club will liaise with the newspapers for editorial prior to the event for publicity and general information purposes. Information of events will be placed on the clubs web site as well as social media. In addition, any notifications for events will be hand delivered to any noise sensitive premises within 1km of the venue.

#### **5.4 Complaint Response**

The Albany Motorcycle Club wishes to maintain a good relationship with their neighbours and will ensure that systems are in place to address any concerns our neighbours have.

The Albany Motorcycle Club will provide all affected residents with a complaints number. All complaints will be answered as soon as possible and no later than 48 hours after the complaint was received. The reason for the complaint will be investigated and any remedial action will be conveyed to the complainant.

A log of any complaints will be kept on record and will be presented to the City of Albany upon request.

#### **5.5 Responsibilities**

The track will be designed to maximise distances from noise sensitive premises.

- |                 |  |
|-----------------|--|
| Club Committee: | Appointment of Club Secretary                                    |
|                 | Appointment of Track Manager;                                    |
|                 | Appointment of Race Stewards;                                    |
|                 | Development of program for scheduled race and practice meetings. |
| Club Secretary: | Neighbour liaison;   |
|                 | Complaints Handling.   |
| Track Manager:  | Rostering of Officials for race and practice days;               |
|                 | Enforcement of racing and curfew times;                          |
|                 | Control of public address system.                                |
| Club Steward:   | Scrutiny of racing vehicles.                                     |

**Appendix A**

## **Details of Track Usage Plan**

Albany Motorcycle Club is involved in the Southwest Interclub Championships, this is a ten round event with clubs throughout the southwest and great southern hosting two rounds each per year. We call these events Interclub's.

Generally AMCC hold two Interclubs', five to eight Club Days, and two to three Organised Practice days per year. Depending on the room available in the State Race Calendar. As we cannot run race events when a State Title Round is on, we will either not race or hold a practice day. Coaching days are usually only held once a year, these can be held on either a Saturday or Sunday early in the season as all junior riders must complete five hours of coaching before they can enter a race event.

Each year all clubs in WA are able to apply to host a Junior and Senior State Round, (WAMX Championships) there are six round of each held throughout WA, generally clubs will only be allocated either a Junior or a Senior round. Sometimes clubs are able to hold one of each, although usually only those clubs that are close to Perth. AMCC will apply to host a junior or senior event in 2013. AMCC hope to be able to host one of these events every two years.

Each year clubs in WA can hold Open Events, AMCC plans to host its first open event in 2013.

AMCC will also endeavour to host a round of the VMX (vintage motocross) each year as a fundraiser for the club.

A 'Special Interclub' is a stand alone event, and open to invited clubs only. AMCC also have this event in their five year plan.

This number of events will not be held every year, this is only a guide to what the club wishes to do over the next five years. The average event number would be around eight to twelve.

The club will work with Albany City Kart Club to hold at least two of our weekday training days on the same days. Saturdays will be open for training from 12pm to 5pm. No more that three days per week for training. Please note that when a race day is to be held on a Sunday the track will be closed for Prep Work on Saturday. Racing is not held every weekend, the club try not to book races for two weekends in a row, but unfortunately this sometimes happens, it is also possible that no racing will be held for three or four weekends. All this depends on the WA State Calendar, and the South West Calendar.

**Appendix B**

## **Terminology**

The following is an explanation of the terminology used throughout this report.

### *Decibel (dB)*

The decibel is the unit that describes the sound pressure and sound power levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

### *A-Weighting*

An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as  $L_A$  dB.

### *Sound Power Level ( $L_w$ )*

Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. This is similar to a 1kW electric heater always radiating 1kW of heat. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure levels at known distances. Noise modelling incorporates source sound power levels as part of the input data.

### *Sound Pressure Level ( $L_p$ )*

The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending upon where the heater is located, just as the sound pressure level will vary depending on the surroundings. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.

### $L_{ASlow}$

This is the noise level in decibels, obtained using the A frequency weighting and the S time weighting as specified in AS1259.1-1990. Unless assessing modulation, all measurements use the slow time weighting characteristic.

### $L_{AFast}$

This is the noise level in decibels, obtained using the A frequency weighting and the F time weighting as specified in AS1259.1-1990. This is used when assessing the presence of modulation only.

### $L_{APeak}$

This is the maximum reading in decibels using the A frequency weighting and P time weighting AS1259.1-1990.

### $L_{Amax}$

An  $L_{Amax}$  level is the maximum A-weighted noise level during a particular measurement.

### $L_{A1}$

An  $L_{A1}$  level is the A-weighted noise level which is exceeded for one percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

### $L_{A10}$

An  $L_{A10}$  level is the A-weighted noise level which is exceeded for 10 percent of the measurement period and is considered to represent the “intrusive” noise level.

### $L_{Aeq}$

The equivalent steady state A-weighted sound level (“equal energy”) in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the “average” noise level.

### $L_{A90}$

An  $L_{A90}$  level is the A-weighted noise level which is exceeded for 90 percent of the measurement period and is considered to represent the “background” noise level.

### *One-Third-Octave Band*

Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20 000 Hz inclusive.

### $L_{Amax}$ assigned level

Means an assigned level which, measured as a  $L_{A\text{Slow}}$  value, is not to be exceeded at any time.

### $L_{A1}$ assigned level

Means an assigned level which, measured as a  $L_{A\text{Slow}}$  value, is not to be exceeded for more than 1% of the representative assessment period.

### $L_{A10}$ assigned level

Means an assigned level which, measured as a  $L_{A\text{Slow}}$  value, is not to be exceeded for more than 10% of the representative assessment period.

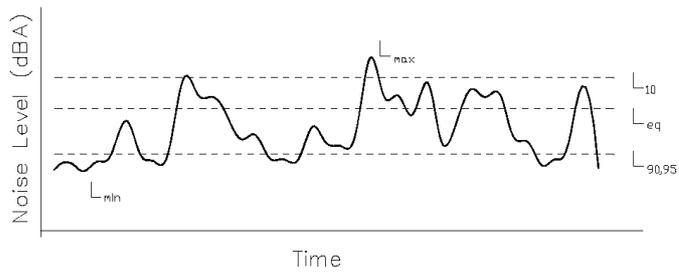
### *Background Noise*

Background noise or residual noise is the noise level from sources other than the source of concern. When measuring environmental noise, residual sound is often a problem. One reason is that regulations often require that the noise from different types of sources be dealt with separately. This separation, e.g. of traffic noise from industrial noise, is often difficult to accomplish in practice. Another reason is that the measurements are normally carried out outdoors. Wind-induced noise, directly on the microphone and indirectly on trees, buildings, etc., may also affect the result. The character of these noise sources can make it difficult or even impossible to carry out any corrections.

### *Ambient Noise*

Means the level of noise from all sources, including background noise from near and far and the source of interest.

## Chart of Noise Level Descriptors



## Typical Noise Levels

