

# Barossa and Light

## Regional Road Assessment



October 2017



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V1.3	9/10/17	MV	CM	Draft for comment
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V1.5	6/11/17	MV	CM	Minor Edits/Formatting Changes

## Executive Summary

RAA's Road Safety team periodically evaluates the South Australian regional road network. This assessment of the Barossa Tourism region summarises both the Light Regional Council and the Barossa Council districts.

RAA consulted the community through a stakeholder consultation session and a survey of Members living in the Barossa and Light Regional council districts to determine a number of areas of concern prior to undertaking four days of site investigations and covering a distance of over 1000 kilometres. The traffic investigations took place between the first and fourth of August in 2017.

From the Member survey some key transport issues were identified including:

- Rail network and lack of train services into the Barossa and Light regions
- Speed limits on unsealed roads
- Poor road maintenance
- Troublesome freight interactions
- Tourists lack of understanding about the road network
- Access to the unsealed road network during periods of wet weather
- Confusion relating to many different speed limit zones in the region
- Inadequate cycling facilities
- Inadequate alternative transport options

As a result of our investigations, RAA have identified some key improvements including:

- Consistent use of '60 ahead' signage on the approach to these speed zones and consistent use of speed limits through towns and on major roads in the region.
- Larger speed limit signs on the outskirts of all towns to improve visibility of these signs.
- Further implementation of 'Drive on Left in Australia' signage with consideration given to issuing this signage to wineries and major tourist destinations to encourage greater use.
- Discussion regarding the future of rail in the region. Ideally, affordable rail transport should be provided to take advantage of current infrastructure. If current rail infrastructure is left to deteriorate, the task of implementing such a system becomes increasingly difficult.
- Major improvements to key transport routes through and around the region such as Horrocks Highway and Barossa Valley Way.

Further to these points, RAA have listed key recommendations for a number of roads and intersections assessed in this report as a result of our traffic investigations in the region.

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B1-1 Q22B: PLEASE SPECIFY WHICH MAJOR ROAD OR TRANSPORT IMPROVEMENTS ARE NEEDED WITHIN THE BAROSSA COUNCIL REGION .....**ERROR! BOOKMARK NOT DEFINED.**

B1-2 Q24: PLEASE SPECIFY WHICH MAJOR ROAD OR TRANSPORT IMPROVEMENTS ARE NEEDED WITHIN THE LIGHT COUNCIL REGION **ERROR! BOOKMARK NOT DEFINED.**

B1-3 Q29: HAVE YOU WITNESSED ANY ROADS OR INTERSECTIONS IN THE BAROSSA COUNCIL WHERE YOU HAVE EXPERIENCED OR OBSERVED UNSAFE INTERACTIONS BETWEEN FREIGHT VEHICLES AND CARS, PEDESTRIANS OR CYCLISTS? .....**ERROR! BOOKMARK NOT DEFINED.**

B1-4 Q32: HAVE YOU WITNESSED ANY ROADS OR INTERSECTIONS IN THE LIGHT COUNCIL WHERE YOU HAVE EXPERIENCED OR OBSERVED UNSAFE INTERACTIONS BETWEEN FREIGHT VEHICLES AND CARS, PEDESTRIANS OR CYCLISTS? .....**ERROR! BOOKMARK NOT DEFINED.**

B1-5 Q37: CAN YOU PROVIDE ANY DETAILS OF WHERE YOU FIND THE SPEED LIMIT CHANGES CONFUSING.....**ERROR! BOOKMARK NOT DEFINED.**

**APPENDIX B2: VERBATIM ..... ERROR! BOOKMARK NOT DEFINED.**

Q45: WHAT COULD BE IMPROVED TO ENHANCE VISITOR’S EXPERIENCE?.....**ERROR! BOOKMARK NOT DEFINED.**

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**APPENDIX B4: VERBATIM ..... ERROR! BOOKMARK NOT DEFINED.**

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**APPENDIX B6: VERBATIM ..... ERROR! BOOKMARK NOT DEFINED.**

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RAA's Road Safety team periodically evaluates the South Australian regional road network. This is the first assessment of the Barossa Valley Tourism region, and our team covered more than 1000 kilometres assessing over 50 roads and intersections over 4 days in early August 2017. RAA consulted with local authorities and conducted a detailed Member survey to gauge the opinions of the local community and determine the key issues concerning residents. RAA also asked for as much information possible on locations that posed safety concerns in order to assist with generating our list of traffic investigations to conduct over the four day period.

A map of the Shire of Eyre, outlined in blue. The map shows the shire's irregular boundary and includes numerous place names and road networks. Major roads are highlighted in yellow and labeled with route numbers in green boxes. The shire covers a large area in the central-western part of South Australia, extending from the coast near Hamlet Bridge in the west to near Keyneton in the east, and from near Hamilton in the north to near Mawson Lakes in the south. Surrounding areas include the Shire of Murray to the north, the Shire of Kangaroo Island to the west, and the Shire of Yorke to the south. Key towns within the shire include Hamilton, Stockport, Kapunda, Moppa, Freeling, Daveyston, Marananga, Seppeltsfield, Tanunda, Gomerall, Bethany, Rowland Flat, Sandy Creek, Barossa Goldfields, Williamstown, Yattalunga, Evanston Park, Sawyer, Sawyer South, Roseworthy, Templers, Freeling, Moppa, Koonunga, Stockwell, Truro, Mocluta, Angaston, Flaxman Valley, Eden Valley, Springton, Mount Pleasant, Birdwood, Forrester, Kersbrook, Inglewood, Sampson Flat, Humbug Scrub, One Tree Hill, Elizabeth, Blakeview, Virginia, Lewiston, Reeves Plains, Woolshed, Redbanks, Pinkerton Plains, Hamlet Bridge, and Neales Flat. The map also shows the coastline and several bodies of water, including Lake Eyre and Lake Torrens.

The roads and locations assessed are listed in Appendix A in the approximate order that they appear in this report.



### Key Survey Findings

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- Train extension into the Barossa is on peoples mind – Train lines are desired into both regions, and old infrastructure is available.
- The legal speed limit on the unsealed road network was not necessarily clear based on survey results. This could mean that people are generally aware that they should drive to the conditions. Members seem open to discussion regarding a decrease in speed limits on unsealed roads in the Barossa and Light region with mixed levels of support.
- Many residents believe roads in the Barossa and Light region are not maintained to an acceptable standard.
- Interactions between freight and other modes of transport are a cause of concern for residents.
- Many residents were not aware of the proposed GlobeLink freight route, however there was some level of support for the route when given very limited details that are currently available.
- Almost two thirds of residents have some level of concern regarding access to the unsealed road network during wet weather.
- Many residents believe there are too many different speed zones and speed limit changes in the region, particularly within the Barossa Council and a lot of this was directed towards the speed limits on Barossa Valley Way.
- Many residents believe the road network does not encourage cycling (especially in Light Regional Council) and they would like to see more dedicated cycle paths and better road/footpath conditions to encourage cycling.
- The majority of residents in the region believe alternative transport options are not adequate when their vehicle is not available.



## Recommendations

A list of our key recommendations is in the table below. These recommendations are discussed in further detail throughout this report.

Abbreviations used for recommendations include LRC (Light Regional Council), BC (The Barossa Council) and DPTI (The Department of Planning Transport and Infrastructure)

Horrocks Highway (Gawler to Tarlee) - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>As a priority, improve the surface of Horrocks Highway to remove numerous significant undulations. In the interim, additional uneven surface signs may be required, however this must only be used as a short term measure to warn of the poor surface.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install additional W-Beam barrier protection to shield motorist from numerous roadside hazards such as stobie poles and large trees.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install additional W-Beam barrier protection on some curves.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install G1-3 'Offset Side Roads' advance direction sign in the southbound direction before the intersection with Templers Road/Owen Road as there is no prior signage indicating the right turn onto Owen Road. This sign would replace the current two panel sign indicating the left turn onto Templers Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Review parking on the western side of Horrocks Highway, north of Gartrell St/Roseworthy Road, and if feasible – restrict parking for approximately 20m north of Gartrell Street to improve sight distance when vehicles are parked here.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Refresh the line marking at the Gartrell St/Roseworthy Road intersection.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install either G2-2 or G2-5 'advance direction' signs indicating the upcoming intersection with Roseworthy Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Review junctions with unsealed roads and Horrocks Highway to install, or improve the generally poor quality of sealed aprons that are provided at some intersections.</li> </ul>	DPTI
Thiele Highway - Key Recommendations	Authority
<b>Gawler to Kapunda</b> <ul style="list-style-type: none"> <li>Improvements to rectify localised and significant undulations in the surface.</li> <li>Install an overtaking lane in each direction.</li> <li>Further protection of stobie poles.</li> </ul>	DPTI DPTI DPTI
<b>Kapunda to Eudunda</b> <ul style="list-style-type: none"> <li>Install edge line marking just north of Kapunda.</li> <li>Construct wider sealed shoulders.</li> <li>Repairs to improve the undulating surface, particularly between Buchanan and Eudunda.</li> </ul>	DPTI DPTI DPTI

<ul style="list-style-type: none"> <li>Install at least one overtaking lane in each direction</li> </ul>	DPTI
<b>Gray Street Junction</b>	
<ul style="list-style-type: none"> <li>Install of R1-2 'Give Way' sign and line marking on Gray Street</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install edge line marking in the left turn slip lane from Thiele Highway onto Gray Street.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Localised repairs on Thiele Highway just north of the intersection to repair significantly failing surface.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install double unbroken dividing line between Gray Street and crest to the south to prohibit overtaking in this short section.</li> </ul>	DPTI
<b>Hanson Street/Daveyston Road Junction</b>	
<ul style="list-style-type: none"> <li>Strongly consider reduction of speed limit to 80km/h due to vicinity of built up area (Freeling) and the high volumes of traffic continuing from Hanson Street onto Daveyston Road (and vice versa).</li> </ul>	DPTI
<b>Borrow Street Junction</b>	
<ul style="list-style-type: none"> <li>Re-seal Leske Road apron and refresh line-markings</li> </ul>	DPTI
<b>Sturt Highway - Key Recommendations</b>	<b>Authority</b>
<ul style="list-style-type: none"> <li>Install W4-9 'left lane ends' and G9-73 'merge right' signs to indicate the upcoming lane change from two lanes into one at the end of the Murray Street acceleration lane.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install a second 'Keep Left Unless Overtaking' sign in the Old Kapunda Road acceleration lane/overtaking lane.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Replace 'Form 1 Lane' signage with G9-73 'Merge Right' sign at the end of Old Kapunda Road acceleration lane/overtaking lane</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install W5-35 'added lane' signage in 3 locations where an extra lane is added; west of Bastion Hill Road, west of Carrara Hill Road and west of Old Kapunda Road</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install an overtaking lane in the northwest direction in the vicinity of Nuriootpa.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Repair significant depression in kerbside northeast bound lane north of Gomersal Road</li> </ul>	DPTI
<b>Gomersal Road - Key Recommendations</b>	<b>Authority</b>
<ul style="list-style-type: none"> <li>Widen shoulders to at least 1.0m along the length of Gomersal Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Consider high pressure treatments to improve the surface macro-texture at intersections where surface polishing is prevalent.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Further barrier installation to negate the impacts of roadside hazards.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Increase the width and length of left turn lanes to improve their efficiency.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install at least one overtaking lane in each direction</li> </ul>	DPTI

<ul style="list-style-type: none"> <li>Vegetation is regularly trimmed at the intersection of Gomersal Road and Sturt Highway to ensure clear sight distance</li> </ul>	LRC
<b>Rosedale Road Intersection</b>	
<ul style="list-style-type: none"> <li>Refresh line marking and install continuity line to separate the left turn lane onto Rosedale Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install give way holding line on Rosedale Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Consider widening the sealed apron on Rosedale Road to assist large vehicles turning left.</li> </ul>	DPTI
<b>Barossa Valley Way - Key Recommendations</b>	<b>Authority</b>
<ul style="list-style-type: none"> <li>Consolidation and consistency of speed limits.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Increase the size of all speed limit change signs upon entering towns to improve visibility</li> </ul>	DPTI
<b>Gawler to Lyndoch</b>	
<ul style="list-style-type: none"> <li>Additional W beam barrier protection.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Repair Cracking near railway crossing at Sunnydale Avenue.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Localised repair to significant undulation just to the west of the overtaking lane.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Extend current overtaking lane prior to Kalbeeba Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install W6-9 'Bicycle/Pedestrian' warning sign on both sides of the Jack Bobridge track crossing.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install an overtaking lane for westbound vehicles.</li> </ul>	DPTI
<b>Lyndoch to Tanunda</b>	
<ul style="list-style-type: none"> <li>Localised shoulder widening.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Use of a 60km/h buffer zone to graduate the speed limit to 90km/h when exiting Lyndoch in order to reduce speeds in the vicinity of large trees close to road. Alternatively ATLM may provide some benefit in reducing the risk of run off road type crashes in this section.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>W2-1 'crossroad' warning signs are installed on Barossa Valley Way approaching the intersection of Krondorf Road</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install repeater 60km/h signs in the northern part of Rowland Flat.</li> </ul>	DPTI
Install an overtaking lane for southbound vehicles.	DPTI
<b>Tanunda to Nuriootpa</b>	
<ul style="list-style-type: none"> <li>As a priority, a complete re-seal and pavement rehabilitation between Tanunda and Nuriootpa</li> </ul>	DPTI

<p>Install W Beam barrier to protect roadside trees and stobie poles.</p> <p>▪ <b>Hermann Thumm Drive Junction</b></p> <p>RAAs Black Spot Nomination for this intersection has been submitted for consideration in the 2018-19 financial year.</p> <p>▪ <b>Gomersal Road Junction</b></p> <p>▪ Install additional RRPMS to improve delineation.</p> <p>▪ Shift and enlarge give way sign on Gomersal Road to improve visibility.</p> <p>▪ Install W3-2 'Give Way Sign Ahead' sign on Gomersal Road.</p> <p>Install a give way holding line at the end of the left turn slip lane onto Gomersal Road.</p> <p>○ <b>Menge Road Junction (Kroemers Crossing)</b></p> <p>▪ Further investigation and funding towards the DPTI roundabout concept. If a roundabout is determined not to be feasible, the minimum upgrades required are:</p> <ul style="list-style-type: none"> <li>○ Reseal of Barossa Valley Way/Murray Street through this intersection</li> <li>○ Narrow the entrance to Burings Road by either concrete or painted islands.</li> </ul> <p>Additional street lighting would be required if concrete islands are installed.</p> <p>Install R1-2 'Give Way' sign and holding line at both the Vine Vale Road and Burings Road intersections.</p> <p>▪ <b>Sturt Highway Junction</b></p> <p>▪ Rectify issues with line marking on the painted slip lane island for vehicles turning left into Barossa Valley Way.</p> <p>▪ Refresh give way holding lines.</p> <p>▪ Consolidation and consistency of speed limits.</p>	<p>DPTI</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p>
<b>Owen Road (Templers to Hamley Bridge) - Key Recommendations</b>	
<ul style="list-style-type: none"> <li>• Improve the surface of Owen Road to remove significant corrugations. This requires a complete overhaul of the pavement and subgrade. Uneven surface signage may be required, but this must only be used as a short term measure to warn of the poor surface.</li> <li>• Install sealed shoulders for the entire length of Owen Road, and consider widening sealed shoulders where narrow shoulders currently exist.</li> <li>• Install W-Beam barrier protection to shield motorists from numerous stobie poles between Mudla Wirra Road and Linke Road.</li> <li>• Repair crumbling road edges, preferably as part of shoulder sealing program, and reinstate missing edge line markings.</li> </ul>	<p>DPTI</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p>

Templers and Daveyston Road - Key Recommendations	Authority
<p><b>Templers Road (Wasleys to Templers)</b></p> <ul style="list-style-type: none"> <li>Install edge line markings, consider widening road and installing sealed shoulders.</li> <li>Refresh centre line where required.</li> <li>Install R1-2 'Give Way' sign and W3-2 'Give Way Sign Ahead' sign with holding line at Owen Road intersection.</li> </ul> <p><b>Templers Road (Templers to Freeling)</b></p> <ul style="list-style-type: none"> <li>Consider re-seal, especially in the vicinity of Booker and Power Roads.</li> <li>Consider protecting stobie poles with W Beam Barrier.</li> </ul> <p><b>Daveyston Road</b></p> <ul style="list-style-type: none"> <li>Consider re-seal, especially on eastern end where numerous patches make the surface bumpy and uneven.</li> </ul>	<p>LRC</p> <p>LRC</p> <p>LRC</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p>
Greenock Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Localised repair work to improve the surface where old repairs are beginning to deteriorate.</li> <li>Improvements to rectify significant undulations and corrugations in the surface.</li> <li>Additional use of W Beam Barrier protection to protect drop offs, large trees and stobie poles, as well as removing large trees within 3m of edge lines if they cannot be adequately protected by barrier installation.</li> </ul>	<p>DPTI</p> <p>DPTI</p> <p>DPTI</p>
Sir Condor Laucke Way - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Install edge line markings and sealed shoulders between Greenock and Sturt Highway</li> </ul> <p><b>Parbs Road Junction</b></p> <ul style="list-style-type: none"> <li>Install a sealed apron to prevent stormwater eroding gravel on Parbs Road</li> </ul> <p><b>Stonewell Road Junction</b></p> <ul style="list-style-type: none"> <li>Investigate feasibility of right turn filter lane for eastbound traffic turning onto Stonewell Road</li> <li>If above is not feasible, wider shoulders should be constructed to allow vehicles to safely pass turning vehicles.</li> </ul> <p><b>Samuel Road Junction</b></p> <ul style="list-style-type: none"> <li>Review heavy vehicle turning movements at the intersection as current swept paths cause heavy vehicles to obstruct on oncoming traffic.</li> <li>Upgrade intersection to allow for turn paths of heavy vehicles.</li> </ul>	<p>DPTI</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p> <p>DPTI</p>

Seppeltsfield Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Provide sealed shoulders and edge line markings</li> </ul>	LRC/BC
<ul style="list-style-type: none"> <li>Refresh line marking</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Rehabilitate localised crumbling edges</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Consider changing priorities at the intersection of Seppeltsfield Road and Peter Seppelt Road</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Extend the 50km/h speed limit through Seppeltsfield 250m north to reduce the risk and severity of vehicles colliding with large palm trees situated very close.</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Install stop signs at the intersection with Radford Road/Hempel Road and refresh line marking including holding lines.</li> </ul>	LRC
Stott Highway - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Shoulder sealing and barrier installation works are continued between Angaston and Keyneton and deteriorating patches of the highway are repaired to improve the overall surface quality.</li> </ul>	DPTI
Eden Valley Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>W-beam or wire rope hazard barriers are installed extensively to reduce the number of serious single vehicle hit fixed object crashes on Eden Valley Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Strategic installation of ATLM, especially in sections where barrier protection cannot be provided.</li> </ul>	DPTI
Xavier College Drop Off - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Install W6-3 'Children' warning signs on Redbanks Road in the vicinity of Xavier College to warn motorists of the possible presence of children crossing the road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Investigate methods to further prevent vehicles stopping on Redbanks Road in the northbound direction prior to the Sturt Highway onramp. Potential options include extending the W Beam Barrier past the intersection and/or refreshing the painted island markings and supplementing these with pavement bars.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Continue to monitor the Kentish Road/Redbanks Road intersection and investigate the feasibility of a roundabout at the intersection with capabilities to cater for heavy vehicle movements along Redbanks Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Enforce the 'No stopping' zones along Redbanks Road.</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Reseal the poor surface on Kentish Road.</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Parents/Caregivers be encouraged to use designated drop off area for students.</li> </ul>	OTHER
<ul style="list-style-type: none"> <li>Xavier College continues to publish regular newsletter articles regarding student drop off on Redbanks Road.</li> </ul>	OTHER



Mudla Wirra Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Consider a re-seal south of Roseworthy Campus.</li> <li>Refresh line marking south of Roseworthy Campus.</li> <li>Install W6-7 'Bicycle' warning sign on the southern end of Mudla Wirra Road between Redbanks Road and Roseworthy Campus.</li> </ul>	LRC
<p><b>Currie Road Junction</b></p> <ul style="list-style-type: none"> <li>Install W3-2 'Give Way Sign Ahead' sign on Mudla Wirra Road for southbound traffic prior to the intersection.</li> <li>Install W2-4 'side Road intersection' sign in both directions along Currie Road.</li> <li>Re-install missing/damaged guide posts.</li> <li>Replace the 'Currie Road' street name sign.</li> </ul> <p><b>Annie Terrace Junction</b></p> <ul style="list-style-type: none"> <li>Refresh line marking as current markings are almost completely faded.</li> <li>Consider installing R1-2 'Give Way' signage and holding line on Annie Terrace.</li> <li>Straighten and improve footings of intersection direction sign opposite Annie Terrace.</li> </ul>	LRC LRC LRC LRC LRC LRC LRC
Lyndoch Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Strongly consider Lyndoch Road for sealing due to the important link to numerous tourist destinations.</li> <li>Improve and replace faded tourist and directional signage.</li> </ul>	BC BC
Kalimna Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Repair pot holes at the intersection of Research Road.</li> <li>Refresh line marking at the intersection of Research Road and at the intersection of Light Pass Road.</li> <li>Install R1-2 'Give Way' and W3-2 'Give Way Sign Ahead' sign in both directions on the approach to Stockwell Road.</li> <li>Consider sealing the unsealed section of Kalimna Road.</li> <li>In the short term, install W5-19 'Gravel Road' sign near Waechters Road where Kalimna Road becomes unsealed.</li> </ul>	BC BC BC BC BC
Murray Street/Bilyara Road - Key Recommendations	Authority

<ul style="list-style-type: none"> <li>Consider options to narrow the road to make a shorter path for pedestrians to cross and slow the speed of vehicles turning left from Murray Street.</li> </ul>	DPTI/BC
<b>Research Road Bridge - Key Recommendations</b>	<b>Authority</b>
<ul style="list-style-type: none"> <li>Consider reversing give way priorities as sight distance is significantly poorer for southbound vehicles.</li> </ul>	BC
<b>Other Key Recommendations</b>	<b>Authority</b>
<ul style="list-style-type: none"> <li>Install G-74 'Railway Crossing No Longer in Use' signs at all disused rail crossings.</li> </ul>	All
<ul style="list-style-type: none"> <li>Further implementation of 'drive on left in Australia' signs – consider issuing to wineries and tourist destinations in the area and installing along major tourist routes such as Seppeltsfield Road and Barossa Valley Way.</li> </ul>	All
<ul style="list-style-type: none"> <li>Review speed limit signs on approach to towns/settlements. It is suggested that the use of '50 ahead' or '60 ahead' signs prior to a larger '50' or '60' sign at the approach is used to ensure motorists reduce speed accordingly.</li> </ul>	All
<ul style="list-style-type: none"> <li>On Lyndoch Valley Road in the vicinity of St Jakobi School, replace the current variable speed limit signage with electronic variable speed limit signage to ensure greater compliance with both the higher and lower speed limits at differing times of day. As a minimum, current variable speed limit signage should be increased in size such that the supplementary plate is easier to read.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Consider barrier protection of culverts on the southern side of the Penrice Road/Stockwell Road intersection.</li> </ul>	BC
<ul style="list-style-type: none"> <li>Install R1-2 'Give Way' sign and holding line at the intersection of Penrice Road and Murray Street in Angaston.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install curve warning signs and drop off barrier protection on Rosedale Scenic Road.</li> </ul>	BC
<ul style="list-style-type: none"> <li>Install 'Dry Weather Road Only' signage on Eden Road when entering from Gomersal Road.</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Consider Gerald Roberts Road for future sealing. Barrier protection also required in a number of locations.</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Install R1-2 'Give Way' sign on Neldner Road at the intersection of Heinze Road.</li> </ul>	LRC

## Discussion

### Community Engagement

When planning a road assessment the most effective way to identify trouble spots is to ask those that use the roads regularly.

Prior to developing the survey questions or determining the final roads for assessment, Members of the RAA Road Safety team met with a number of key stakeholders and community Members. Consultation included a presentation by RAA on local crash statistics and for Barossa and Light, together with results from RAA's 2017 Risky Roads campaign.

Representatives from The Barossa Council, Light Regional Council, DPTI, SA Police, Tourism and the Regional Development Board provided valuable insights into local road infrastructure. The information obtained assisted RAA to develop a survey for the region.

### Member Sampling Frame

8,330 Members were sent an email inviting them to participate in the confidential survey, along with a separate link forwarded to stakeholders for distribution.

A total of 893 responses were received, 773 directly from RAA Member engagement and a further 121 through external engagement opportunities.

Fifty five percent of responders live in the Barossa District Council Region, 31 per cent in the Light District Council Region, and 14 per cent out of the localised area but who identify with the region.

In total 832 or 93 per cent of responses were from Members and 61 non-Members.

The confidence interval recorded was within the acceptable range of less than  $\pm 5\%$ .

*Table 1: Confidence intervals of Member responses*

	Barossa and Light Regional Population	Sample (Members and Non Members) <sup>1</sup>	Confidence Interval Accuracy at one point-in-time	Confidence Level
<b>Online</b>	36,000	893 (Total) 771 (Residents) <sup>2</sup>	$\pm 3.24\%$ $\pm 3.49\%$	95%

The **confidence level** – accuracy at one point in time will provide how often the percentage of the population would choose a particular answer. When the confidence level is combined with the **confidence interval**, you can say that you are 95% sure that the true percentage of the population is between  $\pm 3.46\%$ . In addition the larger the sample size, the more you can be sure that the answers truly reflect the population.

All findings have been reported according to the residential status selected by respondents. To ensure the Barossa and Light are clearly represented, these results have been compared to each other and in some cases against total responses, clearly demonstrating regional differences.

<sup>1</sup> RAA Members and Non-Members who have recorded the Barossa/Light District as residential location.

<sup>2</sup> Members may have regionally identified as main address but work / reside part time out of the region – this is a self-reported resident number

Results for Light have a slightly lower confidence interval at  $\pm 5.82\%$ , when considering just Light residents greater caution should be taken.

Table 2: Confidence intervals of Members broken down by council

	Regional Population	Sample (Identified Residents) <sup>3</sup>	Confidence Interval Accuracy at one point-in-time	Confidence Level
<b>Barossa</b>	22,000	493	$\pm 4.36\%$	95%
<b>Light</b>	14,000	278	$\pm 5.82\%$	95%

## The Region

The Barossa District Council reported a population of just over 22,000 people in the 2011 census, and Light Regional Council reported a population of nearly 14,000 at the same time.

The Barossa and Light region covers approximately 2190 square kilometres, with over 500 kilometres of sealed and over 1400 kilometres of unsealed roads.

Key industries vary across the two district councils, however under the Regional Development defined region (including Gawler and Mallala), the region has higher than state industry engagement in<sup>4</sup>:

- Manufacturing (17.68%, SA 10.53%)
- Agriculture, Forestry and Fishing (6.23%, SA 3.90%)
- Transport, Postal and Warehousing (4.90%, SA 4.15%)
- Construction (8.20%, SA 7.52%)

In 2012 the South Australian Centre for Economic Studies released the Regional Development Barossa paper, highlighting transport as a significant factor as a barrier to future growth and as an opportunity for growth.

Opportunities for growth include increased tourism, based on close proximity to Adelaide. New transport infrastructure such as the Northern Expressway and Port River Expressway reduce freight costs and improve access to sea and air freight. Barriers to growth linked to road infrastructure were identified as upgrading and sealing of local roads. These issues were discussed with stakeholders during consultation.

## Mobility Profile

Cars and mobility are very important to our Members. When asked about their driving habits, residents in the Barossa Council were slightly more inclined to drive every day (59%) compared to Light residents and the wider RAA Membership<sup>5</sup> (56% and 55% respectively).

When asked to consider their regular travel, 95 per cent of respondents cited regularly traveling outside of their region, with work and shopping common reasons across all three demographic groups.

<sup>3</sup> RAA Members and Non-Members who have recorded the Barossa/Light District as residential location.

<sup>4</sup> Barossa Growth and Workforce Development Plan 2014-2017

<sup>5</sup> 2016 RAA Advocacy survey

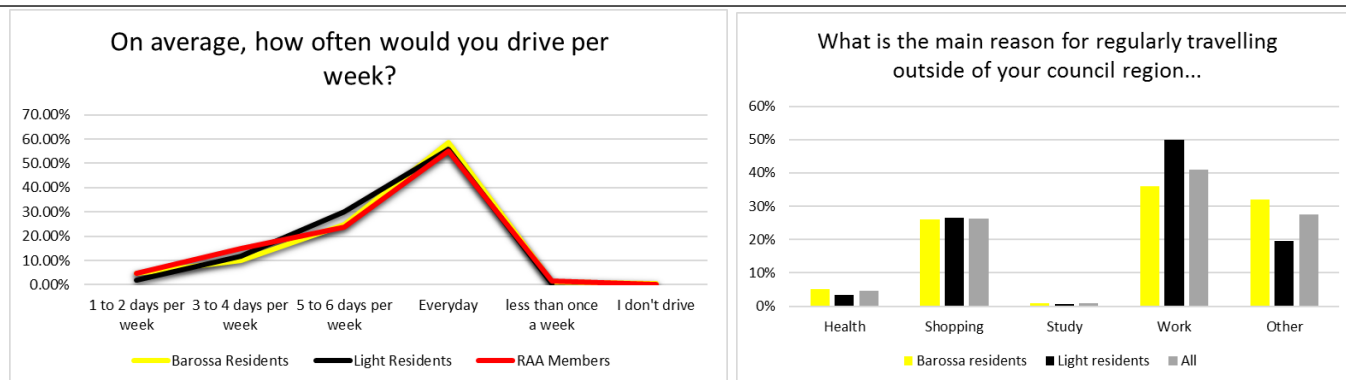


Figure 2: Survey responses regarding driving and travelling outside the region

Options of alternative transport methods becomes more problematic the more sparsely populated a region. It was not surprising to note Light residents were less likely to use alternate transport than Barossa residents, with total RAA Membership (70% metropolitan based) nearly twice as likely to use alternate methods of transport.

The preferred alternative mode of transport varied between regions. Residents of Light are more likely to catch a train while Barossa residents are more likely to ride a motorcycle, bicycle or catch a bus.

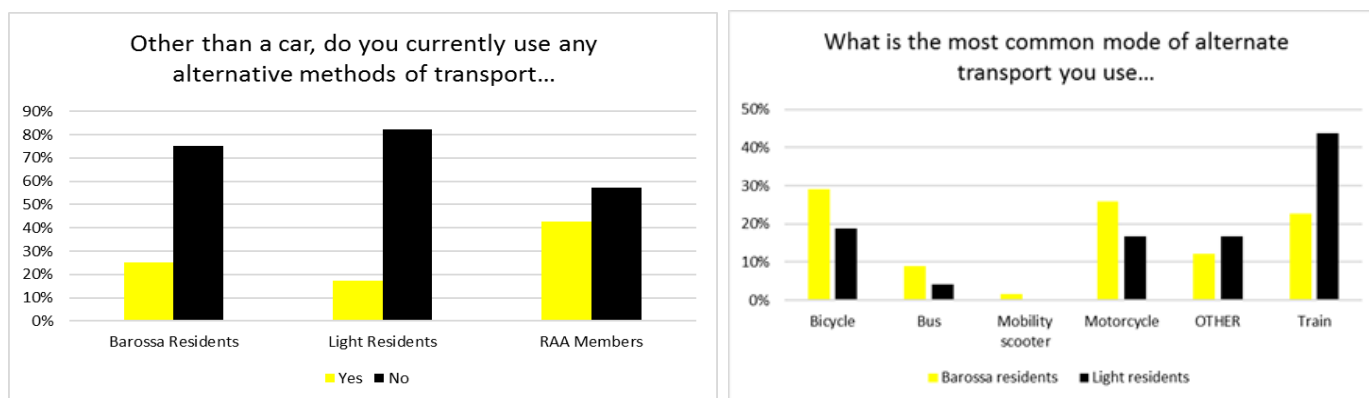


Figure 3: Survey responses regarding alternative transport methods

## Road Maintenance

When asked if roads in specific council regions are maintained to an acceptable standard over 70 per cent of Light District residents were not satisfied compared to 55 per cent Barossa residents.

From our road assessments in the region, road maintenance was a recurring issue identified in many locations. Issues including the conditions of the road surface, signage and line marking were amongst the most common identified.

Road maintenance is mentioned by respondents throughout the survey as being of major concern. Common concerns raised included:

- Pot holes
- Undulating surfaces
- Inconsistent road surfaces
- Shoulder sealing
- Too much “patching up” of roads
- Deep ruts and large rocks on gravel roads

*Many well-used roads are in bad condition, making for a ride that is rougher on vehicles and passengers/drivers. Roads in bad conditions may also affect how a driver controls their vehicle in times of trouble.*

*RAA Member*

Roadside vegetation, namely the management of seasonal growth of trees and vines impacting on sight distance at intersections was a key issue. When asked across all demographic groups, respondents showed (nearly 60%) support to have stop signs installed at intersections where vegetation is an issue.

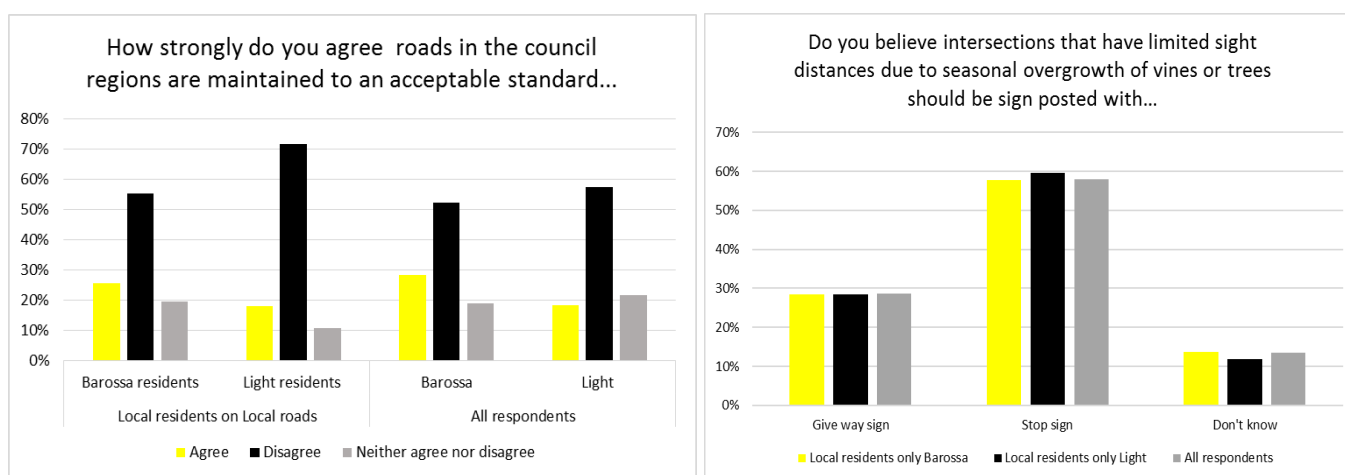


Figure 4: Member opinion on road maintenance in each council region

## Road Safety and Infrastructure

To complement the Road Safety team’s road assessments we asked road users what their main concerns were when considering road and safety in the Barossa and Light districts. Results have been reported in two ways across both districts. Firstly, resident’s views are represented independently’ and secondly, all survey respondents views are compared.

Respondents were asked to select the top three issues of importance to them. This was asked in two questions, results have been plotted together for each district, as well as tabled separately for each council region.

Table 3: List of road issues that Members were asked to select their top three from

Series 1	Series 2
Install more guard rails	Conditions of gravel roads
Fix pot holes	Condition of bituminised roads
Widen road shoulders	Roadside vegetation
Install more signage	Signage
Fix uneven surfaces	Driver behaviour – local drivers
Remove roadside vegetation	Driver behaviour – tourist drivers
Widen driving lanes	Road conditions (e.g. loose surfaces)
More line marking	Sight distances at junctions



Considering population, industries and geography across each region it would be expected that road users identify different concerns. Fixing pot holes ranked in the top two concerns across both districts, with condition of bitumen roads ranking first as being important to motorists.

## Barossa Council Region

Fixing pot holes and the condition of bituminised roads rated highest for their individual series, both clearly more important than the next issues or concerns for roads in the Barossa Council.

Table 4: List of road issues in order of priority for residents in the Barossa Council

	Series 1	Series 2
1 <sup>6</sup>	Fix pot holes (1) <sup>7</sup>	Condition of bituminised roads (2)
2	Remove roadside vegetation (3)	Driver behaviour – tourist drivers (4)
3	Widen driving lanes (5)	Road conditions (e.g. loose surfaces) (6)
4	Install more guard rails (7)	Conditions of gravel roads (8)
5	More line marking (9)	Sight distances at junctions (10)
6	Fix uneven surfaces (11)	Driver behaviour – local drivers (12)
7	Widen road shoulders (13)	Roadside vegetation (14)
8	Install more signage (15)	Signage (16)

When considering responses the prioritisation is comparable with verbatim comments throughout the survey. Key themes are; better road maintenance and improved road conditions. Interestingly in series two *driver behaviour – tourist drivers*, rated second. When asked how to improve the visitor experience, directional arrows on the road was a suggested numerous times. International tourists driving on the wrong side of the road was also raised as a significant issue on Kangaroo Island when RAA conducted its' road assessments in 2016.

<sup>6</sup> Series rating

<sup>7</sup> Rating by residents

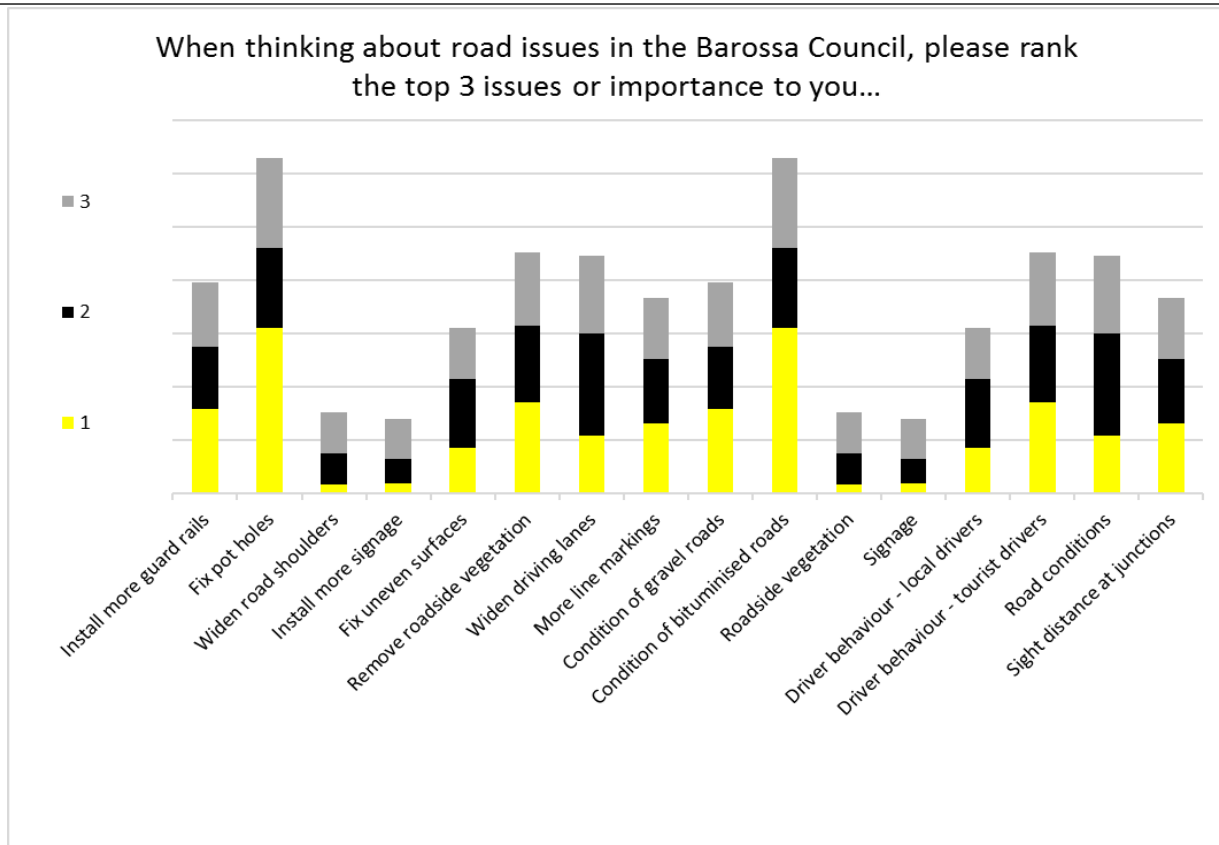


Figure 5: Road issues prioritised according to the Barossa Council residents

#### Key Observations - Barossa Council Region

- Fixing pot holes and the condition of bituminised roads both rated significantly more important (18 percentage points higher).
- Roadside vegetation is a concern.
- Driver behaviour - tourists is considered a top four issue and verbatim comments infer a number of concerns including:
  - Tourists driving on the wrong side of the road
  - Need for additional pull off bays at significant points for safer photo opportunities
  - Need for better directional signage

Installing more guard rails rated as seventh with 40 per cent support. Verbatim comments suggest that in some places guard rails are placing safety pressures on the road by taking away the opportunity to safely pull off the road.

#### Light Regional Council Region

Light residents rated the top six issues of importance to them and all related to road conditions or maintenance. Roads within the Light Regional Council received a number of nominations in the Risky Roads campaign earlier in the year. The roads receiving the highest number of Risky Roads nominations included Horrocks Highway (2<sup>nd</sup> ranked road overall), Owen Road (4<sup>th</sup> ranked road overall) and Thiele Highway. A number of intersections in the region also received singular nominations.

When comparing the results of residents from Barossa and Light in determining what is important to them it can be noted Light residents felt very strongly about their top six issues.

Table 5: List of road issues in order of priority for residents in Light Regional Council

	Series 1	Series 2
1 <sup>8</sup>	Fix uneven surfaces (1) <sup>9</sup>	Condition of bituminised roads (3)
2	Fix pot holes (2)	Conditions of gravel roads (4)
3	Widen road shoulders (5)	Road conditions (e.g. loose surfaces) (6)
4	Widen driving lanes (9)	Driver behaviour – local drivers (7)
5	Remove roadside vegetation (10)	Sight distances at junctions (8)
6	Install more signage (11)	Roadside vegetation (12)
7	More line marking (15)	Signage (13)
8	Install more guard rails (16)	Driver behaviour – tourist drivers (14)

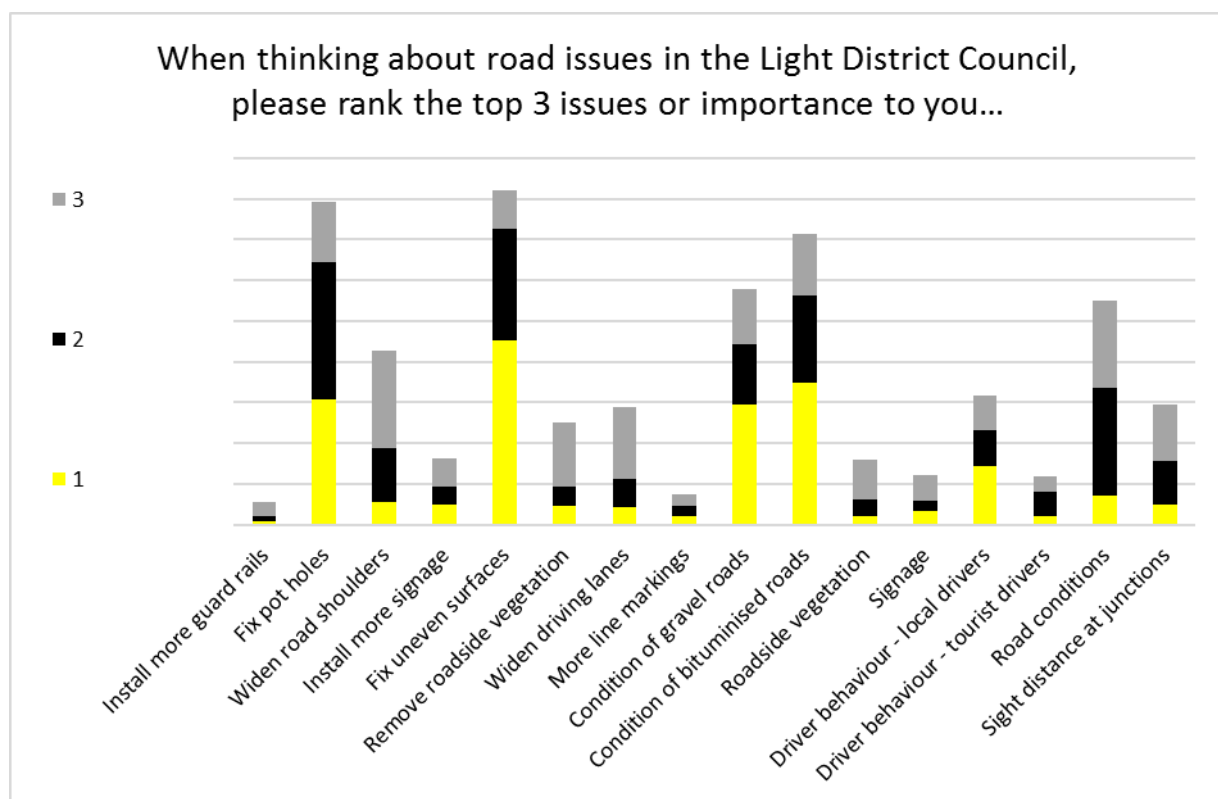


Figure 6: Road issues prioritised according to Light Regional Council residents

#### Key Observations - Light Regional Council Region

- Fix uneven surfaces rated as the single biggest concern, this is supported by comments on undulating surfaces and the recent Risky Road campaign nominations.
- Pot holes are a consistent issue across both regions.
- Local drivers rated seventh, the first non-road condition issue, driver behaviour – tourists are considered less of a concern in the Light region.

<sup>8</sup> Series rating

<sup>9</sup> Rating by residents

## Freight Movement / Interactions

The Regional Development Board Roadmap includes two priorities directly focused on movement, *Transport-Goods* and *Transport-People*.

Transport-Goods identified enablers including strategic intersection upgrades, unlocking capacity in existing transport infrastructure and major routes funding.

Residents of both Barossa and Light regions identified issues including:

- Ineffective and poorly maintained road surfaces
- Inconsistent speed zones
- Dangerous interaction with other road users
- Need for more overtaking lanes
- Duplication of Sturt Highway
- Possible redesign of freight route to limit tourist and resident interaction

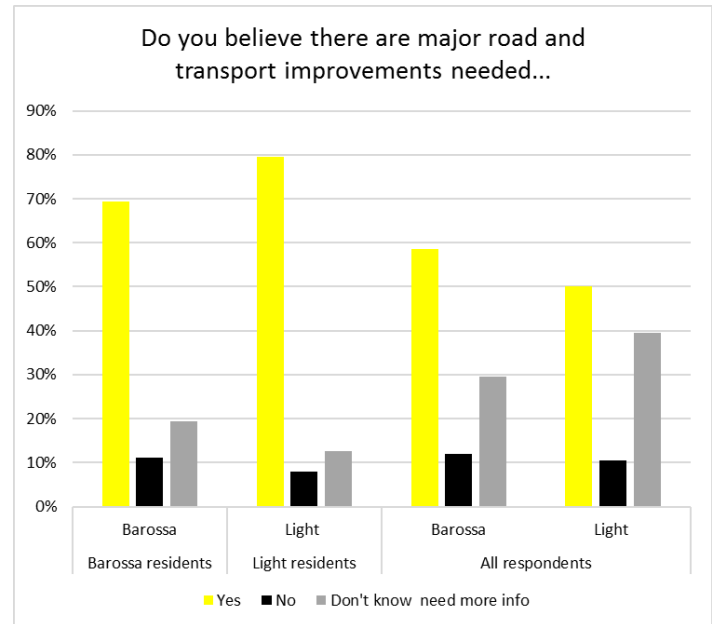


Figure 7: Residents generally believe that major improvements are needed to the road network

When considering freight movement, in an attempt to remove trucks from town centres respondents highlighted substandard freight routes with dangerous intersections, lots of stop / start and generally poor road surfaces.

### Barossa Council Region

This series of questions asked what Members biggest safety concerns were when considering interactions with freight in the Barossa Council region. Results indicate safety concerns were the same for both residents and non-residents.

Concerns when rated according to aggregated responses are:

1. Speed
2. Road surfaces
3. Road width
4. Intersection visibility
5. Poor road signage
6. Ability to overtake safely
7. Loose gravel
8. Size of trucks
9. Grape juice spill

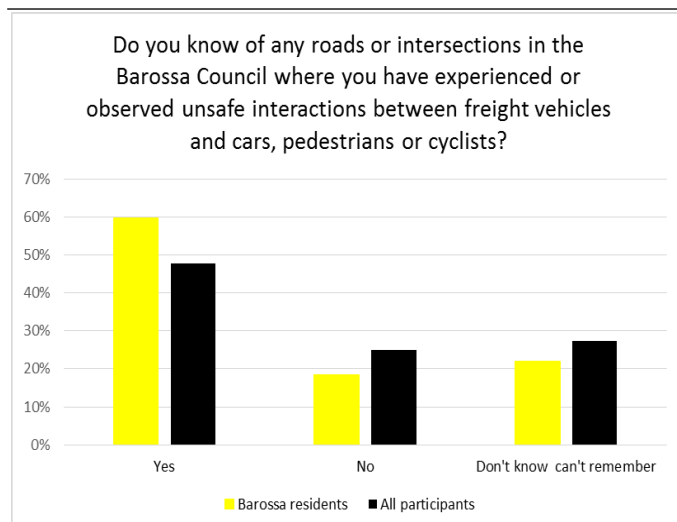


Figure 8: Barossa Council residents are aware of unsafe interactions between differing road users

Sixty per cent of residents had experienced or observed unsafe interactions between freight vehicles and another road user. If the response was yes an opportunity to describe the location and incident was given. The full list of identified roads and intersections is located in appendix B1 and the following selection of Member comments highlights concern of residents:

- Greenock Road and Samuel / Peramangk Road Intersection. This is a freight route with large trucks having to stop and then get up speed to get over a busy Greenock Road.
- Penrice Road and Stockwell Road intersection needs more signage to indicate intersection as a lot of freight trucks use these roads.

- At the T-junction of Murray Street and Gawler Road, large vehicles have knocked down the street light and signal light on two occasions.
- Stockwell Road / Penrice Road intersection has huge trees that limit visibility looking south. Very dangerous given that it is a freight route.
- Gomersal Road is considered to be the worst road in our district. Speeding drivers, numerous pot holes, inattentive tourists, narrow shoulders and vegetation that needs to be removed.

The RAA Road Safety team investigated over 20 locations in the Barossa Council district as part of this regional road assessment. These locations include roads, intersections and particular trouble spots that have been identified through stakeholder consultation, our Member survey and RAA's 2017 Risky Roads campaign.

### Light District

A number of roads within the Light District rated highly in RAA's 2017 Risky Road campaign. Nominations highlight the poor surface condition of the major thoroughfares in the region and this has been reinforced by the survey results nominating road surface as a concern nearly 20 per cent more (72%) than the second concern being safe overtaking opportunities (53%) and road width (39%).

1. Road Surface
2. Ability to overtake safely
3. Road width
4. Intersection visibility
5. Speed
6. Loose gravel<sup>#</sup>
7. Size of trucks<sup>#10</sup>
8. Poor road signage
9. Grape juice spill

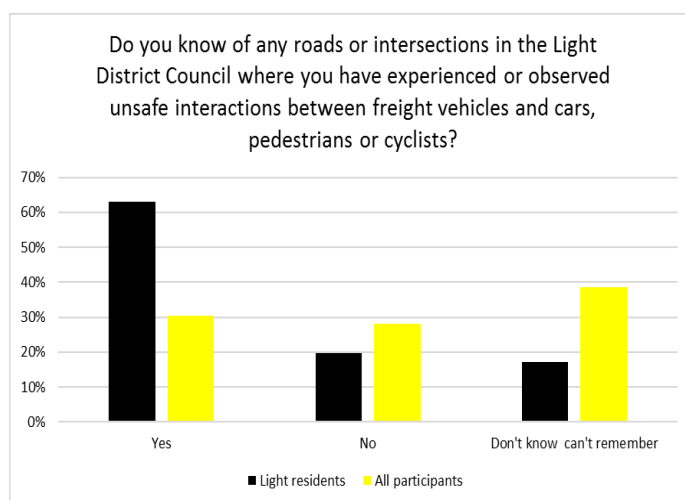


Figure 9: Light Regional Council residents are aware of unsafe interactions between differing road users

<sup>10</sup> # slightly different between residents and all respondents

Nearly 65 per cent of Light Regional Council residents had experienced or observed unsafe interactions between freight vehicles and other road users. Again supporting the number of Risky Road campaign nominations for the region.

The full list of identified roads and intersections is at appendix B1, with the following selection highlighting the concerns of some residents:

- People taking the first turn off into Freeling along the Thiele Highway often slow (right) down, well before the turn off slip lane, again many people become frustrated and overtake where the visibility is not always ideal as it (is) on an upwards slop of a hill.
- Horrocks Highway / Gartrell Street, Roseworthy. Many grain trucks entering / exiting with no turning lanes provided. No right-hand turning lane on Horrocks Highway (heading north) onto the Freeling Road when you turn left. You have to stop on a section of road that is 100km/hr which is very unsafe.
- Samuel Road/Greenock Road intersection is very busy and on the freight route. Tough to cross Greenock Road & tough for trucks to turn. Tough to turn onto Greenock Road from Samuel Road for cars - needs a roundabout. Also, trucks speeding on Samuel Road can be very scary. Police focus on cars outside of vintage - how about focussing on trucks during vintage.
- Thiele Highway carries a lot of vehicles, the road surface extremely uneven causing the vehicle to wander, combined with the speed some vehicles travel makes this road very dangerous.
- There continues to be large trucks and busses all trying to use narrow roads while bikes are on them. there have been many times I have come over a hill only to have to slow down very quickly due to 2 or 3 slow riding bike riders in the middle of the driving road. I understand we must be able to all use the road however the roads should also be made for fit for purpose.

The Road Safety team investigated over 30 locations in the Light Regional Council district during this regional road assessment. These locations include roads, intersections and particular trouble spots that have been identified through stakeholder consultation, our Member survey and RAA's 2017 Risky Roads campaign.

### Globelink

In January (2017) the South Australian Liberal Party released plans for a total freight route overhaul. Plans include a new freight airport, road and rail link that diverts through the Barossa linking to the Northern Expressway and Port River Expressway.

The concept of a redirected freight route is not new, Australian National first proposed the corridor in 1983<sup>11</sup>. Further references have occurred at all levels of government in 1999, 2001, and 2007 with a further study undertaken in 2010 "*Northlink – Getting SA on Track*". The Northlink report concluded further investigation of the rail bypass was warranted.

Full route details are yet to be released by the State Liberal Party, the map highlights the preferred path, which appears to be the same as the original Northlink proposal (1999). When asked 60 per cent of respondents had not heard of the proposed GlobeLink freight route,

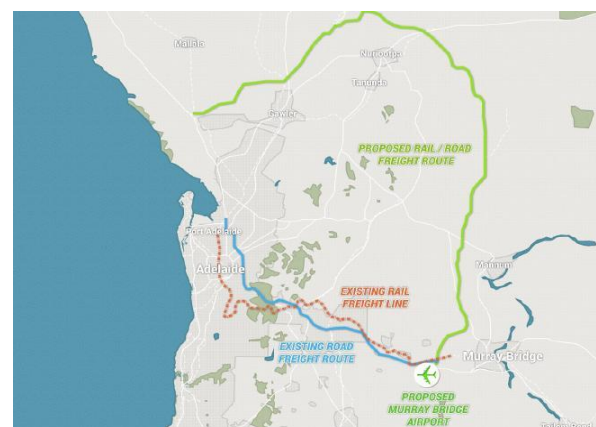


Figure 10: Proposed Globelink route

<sup>11</sup> The Murray and Mallee Local Government Association – 2030 Regional Transport Plan



with even distribution of “yes” and “no” responses relating to overall support of the proposal across both Barossa and Light Districts.

Support for the Globelink freight route was 50 per cent, with a 12 per cent negative sentiment. However, 38 per cent of respondents didn’t know about the proposal and needed more information. Residents of Light were slightly less supportive of the concept than those in the Barossa district.

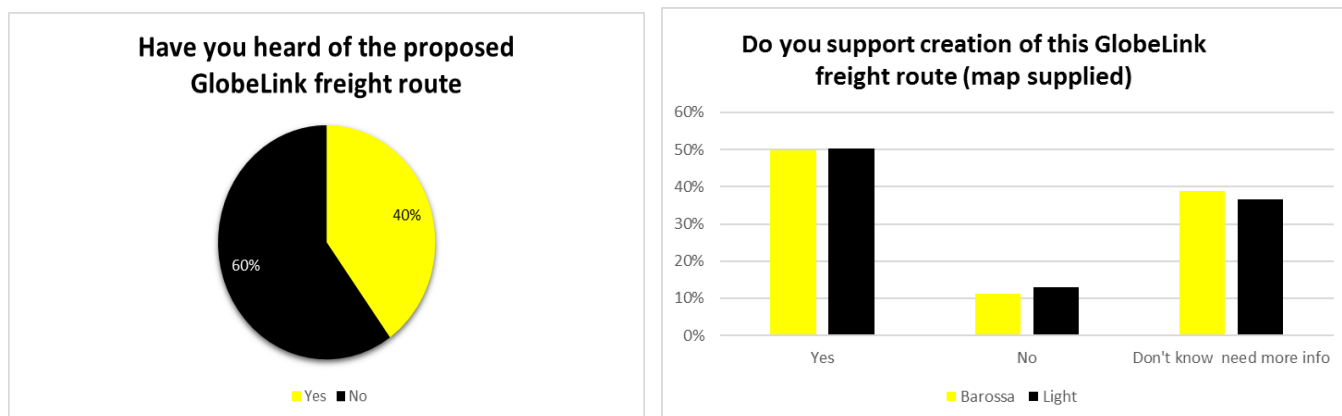


Figure 11: Respondent knowledge and general level of support for the proposed Globelink freight route

## Gravel / Unsealed Roads

Regional South Australia has an extensive unsealed road network, and many of these can have a relatively high volume of traffic, with motorists of varying degrees of experience driving in unpredictable conditions.

When residents were asked to compare perceived crash probabilities of local and tourist drivers, fifty per cent of respondents felt they were less likely to crash on a gravel road than a bituminised road compared to a tourist driver.

When asked about the likelihood of a crash on a gravel or bitumen road the majority of respondents believe the likelihood is about the same (Barossa residents 47%, Light residents 51% all respondents 48%).

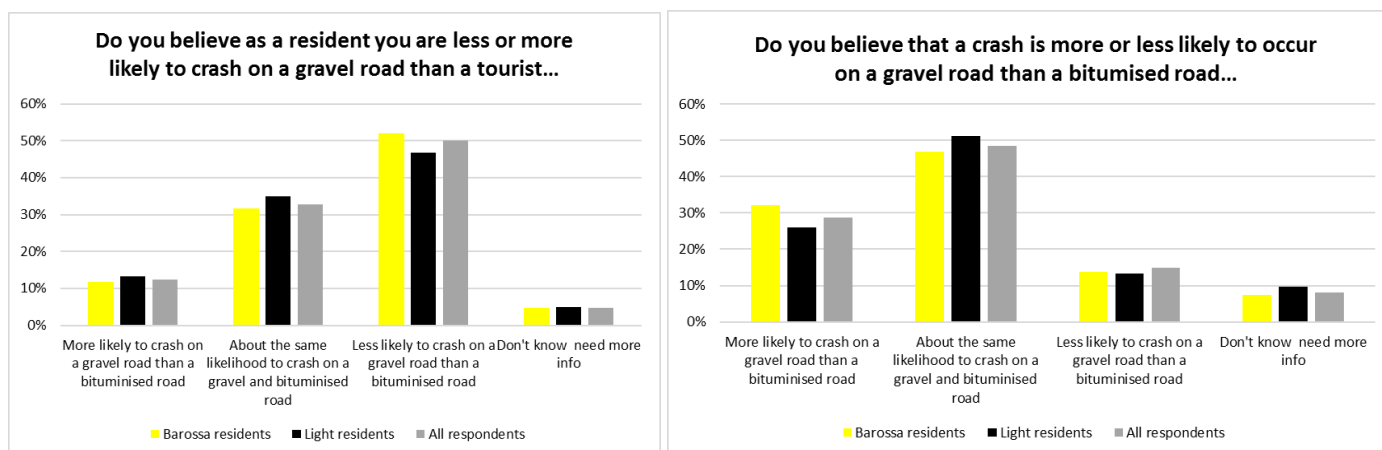


Figure 12: Resident perception on the likelihood of crashes on gravel roads and tourist capabilities on gravel roads

Consultation identified a concern of access to some gravel roads during wet weather. When asked Light residents (66%) were marginally more concerned about the effects of weather reducing mobility than those of the Barossa (59%).

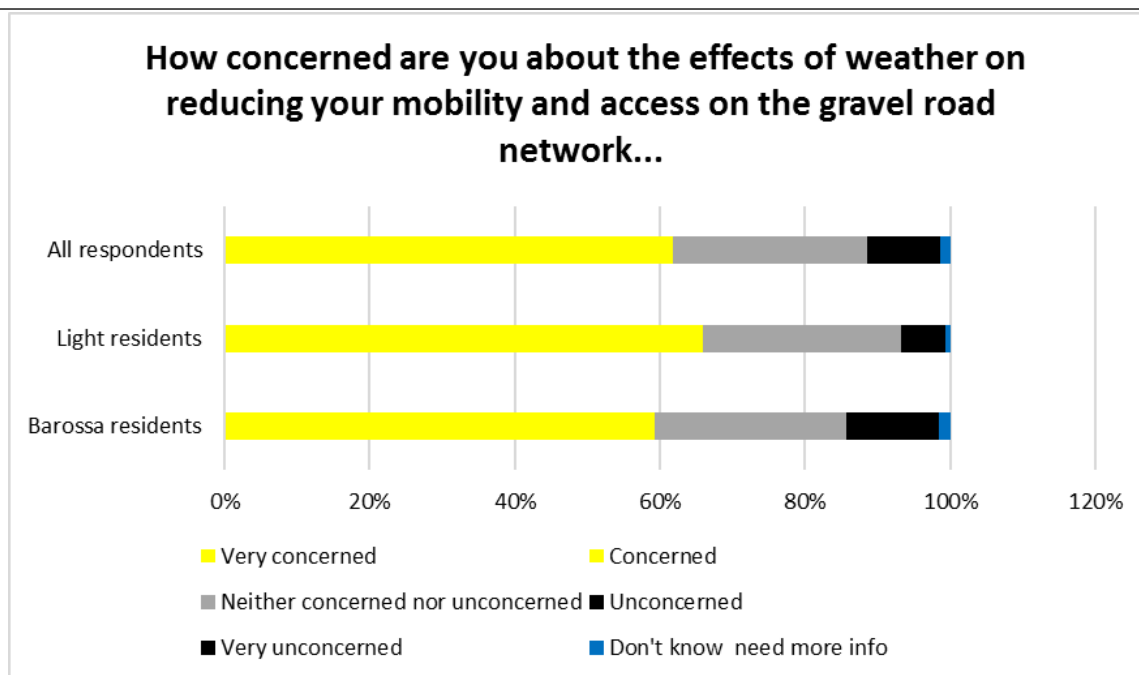


Figure 13: Many residents have some level of concern regarding the effects of weather on access to the unsealed road network

Stakeholders raised concern over speed limits on unsealed roads and motorists confusion about the default speed limit.

When asked, just over one third of respondents were split between 80km/h and 100km/h, with nearly one quarter of respondents believing the speed limit was 60km/h or less.

On an unsealed road with no speed limit sign the default speed limit is 100km /h.

A subsequent question was asked to gauge support for a blanket speed reduction to 80km/h on unsealed roads. Support was 55 per cent with 36 per cent not supporting a blanket reduction, and 8 per cent unsure of a reduction to 80km/h on unsealed roads without a sign posted speed. The results do not support a blanket reduction in speed limit when considering the margin for error in the results.

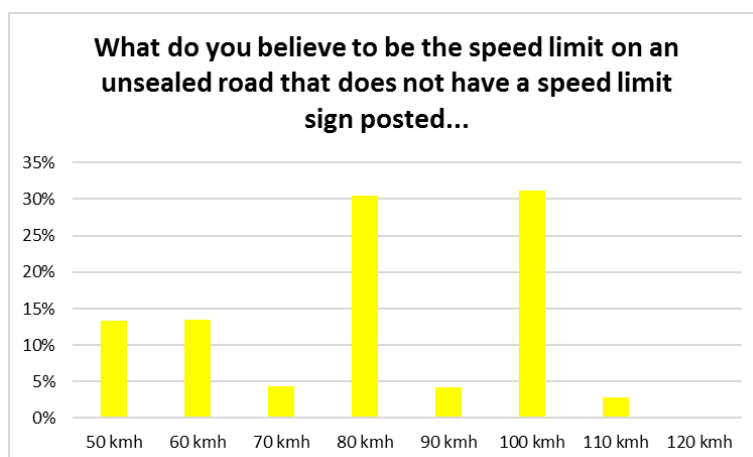


Figure 14: Survey respondents were not clear on the speed limit on the unsealed road network

## Speed Zones

Consultation identified the number of speed zones in the regions as confusing and in some cases even creating unsafe environments. Survey results confirmed motorists believe there are too many speed zone changes.

Fifty six per cent of respondents agreed the Barossa district in particular had too many speed zone changes, compared to 40 per cent agreeance for the Light region. Analysed at a resident level this increased for the Barossa to 63 per cent but reduced to 37 per cent for Light.

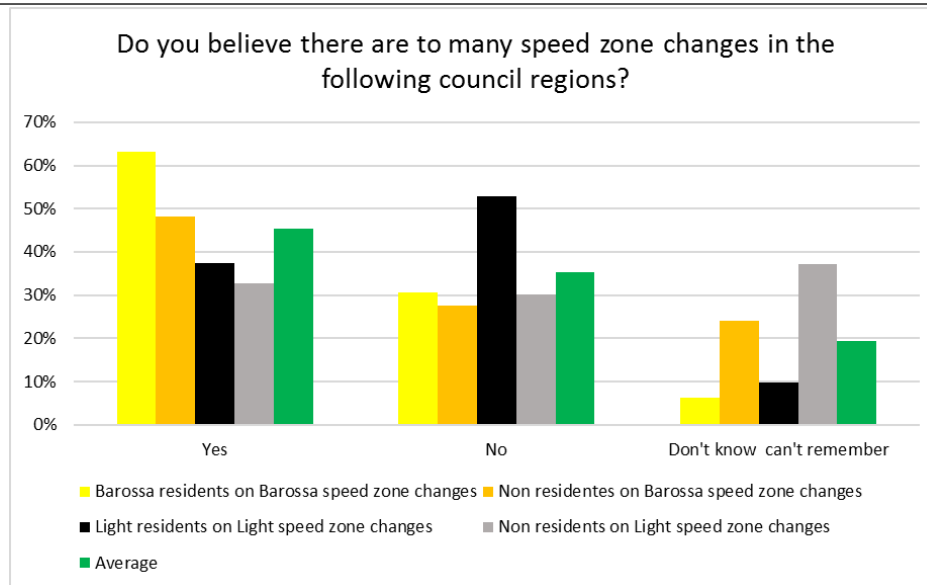


Figure 15: Respondent perception on the number of speed zone changes in each council region

Over 200 participants highlighted roads within the Barossa and Light region they find confusing, the following represents key themes with all comments in Appendix B1-5:

- Across different council areas, there is inconsistency between areas designated 50km/h, 60km/h and even 80km/h and 100km/h.
- Speed limits should be standardised where possible. Currently there are 50, 60, 80, 90 and 100km/h speed limits depending on which council zone you are in.
- Gomersal Road 60km/h – 80km/h – 90km/h.
- Kapunda Main Street 60km/h Adelaide end 50km/h Marabel end.
- One must be very watchful of the differing speed limits on the southern approach into Kapunda.
- Menge Road, Tanunda.
- Mount Pleasant to Birdwood starts at 80km/h, then half way suddenly changes to 100km/h. Why? There is no change in road conditions.
- Often no warning speed changes at oncoming corners. Roadside workers leaving unmanned roadwork signs up when no one is working there.
- Barossa Valley Way from Tanunda to Gawler - 50km/h, 60km/h, 80km/h, 90km/h at various places, up and down.
- Roseworthy has a 100km/h sign then a 60km/h ahead sign, too many drive through at higher speeds due to confusion.
- Stockwell to Angaston should be 90km/h like Lyndoch to Tanunda.
- Stockwell Road is a flat, open road with very few homes along it and is a slow 80km/h, and it is absolutely ridiculous. Barossa Valley Way, Gomersal, Tanunda to Gawler is hilly, the road is narrow and anyone needing to pull off the road won't be able to due to the metal railings all along the road! This is 90km/h.
- Stockwell road should be 90km/h as far as I'm concerned. And I live along this road.
- Between Tanunda and Nuriootpa they are different depending on which way you are travelling

A number of schools have been mentioned specifically:

- In front of Xavier College, where there is congestion turning onto Redbanks Road causing some drivers to drop students off in unsafe locations along Redbanks Road.
- Lyndoch to Williamstown Road, outside school. Many drivers slow down to 60km/h at all hours, whereas requirement is only from 0800 – 1600. This confusion may be from lack of adequate signage, there is only one sign from each direction indicating times.
- Many people do not understand the signage at St Jakobi school zone on Lyndoch Road, where it states you should observe 60km/h between 8am - 9am and 3pm - 4pm. It would be great if the sign was reworded so that everyone understands it.
- School speed limit signs at St Jacobi School have operating times in small characters leading motorists to slow down even on non-school days.
- The school zone signs on Magnolia Road are not easy to see and few cars actually slow down.

## Barossa Valley Way

Barossa Valley Way was considered by respondents to be one of the most confusing roads when it came to multiple speed zones.

Sixty one per cent of respondents support the current speed limit of 90km/h remaining, with only 27 per cent believing the speed limit should be increased.

When analysed by council region both Barossa and Light residents supported a 90km/h speed limit (61% and 62% respectively).

Comments included:

- Barossa Valley Way - half is 90km/h the other half is 80km/h.
- Going to Nuriootpa out of Tanunda Left side of road is 50km/h and right side of road is 80km/h coming to Tanunda from Nuriootpa.
- Coming into Tanunda along Barossa Valley Way, it goes from 90km/h to 80km/h to 60km/h to 50km/h - this is so confusing in such a short space of time.
- Tourists see the signs (stating) 50km/h zone ahead and instantly slam their brakes on to do 50km/h where it is still 90km/h. Very dangerous and causes a chain reaction with vehicles / bikes / trucks behind.
- Changes in speed limit are too frequent. You are continually looking at the side of the road to compare your car's speed to the sign.

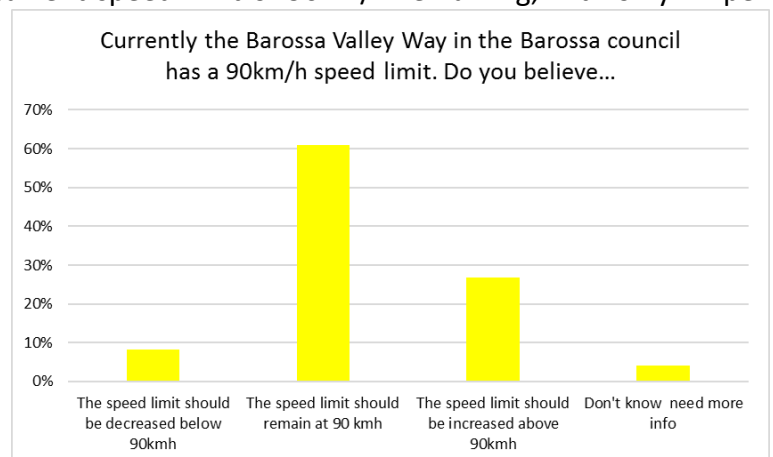


Figure 16: Respondents were strong on their opinion of Barossa Valley Way Speed limits

## Signage

In general, most road signage is considered to be informative and helpful and not much of a distraction in both regions. However, it is to be noted that nearly one in five Barossa residents and one in four of all respondents do find general road signage confusing.

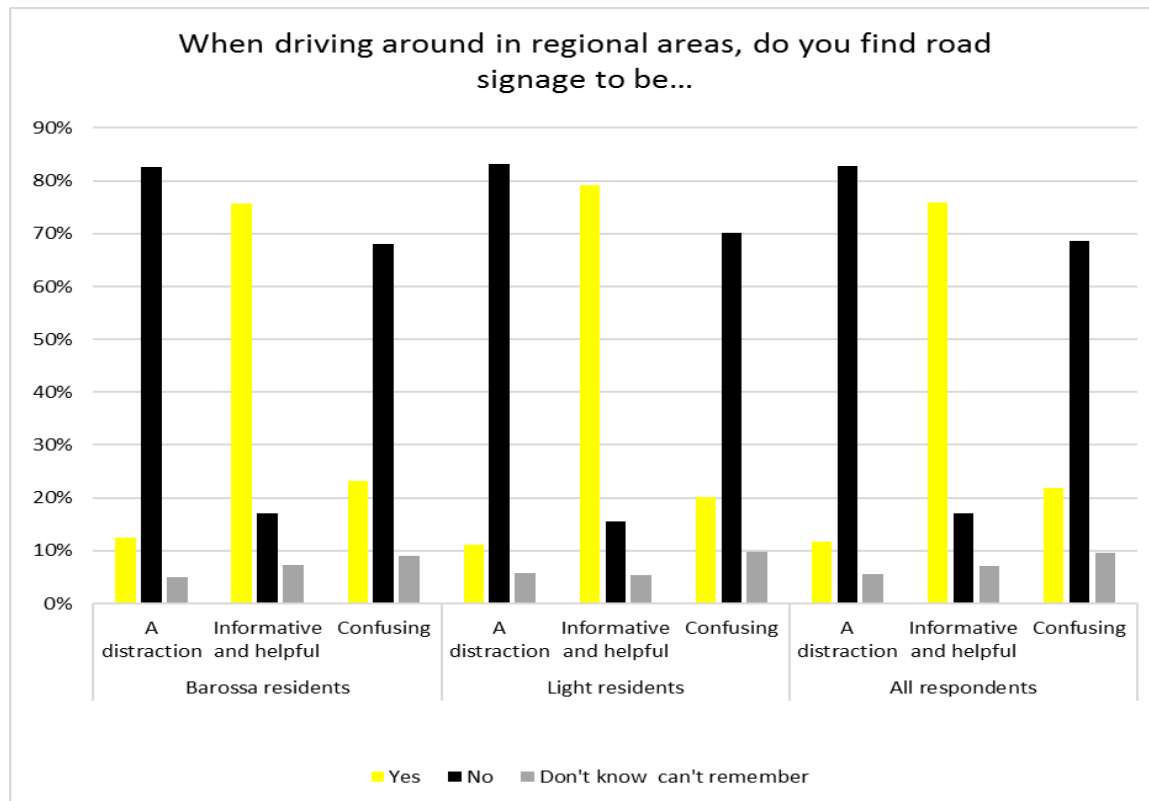


Figure 17: Perception of signage by survey respondents

## Sight Distance

Sight distance was raised as a concern when approaching 'Give Way' signposted intersections. During the seasons, vines and trees have overgrowth that reduces lines of sight.

Nearly 60 per cent of respondents believe that where intersections have sight distance limitations, the intersection should have a 'Stop' sign rather than a 'Give Way' sign.

The timing of this road assessment was during winter, when grape vines have been pruned and have no over growth - allowing unrestricted intersection sight distance.

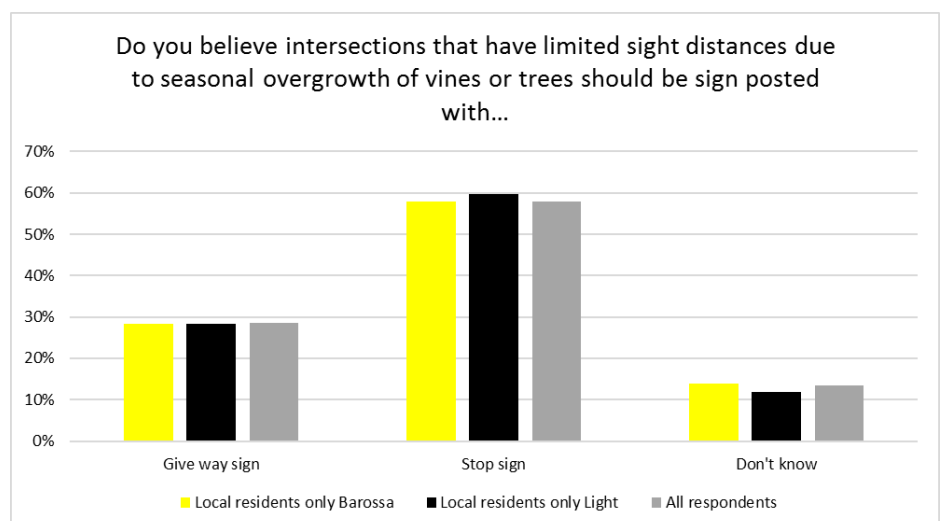


Figure 18: Most respondents indicated that they would prefer to see 'stop' signage at intersections with seasonal overgrowth

## Tourist Information

Light Regional Council district links the wine regions of the Barossa Valley and Clare Valley, with significant tourist traffic. A balance is needed between functioning industry hubs and enhancing tourism together with the overall regional experiences. The challenge is articulated in following Member comment:

*It's not the fact the speed limits are confusing to me. That is not the problem. The fact is all speed limits appear to be around ensuring tourism in the Barossa is enjoyable, rather than the fact that the Barossa is product hub that heavily relies on transport or movement between multiple sites in a timely fashion. At the end of the day each time speeds are reduced, it adds frustration to daily road users, when it appears that the changes are made to help infrequent road users.-People already drive below the speed limits, when you reduce these limits further people still drive under the speed limit. This is where frustration comes in to play and accidents occur as everyday users attempt to meet ever increasing deadlines.*

*RAA Member*

Slightly more people (48% Barossa and 42% Light) believe the road network in both regions is not suitable for the number of visiting tourists, than are satisfied (45% Barossa and 41% Light) with road suitability for tourism.

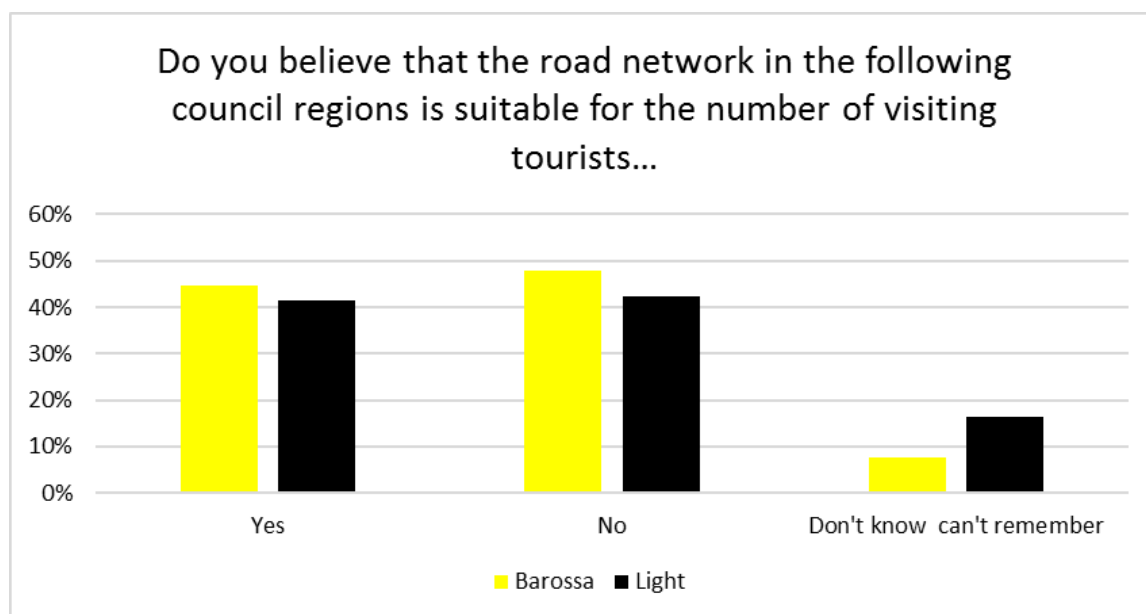


Figure 19: Members were divided on their opinion of the suitability of the road network for tourists

Both Barossa and Light residents believe the top three requirements to enhance the visitor experience are improved road surfaces, better road maintenance and public transport availability.

Following the top three, residents of the Barossa highlighted parking as the next significant issue. In particular, more parking for RVs, caravans, cars and busses is needed.

Light residents noted parking as being important along with signage. Signage was significantly more important to residents of Light than those of the Barossa.



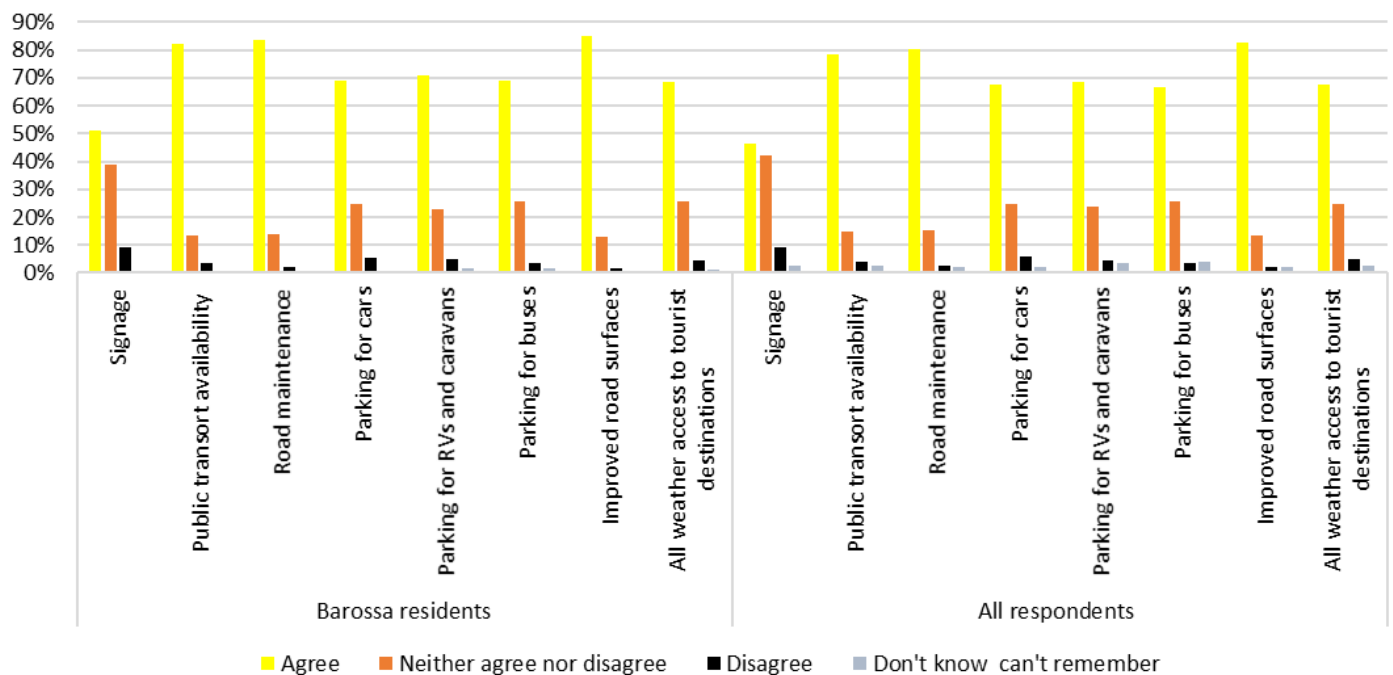


Figure 20: Issues that residents believe need improvement in each council region

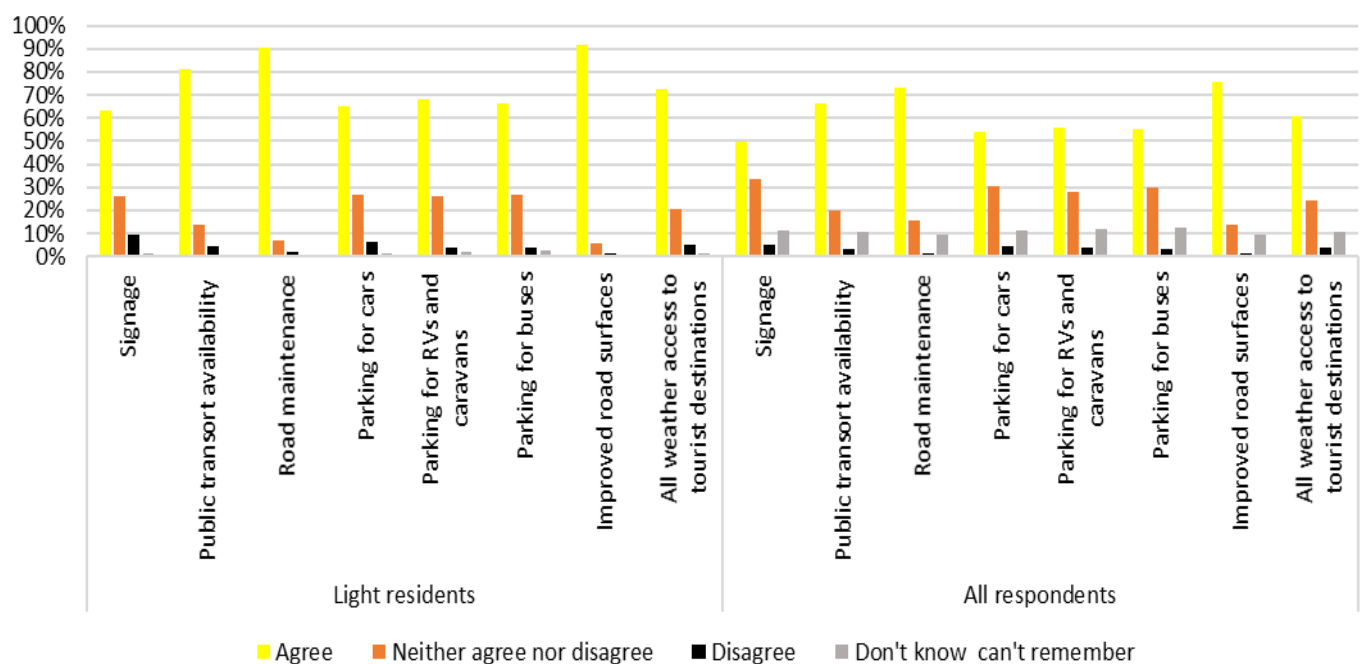
Members were given the opportunity to highlight infrastructure improvements to enhance the visitor experience, the full list of responses is available at appendix B2, with the following representing key themes:

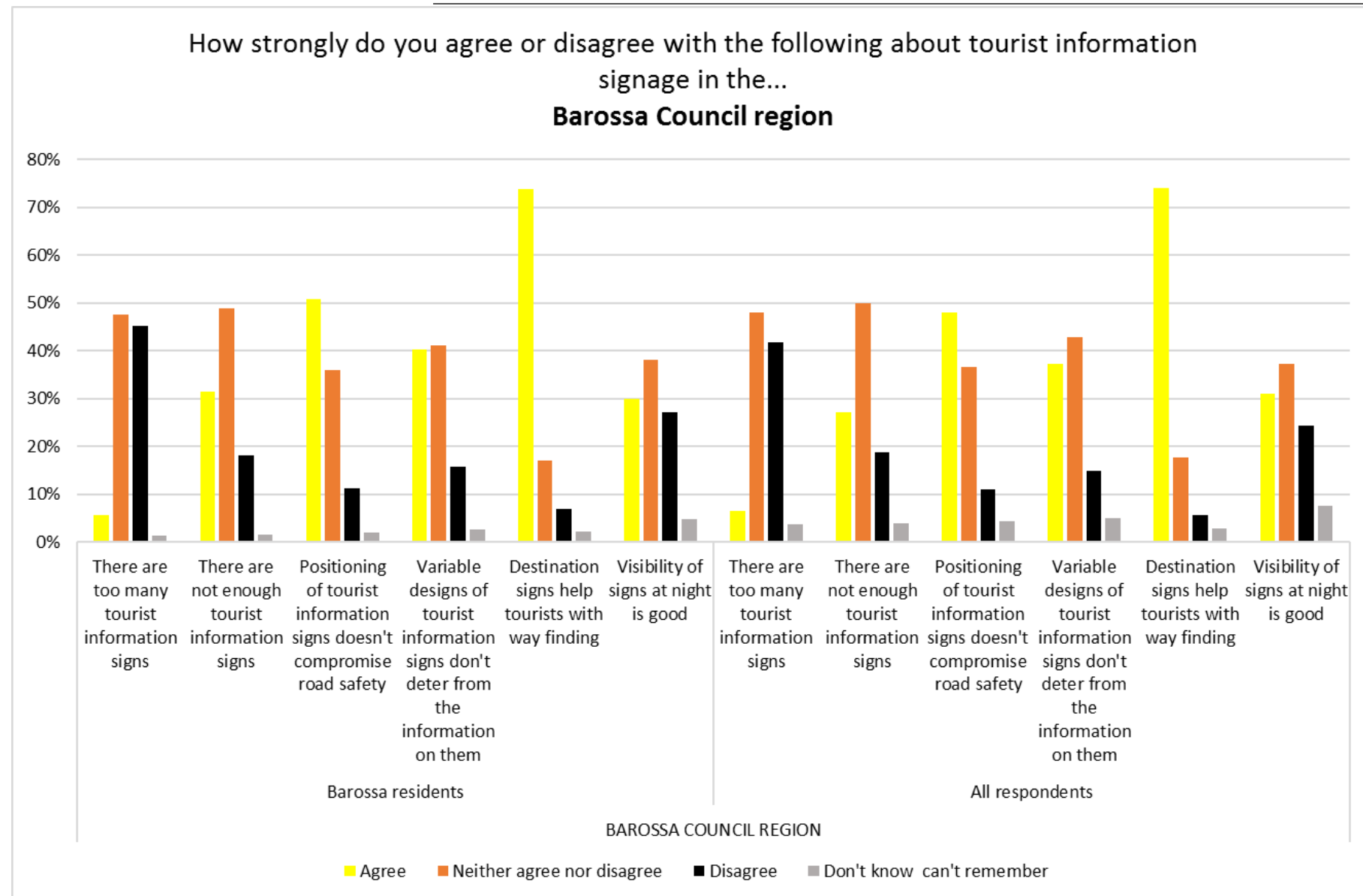
- Wider roads
- Bike education to eliminate dangerous road riding
- Widening of narrow bridges
- Enhance town entrances
- Well placed destination signage
- Water drainage
- Rail travel options
- Create roadside photo opportunities
- Standardise tourism signage
- Increase pull off bays
- Speed limits painted on roads
- Directional arrows for international drivers
- Cycling connectivity
- Improved road sealing programs
- Intersection visibility
- Footpath improvements
- A hop on hop off wine bus
- More public toilets
- Better access to the Southern Barossa

How strongly do you agree or disagree the following areas in the **Barossa Council** region need improving to enhance visitor experiences in the region



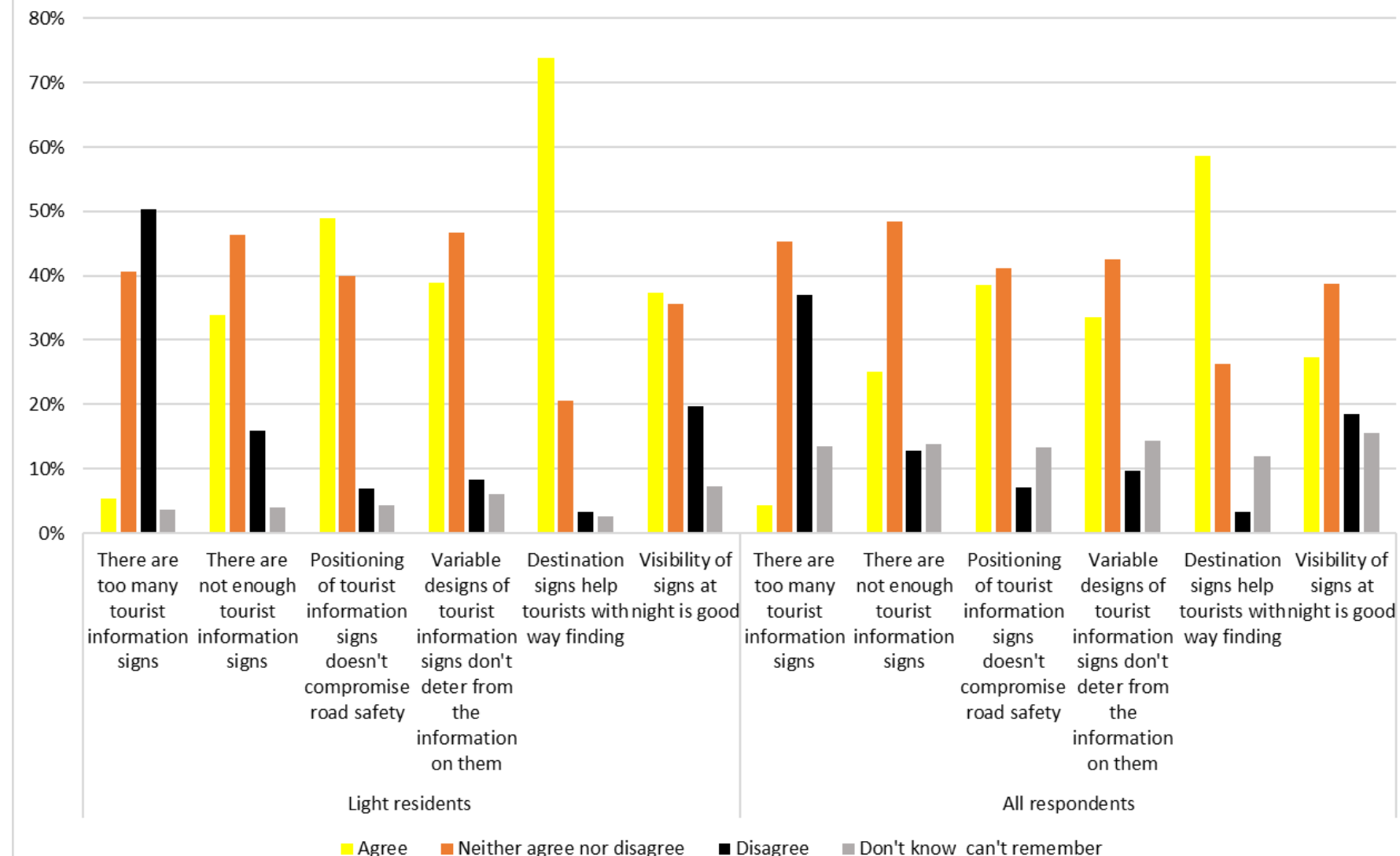
How strongly do you agree or disagree the following areas in the **Light District Council** region need improving to enhance visitor experiences in the region





How strongly do you agree or disagree with the following about tourist information signage in the Light District Council region...

**Light District Council region**



## Hotspots

To gain local perspective, people were asked if they had witnessed a trouble hotspot relating to a tourist destination, event or situation.

If the response was “yes” people were asked to elaborate, this information was used to inform the Road Safety team when conducting their road audit, and is listed in full at appendix B3.

A selection of responses included:

- Between Lyndoch and Tanunda. Bicycles mainly riding side by side.
- The centre intersection in the middle of the Tanunda Township – Basedow / Murray / Elizabeth - Coming out of Foodland carpark onto Murray Street in Nuriootpa -The Main Street intersection in Kapunda turn off to / from Tarlee / Clare Valley.
- The corner of High Street and the primary school needs to have better vision access for drivers turning right off of High Street. Cars are parked there and children are at risk.
- Roseworthy Road intersection on Thiele hwy. People constantly running through the already massive stop sign. Poor lighting. Very uneven surface on both roads.
- Barossa Valley Way at any crossroad. Slipways so slow moving traffic can get off the road when turning would greatly assist.
- Lyndoch Road which is off Gomersal Road, this is a tourist destination road which has only been partly sealed, the road is quite dangerous in winter for Tourists.
- The safety aspect of being able to pull over if required on the Barossa Valley Way from Tanunda to Lyndoch as the Armco railing is too close to the road.
- Corner of Lyndoch Valley way and Hermann Thumm Drive (at the Motel corner)
- Gomersal Rd/Barossa Valley Way, Tanunda. Right turning vehicles from Gomersal hold up all traffic waiting for an opportunity to turn right
- At the rail overpass between Lyndoch and Rowlands Flat. The bridge is too narrow and large trucks, busses and caravans often take up more than half the road surface. Also the approach from Lyndoch is too angled. Speed should be restricted not advised but preferably the bridge widened.
- Gerald Roberts Road has been re-sheeted and left with a drop off on either side. It’s the access road to Sieber wines, Huntley Farm wines and used by people accessing Seppeltsfield wines. Gerald Roberts Road is currently a death trap, it’s only a matter of time before someone is forced off the edge and will down the embankment, possibly through the roof of a house. I drive tractors and trucks on this road regularly, I find it so dangerous and can’t understand how the council could be so negligent in leaving the road in such a dangerous condition, for locals and tourists.

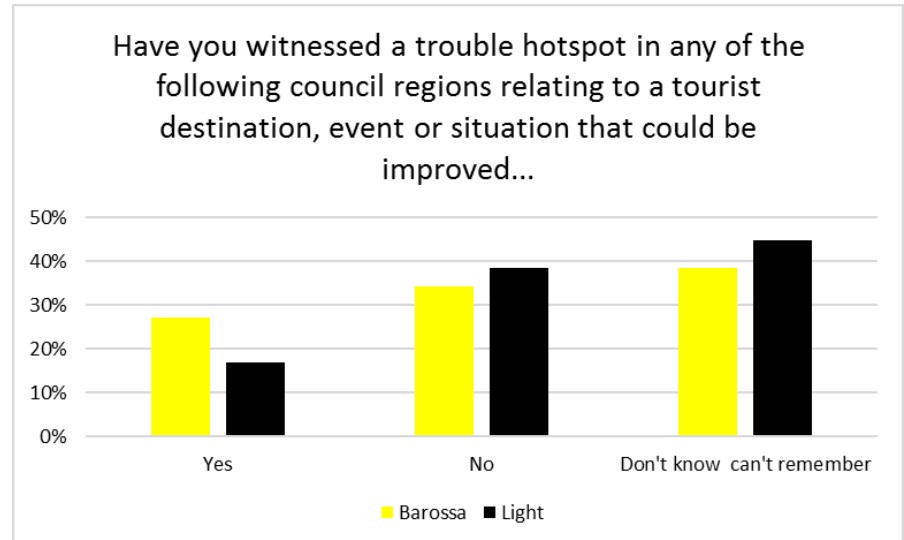


Figure 21: Residents are aware of some trouble hotspots relating to tourist destinations

## Cycling

Cycling is the second most common mode of personal transport for residents of the Barossa and Light regions, however, when asked less than one in five have ridden a bicycle in either region in the past six months.

Barossa residents have a more positive outlook on cycling in their region than their Light counterparts. With 53 per cent of Barossa residents believing the road network encourages cycling compared to 18 per cent Light residents.

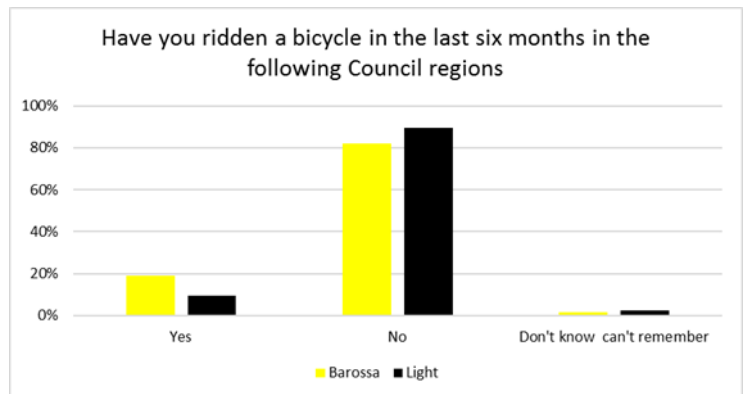


Figure 22: Breakdown of Barossa and Light residents that have ridden a bicycle in the past 6 months

Safety of children cycling in the regions was significantly higher in the Barossa than Light, (42% and 18% respectively). This is not a surprising result considering the Barossa region has 40 km of separated bike and pedestrian infrastructure.

Members expressed concern over cycling with children around the townships, with concerns about footpaths and the roads. Typical comments included:

- Dedicated cycle paths are important for locals and students to be able to ride to school re traffic levels / drop off / pick up from school / health of kids and adults.
- I ride with my young kids - the bike paths are great, but riding from home in Tanunda the footpaths around Langmeil Road are terrible and sometimes unsafe.

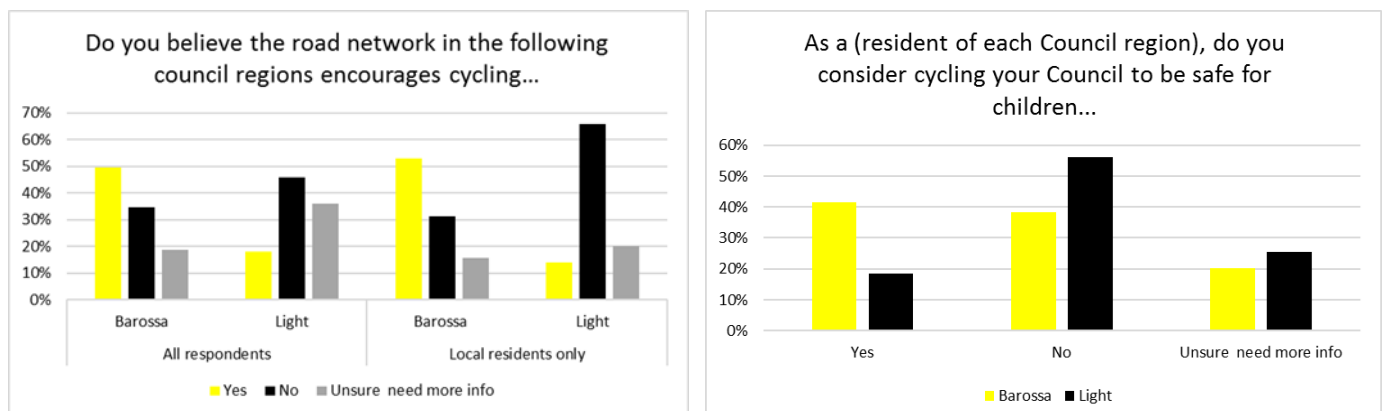


Figure 23: Perceptions on the road network and cycling safety

Twenty one per cent of people surveyed identified that they could be encouraged to cycle more often, with a further 15 per cent unsure.

When asked to add what would encourage you to cycle more, common comments were:

- More dedicated paths
- Road conditions
- Attractions and services along the way

Comments highlighted the significant dangers of road sharing, from both a cyclist and motorist perception. All comments can be found at appendix B4, with the following representing key themes on what would encourage greater cycling:

- Extend the current dedicated Bobridge bike track to Williamstown. Then the Barossa is properly covered from south to north with a dedicated track.
- Bike lane between Roseworthy Campus and Gawler. Currently Redbanks Road is extremely dangerous. Paving College Road between Roseworthy Township and Roseworthy campus. It's a bone shatteringly bumpy (ride).
- A complete off road track between more of the major towns. The Amy Gillett track in the Adelaide Hills and the Jack Bobridge track between Gawler and the Barossa are brilliant. Riding on the road from Williamstown to Lyndoch and back or Williamstown to Birdwood or Mt Pleasant feels like choosing to put my life at risk. Guard rails create a very limited space to escape when fast or large vehicles pass. A continuous connection would provide a brilliant improvement and inducement for older people like me to ride more often and with more ease of access.
- A cycling lane around the Freeling area would be beneficial.
- Roads without holes in them.

## Barossa Cycling

The Barossa Council has approximately 40km of dedicated cycling / pedestrian paths. When asked, 86 per cent of Barossa residents were aware of the dedicated infrastructure.

To complement and encourage cycling as part of the Bike Friendly Barossa Project, the Barossa cycling website offers a wealth of information on cycling and the degree of difficulty of local paths, 58 per cent of residents were not aware of the website.

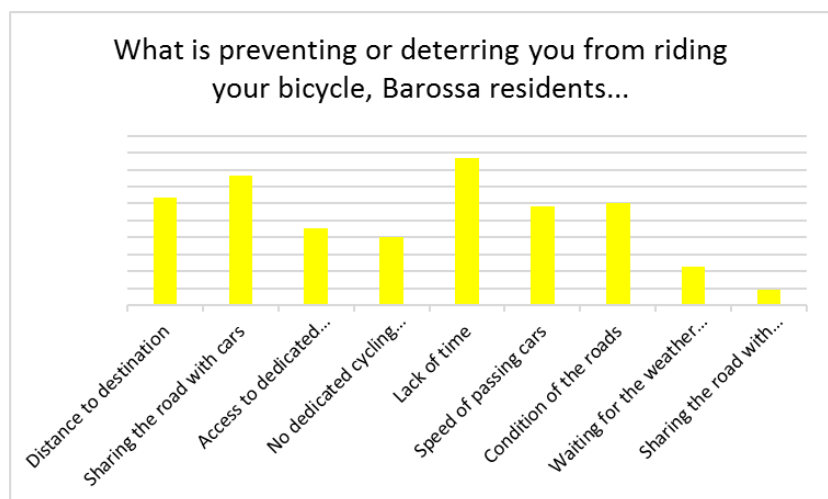


Figure 24: Issues deterring Barossa residents from cycling

Lack of time, sharing the road with cars and distance to destination were the top three reasons deterring people from riding more in the Barossa.



### Light Cycling

The greatest deterrents to riding a bicycle in the Light region are: distance to destination, sharing the road with cars and access to dedicated cycling paths.

The Light Regional Council district has a significant network of cycling routes, including:

- Kidman trail
- Mawson trail

Both of these trails allow long distance riding options through the region and are comprised of little used country roads, fire tracks and unused road reserves while generally avoiding busier routes. The local

Hewett shared path connects the Jack Bobridge path with the Stuart O’Grady network. Hewett is situated on the outskirts of Gawler and represents a small geographic area of the Light District Council region.

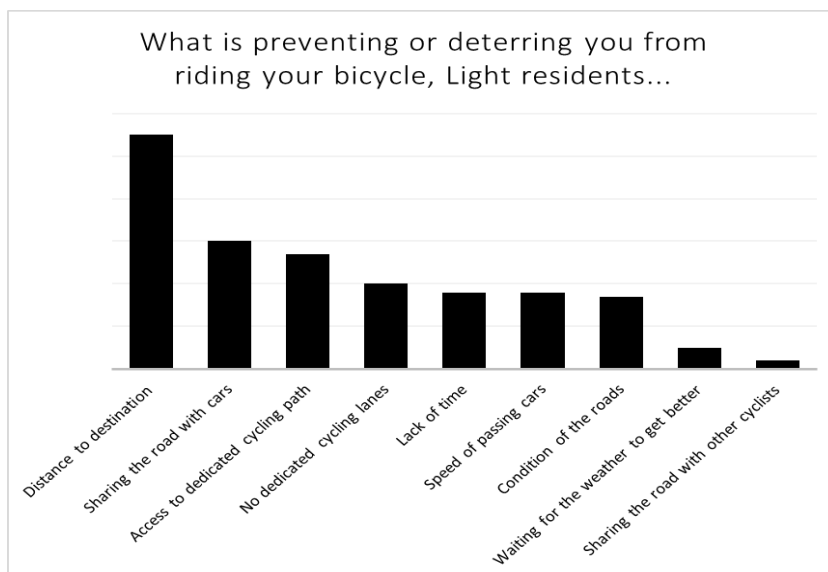


Figure 25: Issues deterring Light residents from cycling

### Walking

Motorists traditionally walk at some point in the journey so active mobility and improving people’s choices provides an opportunity to look at the walking journey and how this can be enhanced.

When asked, 85 per cent of Barossa residents walked regularly, along with 78 per cent of Light residents. Residents of Barossa are more likely to find pedestrian access easier than Light district. Nearly 40 percent of Barossa residents believe there are not enough formalised pedestrian crossings along the main streets of towns, compared to 30 per cent in Light.

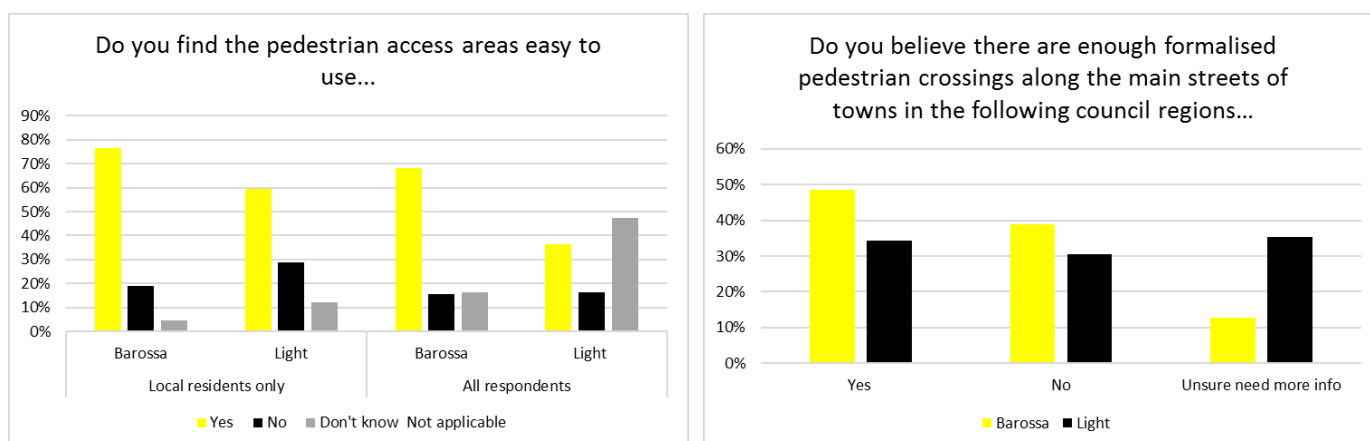


Figure 26: Perception of pedestrian facilities in the region

We were interested in what would encourage Members to walk more often. Responses focused on safety initiated by improved infrastructure, including:

- Paths
- Lighting
- Pedestrian crossings and
- Road surfaces

All responses can be found in appendix B5, with specific comments including:

- It's hard for people who use mobility aids to walk around the town.
- Paths need to be properly paved and even. A lot of paths are dirt / gravel. Change this and more people would be willing to walk.
- The introduction of some interesting walking options in the Valley.
- Very little pedestrian crossings in every town's main street making it unsafe as there is usually high traffic flow.
- Better footpaths. You have to walk on the road because the footpaths are uneven and made of poor quality gravel. An example is the footpath North from Tanunda Main Street along Murray Street the aged concrete footpath is dangerous to walk on. Also conflict with cyclists on the narrow footpath.
- Better footpaths, more crossings, safer lighting.
- Better and safer footpaths in the township area. They are generally very poor standard and are a hazard for the elderly and young alike. Much work needs to be done on this subject in particular the main street pavement.

## Alternative Transport

Regional centres typically have limited alternative transport options outside of private vehicles. The Barossa and Light regions are on the outer edges of metropolitan Adelaide. Gawler is well serviced with public transport and LinkSA provide a comprehensive route distribution throughout the regions, albeit with a restricted timetable.

Across both Barossa and Light regions, people do not feel there is adequate alternative transport options when a personal car is not available. Nearly four of five residents in both regions felt alternative transport options were inadequate, (76% Barossa, 81% Light).

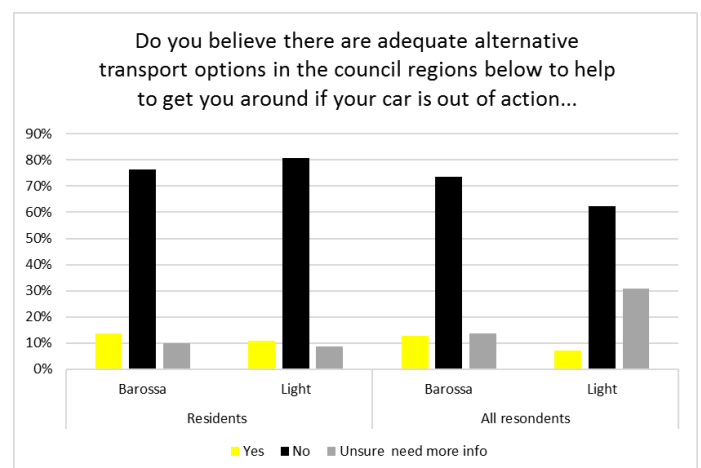


Figure 27: Respondents are concerned at the lack of alternate transport options in the region

## Community Transport

Barossa and Light Community Transport is coordinated from the Barossa Council, offering a once a fortnight community bus shopping service through both the Barossa and parts of Light as far south as Elizabeth. To compliment this is the Community Car Service, a door to door service for medical and other appointments. Both services are “fee for service”, with an opportunity for reimbursement through some public hospitals.

The majority of residents are aware of the Community Transport service in both Barossa and Light regions (68% and 52% respectively). Barossa residents are more likely to know someone who has utilised the service than Light residents (52% to 27%).

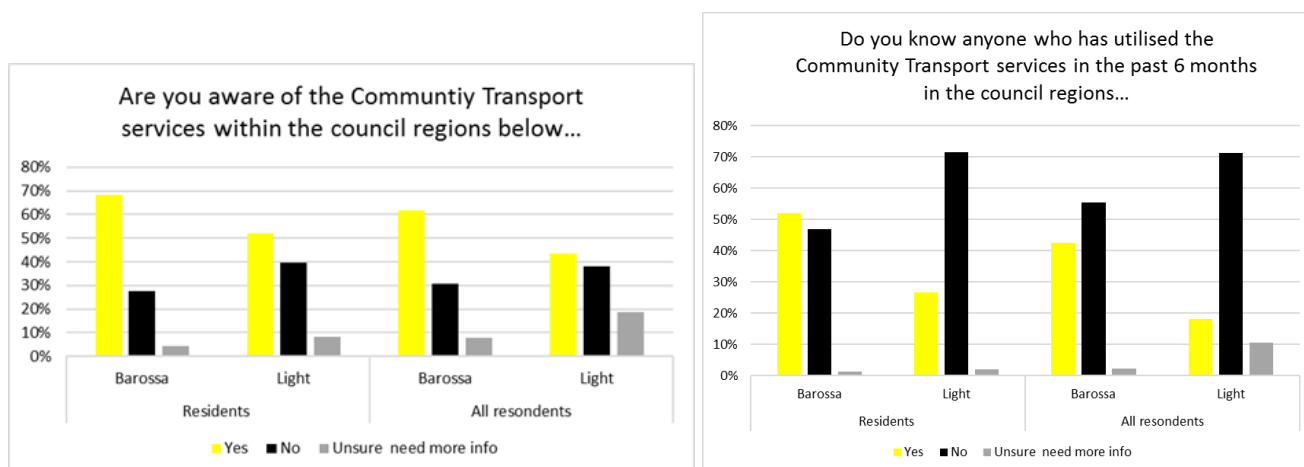


Figure 28: Perception and use of community transport services in the region

It is evident Community Transport is a relied upon transport mode in the region, improving access for the most vulnerable, at risk or lacking mobility options is also evident.

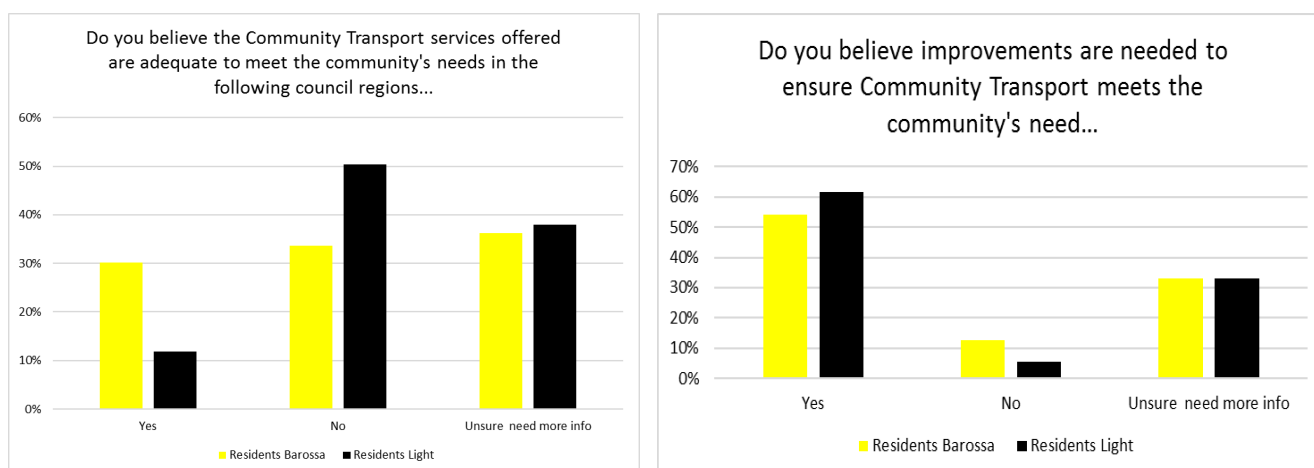


Figure 29: Perception of community transport services and weather Members believe improvements are required

Improvements in the Community Transport services were supported in both regions, more so in the Light district. Themes were consistent and while the question related to community transport, it became evident respondents felt a holistic approach to alternative transport was needed, improvements included:

- Access to services
- Train – reinstate train services
- Better information about services

- Provide feeder services to Gawler train line
- Flexibility
- Simplified and connected service delivery
- Hop on hop off bus both council regions
- After hours options

The comprehensive list of respondent's comments can be sourced at Appendix B6, with the following articulating wider sentiment:

- The Community Transport is a brilliant concept, and I have had cause to use it myself, but the conditions exclude children and teenagers getting from one town to another. There needs to be a bus service (or, heaven help, us redo the rail line!!!) that allows easier access to outlying towns, or to Gawler.
- Hop-on-hop-off bus between Tanunda, Nuriootpa and Angaston, at discount to locals and well into evenings to facilitate restaurants and pubs.
- Needs to be more available to offer a service as so many of these persons who help with this service are older and many retired hence unable to do lots of work, whereas if persons could be paid for this type of job would get younger, fitter persons interested to help and be around more.
- Transport to and from Adelaide. Lots of people live in the Barossa and work in Adelaide, and lots go the other way. There is just no way to get to and from the city in time for work, and vice versa. And when tourists stay in the Barossa there is no way to get around. My mum stayed for a week recently and could find no information on buses around the valley, tourists require cars, and we need to offer a better way to get around.
- Regular public transport should be available to all. Volunteers do a wonderful job, but paid drivers with experience would be a more professional option. Our community of aged persons should be better catered for.
- Proper and regular passenger bus services and a rail network extension linking the Barossa and Light areas to the suburbs and city.
- We live in Light Regional Council western end within 15 minutes from Gawler. We need access to a bus service. Roseworthy, Freeling, Wasleys. Even Kapunda. Considering both regions are not far from Gawler a bus service to the train stations would be very helpful.

### Regional Taxi and Ride Sharing Services

Taxi and Chauffeur cars have long operated in a market with limited disruption, The introduction of app-based ride sharing services like Uber has changed the face of fare based services.

Uber was granted official accreditation to operate in April 2017, this followed the 2015 review of the taxi and chauffeur industry and subsequent 2016 legislation being introduced into State Parliament.

Regional towns often have limited alternative transport options, Taxi and Chauffeur services are limited, with little or no regular public transport. App-based Ridesharing offers a localised alternative option.

Approximately one in five Barossa residents had used a Taxi service in the local area in the past six months, this was slightly less for residents of Light. Very few residents of either district had utilised an app-based ridesharing service over the same time.

Residents would consider an app-based ridesharing service in the future. Barossa District residents are more inclined than Light residents (35% and 26% respectively).

Uber does appear to provide services to the area however we are currently unaware of how regular services are, or how many (if any) drivers are actually based in the Barossa and Light region. There is an opportunity for additional marketing here for ride sharing services that provide services in the Barossa and Light region to make up for the shortfall of other alternative transport options.

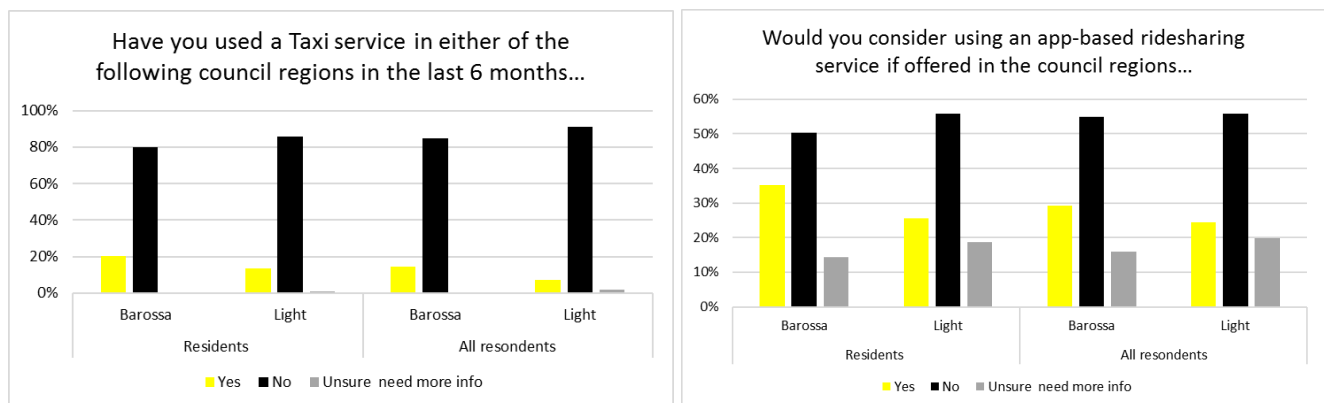


Figure 30: Responses on taxi use and perception of app-based options

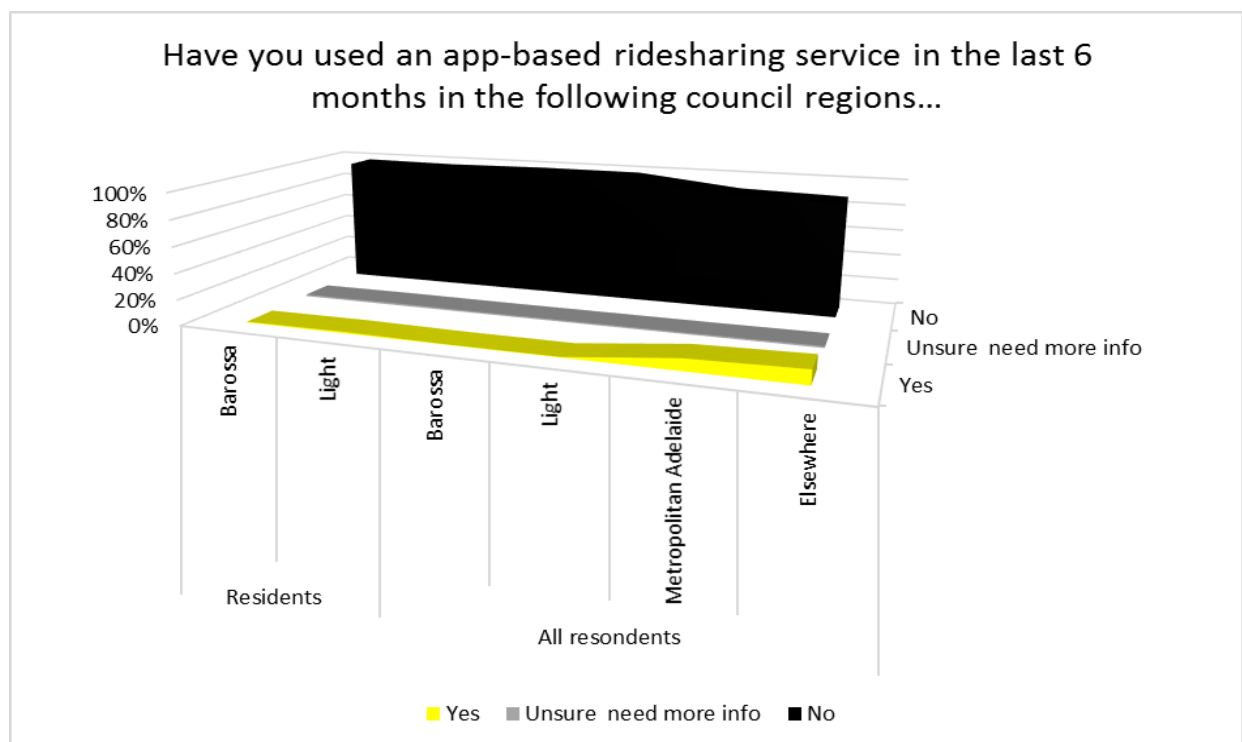


Figure 31: The majority of respondents had not used an app-based ridesharing service in the past 6 months

## Site Investigation Details and Recommendations

The following section details the locations assessed during our four day assessment of the region. Issues that have been identified following our investigations are discussed as well as recommendations to improve safety on the road network. Most observations, notes and recommendations in the report are predominantly based on the conditions observed at the time of our visit. All site investigations were completed between 1 August 2017 and 4 August 2017.

Please note the following points:

Crash data referred to in this report refers to data between 2011 and 2015. Data for 2016 was released mid-way through writing this report and has only been used when directly referred to.

Traffic volume data in this report is provided by DPTI on data.sa and is the sum of traffic travelling in both directions passing a Roadside observation point over the period of a full year divided by the number of days in a year.

Abbreviations used for recommendations include LRC (Light Regional Council), BC (The Barossa Council) and DPTI (The Department of Planning Transport and Infrastructure)

Road widths reported are single localised measurements unless otherwise stated and may not be fully representative of the length of road in all cases, however provide a snapshot of the section of road.

### Horrocks Highway

The section of Horrocks Highway assessed by RAA was between Gawler and Tarlee and is a state maintained road. Horrocks Highway was again nominated many times by our survey of Members in the Barossa and Light region.

*Horrocks Highway – Roseworthy to Tarlee in particular ... This is a major crash site waiting to happen due to the speed (100) and very large undulations, used by B-Doubles, Semi's and Domestic Traffic. At highway speeds these trucks can and do move into oncoming traffic.*

*RAA Member*

Horrocks Highway was the second highest nominated road in in RAA's 2017 Risky Roads campaign early in 2017, only behind Main South Road. The primary concerns raised by Members related to undulations and an uneven surface between Roseworthy and Clare. As this tourism region assessment encapsulates the Barossa Tourism Region, the section between Tarlee and Clare will be assessed by RAA at a later date.

#### Road Width

Location	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Width
Roseworthy	2.8m (incl. parking)	3.6m (NB)	3.5m (SB)	1.6m	11.5m
Near Fyfe Road	1.8m	3.4m (NB)	3.3m (SB)	1.9m	10.4m



## *Traffic Volumes*

This section of Horrocks Highway carries up to up to 6300 vehicles per day south of Roseworthy and 3300 to 4600 vehicles per day between Roseworthy and Tarlee. Between 7% and 10% of these are commercial vehicles.

## *Crash History*

Between 2011 and 2015, 21 casualty crashes were recorded between Gawler and Tarlee. The most common crash type was hit fixed object (6) followed by roll over (5). All 11 of these were single vehicle crashes with the primary cause in 9 of these attributed to inattention.

## *Speed Limits*

The speed limit out of Gawler is 80km/h, with the 100km/h section beginning after the junction with Thiele Highway. The speed limit is reduced to 60km/h through Roseworthy and 80km/h through Templers. The speed limit is stepped down on the approach to Tarlee, with an 80km/h buffer zone before the 60km/h zone into Tarlee.

## *Conditions*

The condition of Horrocks Highway was generally fairly good between Gawler and Roseworthy with some minor texture issues noted, specifically a large undulation in the northbound lane just beyond the Thiele Highway junction.

From Roseworthy through to Tarlee, frequent undulations and rutting was experienced as well as significant aggregate polishing which may cause the surface to become slippery especially in wet weather. There were some uneven surface signs however it is recommended that more are installed. It is very important that these are only installed as a short term measure whilst funding is sought for large scale improvements to the highway. In the medium term, it is important that Horrocks Highway is considered for major works to improve the surface. The undulations in the road are a major safety concern and have the potential to cause serious incidents such as truck rollovers, particularly when they are located around curves.



*Figure 32: Example of the polished surface and bleeding along the majority of Horrocks Highway.*

There were numerous unprotected stobie poles, including one on the outside of a bend north of Templers. Also north of Templers, it was noticeable that trees were closer to the road, and were generally not protected by any form of hazard barrier. It is recommended that more barrier protection is provided along Horrocks Highway to protect motorists from roadside hazards.



Curve signage was generally good however some advisory speeds were missing. The use of guide posts was generally good along the highway and around curves, however there were numerous curves lacking W-Beam barrier protection.

We welcome the wide sealed shoulders for the majority of the highway assessed and this safety feature is certain to prevent numerous run off road type crashes. There are however locations where the sealed shoulder width could be increased.

In the southbound direction on approach to Templers (Just before the end of the southbound overtaking lane) there is a G1-1 two panel advance direction sign indicating Adelaide and Gawler ahead, and Freeling and Nuriootpa at the left turn off (Templers Road). There is however no indication until a driver is at the intersection that they can turn right to Owen Road towards Hamley Bridge. It is recommended that a G1-3 offset side roads advance direction sign is installed to replace the current sign. Alternatively a three panel advance direction sign could be installed including reference of the right turn onto Owen Road.

## Roseworthy Road junction

RAA stopped in Roseworthy to examine the junction at Roseworthy Road where some issues were raised in the survey regarding congestion and sight distance issues.

This intersection was a typical 4-way intersection with good sight distance when no vehicles are parked along the western side of Horrocks Highway. Traffic was a consistent mix of heavy vehicles, farm machinery and passenger vehicles. It was noted that east-west heavy vehicle movement across Horrocks Highway onto Gartrell Street was quite common.

At the time of our inspection there were no vehicles parked along the western side of Horrocks Highway however it is envisaged that if vehicles (Especially tall or wide vehicles) were parked in the dedicated parking zone closest to Gartrell Street, sight distance to the north would be considerably compromised when turning right out of Gartrell Street. It is recommended that parking is restricted on the western side of Horrocks Highway for approximately 20m north of Gartrell Street to improve sight distance.

It was also noted that Heavy Vehicles turning right from Roseworthy Road onto Horrocks Highway would have additional space to manoeuvre if this recommendation was implemented and it was evident by observing the movements of these vehicles that they use this space to increase their turning circle when it is available.



Figure 33: Sight distance looking north from Gartrell Street with a vehicle parked along Horrocks Highway

It is also recommended that line marking is refreshed, and G2-2 or G2-5 advance direction signage is installed on Horrocks Highway indicating the upcoming intersection with Roseworthy Road.

#### Ashwell Road Junction

RAA also assessed the junction of Ashwell Road and Horrocks Highway. Significant gravel had been spread onto the Highway, and the sealed apron on Ashwell Road was in a very poor state with significant potholing. Sight distance was good. This junction was typical of many junctions between Horrocks Highway and unsealed roads. It is recommended that DPTI review and re-seal the aprons on unsealed roads where applicable.



Figure 34: Ashwell Road intersection, typical of unsealed junctions with Horrocks Highway.

Horrocks Highway (Gawler to Tarlee) - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>As a priority, improve the surface of Horrocks Highway to remove numerous significant undulations. In the interim, additional uneven surface signs may be required, however this must only be used as a short term measure to warn of the poor surface.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install additional W-Beam barrier protection to shield motorist from numerous roadside hazards such as stobie poles and large trees.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install additional W-Beam barrier protection on some curves.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install G1-3 'Offset Side Roads' advance direction sign in the southbound direction before the intersection with Templers Road/Owen Road as there is no prior signage indicating the right turn onto Owen Road. This sign would replace the current two panel sign indicating the left turn onto Templers Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Review parking on the western side of Horrocks Highway, north of Gartrell St/Roseworthy Road, and if feasible – restrict parking for approximately 20m north of Gartrell Street to improve sight distance when vehicles are parked here.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Refresh the line marking at the Gartrell St/Roseworthy Road intersection.</li> </ul>	DPTI

<ul style="list-style-type: none"> <li>Install either G2-2 or G2-5 'advance direction' signs indicating the upcoming intersection with Roseworthy Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Review junctions with unsealed roads and Horrocks Highway to install, or improve the generally poor quality of sealed aprons that are provided at some intersections.</li> </ul>	DPTI

## Thiele Highway

RAA assessed Thiele Highway between Gawler and Eudunda as a part of this tourism region assessment. It is intended that the section between Eudunda and Morgan will be undertaken at a later date. Thiele Highway is a state maintained road and received many complaints in our Member survey, predominantly regarding the undulating surface, lack of overtaking lanes and speed limits in the vicinity of Freeling.

Thiele Highway also received a number of nominations in our 2017 Risky Roads campaign.

### Road Width

Section	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Width
Gawler - Kapunda	0.8m	3.3m (NB)	3.3m (SB)	0.8m	8.2m
Kapunda - Eudunda	0.2m	3.5m (NB)	3.4m (SB)	0.4m	7.5m

### Traffic Volumes

Traffic volumes between Gawler and Kapunda range from 2900 to 4700 vehicles per day, north of Freeling commercial vehicles make up approximately 11% of all vehicles.

Between Kapunda and Eudunda, traffic volumes are approximately 1600 vehicles per day, with 10% commercial vehicles.

### Crash History

Thiele Highway between Kapunda and Gawler indicates a total of 25 casualty crashes between 2011 and 2015. 1 of these was a fatal crash, 4 resulted in serious injuries and 20 resulted in minor injuries. 7 of these crashes (4 right angle, 3 rear end) occurred at the intersection with Roseworthy Road that is currently being upgraded. Of the remaining 18 crashes, 13 of these were single vehicle crashes where a vehicle left the road, hit a fixed object or rolled over and 12 of these 13 were attributed to inattention.

### Speed Limits

Thiele Highway has a speed limit of predominantly 100km/h. The speed limit is graduated into 50km/h via an 80km/h buffer zone before Kapunda and Eudunda. The use of '60 ahead' and '50 ahead' signage on the approaches to Kapunda is also positive, and this treatment is recommended on the approaches to Eudunda as well. The speed limit past Freeling was 100km/h which must be assessed and will be discussed in more detail later in this section.

### Conditions

#### Gawler to Kapunda

Thiele Highway exhibited a significantly undulating and corrugated surface in numerous places. The surface was highly polished and displayed signs of rutting in the wheel paths for the majority which could reduce skid resistance, especially in the wet.

Following the intersection with Roseworthy Road there are numerous unprotected stobie poles on the western side of Thiele Highway. Some stobie poles are protected with W Beam crash barrier which is welcomed, but further protection needs to be added to improve general safety.

The road is largely consistent with satisfactory lane widths and reasonably wide sealed shoulders. There was evidence of re-sealing and localised repairs in some locations and the surface was generally better in these locations.

A number of drop offs are protected by barriers which is positive to take note of.

No defined overtaking lanes were identified between Gawler and Kapunda however numerous opportunities to overtake are presented along this segment of Thiele Highway. It is recommended that an overtaking lane is installed in each direction.

### Kapunda to Eudunda

Initially, there are no edge line markings when leaving Kapunda and it is recommended that edge line markings are painted to improve visibility of the road edge. The road is highly polished, primarily in the wheel paths reducing skid resistance.

The lane widths are satisfactory however there are little to no sealed shoulders for the most part. It is recommended that shoulder widening is considered for this section of Thiele Highway.



*Figure 35: Sealed shoulders were generally very narrow between Kapunda and Eudunda*

Guide posts are prevalent assisting with delineation, and line marking is generally satisfactory.

There are a number of curves that don't have barrier protection and some of these have drop offs and/or trees on the outside of the curve. Vegetation also begins to encroach onto the road reserve, approximately 2-3 metres from the road edge in some locations.

Significant undulations were present on the road in the vicinity of Phillip Road (Buchanan). Corrugations and undulations seem to occur more regularly north of Phillip Road through to Eudunda.

There is a gradual right hand curve (northbound) north of Wandel Road with chevron alignment markers. These markers are useful indicators of the curve ahead however were faded and needed replacement. W Beam protection should also be considered for this curve.



There were no defined overtaking lanes between Kapunda and Eudunda in both directions and it is recommended that at least one overtaking lane is installed in each direction to allow safer overtaking manoeuvres.

RAA also assessed a number of intersections with Thiele Highway.

### Roseworthy Road Junction

This current upgrade to this intersection was underway at the time of our assessment however the improvements made have been largely very positive in increasing safety.

Very large 'prepare to stop' signage has been duplicated on both Roseworthy Road approaches, and LED Stop signs that illuminate when a vehicle approaches have also been installed. The road has been significantly widened and right turn filter lanes have been installed on Thiele Highway. Exposed stobie poles are present on three of the four corners of the intersection however. It was also noted that there does not appear to be any street lighting at this stage.



*Figure 36: The Roseworthy Road junction was undergoing a major upgrade at the time of our site assessment.*

RAA welcomes the approximately \$1M in black spot funding directed at this project as well as the work by Light Regional Council and DPTI to get this project off the ground.

RAA will re-assess the intersection when upgrade works are fully completed.

### Gray Street Junction

RAA assessed this intersection and identified a number of minor improvements that could be made to improve the overall safety. Safety could be further improved by installing a 'give way' sign and corresponding line markings for traffic turning onto Thiele Highway from Gray Street. Edge line marking was missing in the left turn slip lane into Gray Street which if installed, will aid in delineation.

Line marking was very faded and needs to be refreshed.

The surface of Thiele Highway just north of the intersection is failing and is exhibiting significant cracking and polishing. It is recommended that localised repair work is carried out to improve the quality of the surface in this location.

It was also noted that the centre line just north of the intersection implies that overtaking is permitted. It is recommended that a double unbroken dividing line is painted between Gray Street and the crest to the south to prevent unsafe overtaking manoeuvres in this location.

#### Hanson (Templers) Street Junction

The intersection of Hanson Street, Thiele Highway and the nearby Daveyston Road was raised in the Member survey and was investigated by RAA. The primary concern identified is the high 100km/h speed limit combined with the frequency of traffic making the movement from Hanson Street across Thiele Highway onto Daveyston Road and vice versa.

As growth in Freeling is increasing rather rapidly it is expected that this movement will become even more frequent as well as right turn movements onto Thiele Highway, especially from Hanson Road.

In 2016, there were 2 casualty crashes at the intersection of Hanson Road and Thiele Highway. Both of these crashes involved vehicles turning right onto Thiele Highway and failing to give way to northeast bound traffic. Also in 2016 there was 1 casualty crash involving a vehicle turning right from Daveyston Road disobeying the stop sign and colliding with a motorcycle travelling southwest on Thiele Highway.

The intersection layout, sight distance and lighting were generally sufficient and no major changes need to be made to this, however it is strongly recommended that DPTI considers a speed limit reduction to 80km/h past Freeling in the vicinity of this intersection. The current casualty crash rate of 3 casualty crashes through this section in 2016 alone is very concerning.

#### Borrow Street Junction

The junction of Borrow Street, Thiele Highway and Leske Road was also investigated and traffic volumes on Borrow Street and Leske Road appeared to be generally quite low.

The primary concern identified was the poor quality of the sealed apron and line marking on Leske Road. It is recommended that the Leske Road apron is re-sealed and line markings refreshed.

Thiele Highway - Key Recommendations		Authority
<b>Gawler to Kapunda</b>		
▪ Improvements to rectify localised and significant undulations in the surface.		DPTI
▪ Install an overtaking lane in each direction.		DPTI
▪ Further protection of stobie poles.		DPTI
<b>Kapunda to Eudunda</b>		
▪ Install edge line marking just north of Kapunda.		DPTI
▪ Construct wider sealed shoulders.		DPTI
▪ Repairs to improve the undulating surface, particularly between Buchanan and Eudunda.		DPTI
▪ Install at least one overtaking lane in each direction.		DPTI
▪ <b>Gray Street Junction</b>		

<ul style="list-style-type: none"> <li>Install R1-2 'Give Way' sign and corresponding line marking on Gray Street.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install edge line marking in the left turn slip lane from Thiele Highway onto Gray Street.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Localised repairs on Thiele Highway just north of the intersection to repair significantly failing surface.</li> </ul>	DPTI
<p>Install double unbroken dividing line between Gray Street and crest to the south to prohibit overtaking in this short section.</p> <p><b>Hanson Street/Daveyston Road Junction</b></p> <ul style="list-style-type: none"> <li>Strongly consider reduction of speed limit to 80km/h due to vicinity of built up area (Freeling) and the high volumes of traffic continuing from Hanson Street onto Daveyston Road (and vice versa).</li> </ul> <p><b>Borrow Street Junction</b></p> <ul style="list-style-type: none"> <li>Re-seal Leske Road apron and refresh line-markings.</li> </ul>	DPTI

## Sturt Highway

Sturt Highway is a state managed highway and is a key freight link to the Riverland and interstate. Most complaints received in the Member survey referred to the section between Nuriootpa and Truro, with numerous calls for duplication of this section or installation of additional overtaking lanes. The intersection with Murray Street in Nuriootpa also raised some concern amongst Members.

### Road Width

Section	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Width
Nuriootpa – Truro [Estimate only]	0.9m	3.7m (EB)	3.7m (WB)	0.9m	9.2m

### Traffic Volumes

- Horrocks Highway – Gomersal Road: 13200 (16% commercial)
- Gomersal Road – Daveyston Road: 9600 (16.5% commercial)
- Daveyston Road – Adelaide Road: 10700 (18% commercial)
- Adelaide Road – Sir Condor Laucke Way: 9400 (18% commercial)
- Sir Condor Laucke Way – Old Kapunda Road: 6100 (23% commercial)
- Old Kapunda Road – Murray Street: 5700 (26.5% commercial)
- Murray Street – Carrara Hill Road: 6300 (22% commercial)
- Carrara Hill Road – Truro Road: 4500 (22% commercial)
- Truro Road – Truro: 4700 (23.5% commercial)



### *Crash History*

There were 44 casualty crashes on this section of Sturt Highway or intersections with Sturt Highway between 2011 and 2015. 33 resulted in minor injuries, 7 resulted in serious injuries and 4 resulted in a fatality.

17 crashes occurred at an intersection, 18 crashes occurred on a divided section of road and 9 crashes occurred on an undivided section of road.

### *Speed Limits*

The Speed Limit on Sturt Highway is 110km/h along the section assessed.

### *Conditions*

Sturt Highway was travelled in a south-westerly direction from Truro through to Gawler.

The condition of the surface was noted to be in reasonable condition for the most part with some localised undulations and cracking that are due for rehabilitation.

Reflective pavement markers are used extensively on edge and centre lines which strongly assist in enforcing lane markings at night and during adverse weather.

Roadside Hazards are generally well protected however there were some exposed stobie poles and trees close to the south side of the highway southwest of Research Road.

The acceleration lane entering Sturt Highway from Murray Street (Nuriootpa) is relatively long which allows time for traffic to merge safely. However, as the acceleration lane is so long, it is advisable that W4-9 'left lane ends' and G9-73 'merge right' signage is installed to indicate the upcoming lane change from two lanes into one. This signage combination is effectively used when the additional lane west of Bastion Hill Road ends and the additional lane west of Carrara Hill Road ends.

At the intersection of Old Kapunda Road and Sturt Highway, an additional lane is introduced in the south-west direction. Initially this lane is an acceleration lane for traffic entering from Old Kapunda Road and becomes an additional lane for approximately 2 kilometres. While this lane is welcome, there is a lack of compliance with vehicles keeping to the left unless overtaking. This is not a deliberate act by motorists because the road design leads vehicles into the right hand lane and motorists do not always make the lane change manoeuvre required to keep in the left lane. One R6-29 'keep left unless overtaking sign' was noted, however an additional sign may be of use to reinforce this rule. Although this signage is not required for a speed limit greater than 80km/h, it would be of use to motorists who are not expecting to need to make a lane change.

Incorrect use of the 'Form 1 Lane' signage was also noted at the end of this extra lane as this signage specifies a zip merge rather than a lane change. It is recommended that this sign is replaced with a G9-73 'merge right' sign as effectively used when the additional lane west of Bastion Hill Road ends as well as when the additional lane west of Carrara Hill Road ends.

At each of these locations (west of Bastion Hill Road, west of Carrara Hill Road, west of Old Kapunda Road, but not necessarily west of Murray Street) it is recommended that a W5-35 'added lane' with W8-26 supplementary plate is installed as per AS 1742.2.

It was also noted that there were few overtaking opportunities in the northwest direction between Greenock and Stockwell. It is recommended that consideration is given to the installation of an overtaking lane in the northwest direction, perhaps in the vicinity of Nuriootpa.

Wire rope and W beam safety barrier was used extensively southwest of the Sir Condor Laucke Way overpass significantly reducing the risk of run off road and head on crashes. The road surface was generally in good condition throughout this dual carriageway section, and shoulders were sufficiently wide.

There was a significant depression on Sturt Highway in the kerbside northeast-bound lane just to the north of Gomersal Road. It is recommended that remedial action is taken to repair this depression.

The intersection of Sturt Highway and Murray Street (Nuriootpa) was inspected in further detail, which is discussed later in this report.

Sturt Highway - Key Recommendations				Authority
▪	Install W4-9 'left lane ends' and G9-73 'merge right' signs to indicate the upcoming lane change from two lanes into one at the end of the Murray Street acceleration lane.			DPTI
▪	Install a second 'Keep Left Unless Overtaking' sign in the Old Kapunda Road acceleration lane/overtaking lane.			DPTI
▪	Replace 'Form 1 Lane' signage with G9-73 'Merge Right' sign at the end of Old Kapunda Road acceleration lane/overtaking lane			DPTI
•	Install W5-35 'added lane' signage in 3 locations where an extra lane is added; west of Bastion Hill Road, west of Carrara Hill Road and west of Old Kapunda Road			DPTI
▪	Install an overtaking lane in the northwest direction in the vicinity of Nuriootpa.			DPTI
▪	Repair significant depression in kerbside northeast bound lane north of Gomersal Road			DPTI

## Gomersal Road

Gomersal Road is a state maintained road connecting Sturt Highway and Tanunda. There are no major settlements in between however there are numerous unsealed roads branching away from Gomersal Road leading to key tourist destinations in the region. Heavy vehicles and farm machinery frequent this road during peak periods due to the number of vineyard access points in the vicinity of Gomersal Road.

### Road Width

Location	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Width
Near Rosedale Road	1.0m	3.5m (EB)	3.6m (WB)	1.0m	9.1m

The road width is good in some locations however it varies along the length of Gomersal Road. Some locations had shoulders 1 metre in width, but there were numerous areas where shoulder widths were significantly narrower and it is recommended that shoulders are widened to at least 1m along the length of Gomersal Road.

### Traffic Volumes

Average traffic volumes along Gomersal Road are approximately 3200 vehicles per day made up of 10% commercial vehicles.

### *Crash History*

A total of 14 casualty crashes occurred on Gomersal Road between 2011 and 2015. 8 of these were 'hit fixed object', 'roll over' or 'left road – out of control' type crashes, with 6 attributed to inattention, 1 to D.U.I and 1 to overtaking without due care.

### *Speed Limits*

The speed limit for the majority of Gomersal Road is 90km/h, and the speed is reduced to 80km/h for the short section to the east of Golflinks Road.

### *Conditions*

Minor undulations were noticed along Gomersal Road however these were not as significant as some of the other routes assessed. The surface was highly polished which negatively impacts on skid resistance, especially in wet conditions. High pressure water treatments have been previously tested by RAA to improve the macrotexture of the road surface and increase skid resistance in the wet and it is recommended that this treatment is considered on the approach to intersections and on corners.



*Figure 37: A highly polished carriageway next to recent installation of ATLM and shoulder widening*

There has been some use of W beam barrier to protect motorists from hazards however unprotected roadside hazards still exist.

Some side roads have very short and narrow left turn lanes. Due to the length of these lanes, their effectiveness is significantly limited and it is recommended that these lanes are made longer and wider to allow vehicles to fully utilise them.



*Figure 38: Short and narrow left turn lanes are not very effective*

Line marking was generally good and significant use of ATLM along the length of Gomersal Road is very welcome. This treatment has unfortunately not been used much in the region and greater use would be beneficial in ensuring motorists do not deviate from the travel lanes.

There was a complaint regarding poor sight distance at the intersection of Gomersal Road and Sturt Highway due to overgrown vegetation. At the time of our investigation, vegetation was at a suitable level and did not compromise sight distance. It is recommended that council continue to monitor the vegetation at this intersection as there is definite potential to restrict sight distance if not maintained.

At the intersection of Rosedale Road, line marking was very poor following a recent apron seal. It is recommended that edge lines are refreshed, that continuity lines are painted to separate the left turn lane and missing give way line marking is painted near the Give Way sign. Numerous guide posts were knocked over indicating that the left turn from Rosedale Road onto Gomersal Road is too narrow for some vehicles, and tyre tracks were noted on the gravel shoulder indicating the same issue. It is recommended that the apron is widened to allow easier turning movements for larger vehicles turning left from Rosedale Road.





Figure 39: missing and faded line marking at the intersection of Rosedale Road

Finally, it was noted that there were no overtaking lanes. It is suggested that at least one overtaking lane is installed in each direction.

Gomersal Road - Key Recommendations		Authority
<ul style="list-style-type: none"> <li>Widen shoulders to at least 1.0m along the length of Gomersal Road.</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>Consider high pressure treatments to improve the surface macrotexture at intersections where surface polishing is prevalent.</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>Further barrier installation to negate the impacts of roadside hazards.</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>Increase the width and length of left turn lanes to improve their efficiency.</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>Install at least one overtaking lane in each direction</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>Vegetation is regularly trimmed at the intersection of Gomersal Road and Sturt Highway to ensure clear sight distance</li> </ul>		LRC
<b>Rosedale Road Intersection</b>		
<ul style="list-style-type: none"> <li>Refresh line marking and install continuity line to separate the left turn lane onto Rosedale Road.</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>Install give way holding line on Rosedale Road.</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>Consider widening the sealed apron on Rosedale Road to assist large vehicles turning left.</li> </ul>		DPTI

## Barossa Valley Way

Barossa Valley Way is a state maintained road and is one of the main thoroughfares through the Barossa Valley and links the major towns and many wineries. It was one of the biggest concerns to Members surveyed in the region with over 70 Members listing Barossa Valley Way as a concern. Of the issues raised, confusing speed limits, poor surface quality, a number of intersections, as well as the segment between Tanunda and Nuriootpa were of the greatest concern.

### Road Width

<i>Location</i>	<i>Sealed Shoulder Width</i>	<i>Lane 1 Width</i>	<i>Lane 2 Width</i>	<i>Sealed Shoulder Width</i>	<i>Total Width</i>
<i>Gawler - Lyndoch</i>	1.2m	3.5m (SEB)	3.1m (NWB)	1.1m	8.9m
<i>Lyndoch - Tanunda</i>	1.1m	3.4m (EB)	3.3m (WB)	0.9m	8.7m
<i>Tanunda - Nuriootpa</i>	1.5m	3.5m (NB)	3.6m (SB)	2.2m	10.8m

### Traffic Volumes

- Gawler – Williamstown Road: 5200 (7.5% commercial)
- Williamstown Road – Yaldara Drive: 3100 (6.5% commercial)
- Yaldara Drive – Lyndoch Valley Road: 2300 (6.5% commercial)
- Lyndoch Valley Road – Steingarten Road : 3400 (7.5% commercial)
- Steingarten Road – Gomersal Road: 3600 (7.5% commercial)
- Murray St (Tanunda): 8000-1000 (4% commercial)
- Tanunda – Nuriootpa: 6800 (7.5% commercial)
- Murray St (Nuriootpa): 5300 – 14600 (4% commercial)

The busiest section of Barossa Way is between Tanunda and Nuriootpa with twice as many vehicles than most other segments of Barossa Valley Way

### Crash History

68 casualty crashes occurred on Barossa Valley Way between 2011 and 2015. 48 resulted in minor injuries, 19 resulted in serious injuries and 1 was fatal. 22 crashes occurred at intersections, 45 occurred on sections of undivided road and 1 occurred at a pedestrian crossing.

The most common crash type by far was ‘hit fixed object’ with 18 crashes of this type. 14 of these were attributed to inattention, 3 attributed to 3 D.U.I and 1 due to a medical episode.

### Speed Limits

The Speed Limit on Barossa Valley Way varies considerably along its length with sections of 50km/h, 60km/h, 70km/h, 80ph and 90km/h. This was a major cause of concern and confusion listed by respondents to the Member survey.

The speed limit after exiting Gawler is 80km/h, which changes to 90km/h following the first overtaking lane west of Kalbeeba Road.

‘70 ahead’ signage is used prior to Sandy Creek where the speed limit is temporarily dropped to 70km/h. The speed limit returns to 90km/h after leaving Sandy Creek.

‘50 ahead’ signage is used prior to reaching Lyndoch, and the speed limit is dropped to 50km/h through Lyndoch with a number of reminder signs.

The speed limit returns to 90km/h upon leaving Lyndoch towards Tanunda.

'60 ahead' signage is used prior to reaching Rowland Flat, and the speed limit is dropped to 60km/h through Rowland Flat. It is recommended repeater speed limit signage should be installed in Rowland Flat as there is no reinforcement of the speed limit prior to Golflinks Road where the surrounding environment may lead people to believe they are in a higher speed environment.

The speed limit returns to 90km/h following the start of the overtaking lane north of Golflinks Road.

'60 ahead' signage is used prior to reaching Tanunda where the speed is dropped to 60km/h then to 50km/h as the road approaches the town centre.

A 50km/h reminder sign is used prior to Menge Road, and the speed limit increases to 80km/h after Vine Vale Road

The speed is reduced to 50km/h into Nuriootpa, however it was noted that no '50 ahead' signage was used prior to the speed reduction. It is recommended that '50 ahead' signage is installed prior to Nuriootpa.

It was also noted that the small speed limit signs used do tend to blend in with the busy surrounds at times, especially for tourists who may be taking in the scenery. It is recommended that speed limit signs on the approach to all towns are increased in size.

It is also recommended that speed limits on Barossa Valley Way are consolidated to provide a speed limit that visitors to the region will find simpler to understand. This would imply that:

- The speed limit through Sandy Creek and Rowland Flat are structured the same by utilising '60 ahead' then '60' signage
- The speed limit through Lyndoch, Tanunda and Nuriootpa is structured the same by utilising '60 ahead' then '60' signage prior to the 50km/h zone through the town centre
- The speed limit for the remainder of Barossa Valley Way is consistently 90km/h outside the built up areas following a number of improvements to facilitate this speed safely.

### *Conditions*

Barossa Valley Way was driven from Gawler through to Sturt Highway.

#### Gawler to Lyndoch

W beam safety barrier has been installed in many locations, however there were still numerous unprotected roadside hazards including large trees and stobie poles.

Cracking was noted in the vicinity of the Rail crossing and 'S Bend' near Sunnydale Avenue that requires repair work.

There were some large undulations and corrugations in the road just to the west of the beginning of the first overtaking lane before Kalbeeba Road. Localised repairs to level the road surface should be undertaken here.

It was also noted that the overtaking appears to be too short. The DPTI operational instruction on overtaking lanes (version 2.15) indicates a minimum length of 950m for an overtaking lane in a 90km/h speed zone in an undulating area, however it is doubtful that this distance is achieved. It is recommended that this overtaking lane is extended to allow sufficient overtaking distance at 90km/h.



The sealed shoulder was generally quite wide and allows sufficient room for cyclists however it is anticipated that most cyclists in this section will be able to use the Jack Bobridge track. This track connects Gawler and Lyndoch by following the old rail line between Gawler and Cockatoo Lane, where it then runs alongside Barossa Valley Way.

Rosedale Road has a protected left turn lane which is positive considering the traffic volumes that use Rosedale Road to reach destinations in the Rosedale region.

The use of reflective alignment markers was also positive along this section of Barossa Valley Way.

The cycle path crosses Barossa Valley Way just to the west of Hermann Thumm Drive, however it was noted that no bicycle or pedestrian warning signage was in place along Barossa valley Way in either direction. It is recommended that W6-9 'bicycle/pedestrian' warning signage is installed on both approaches to this crossing due to the high speed nature of Barossa Valley Way.

The intersection with Hermann Thumm Drive was assessed in further detail and is discussed later in this report.

There is no overtaking lane for westbound vehicles on this section of Barossa Valley Way, and it is recommended that investigation into the installation of an overtaking lane is undertaken.



*Figure 40: Wide shoulders and lanes were good to see on this section of Barossa Valley Way*

### Lyndoch to Tanunda

After leaving Lyndoch and heading towards Tanunda it is noted that the road conditions seem to deteriorate. Positively, the lane and shoulder widths are generally good, however some localised sections of narrow shoulders do need to be widened.

Just after the beginning of the 90km/h zone, there are a large number of trees as close as 2m from the edge line after leaving Lyndoch. These pose a significant hazard if collided with however there is limited space to effectively install W beam hazard barrier between the trees and the road.

It is suggested that graduating to the 90km/h speed limit via a 60km/h speed limit zone (as is the case when exiting Tanunda) is considered which would reduce vehicle speeds near some of these trees. Alternatively, audio tactile edge line marking may be of some benefit to aid in prevention of run off road type crashes.



*Figure 41: Significant trees as close as 2m to the edge line after leaving Lyndoch*

Positively, motorcycle under-runs have been installed on a number of curves with W beam barrier protection to protect motorcyclists from sliding under barriers or colliding with the barrier supports in the case of a crash.

Another welcome sight is the addition of left and right turn lanes into many wineries along Barossa Valley Way, which aid in the reduction of rear end collisions.

North of Rowland Flat, a short overtaking lane begins on the uphill 90km/h zone which is close to the 550m minimum length required in the DPTI operational instruction on overtaking lanes (version 2.15).

Some large trees are protected by W beam barrier, and significant lengths of barrier are installed on the approach to Tanunda.

There is no overtaking lane for southbound vehicles on this section of Barossa Valley Way, and it is recommended that investigation into the installation of an overtaking lane is undertaken.

The intersection of Krondorf Road was assessed and the only issue identified was the reduced sight distance when looking south, which is difficult to overcome given the geography. The Krondorf Road and St Hallett Road approaches are already signed sufficiently, however it is recommended that W2-1 'crossroad' warning signs are installed on Barossa Valley Way approaching the intersection.

The intersection with Barossa Valley Way and Gomersal Road was assessed and will be discussed later in this report.

### Tanunda to Nuriootpa

The section of Barossa Valley Way between Tanunda and Nuriootpa had a far inferior surface quality to the previous segments of Barossa Valley Way assessed. There were many undulations and corrugations experienced as well as significant cracking and polishing of the surface. Shoulder width was generally good, however.

It is recommended that a complete re-seal and pavement rehabilitation of Barossa Valley Way is completed as a priority between Tanunda and Nuriootpa.

Other issues identified were numerous unprotected stobie poles on the eastern side of the road, and unprotected trees on the western side of the road and it is recommended that W beam barrier protection is utilised to protect these roadside hazards.

The intersection with Menge Road and Vine Vale Road (Kroemers Crossing) and the intersection with Sturt Highway were also assessed and are discussed later in this report.

### Hermann Thumm Drive Junction

This intersection was investigated by RAA prior to this road assessment following a fatal crash in January 2017. RAA conducted a road safety audit at the time outlining the following deficiencies:

- Lack of perception of the intersection when travelling towards the intersection on Hermann Thumm Drive resulting in a high risk that motorists will fail to give way.
- Confusing visual cues. Chevron Alignment Markers (CAMs) on the east side of Hermann Thumm Drive are visible from Hermann Thumm Drive and may cause confusion when interpreted in conjunction with the visual bend to the right approaching the give way line.
- CAMs appear to be missing.
- Conflicting signage between CAMs and sight board when approaching the intersection northbound.
- Deteriorating pavement surface on Barossa Valley Way.

The audit recommends installing additional give way signs and holding lines and increasing their size, checking placement and rotation of CAMs whilst applying louvres if required, removing one sight board and rehabilitating the other sight board.

RAA have subsequently submitted a Black Spot nomination for this intersection seeking funding in the 2018-19 financial year. The Black Spot nomination included some additional improvements to street lighting, signage and line marking.



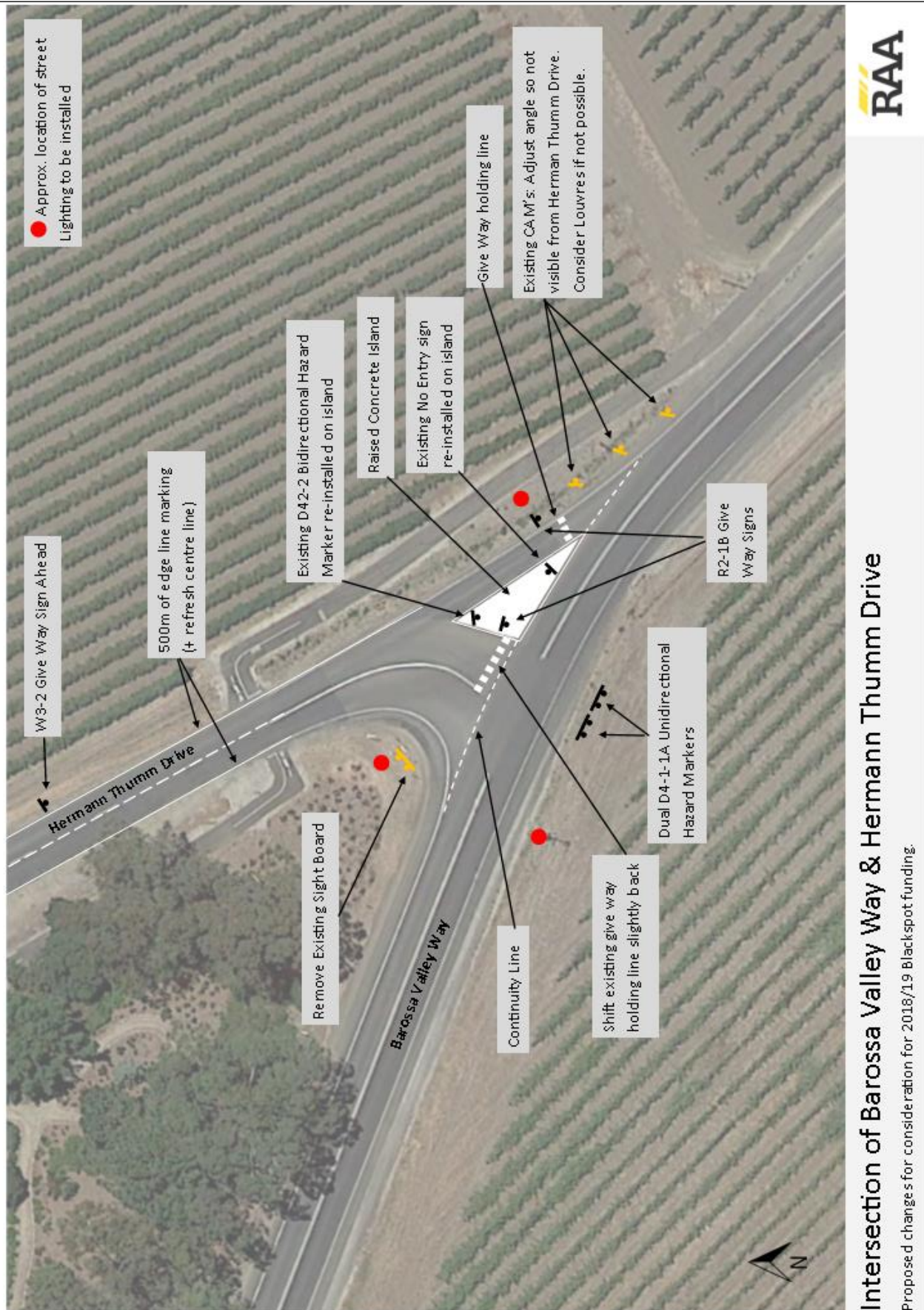


Figure 42: RAA Recommendation submitted for 2018-19 Black Spot funding

## Gomersal Road Junction

This intersection was raised by multiple respondents to the Member survey and the primary concern related to a confusion of priorities with the left turn slip lane onto Gomersal Road.



Figure 43: The left turn slip lane onto Gomersal Road (foreground) causes some confusion with priorities

One Member singled out tourists that get confused at this intersection as they don't appear to know where the road heads or who gives way, whilst others singled out the slip lane in particular citing that it is not clear who has right of way.

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*Where Gomersal Road meets Murray Street – watch tourists – they have no idea where the Road is or goes or who gives way.*

*Turning left from Murray Street (Tanunda) into Gomersal Road there is a slip lane, it is not clear who has right of way.*

*RAA Members*

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Our investigation concluded that the directional signage in the area was clear and provided sufficient directions well in advance of the intersection. The alignment of the intersection travelling along Barossa Valley Way was quite clear, however some additional raised reflective pavement markers (RRPMs) would improve delineation, especially at night.

When approaching the intersection along Gomersal Road, the 'give way' sign is fairly inconspicuous as nearby vegetation was partially obstructing it. It is recommended that this give way sign is shifted in front of the trees (approx. 10m southwest) and enlarged. It is also recommended that a W3-2 'give way sign ahead' sign is installed in advance of the intersection.

Upon observing traffic interactions when vehicles were using the left turn slip lane there was obvious confusion amongst motorists. Many motorists with priority turning right onto Gomersal Road gave way to vehicles using the slip lane, and at times vehicles using the slip lane pulled out in front of vehicles making a right turn. This inconsistency in driver behaviour greatly increases the risk of a right angle crash.



Installation of a Give Way sign at this slip lane may not be an effective solution as it could cause confusion to motorists continuing ahead on Barossa Valley Way however a painted give way holding line only could assist with enforcing the priority. This treatment is acceptable based on AS 1742.2 however the DPTI manual of legal responsibilities and technical requirements for traffic control devices states that this pavement marking must not be used to indicate the safe position for a vehicle to be held at a slip lane in South Australia. That being said, there are recent cases where this treatment has been used in South Australia and our observations at the time indicated that there was a potential increase in compliance compared to the intersection without the holding line.



*Figure 44: A holding line used at a slip lane in Hope Valley improved compliance with the give way rule without a sign*

### Menge Road/Burings Road/Vine Vale Road Junction (Kroemers Crossing)

This intersection was raised numerous times in our Member survey and stakeholder consultation session. There were a number of issues identified at this intersection.

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*Upgrade the Kroemers Crossing intersection to a roundabout as has been installed at the other two main intersections between Tanunda and Nuriootpa.*

*RAA Member*

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Firstly the road surface was in very poor condition and significant cracking and sinking was occurring. The current layout is messy, with a very wide entrance to Burings Road, and the S bend in the road adds to the confusion when turning onto Barossa Valley Way from any of the three side streets.

There is already an unfunded DPTI concept plan for installation of a large roundabout at this intersection incorporating Murray Street, Burings Road, Barossa Valley Way, Vine Vale Road and Menge Road as well as the rail crossing.

RAA support further investigation and funding for this concept as a priority as the road needs rehabilitation in its current state and it would save on costs to implement a major upgrade before rehabilitation works are conducted.



Figure 45: The surface at this intersection is in very poor condition

If it is determined that the roundabout option is not feasible the minimum upgrades required include:

- Surface Reseal of Barossa Valley Way/Murray Street through this intersection
- Narrowing of the entrance to Burings Road by either concrete or painted islands. Additional street lighting would be required if concrete islands are installed.
- Installation of a give way sign and holding line Vine Vale Road and Burings Road

#### Sturt Highway Junction

There were no major issues identified at the intersection of Sturt Highway and Barossa Valley Way (Murray Street) however some minor issues and suggestions for consideration were picked up.

Firstly, the painted traffic island separating the left turn slip lane from Sturt Highway onto Barossa Valley Way was incomplete following recent kerb installation in the slip lane. The island has been partially scrubbed off however new line marking and old line markings do not line up. It is recommended that the line marking of this painted island is rectified.

It was also noted that give way holding lines, both for vehicles turning right out of Barossa Valley Way and for vehicles turning left onto Barossa Valley Way were faded and could use refreshing.

The other issue relates to the duplicated 50km/h signage on Barossa Valley Way. The left hand sign is completely obscured by vegetation and has no impact, and the right hand sign is not easily visible for motorists due to the width of the road and the fact that motorists generally look for signage to their left that may be duplicated on the right. It is instead suggested that these duplicated signs are enlarged and shifted slightly south of the Caltex driveway where they are easily visible and form somewhat of a speed limit 'entry statement' to Nuriootpa where they are considerably more noticeable.

Barossa Valley Way - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Consolidation and consistency of speed limits.</li> <li>Increase the size of all speed limit change signs upon entering towns to improve visibility</li> </ul>	DPTI
<b>Gawler to Lyndoch</b>	
<ul style="list-style-type: none"> <li>Additional W beam barrier protection.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Repair Cracking near railway crossing at Sunnydale Avenue.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Localised repair to significant undulation just to the west of the overtaking lane.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Extend current overtaking lane prior to Kalbeeba Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install W6-9 'Bicycle/Pedestrian' warning sign on both sides of the Jack Bobridge track crossing.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install an overtaking lane for westbound vehicles.</li> </ul>	DPTI
<b>Lyndoch to Tanunda</b>	
<ul style="list-style-type: none"> <li>Localised shoulder widening.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Use of a 60km/h buffer zone to graduate the speed limit to 90km/h when exiting Lyndoch in order to reduce speeds in the vicinity of large trees close to road. Alternatively ATLM may provide some benefit in reducing the risk of run off road type crashes in this section.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>W2-1 'crossroad' warning signs are installed on Barossa Valley Way approaching the intersection of Krondorf Road</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install repeater 60km/h signs in the northern part of Rowland Flat.</li> </ul>	DPTI
Install an overtaking lane for southbound vehicles.	DPTI
<ul style="list-style-type: none"> <li><b>Tanunda to Nuriootpa</b></li> </ul>	
<ul style="list-style-type: none"> <li>As a priority, a complete re-seal and pavement rehabilitation between Tanunda and Nuriootpa</li> </ul>	DPTI
Install W Beam barrier to protect roadside trees and stobie poles.	DPTI
<ul style="list-style-type: none"> <li><b>Hermann Thumm Drive Junction</b></li> </ul>	
RAAs Black Spot Nomination for this intersection has been submitted for consideration in the 2018-19 financial year.	DPTI
<ul style="list-style-type: none"> <li><b>Gomersal Road Junction</b></li> </ul>	
<ul style="list-style-type: none"> <li>Install additional RRPMS to improve delineation.</li> </ul>	DPTI



<ul style="list-style-type: none"> <li>Shift and enlarge give way sign on Gomersal Road to improve visibility.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install W3-2 'Give Way Sign Ahead' sign on Gomersal Road.</li> </ul>	DPTI
Install a give way holding line at the end of the left turn slip lane onto Gomersal Road.	DPTI
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li><b>Menge Road Junction (Kroemers Crossing)</b></li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>Further investigation and funding towards the DPTI roundabout concept. If a roundabout is determined not to be feasible, the minimum upgrades required are: <ul style="list-style-type: none"> <li>Reseal of Barossa Valley Way/Murray Street through this intersection</li> <li>Narrow the entrance to Burings Road by either concrete or painted islands. Additional street lighting would be required if concrete islands are installed.</li> <li>Install R1-2 'Give Way' sign and holding line at both the Vine Vale Road and Burings Road intersections.</li> </ul> </li> </ul>	DPTI
<ul style="list-style-type: none"> <li><b>Sturt Highway Junction</b></li> </ul>	
<ul style="list-style-type: none"> <li>Rectify issues with line marking on the painted slip lane island for vehicles turning left into Barossa Valley Way.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Refresh give way holding lines.</li> </ul>	DPTI

## Owen Road

The section of Owen Road assessed by RAA was between Templers and Hamley Bridge and is a state maintained road. Owen Road was the fourth highest nominated road in RAA's 2017 Risky Roads survey, with most nominations referring to the section between Templers and Hamley Bridge.

### Road Width

Location	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Seal Width
Near Carey Rd	0m	3.1m (NWB)	3.0m (SEB)	0m	6.1m
Near Mudla Wirra Rd	0.5m	2.7m (NWB)	2.6m (SEB)	0.5m	6.3m

### Traffic Volumes

1000-1200 vehicles use Owen Road between Templers and Hamley Bridge Each Day of which approximately 7% are commercial vehicles.

### Crash History

Between 2011 and 2015 there were 5 casualty crashes on Owen Road between Templers and Hamley Bridge. 4 of these crashes were single vehicle crashes of which 3 were attributed to inattention and 1 to D.U.I.

### Speed Limits

The Speed limit of Owen Road is the default 100km/h speed limit until it is reduced to 80km/h then 50km/h coming into Hamley Bridge.

### *Conditions*

Owen Road is a narrow road with very narrow, or no sealed shoulders along the length. Where a shoulder seal exists, lanes are made narrower, with the total sealed road width similar along its length.

The most significant issue on Owen Road was the continual corrugations in the surface creating a generally unpleasant drive. This was not like the large undulations experienced along Horrocks Highway, but rather smaller and much more frequent occurrences.

RAA visited Owen Road following numerous complaints in December 2016 and at the time noted that there were many deteriorating patches and potholes in the surface, and we were not surprised that it featured in our 2017 Risky Roads Survey. Since this visit, most of these deteriorating repairs had been vastly improved with large patches that appeared to be more robust than previous repairs. RAA intends to re-visit Owen Road in future to see how these patches hold up over time.

The issue on Owen Road is greater than localised poor sections of road however and it is recommended that an investment in improving the entire road surface and sealing the shoulders will greatly improve the ride and safety of Owen Road. In the interim, uneven surface signage should be installed as a measure to warn motorists to expect poor conditions, before work is carried out to improve Owen Road. Due to a reasonably high volume of oversized and wide farm machinery using the road, particularly around peak harvest season, sealed shoulders should be strongly considered to widen the road and increase the safety of interactions between these vehicles and other road users.

There was little in the way of hazardous roadside vegetation, however exposed stobie poles were identified on the western side of the road between Mudla Wirra Road and Linke Road. W-Beam barrier protection should be considered for these stobie poles.

It was also noted that edge line marking was deteriorated in some locations due to the crumbling road edges.



*Figure 46: Poor edges and a lack of unsealed shoulders were some of the primary concerns on Owen Road*

As time permitted to do so, RAA also drove the remainder of Owen Road through to the Traeger Road junction and identified similar issues. RAA welcomes the \$1.7M investment between Emu Road and Alma South Road, with works underway at the time of our visit. Unfortunately this falls short of what is required to bring Owen Road to an acceptable standard, however it is a positive step in the right direction.

Owen Road (Templers to Hamley Bridge) - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Improve the surface of Owen Road to remove significant corrugations. This requires a complete overhaul of the pavement and subgrade. Uneven surface signage may be required, but this must only be used as a short term measure to warn of the poor surface.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install sealed shoulders for the entire length of Owen Road, and consider widening sealed shoulders where narrow shoulders currently exist.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install W-Beam barrier protection to shield motorists from numerous stobie poles between Mudla Wirra Road and Linke Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Repair crumbling road edges, preferably as part of shoulder sealing program, and reinstate missing edge line markings.</li> </ul>	DPTI

## Templers Road and Daveyston Road

RAA assessed the east-west route between Wasleys and Daveyston consisting of Templers Road and Daveyston Road after receiving numerous complaints about this road in the Member survey.

Templers Road between Wasleys and Templers is maintained by Light Regional Council. Templers Road between Templers and Freeling is maintained by the state government along with Daveyston Road.

### Road Width

Section	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Width
Templers Road (Wasleys-Templers)	N/A	3.6m (EB)	3.5m (WB)	N/A	7.1m
Templers Road (Templers-Freeling)	1.5m	3.1m (EB)	3.2m (WB)	1.1m	8.9m
Daveyston Road	1.3m	3.1m (EB)	3.3m (WB)	1.2m	8.8m

### Traffic Volumes

Daveyston Road carries on average 800 vehicles per day, with 9% of these commercial vehicles. Templers Road carries 700 vehicles per day with 14.5% of these commercial vehicles.

We do not have a figure for traffic volumes between Wasleys and Templers however it is likely to be lower than the traffic volumes for the remainder of Templers Road and Daveyston Road.

### Crash History

Between 2011 and 2015 there was 1 casualty crash between Wasleys and Templers (in Wasleys) and 1 casualty crash between Templers and Freeling. Both of these were single vehicle crashes attributed to inattention. 2 crashes occurred in 2012 at the Thiele Highway intersection prior to the current intersection upgrade.

In 2016, there were 2 casualty crashes at the intersection of Templers Road (Hanson Road) and Thiele Highway. Both of these crashes involved vehicles turning right onto Thiele Highway and failing to give way to northeast bound traffic. Also in 2016 there was 1 casualty crash involving a vehicle turning right from

Daveyston Road disobeying the stop sign and colliding with a motorcycle travelling southwest on Thiele Highway.

On Daveyston Road, there were 3 casualty crashes between 2011 and 2015. 2 of these were 'fail to keep left' crashes during the 2015 Pinery bushfire. The third was a single vehicle rollover crash attributed to inattention.

### *Speed Limits*

The speed limit is predominantly the 100km/h default speed limit other than through the built up areas of Wasleys, Templers and Freeling and prior to the Owen Road intersection where the speed limit is reduced to 80km/h.

### *Conditions*

Templers Road between Wasleys and Templers was generally in satisfactory condition with a number of minor undulations detected. It was also noted that centre line marking was faded in some locations and is due for a refresh. The lanes were a good width however there were no sealed shoulders or edge line markings present which would improve the safety of this segment of road. It is recommended that sealed shoulders are installed to prevent the risk of run off road type crashes and to provide additional space for large or wide loads that may use this route.



*Figure 47: Templers Road (Wasleys-Templers) lacks edge lines and sealed shoulders*

It was also noted that the intersection with Owen Road would benefit from a 'give way sign' and a holding line. It would also be of benefit to install a 'give way sign ahead' sign prior to the curve before Owen Road.

The surface of Templers Road between Templers and Freeling was in generally inferior condition to the Wasleys to Templers section however safety was improved by the presence of edge line marking and wide sealed shoulders. Unprotected stobie poles were prevalent on the northern side of the road approximately 3 to 4 metres from the edge of the sealed surface and consideration should be given to protecting these with W-Beam barrier.

There were some localised repairs present that had addressed some of the major defects on the road however further improvements should still be made to improve ride quality and safety. The surface was especially poor in the vicinity of Booker Road and Power Road and this segment would greatly benefit from a re-seal.



Daveyston Road was in similar condition with localised patching and a localised uneven segments of surface. The eastern end of Daveyston Road approaching Sturt Highway was in the poorest state with numerous patching and poor pothole repairs.

The shoulders were generally wider than Templers Road however lane width was compromised and the total seal width was comparable to Templers Road.



Figure 48: Uneven and patched surface at the eastern end of Daveyston Road.

RAA also assessed the intersection with Hanson Street (Templers Road) and Thiele Highway, which was discussed in the Thiele Highway assessment.

Templers and Daveyston Road - Key Recommendations		Authority
<b>Templers Road (Wasleys to Templers)</b>		
▪ Install edge line markings, consider widening road and installing sealed shoulders.		LRC
▪ Refresh centre line where required.		LRC
▪ Install R1-2 'Give Way' sign and W3-2 'Give Way Sign Ahead' sign with holding line at Owen Road intersection.		LRC
<b>Templers Road (Templers to Freeling)</b>		
▪ Consider re-seal, especially in the vicinity of Booker and Power Roads.		DPTI
▪ Consider protecting stobie poles with W Beam Barrier.		DPTI
<b>Daveyston Road</b>		
▪ Consider re-seal, especially on eastern end where numerous patches make the surface bumpy and uneven.		DPTI

### Greenock Road (Kapunda – Greenock)

Greenock Road is a state maintained road connecting Thiele Highway south of Kapunda and Greenock. Greenock Road was raised numerous times in our Member survey with the predominant issues being the undulating surface.

#### Road Width

<i>Location</i>	<b>Sealed Shoulder Width</b>	<b>Lane 1 Width</b>	<b>Lane 2 Width</b>	<b>Sealed Shoulder Width</b>	<b>Total Seal Width</b>
<i>South of Thiele Hwy</i>	1.7m	3.1m (SB)	3.3m (NB)	1.3m	9.4m

Initially, after entering Greenock Road from Thiele Highway, the sealed shoulders are very wide and it is evident that shoulder widening works are somewhat recent. The shoulders were significantly narrower for the majority of Greenock Road.

#### Traffic Volumes

Average traffic volumes on Greenock Road are approximately 1100 vehicles per day, consisting of 10% commercial vehicles.

#### Crash History

There were three casualty crashes on Greenock Road between 2011 and 2015 all resulting in minor injuries. Two of these were 'hit fixed object' type crashes attributed to inattention and the third involved a motorist failing to give way at the Sturt Highway interchange.

#### Speed Limits

Greenock Road has a speed limit of 100km/h. The speed is graduated to 50km/h in Greenock via an 80km/h buffer zone.

#### Conditions

Numerous localised repairs were noted along the length of Greenock Road, some of which were beginning to deteriorate.

Positively, some sealed shoulder widening has taken place, however ideally sealed shoulders will be widened for the length of Greenock Road.

There are some significant undulations in the surface as well as a number of curves with drop offs and no barrier protection. The undulations and corrugations in the road occur quite regularly for the majority of Greenock Road.

Vegetation significantly encroached on the road in some locations. One example is a significant and unprotected gum tree 1.5m from the edge line and only 0.5m from the shoulder representing a significant hazard in the event of a run off road type crash.





Figure 49: Significant gum tree located very close to Greenock Road posing a significant hazard

Other than this example, there were numerous other locations where large trees were situated only 2-3m from the road edge with no form of barrier protection. It was also noted that on a number of bends without barrier protection, trees were situated on the outside of the bend. It is recommended that large trees are protected where possible by W beam barrier, or removed if barrier protection is not possible.

Other than vegetation, there were some unprotected stobie poles located on the approach to Greenock.

Greenock Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Localised repair work to improve the surface where old repairs are beginning to deteriorate.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Improvements to rectify significant undulations and corrugations in the surface.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Additional use of W Beam Barrier protection to protect drop offs, large trees and stobie poles, as well as removing large trees within 3m of edge lines if they cannot be adequately protected by barrier installation.</li> </ul>	DPTI

## Sir Condor Laucke Way

Sir Condor Laucke Way is a state maintained road connecting Greenock and Nuriootpa. Primarily, a number of intersections were raised numerous times in our Member survey which caused us to investigate.

### Traffic Volumes

Traffic volumes are approximately 2600 vehicles per day (7% commercial) between Greenock and Sturt Highway and 5900 (7% commercial) vehicles per day between Sturt Highway and Nuriootpa.

### Crash History

There were 10 casualty crashes, all resulting in minor injuries on Sir Condor Laucke Way. 8 of these occurred at intersections. The other 2 were both results of a driver failing to give way when completing a U Turn. 3 crashes occurred at the Samuel Road intersection with 2 right angle and 1 rear end crash.

### *Speed Limits*

The speed limit on Sir Condor Laucke Way is 80km/h after exiting Greenock and is reduced to 60km/h prior to the Samuel Road intersection just outside of Nuriootpa.

### *Conditions*

On our assessment of Sir Condor Laucke Way, there were some localised areas of rutting and undulations were experienced however these issues were considered to be generally worse on Greenock Road and Thiele Highway in comparison.

When travelling east, edge lines and sealed shoulders were not present until the Sturt Highway interchange was reached. It is therefore recommended that edge line marking and sealed shoulders are installed in this section.

Sealed shoulders were present, however quite narrow for the remainder of Sir Condor Laucke Way.

### Parbs Road Junction

Traffic volumes into and out of Parbs Road are very low and hence any significant upgrades at this intersection are unlikely to be feasible, nor would they be required following our site investigation.

Sight distance was perceived to be a potential issue when turning out of Parbs Road and looking east due to the crest. Sight distance was measured to be approximately 150m. The required stopping sight distance for an 80km/h road with approximately 10% downgrade is calculated to be 152m.

It was noted that there was a drop off of approximately 100mm between the sealed surface of Sir Condor Laucke Way and the gravel surface of Parbs Road. The cause of appeared to be due to stormwater runoff erosion. It is recommended that a sealed apron is considered for Parbs Road to prevent this occurring in future and to prevent potential vehicle damage.



*Figure 50: 100mm drop off at the intersection of Parbs Road and Sir Condor Laucke Way*

### Stonewell Road Junction

RAA checked sight distance at this intersection which was adequate. It was noted that trees on the southern side of Sir Condor Laucke Way had potential to hinder sight distance if they were not monitored however it was very evident that the trees are regularly maintained and they posed no issue to sight distance at the time of our inspection.

The primary cause of concern was for eastbound vehicles turning right into Stonewell Road. Vehicles travelling behind them would have no option but to stop as the shoulder is very narrow. A protected right turn lane would assist, but at the very least shoulder widening on the north side of Stonewell Road would allow vehicles continuing towards Nuriootpa to manoeuvre around vehicles turning right. A hazard marker or W beam barrier protection would also be required for the stobie pole at the intersection.

### Samuel Road Junction

This intersection forms part of the Nuriootpa heavy vehicle bypass and links heavy vehicles to the Sturt Highway via Moppa Road South and Old Kapunda Road and was a major frustration to respondents of our survey of Barossa and Light Members.

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*Intersection at Moppa South, Samuel Road and Greenock Road. Trucks take risks all the time crossing Greenock Road whilst using the freight route, tourists also use this route regularly.*

*Intersection at north end of Samuel Road needs to be improved for the Semi's to get over Greenock Road easily – another roundabout would be good.*

*RAA Members*

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It was noted that there was significant Heavy Vehicle traffic turning from Sir Condor Laucke Way onto Samuel Road. This traffic had very limited space to manoeuvre and required space on the opposite side of the road as a swept path. This created conflict when a vehicle was turning right or continuing straight ahead from Samuel Road. There were no alignment issues when heavy vehicles continued across Sir Condor Laucke Way from Samuel Road to Moppa Road South, or vice versa, however due to visibility restraints when approaching the intersection, heavy vehicles are forced to stop before moving slowly across the intersection.





Figure 51: The Samuel Road and Sir Condor Laucke Road intersection struggles with heavy vehicle turn paths

The ideal option would be to invest in the intersection to allow for the swept paths of heavy vehicles such as B doubles making turns at this intersection in the form of a roundabout similar to the roundabout recently installed at the intersection of Seppeltsfield Road and Samuel Road. To modify the intersection in such a manner would prove very costly however. There are a number of properties in close proximity to the intersection, and significant stormwater and electricity infrastructure that would require relocation or modification.

It is suggested that a review of heavy vehicle turning movements is conducted at this intersection and a major upgrade is strongly considered by the relevant authorities.

Sir Condor Laucke Way - Key Recommendations		Authority
<ul style="list-style-type: none"> <li>Install edge line markings and sealed shoulders between Greenock and Sturt Highway</li> </ul>		DPTI
<b>Parbs Road Junction</b>		
<ul style="list-style-type: none"> <li>Install a sealed apron to prevent stormwater eroding gravel on Parbs Road</li> </ul>		DPTI
<b>Stonewell Road Junction</b>		
<ul style="list-style-type: none"> <li>Investigate feasibility of right turn filter lane for eastbound traffic turning onto Stonewell Road</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>If above is not feasible, wider shoulders should be constructed to allow vehicles to safely pass turning vehicles.</li> </ul>		DPTI
<b>Samuel Road Junction</b>		
<ul style="list-style-type: none"> <li>Review heavy vehicle turning movements at the intersection as current swept paths cause heavy vehicles to obstruct oncoming traffic.</li> </ul>		DPTI
<ul style="list-style-type: none"> <li>Upgrade intersection to allow for turn paths of heavy vehicles.</li> </ul>		DPTI

## Seppeltsfield Road

Seppeltsfield Road provides one of the most picturesque drives in the Barossa Valley and is a key link to well over a dozen wineries on Seppeltsfield Road alone, including the immensely popular Seppeltsfield Winery. In addition, there are many more wineries and accommodation locations on the side roads branching away from Seppeltsfield Road.

Seppeltsfield Road is primarily maintained by Light Regional Council, with a short section to the west between the North Para River and Barossa Valley Way maintained by The Barossa Council.

### Road Width

Location	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Width
West of Barossa Valley Way	N/A	4.25m (EB)	4.35m (WB)	N/A	8.6m
East of Neldner Road	N/A	3.4m (WB)	3.4m (EB)	N/A	6.8m
South of Peter Seppelt Road	N/A	2.7m (SB)	2.7m (NB)	N/A	5.4m

The road width along Seppeltsfield Road varies significantly. Generally sealed shoulders are not provided, however lane widths are quite wide in some locations to account for this. There are some very narrow sections of road that pose a significant risk due to the proximity of vegetation.

### *Crash History*

There were 8 casualty crashes on Seppeltsfield Road between 2011 and 2015 with 5 of these being right angle crashes at the intersection of Stelzer Road. A significant upgrade at this intersection has recently been completed which introduced a large roundabout to accommodate for heavy vehicles. RAA believes this will have a significant positive effect on safety at this intersection, and expect the number of casualty crashes occurring here to significantly decrease.

Of the 3 remaining casualty crashes, two were 'hit fixed object' crashes and the third was a 'hit pedestrian' crash, with all 3 attributed to inattention.

### *Speed Limits*

The speed limit is predominantly 80km/h, with the speed limit decreasing to 50km/h through Marananga and Seppeltsfield.

### *Conditions*

The line marking is quite faded in a number of locations and is due for refreshing, and edge line marking is rarely used. The ride quality is generally of an acceptable standard in most areas, however there are significantly crumbling edges along the length of Seppeltsfield Road.

It is recommended that line marking is refreshed and edge lines are installed. It is also recommended that some shoulder sealing work is undertaken along with repairs to the crumbling road edges.



*Figure 52: Crumbling edges are a significant issue in some sections of Seppeltsfield Road*

It is worth considering a change in priorities at the intersection of Peter Seppelt Road and Seppeltsfield Road to give priority to the predominant traffic movements along Seppeltsfield Road. This should be complemented with the appropriate line markings to ensure the priorities are clear.

The lane width is very narrow along the section south of Peter Seppelt Road and trees were measured to be less than 1.5m from the edge of the road. Some measurements indicated that the distance between two palm trees was as low as 8.3m with a narrow 80km/h road between them. The palm trees provide significant character to the region, and are a major focal point so it is highly recommended that the 50km/h speed limit through Seppeltsfield is extended approximately 250m north to the intersection with Peter Seppelt Road due to the proximity of palm trees to the road. This will preserve the character and amenity of the region whilst significantly reducing the risk and severity off any crashes involving the trees.



Figure 53: The 80km/h speed limit increases the risk of serious crashes involving the palm trees on Seppeltsfield Road

### Radford Road/Hempel Road Junction

This intersection provides significant risk due to the poor sight distance to the north when turning out of Radford Road or Hempel Road. Signage on Seppeltsfield Road is sufficient to warn motorists to slow down and expect a cross road beyond the crest however line marking at the intersection is very poor and the use of 'give way' signs rather than 'stop' signs is questionable.

It is recommended that 'stop' signs are used on Radford Road and Hempel Road, and that line marking at the intersection is refreshed and includes a holding line. As a bare minimum, missing give way holding lines must be installed on Radford Road and Hempel Road.

Seppeltsfield Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Provide sealed shoulders and edge line markings</li> </ul>	LRC/BC
<ul style="list-style-type: none"> <li>Refresh line marking</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Rehabilitate localised crumbling edges</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Consider changing priorities at intersection of Seppeltsfield Road / Peter Seppelt Road</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Extend the 50km/h speed limit through Seppeltsfield 250m north to reduce the risk and severity of vehicles colliding with large palm trees situated very close.</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Install stop signs at the intersection with Radford Road/Hempel Road and refresh line marking including holding lines.</li> </ul>	LRC



## Stott Highway

Stott Highway was assessed between Angaston and Keyneton as a result of multiple complaints about the surface quality.

### Road Width

Location	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Width
1km east of Eden Valley Rd	0.6m	2.9m (EB)	3.1m (WB)	0.3m	6.9m

### Traffic Volumes

Traffic Volumes between Angaston and Keyneton are approximately 1100 vehicles per day with 6% of these commercial vehicles.

### Crash History

Only one casualty crash occurred resulting in minor injuries. This was a right angle crash a Hutton Vale Road where a driver failed to stand at the intersection.

### Speed Limits

The speed limit leaving Angaston is 60km/h, and it is increased to 100km/h via an 80km/h buffer zone after the majority of residential dwellings.

The speed limit is reduced to 50km/h via an 80km/h buffer zone into Keyneton.

### Conditions

The conditions varied significantly along the length of Stott Highway assessed. Some parts were in reasonable condition, whereas other sections consisted of a very poor surface with significant undulations. The main cause of roughness on Stott Highway was caused by previous repair works beginning to deteriorate.

Some sections of recent shoulder widening and barrier installation are very welcome however more work needs to be done to improve the overall safety of Stott Highway. There are still numerous unprotected trees in close proximity to the road and sections of the highway where the carriageway is very narrow with narrow sealed shoulders.

It was noted that some edge lines were missing due to crumbling road edges where shoulder seal had not been applied as a part of recent works.

It is recommended that shoulder sealing and barrier installation works are continued between Angaston and Keyneton and that deteriorating patches of the highway are repaired to improve the overall surface quality.

Stott Highway - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Shoulder sealing and barrier installation works are continued between Angaston and Keyneton and deteriorating patches of the highway are repaired to improve the overall surface quality.</li> </ul>	DPTI

## Eden Valley Road

Eden Valley Road is a major road connecting Angaston and Mount Pleasant through Eden Valley and Springton. The crash history indicated a very high rate of single vehicle crashes, especially considering the relatively low traffic volumes.

No formal road width measurements were taken however it was noted that lane widths were generally good and shoulder sealing was adequate for the most part, partly due to recent shoulder sealing works.

### *Traffic Volumes*

Traffic volumes range from 1100 vehicles per day near Angaston to 1700 vehicles per day near Mount Pleasant. Commercial vehicles typically make up 7-9% of the traffic.

### *Crash History*

Eden Valley Road has a poor crash history between 2011 and 2015 with a total of 18 casualty crashes in this period consisting of 10 minor injury crashes, 6 serious injury crashes and 2 fatal crashes. Over 50% of these crashes were single vehicle, hit fixed object crashes. This crash rate is especially high considering the relatively low traffic volumes.

### *Speed Limits*

The speed limit is 100km/h for the majority of the length of Eden Valley Road. Coming into and exiting all townships, the speed is reduced to 50km/h via an 80km/h buffer zone, and likewise increased back to 100km/h via an 80km/h buffer zone.

### *Conditions*

The surface conditions of Eden Valley Road were generally good. The lane widths are sufficiently wide, and sealed shoulders are wide for the majority of the road. Line marking was easily visible along the length.

It was noted that there are very limited overtaking opportunities between Angaston and Eden Valley due to the winding nature of the road.

The primary safety concern is with the vast number of unprotected trees and stobie poles in close proximity to the road. The majority of these roadside hazards are not protected by any form of safety barrier.

It is highly recommended that W Beam barrier protection is installed along the sections of Eden Valley Road with dense and hazardous vegetation (Similar to the work done on Cricks Mill Road). It is also recommended that stobie poles are protected by barriers, especially close to Mount Pleasant where they are closest to the roadside.

Audio tactile line marking (ATLM) treatment could also be installed on edge lines in sections where barrier protection cannot be provided, similar to that installed along significant lengths of Gomersal Road as part of recent black spot funding.

These improvements would greatly reduce the risk and severity of serious hit fixed object type crashes that are occurring on Eden valley Road.

Eden Valley Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>W-beam or wire rope hazard barriers are installed extensively to reduce the number of serious single vehicle hit fixed object crashes on Eden Valley Road.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install ATLM, especially in sections where barrier protection cannot be provided.</li> </ul>	DPTI

## Xavier College Student Drop-Off (Redbanks Road/Kentish Road and Surrounds)

### Crash History

Between 2011 and 2015 there were no casualty crashes reported at the intersection of Kentish Road and Redbanks Road, nor were any reported on this section of Redbanks Road

### Speed Limits

The speed limit of Redbanks Road is 60km/h and the speed limit on Kentish Road is the urban default of 50km/h.

### Conditions

RAA attended this intersection at 8:15 am on 1 August 2017. This time was chosen to coincide with the morning school drop off. RAA received a number of complaints regarding this intersection in the Member survey. The nature of these complaints was that due to the time it takes to turn right from Kentish Road onto Redbanks Road, many drivers were still dropping off their children in the no stopping zones located on Redbanks Road. Additionally this causes rat-running along Clancy Road and Parkers Road which is potentially hazardous and not what these roads were designed for.

As a result of our investigation we did observe numerous vehicles ignoring the ‘no stopping’ signage on both sides of Redbanks Road which did present a significant hazard to motorists and pedestrians.

The first case is when southbound motorists stop on the eastern side of Redbanks Road. This presented a hazard as it requires children to cross what is a busy arterial road, with traffic volumes in the vicinity of 3800 vehicles per day according to 2015 DPTI figures. There were also several observed cases of students crossing the road between Kentish Road and the Sturt Highway interchange to get to school without being dropped off in a no stopping zone



*Figure 54: Students crossing Redbanks Road east to west after being dropped off on the western side*

Due to the rural setting and the fact that properties and the school are set back quite a way from Redbanks Road, it is unlikely that motorists would be expecting pedestrians to be crossing the road here. It is recommended that W6-3 'children' warning signage is installed for both directions of traffic on Redbanks Road to alert motorists to the possible presence of children. These signs could be located just south of Kentish Road and just north of the Sturt Highway interchange to be visible to the maximum number of motorists.

The second hazard identified was when northbound vehicles stopped on the western side of Redbanks Road just after the Sturt Highway overpass. Vehicles were generally seen to stop in the section between the overpass and the Sturt Highway interchange so that they could pull out into the right turn lane and onto Sturt Highway.



*Figure 55: Vehicles setting down students on the western side of Redbanks Road*



There were a number of hazards with vehicles stopping here. Firstly sight distance is marginally compromised over the crest of the overpass and northbound motorists would not be expecting vehicles to be stopping and pulling out in this location.

The most common manoeuvre was for vehicles to pull out and immediately turn right onto the Sturt Highway interchange ramp. A number of offences are committed in this process, firstly for stopping in a no stopping zone and secondly driving on a painted island, as well as a potential offence for crossing a solid unbroken dividing line to enter the right turn lane.

Other than potential legal ramifications, there was a near miss observed with a vehicle turning right onto Redbanks Road from position B in figure 56. This vehicle had checked both directions and had started to make a right turn before being suddenly required to brake and give way to a vehicle that had rapidly pulled out of the no stopping zone shaded in red to turn right onto the Sturt Highway ramp. Vehicle B was partially covering the southbound lane of Redbanks Road and reversed slightly to a safer holding position.



Figure 56: Dangerous manoeuvre from Redbanks Road no stopping zone onto Sturt Highway onramp

To further discourage drivers performing this manoeuvre we recommend that investigation into further measures to prevent vehicles stopping here are introduced. This could include extending the W Beam Barrier past Sturt Highway and/or refreshing of the line marking on the painted island and installation of

supplementary pavement bars. In the interim it is recommended that council periodically police the no stopping zones.

It was also noted that the surface on Kentish Road in the vicinity of the Redbanks Road intersection was in a very poor state exhibiting significant cracking and potholes. It is recommended that these sections are resealed at the very least with consideration given to the length of Kentish Road.



*Figure 57 Cracking and Potholes on Kentish Road*

Members highlighted issues with the time it takes to turn right from Kentish Road onto Redbanks Road during school pick up/drop off times. From our site visit we agree with these sentiments however waiting times were not believed to be overly excessive. For the time period assessed, the minimum queue of vehicles was 13, and the maximum queue length counted was 26 vehicles. Generally it would take up to 3 or 4 minutes to turn right, however the maximum time measured for a vehicle to make a right turn was 5 minutes.

RAA contacted Xavier College for comment on the issues identified and have been advised that they are aware of most issues raised and are supportive of some recommendations. Articles are regularly published in the College newsletter regarding student drop off safety concerns on Redbanks Road, and it is recommended that this is continued.

We were also advised that a previous traffic survey has identified some congestion however this congestion was not deemed to be unusual for traffic around a school of this size. We recommend that council/DPTI continue to monitor this intersection and consider future investigation into the feasibility of a roundabout in the medium term with capabilities to cater for the heavy vehicle movements along Redbanks Road. A positive side effect of this is that it would be likely to reduce the frequency of vehicles ‘rat-running’ along Parkers and Clancy Road.



Xavier College Drop Off - Key Recommendations		Authority
<ul style="list-style-type: none"> <li>Install W6-3 'Children' warning signs on Redbanks Road in the vicinity of Xavier College to warn motorists of the possible presence of children crossing the road.</li> <li>Investigate methods to further prevent vehicles stopping on Redbanks Road in the northbound direction prior to the Sturt Highway onramp. Potential options include extending the W Beam Barrier past the intersection and/or refreshing the painted island markings and supplementing these with pavement bars.</li> <li>Continue to monitor the Kentish Road/Redbanks Road intersection and investigate the feasibility of a roundabout at the intersection with capabilities to cater for heavy vehicle movements along Redbanks Road.</li> <li>Enforce the 'No stopping' zones along Redbanks Road.</li> <li>Reseal the poor surface on Kentish Road.</li> <li>Parents/Caregivers be encouraged to use designated drop off area for students.</li> <li>Xavier College continues to publish regular newsletter articles regarding student drop off on Redbanks Road.</li> </ul>		DPTI
		DPTI
		DPTI
		LRC
		LRC
		OTHER
		OTHER

## Mudla Wirra Road

RAA reviewed the length of Mudla Wirra Road, however the section that raised the most concern in the Member survey was the sealed section between Redbanks Road and Roseworthy Campus. Mudla Wirra Road is maintained by Light Regional Council

### Road Width

Section	Sealed Shoulder Width	Lane 1 Width	Lane 2 Width	Sealed Shoulder Width	Total Width
Unsealed section	N/A	4.5m	4.5m	N/A	9.0m
Sealed section	0.9m	3.3m (NB)	3.6m (SB)	0.5m	8.3m

### Crash History

There were 5 casualty crashes on Mudla Wirra Road or at intersections with Mudla Wirra Road between 2011 and 2015. All were single vehicle crashes of 'hit fixed object' or 'rollover' type. All 5 crashes were attributed to inattention. Further analysis of this data indicates that four of these crashes occurred at intersections (2x Redbanks Road, 1x Owen Road and 1x Currie Road)

### Speed Limits

The unsealed part of Mudla Wirra Road is the default speed limit of 100km/h. The sealed part is 100km/h for the majority. The speed is graduated to 80km/h, then 60km/h through Roseworthy Campus from both directions.

### Conditions

The unsealed section was in generally good condition at the time of our visit with some very minor and shallow potholes appearing in localised patches. The travelled surface was generally very wide for an

unsealed road measuring at 9m, with approximately 2m wide shoulders. There was some build-up of silt in the shoulders due to runoff but the Road itself was well structured and has a sufficient crown to prevent ponding of water.

The primary concerns on the sealed section were significant undulations and faded line marking on Mudla Wirra Road, south of Roseworthy Campus. Some undulations were also noted between Wasleys and Roseworthy Campus however this was less of a concern than the southern section. There were also sections where the road surface was quite polished and potentially slippery. It is recommended that the line marking is refreshed and consideration for a re-seal is given to Mudla Wirra Road south of Roseworthy Campus.



*Figure 58: Undulations and surface polishing on Mudla Wirra Road south of Roseworthy Campus*

It was also noted that there may be a reasonable volume of cyclist traffic travelling between Gawler and Roseworthy Campus. It was noted that ‘Watch for cyclists’ signage was installed on Redbanks Road, and it is recommended that W6-7 ‘bicycle’ warning signage is installed strategically along Mudla Wirra Road on approach to the University with use of the ‘NEXT x km’ Supplementary plate.

RAA also assessed a number of key intersections involving Mudla Wirra Road.

### Currie Road Junction

This intersection is a Y intersection with both roads unsealed. The condition of both Mudla Wirra Road and Currie Road on approach to the intersection was acceptable however a number of signage and visibility issues should be addressed.

Firstly for southbound traffic on Mudla Wirra Road, there was no advance warning signage for the intersection, and Mudla Wirra Road appears to be the continuing road. It is recommended that a W3-2 ‘give way sign ahead’ sign is installed prior to the intersection in the southbound direction.

On Currie Road, there is no prior warning signage for an intersection and it is recommended that W2-4 ‘side road intersection’ signage is installed in both directions.

It was also noted that there were a number of missing or damaged guide posts. It is recommended that these are reinstalled to improve delineation especially at night.

Finally, the Currie Road street name sign was faded to the extent that it was no longer legible, and this should be replaced.

### Annie Terrace Junction (Wasleys)

The intersection is a standard T-junction with a 50km/h speed limit on Annie Terrace and 100km/h on Mudla Wirra Road. Both roads are sealed and traffic volumes appeared relatively low. The main concern identified was that the line marking was faded to an extent that it had very little impact on the intersection and it is strongly advised that this line marking is refreshed. It may also be of benefit to install a 'give way' sign and holding line at the end of Annie Terrace due to the high approach speed of Mudla Wirra Road traffic.



Figure 59: Line marking is barely visible at the intersection with Annie Terrace

It was also noted that the intersection direction sign opposite Annie Terrace was sinking into the soil, and it is recommended that the sign is straightened up and the footing supported by concrete to avoid this happening again.

Mudla Wirra Road - Key Recommendations		Authority
<ul style="list-style-type: none"> <li>Consideration for a re-seal south of Roseworthy Campus</li> </ul>		LRC
<ul style="list-style-type: none"> <li>Refresh of line marking south of Roseworthy Campus</li> </ul>		LRC
<ul style="list-style-type: none"> <li>Installation of W6-7 bicycle warning signage on the southern end of Mudla Wirra Road between Redbanks Road and Roseworthy Campus.</li> </ul>		LRC
<b>Currie Road Junction</b>		
<ul style="list-style-type: none"> <li>Installation of W3-2 'Give way sign ahead' sign on Mudla Wirra Road for southbound traffic prior to the intersection.</li> </ul>		LRC
<ul style="list-style-type: none"> <li>Installation of W2-4 'side road intersection' signage installed in both directions along Currie Road.</li> </ul>		LRC
<ul style="list-style-type: none"> <li>Re-installation of missing/damaged guide posts.</li> </ul>		LRC
<ul style="list-style-type: none"> <li>Replacement of the Currie Road name sign.</li> </ul>		LRC
<b>Annie Terrace Junction</b>		

• Refresh line marking as current markings are almost completely faded.	LRC
• Consider installing give way signage and holding line on Annie Terrace.	LRC
• Straighten and improve footings of intersection direction sign opposite Annie Terrace.	LRC

## Kapunda Zebra Crossing

RAA visited the recently installed Zebra Crossing in Kapunda. This treatment appeared to have been very successful in slowing vehicles down and increasing driver awareness that pedestrians are in the area.

An excellent level of compliance was noted with drivers giving way to pedestrians, and approaching vehicle speeds were generally low and drivers appeared observant of pedestrians even if they were not about to cross.

There were a number of occasions where pedestrians were witnessed crossing the road in the vicinity of the Zebra Crossing (approx. 20m north) however vehicle traffic was quite low at the time of our visit and no risk was posed at the time.



Figure 60: The Zebra Crossing in Kapunda is a positive improvement along Main Street in Kapunda

In general, this treatment was seen as a significant improvement to Main Street in Kapunda and should be used as an example when considering Zebra Crossing treatments in regional towns in future.



## Lyndoch Road

Lyndoch Road links Gomersal Road to Barossa Valley Way via Hermann Thumm Drive and received numerous comments in our survey of Barossa and Light Members.

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*Lyndoch Road at Gomersal continues to be problematic both during winter as the road is dangerously slippery after rain, has large pot holes, particularly at the southern end and severe dust during summer affects visibility.*

*RAA Member*

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There are a number of key tourist destinations along Lyndoch Road and Hermann Thumm Drive that are signposted from both Barossa Valley Way and Gomersal Road. Hermann Thumm Drive is sealed, and Lyndoch Road is predominantly unsealed, with a short sealed section between Gomersal Road and Schmaal Road. There are also short sealed sections in front of Gomersal Wines and around a bend north of Chateau Valdara.

### *Speed Limits*

Lyndoch Road has no sign posted speed limit, so therefore adopts the default 100km/h speed limit for the unsealed road network outside of a built up area.

### *Conditions*

There were many small potholes on Lyndoch Road and the surface definitely appeared rougher than numerous other unsealed roads assessed. A number of other roads had been recently graded or re-sealed in the vicinity.

The signage at the intersection of Hentschke Road was very faded and illegible. As this is a popular tourist route and signage directs tourists along this road, it is vital that directional signage is in good condition to prevent tourists from losing their bearings or driving on roads that may not be suitable for their vehicle or the weather conditions.



*Figure 61: Lyndoch Road poses some challenges for tourists not acclimatised to unsealed conditions.*

It is recommended that Lyndoch Road is strongly considered for sealing due to the link provided to numerous tourist destinations. The surface was slippery in areas and the curves north of Gomersal Wines could create a hazard to those unfamiliar with the road in certain conditions. As Lyndoch Road is already sealed when entering from Gomersal Road, tourists heading to destinations along Lyndoch Road may be led to believe it is a sealed road prior to the unsealed section.

Lyndoch Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Strongly consider Lyndoch Road for sealing due to the important link to numerous tourist destinations and numerous safety hazards.</li> </ul>	BC
<ul style="list-style-type: none"> <li>Improve and replace faded tourist and directional signage.</li> </ul>	BC



## Kalimna Road

Kalimna Road is maintained by Barossa Council and received at least 9 nominations in our Member survey. The majority of these nominations expressed safety concerns on the unsealed section of Kalimna Road with concerns also raised regarding line markings.

The western end of Kalimna Road was in a reasonably poor state and crumbling edges, a lack of edge lines and minor undulations and corrugations were noted as the primary issues with some sections marked for repair. Roads to recovery funding had been used to improve part of Kalimna Road west of Research Road.

At the intersection with Research Road, numerous pot holes were present, and line markings were significantly faded. It is recommended that the surface is repaired and line marking is refreshed at this intersection.

The floodway over the North Para River between Research Road and Light Pass Roads is missing G-9-21 'Road subject to flooding, indicators show depth' signage as required in AS 1742.2 and it is recommended that these signs are installed on either side of the floodway. Depth indicators were already present.

The line marking at the Light Pass Road intersection is due for a refresh.

At the intersection of Kalimna Road and Stockwell Road, it is advised that 'Give Way' and 'Give Way Sign Ahead' signage is installed on both approaches as the T junction approaches immediately following the 'S' bend on both approaches.

W5-19 'Gravel Road' signage is required before the surface becomes unsealed east of Waechters Road however the short gravel segment should be earmarked for future sealing works. It is made up of a number of blind crests and curves before ending at Salem Road.

Kalimna Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Repair pot holes at the intersection of Research Road.</li> </ul>	BC
<ul style="list-style-type: none"> <li>Refresh line marking at the intersection of Research Road and at the intersection of Light Pass Road.</li> </ul>	BC
<ul style="list-style-type: none"> <li>Install R1-2 'Give Way' and W3-2 'Give Way Sign Ahead' sign in both directions on the approach to Stockwell Road.</li> </ul>	BC
<ul style="list-style-type: none"> <li>Consider sealing the unsealed section of Kalimna Road.</li> </ul>	BC
<ul style="list-style-type: none"> <li>In the short term, install W5-19 'Gravel Road' sign near Waechters Road where Kalimna Road becomes unsealed.</li> </ul>	BC

### Murray Street/Bilyara Road/Elizabeth Street (Tanunda)

This intersection had been previously brought to our attention however did not receive a large number of comments in our Member survey.

The intersection is well signed but can be somewhat confusing due to the wide entry on Barossa Valley Way. The most significant hazard was to pedestrians walking along the northern side of Murray Street crossing Bilyara Road. Due to the road geometry, vehicles were often witnessed turning left at high speed which allowed little time to stop for pedestrians who may be hidden due to parked vehicles just southwest of the intersection in front of the reserve.

It is recommended that the roads are narrowed as shown in the figure below and any land gained is added to the reserves on each side of the road.



Figure 62: Example treatment to narrow the road at the intersection of Murray Street and Bilyara Road

If this treatment is deemed too costly, painted islands with raised pavement bars should be installed to narrow the trafficable road surface and decrease the speeds at which motorists turn left from Murray Street onto Bilyara Road.

Murray Street/Bilyara Road - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Consider options to narrow the road to make a shorter path for pedestrians to cross and slow the speed of vehicles turning left from Murray Street</li> </ul>	DPTI/BC

### Research Road One Way Bridge

The bridge located on Research Road between Kalimna Road and Penrice Road was raised by Members as an issue. Traffic volumes appeared low at the time of our assessment and the net benefit gained by widening the bridge would be outweighed by the high cost to widen the bridge.

Most traffic at the time of our assessment was southbound, but was required to give way to northbound vehicles of which there appeared to be fewer however due to a small sample size this may not be representative of overall traffic flow at all times of day.

Visibility of the oncoming road for northbound traffic is significantly better than visibility for southbound traffic and based on a pure safety perspective, it is recommended that council consider reversing the give way priorities over this bridge such that northbound vehicles are required to give way to southbound vehicles.



Figure 63: Visibility is very poor for southbound vehicles crossing the bridge.

Research Road Bridge - Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Consider reversing give way priorities as sight distance is significantly poorer for southbound vehicles</li> </ul>	BC

### Stelzer Road Curve Advisory

RAA had previously received a complaint from a Member regarding a curve on Stelzer Road just south of Mattiske Road. The nature of this complaint was that the curve was far too tight to take at the speed limit and there was no curve advisory speed.

RAA have conducted tests utilising our Vericom VC4000 accelerometer in order to determine the correct advisory speed.

Our initial testing generated G force values that indicate that a curve advisory speed is required. Due to the nature of our results, we will need to re-assess the curve at a lower speed to determine the specific curve advisory speed required.



This is an issue we will raise with council following our secondary testing, however due to time constraints this will not occur prior to finalising this report.

### Other issues and locations assessed

#### *Rail Crossings*

Rail transport and freight is no longer utilised in the Barossa Valley however there is significant rail infrastructure in place from when it was an important link to the region. This presents a number of locations where vehicles are required to stop at disused rail crossings.

An example of this is most side roads extending south of Barossa Valley Way between Gawler and Lyndoch. Obsolete stop signage requires vehicles to stop although there is no chance of an encounter with a train. Some of this signage has been vandalised and negatively impacts amenity in the region.

There are other major intersections such as Kroemers Crossing, or the recently constructed roundabout at Seppeltsfield Road that would benefit from the removal of rail infrastructure. It is important that a decision is made regarding the future of rail in the Barossa region and a conclusion made regarding its potential removal if this is deemed appropriate.

It is recommended that all key stakeholders are consulted in this process and the future of rail transport in the Barossa Valley decided.

At the very least, G9-74 'railway crossing no longer in use' signage should be installed at all disused rail crossings in the region.



*Figure 64: Disused rail crossings require vehicles to stop although trains do not use the line*

#### *Drive on Left in Australia Signs*

This sign was identified in a limited number of locations during this tourism region assessment. It was noticed when leaving a rest stop on Gomersal Road as well as when exiting the Maggie beer Farm Shop. This signage targets international tourists that may be accustomed to driving on the right hand side of the road and serves a useful reminder to drive on the left in Australia.



Figure 65: Drive on Left in Australia signage provides a timely reminder to international tourists

It is recommended that this signage is issued to wineries to install at the exits, as well in strategic locations in the region. Seppeltsfield Road is a good target area due to the high density of wineries along this road and hence increased tourist numbers.

This signage could also be installed along Barossa Valley Way when leaving the larger settlements of Lyndoch, Tanunda, Angaston and Nuriootpa.

#### *Speed signage leading into towns*

There was some inconsistency with the use of speed signage when entering towns and settlements in the region. The most effective signage was noted along Barossa Valley Way where '50 ahead' or '60 ahead' signage was utilised before the speed zone commenced. It has been noted that this signage combination has had a greater effect in slowing vehicles down before reaching the speed zone.

A consistent use of speed signage is recommended throughout the Barossa and Light regions. We suggest that '50 ahead' and '60 ahead' signage is used at the beginning of all such speed zones in settlements as well as the first speed limit sign at the entrance to settlements being enlarged to increase its prominence. Due to the picturesque surrounds, drivers may inadvertently miss the smaller speed signs when driving into towns.

#### *Ebenezer Road*

The surface was generally quite good at the time of our visit however some small and shallow potholes were noted near Belvedere Road.

#### *Belvedere Road*

Some shoulder breakup was noted however recent repairs were evident in many locations. Edge lines were quite faded and had not been repainted where crumbling edges had been repaired. Some vegetation and a number of stobie poles were located approximately 4 metres from the edge of the road.



The intersection at Truro Road was assessed and while the existing warning signage was sufficient, it was noted that the give way signage could be enlarged considering the 100km/h speed limit on Belvedere Road.

### *Penrice Road*

Penrice Road was generally in acceptable condition however significant debris and dust spread along Penrice Road was noted. This is due to vehicles exiting the quarry not being sufficiently washed.

### *Gawler Street Shopping District (Nuriootpa)*

With the construction of the new shopping centre on the southern side of Gawler Street and the pre-existing shops on the northern side of Gawler Street it is anticipated that there will be an increase in foot traffic across Gawler Street.

Construction was still under way at the time of our visit however it was noted that a zebra or wombat crossing could be a feasible option here. The only concern is that this would likely be placed relatively close to the signalised intersection with Murray Street.

RAA will re-assess this location upon completion of the new developments.

### *Lyndoch Valley Road past St Jakobi School*

The speed limit of Lyndoch Valley Road is 100km/h south of the school, and 80km/h north of the school. During the times of 8-9am and 3-4pm on school days the speed limit is reduced to 60km/h by means of variable speed limits. The issue raised by Members is that many motorists do not have time to read the small supplementary plate and instead adhere to the larger 60km/h sign at all hours.

This variable speed limit signage is compliant with Australian Standards however we recommend that this zone is controlled with an electronic variable speed signs as this is much clearer in portraying the variable speed and will show the correct speed limit at the right time of day. As a minimum, current variable speed limit signage should be increased in size such that the supplementary plate is easier to read.

### *Penrice Road/Stockwell Road*

Duplicated stop signs and pavement bar treatments were good. Line marking was in poor condition and is due for a refresh and protection of culverts on the southern side of the intersection should be considered.

### *Penrice Road/Murray Street*

Sight distance turning out of Penrice Road in Angaston was noted to be fairly poor, and this was exacerbated by parked vehicles.

There was a lack of give way signage and a holding line, and it is recommended that this treatment is installed.

### *Stockwell Road/Angaston Road*

The intersection was quite busy and a smooth polished surface was noted approximately 30m from the intersection on Stockwell Road. Positively, a reseal had addressed this issue closer to the intersection.

Sight distance was acceptable, as were other treatments at the intersection including duplicated stop signage and pavement bar treatments.

### *Cricks Mill Road*

Cricks Mill Road was in good condition. Safety barrier installation was prominent and will greatly reduce the frequency and severity of run off road or hit fixed object crashes. There was some concern regarding limited space to pull over in case of an emergency or breakdown.

### *Heinrich Road*

Surface conditions were generally quite good at the time of our assessment

### *Heinze Road*

Grading had been recently completed at the time of our visit and conditions were very good.

### *Hentschke Road*

Some corrugations and loose material on bends were identified. Wet weather roads branching off of Hentsche Road were generally well signed.

### *Braunack Road*

Surface conditions were generally quite good at the time of our assessment

### *Turretfield Road*

Surface conditions were acceptable at the time of our assessment

### *Rosedale Road*

Surface conditions were acceptable at the time of our assessment. It appeared as though grading had been recently completed.

### *Rosedale Scenic Road*

The surface was of acceptable quality however there were a number of hazards identified. No curve warning signage was installed and there were some significant steep drop offs with no barrier protection. It is recommended that curve warning signage is installed and the steep drop offs are protected with w beam barrier.

### *Eden Road*

When entering from Gomersal Road, Eden Road was not signed as a 'dry weather road only' whereas other roads in similar condition in the area are. It was noted that this signage was installed on Both Road when entering from Gerald Roberts Road. It is recommended that 'dry weather road only' signage is installed on Eden Road when entering from Gomersal Road

### *Gerald Roberts Road*

Surface conditions were generally acceptable at the time of our assessment. Due to a number of tourist destinations and the link with Seppeltsfield Road, Gerald Roberts Road should be considered for sealing in future. A number of unprotected hazards and drop offs were also identified, and it is recommended that these are assessed and barrier protection applied.

### *Neldner Road*

Generally in acceptable condition however there were some minor corrugations and small potholes noted. It is suggested that a give way sign is installed for traffic on Neldner Road at the intersection of Neldner and Heinze Roads.

Other Key Recommendations	Authority
<ul style="list-style-type: none"> <li>Install G-74 'Railway Crossing No Longer in Use' signs at all disused rail crossings.</li> </ul>	All
<ul style="list-style-type: none"> <li>Further implementation of 'drive on left in Australia' signs – consider issuing to wineries and tourist destinations in the area and installing along major tourist routes such as Seppeltsfield Road and Barossa Valley Way.</li> </ul>	All
<ul style="list-style-type: none"> <li>Review speed limit signs on approach to towns/settlements. It is suggested that the use of '50 ahead' or '60 ahead' signs prior to a larger '50' or '60' sign at the approach is used to ensure motorists reduce speed accordingly.</li> </ul>	All
<ul style="list-style-type: none"> <li>On Lyndoch Valley Road in the vicinity of St Jakobi School, replace the current variable speed limit signage with electronic variable speed limit signage to ensure greater compliance with both the higher and lower speed limits at differing times of day. As a minimum, current variable speed limit signage should be increased in size such that the supplementary plate is easier to read.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Consider barrier protection of culverts on the southern side of the Penrice Road/Stockwell Road intersection.</li> </ul>	BC
<ul style="list-style-type: none"> <li>Install R1-2 'Give Way' sign and holding line at the intersection of Penrice Road and Murray Street in Angaston.</li> </ul>	DPTI
<ul style="list-style-type: none"> <li>Install curve warning signs and drop off barrier protection on Rosedale Scenic Road.</li> </ul>	BC
<ul style="list-style-type: none"> <li>Install 'Dry Weather Road Only' signage on Eden Road when entering from Gomersal Road.</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Consider Gerald Roberts Road for future sealing. Barrier protection also required in a number of locations.</li> </ul>	LRC
<ul style="list-style-type: none"> <li>Install R1-2 'Give Way' sign on Neldner Road at the intersection of Heinze Road.</li> </ul>	LRC

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Appendices

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## Appendix A: Traffic Investigations Conducted

Horrocks Highway from Gawler to Tarlee including

- Intersection with Roseworthy Road
- Intersection with Ashwell Road

Thiele Highway from Gawler to Eudunda including

- Intersection with Gray Street
- Intersection with Hanson Street
- Intersection with Daveston Road
- Intersection with Borrow Street

Sturt Highway from Gawler to Truro

Gomersal Road including

- Intersection with Sturt Highway
- Intersection with Rosedale Road

Barossa Valley Way including

- Intersection with Hermann Thumm Drive
- Intersection with Krondorf Road
- Intersection with Gomersal Road
- Intersection with Menge Road
- Intersection with Sturt Highway

Owen Road

Templers Road including

- Intersection with Owen Road

Daveyston Road

Greenock Road

Sir Condor Laucke Way including

- Intersection with Parbs Road
- Intersection with Stonewell Road
- Intersection with Samuel Road

Seppeltsfield Road including

- Intersection with Radford Road

Stott Highway from Angaston to Keyneton

Eden Valley Road



Mudla Wirra Road including

- Intersection with Currie Road
- Intersection with Annie Terrace

Lyndoch Road

Kalimna Road including

- Intersection with Research Road
- Intersection with Light Pass Road
- Intersection with Stockwell Road

Ebenezer Road

Belvedere Road

Penrice Road including

- The intersection of Penrice Road and Stockwell Road
- The intersection of Penrice Road and Murray Street (Angaston)

Gawler Street (Nuriootpa)

Cricks Mill Road

Heinrich Road

Heinze Road

Hentschke Road

Braunack Road

Turretfield Road

Rosedale Road

Rosedale Scenic Road

Eden Road

Gerald Roberts Road

Neldner Road

The intersection of Kentish Road and Redbanks Road near Xavier College

The intersection of Angaston and Stockwell Roads

The intersection of Murray Street and Bilyara Road

The One-Way Bridge on Research Road

A curve on Stelzer Road