

Risky Roads

Survey Results 2017



June 2017





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Executive Summary

Between February and March 2017, RAA conducted its second Risky Roads survey, following the first version which was carried out in 2013. The purpose of the survey was to find out from members and non-members alike the issues relating to road safety that cause them most concern. Respondents were invited to make a nomination for either a road or an intersection and to select from a number of categories the ones that most related to their concern.

By the close of the campaign, RAA had received 2,931 nominations both from online and paper submissions. Almost two thirds (1,877) of these were for roads with the remaining 1,054 nominations being made for intersections. A total of 448 unique roads and 454 unique intersections were nominated.

For those who nominated a road, the common link between most of the roads that made the top 10 list was how they all provide links to key tourist destinations, including Kangaroo Island, Clare Valley, the Limestone Coast, the Fleurieu Peninsula and the Yorke Peninsula. If the state has serious ambitions to improve tourism, then it simply must invest in the infrastructure that tourists use in order to access it. Some of these roads pass through the most picturesque parts of the state and yet when road users travel on them the main thing that they remember is how poor the quality of the road is. These issues, which included uneven surfaces, pot holes, narrow lanes, crumbling road edges and a lack of overtaking opportunities are not sustainable and must be addressed.

There have been some significant improvements to the road network across the state and a number of issues that were raised four years ago have been rectified. The improvements to Britannia Roundabout, South Road and Bute to Kulpara Road have been welcomed. However, there are several roads and intersections that have reappeared on the top 10 lists this year, which require attention. Locations such as Blackwood Roundabout, Main South Road, North East Road and the Copper Coast Highway appear in the top 10 lists for the second Risky Roads survey in a row.

For the roads and intersections that appear in the top 10 lists, they will not come as a surprise to the authorities that are responsible for maintaining them. Many already have Roads Management Plans that describe a preferred treatment to improve their safety, although these treatments are almost always desirable and thus subject to funding.

As with the Risky Roads survey of 2013, this year saw groups working together to raise issues on selected roads and intersections; the most prominent of which were for Main South Road between Seaford and Sellicks Beach as well as Oaklands Rail Crossing. Main South Road drew by far the largest number of nominations, particularly for the aforementioned section between Seaford and Sellicks Beach. A number of intersections along Main South Road, particular at Aldinga Beach Road and Tatachilla Road also received numerous nominations. Respondents who nominated Main South Road were in agreement that this single lane road needs to be duplicated; something that RAA would agree with. Population growth, both of which has already occurred as well as what is forecast, combined with the fact that this section of Main South Road has some of the highest traffic volumes for an undivided road, means that now is the time for this road to be duplicated.

For the most nominated intersections, the main blockage that is preventing the upgrade of Oaklands Rail Crossing appears to be purely political between the State and Federal governments, whilst Blackwood Roundabout has now inherited the title of 'worst roundabout in the state' from Britannia Roundabout.

Top 10 Roads*	Top 10 Intersections
Main South Road (Noarlunga to Myponga)	Diagonal Road & Morphett Road (Oaklands Rail Crossing)
Horrocks Highway (Roseworthy to Clare)	Coromandel Parade & Shepherds Hill Road (Blackwood Roundabout)
Princes Highway (Kingston SE to Millicent, via inland)	Aldinga Beach Road & Main South Road, Aldinga
Owen Road (Templers to Owen)	Main South Road & Tatachilla Road, Tatachilla
Main North Road (Gepps Cross to Salisbury)	Dalkeith Road & Main North Road, Blakeview
North East Road (Holden Hill to Chain of Ponds)	Old Princes Highway & Woodside Road, Nairne
Copper Coast Highway (Port Wakefield to Kadina)	Bull Creek Road & Paris Creek Road, Paris Creek
Port Wakefield Road (Dry Creek to Lower Light)	North East Road & South Para Road, Chain of Ponds
Main Road (Blackwood & Coromandel Valley)	Playford Highway & Tinsmith Road, Kingscote
South Eastern Freeway (Glen Osmond to Hahndorf)	Golden Grove Road & Hancock Road, Surrey Downs
Southern Ports Highway (Kingston SE to Millicent, via Robe)	
Barrier Highway (Saddleworth to Manoora)	

**Some roads received an equal number of nominations, hence the inclusion of more than 10 in the list*

The next steps will be to liaise with the relevant authorities that are responsible for maintaining the roads that have been highlighted. RAA will also conduct investigatory work on those other roads and intersections that did not make the top 10 lists.

1.0 Introduction

1.1 Background and Purpose

In February 2017, RAA launched its second Risky Roads campaign. As with the original in 2013, the purpose of this campaign was to ascertain from members what roads and intersections they feel are risky, dangerous or frustrating for road users. By understanding the needs of road users, this may assist in the future allocation of resources. The 2017 survey adds to the growing database of respondent views as gathered in the 2013 survey.

Members were invited to make their nominations by post or online. Risky Road nomination forms were made available in SA Motor. Online nominations, where members could pinpoint exactly where their concerns were on a map could be made via www.raa.com.au/riskyroads. Nominations closed on 31 March 2017. Nominations were accepted from RAA members and non-members alike.

The purpose of this report is to provide a summary of the analysis conducted on those nominations that were received. It will list the top 10 intersections and roads that were nominated the most during the campaign throughout the state.

The report will highlight the issues that have been raised at each site, which will include a sample of the type of comments that respondents left as well as suggestions for improvement.

Crash data, traffic volumes and information around any potential projects at each site will be considered.

2.0 State-wide 2017 Risky Road Results

2.1 Survey Totals

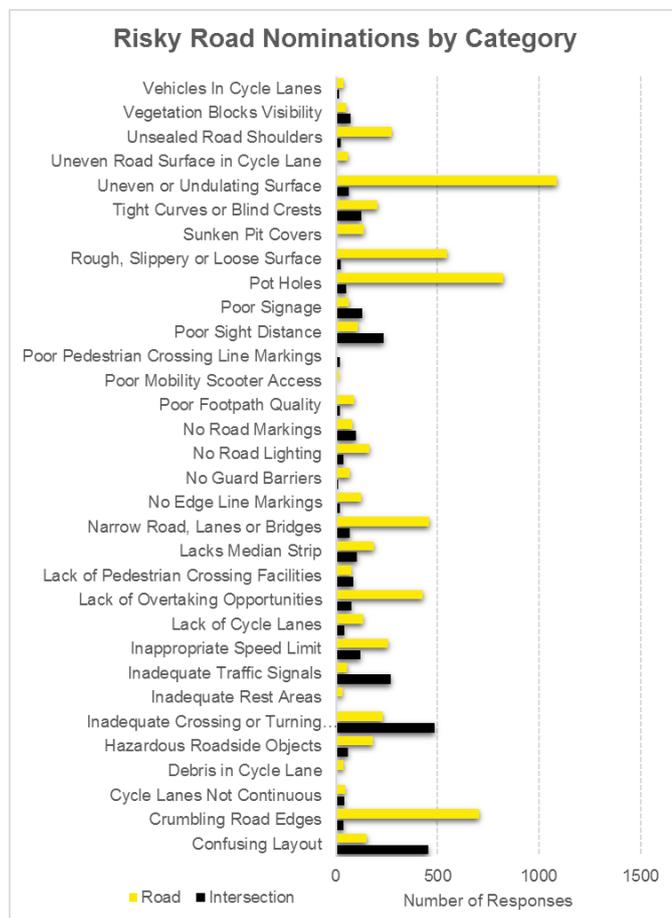
By the close of the Risky Roads survey, RAA received 2,931 nominations. Almost two thirds (1,877) of these were for roads with the remaining 1,054 nominations being made for intersections. A total of 448 unique roads and 454 unique intersections were nominated.

2.2 Most Nominated Issues

In making a nomination, respondents were asked to select from a list of categories what it was that made the road or intersection risky. They were able to nominate more than one problem, but were limited to 5 categories.

For those who nominated a road as part of their nomination, the most popular category selected was Uneven or Undulating Surface, accounting for 58% of nominations. This was followed by Pot Holes (44%) and Crumbling Road Edges (38%).

Conversely, for intersection nominations the most popular category was Inadequate Crossing or Turning Opportunity. This category was selected in 46% of intersection nominations. It was closely followed by Confusing Layout (43%) and Inadequate Traffic Signals (26%). An observation of nominations where Inadequate Traffic Signals was selected highlights a mix of issues involving signals as well as locations that currently do not have them; with nominations inferring that they should be installed.



2.3 Most Nominated Roads

Number	Road	Issues Raised
1.	Main South Road (Noarlunga to Myponga)	Uneven or Undulating Surface Lack of Overtaking Opportunities Narrow Road, Lanes or Bridges Inadequate Crossing or Turning Opportunity
2.	Horrocks Highway (Roseworthy to Clare)	Uneven or Undulating Surface Pot Holes Crumbling Road Edges Rough, Slippery or Loose Surface
3.	Princes Highway (Kingston SE to Millicent, via inland)	Uneven or Undulating Surface Unsealed Road Shoulders Crumbling Road Edges
4.	Owen Road (Templers to Owen)	Crumbling Road Edges Pot Holes Uneven or Undulating Surface
5.	Main North Road (Gepps Cross to Salisbury)	Confusing Layout Uneven or Undulating Surface Crumbling Road Edges
=6.	North East Road (Holden Hill to Chain of Ponds)	Lack of Overtaking Opportunities Confusing Layout Tight Curves or Blind Crests
=6.	Copper Coast Highway (Port Wakefield to Kadina)	Uneven or Undulating Surface Pot Holes Crumbling Road Edges
8.	Port Wakefield Road (Dry Creek to Lower Light)	Pot Holes Uneven or Undulating Surface Rough, Slippery or Loose Surface
9.	Main Road (Blackwood & Coromandel Valley)	Narrow Road, Lanes or Bridges Crumbling Road Edges Pot Holes
=10.	South Eastern Freeway (Glen Osmond to Hahndorf)	Inappropriate Speed Limit Lack of Overtaking Opportunities Pot Holes
=10.	Southern Ports Highway (Kingston SE to Millicent, via Robe)	Uneven or Undulating Surface Crumbling Road Edges Pot Holes
=10.	Barrier Highway (Saddleworth to Manoora)	Crumbling Road Edges Uneven or Undulating Surface Pot Holes

2.4 Most Nominated Intersections

Number	Intersection	Issues Raised
1.	Diagonal Road & Morphett Road (Oaklands Rail Crossing)	Confusing Layout Inadequate Crossing/Turning Opportunity Inadequate Traffic Signals Uneven or Undulating Surface
2.	Coromandel Parade & Shepherds Hill Road (Blackwood Roundabout)	Confusing Layout Inadequate Crossing/Turning Opportunity Inadequate Traffic Signals* Lack of Pedestrian Crossing Facilities
3.	Aldinga Beach Road & Main South Road, Aldinga	Inadequate Crossing/Turning Opportunity Confusing Layout Inappropriate Speed Limit
4.	Main South Road & Tatachilla Road, Tatachilla	Inadequate Crossing/Turning Opportunity Inappropriate Speed Limit Inadequate Traffic Signals*
5.	Dalkeith Road & Main North Road, Blakeview	Inadequate Crossing/Turning Opportunity Inadequate Traffic Signals* Confusing Layout
=6.	Old Princes Highway & Woodside Road, Nairne	Inadequate Crossing/Turning Opportunity Inadequate Traffic Signals Poor Sight Distance
=6.	Bull Creek Road & Paris Creek Road, Paris Creek	Poor Sight Distance Tight Curves/Blind Crests Inadequate Crossing/Turning Opportunity
=8.	North East Road & South Para Road, Chain of Ponds	Confusing Layout Tight Curves/Blind Crests No Road Markings
=8.	Playford Highway & Tinsmith Road, Kingscote	Inappropriate Speed Limit Inadequate Crossing/Turning Opportunity Confusing Layout
=8.	Golden Grove Road & Hancock Road, Surrey Downs	Inadequate Crossing/Turning Opportunity Confusing Layout Poor Sight Distance

**On occasions respondents selected 'Inadequate Traffic Signals' to highlight that the intersection that they selected did not have traffic signals and that they were required.*

2.5 Notable Omissions

Whilst there are many similarities between the results of the most recent Risky Roads survey and the one that was conducted in 2013, there are also a number of notable omissions. This is most likely due to upgrades that have taken place in the subsequent years between the last Risky Roads survey and the current one. The following is a list of some of the more notable upgrades from the top 10 lists of 2013.

- Britannia Roundabout – \$3.2m was spent on Britannia Roundabout in 2013 to split the old original roundabout into two separate roundabouts.
- South Road – There are two large projects that have begun on South Road since the last Risky Roads survey. Both projects are joint State and Federal projects with \$896m being spent on the Torrens to Torrens project to deliver a 4km section of non-stop roadway. The Darlington project will cost \$620m and will deliver a 3km non-stop motorway between the Southern Expressway and Tonsley Boulevard. In addition, in 2015 the Department of Planning, Transport and Infrastructure (DPTI) released a 10 year strategy document for how other sections of South Road could be upgraded although no details on how this will proceed or what it will look like were released.
- Tod Highway - \$1.5m on upgrades has been spent including shoulder sealing and audio tactile line marking between Lock and Tooligie. Additional road widening projects have also been identified in the short and medium term in the Integrated Transport and Land Use Plan.
- Bute to Kulpara Road – A total of \$9m is being spent upgrading this road over three years. The first two stages have been completed. The project when finished will see more than 20km for this road resealed, shoulder widening and pavement reconstruction.
- Intersection of Penola Road & Wireless Road - \$1.2m was spent in 2016 to install traffic signals at this intersection.
- Intersection of Porter Street & Dublin Street - \$20,000 was spent in 2014 to change the priorities for vehicles turning right from Porter Street onto Dublin Street.

3.0 Roads

This section provides a summary of the top 10 roads that have received the most nominations, with the reasons for their nomination provided and comments received around how to improve them listed in *italic*. Note that the following comments and suggestions are those that have been made by respondents through the nomination process and would need to be validated by a roadside audit.

3.1 Main South Road

Risky Road Nominations: 406

Casualty Crashes between 2011-15: 184 (136 Minor Injury, 46 Serious Injury & 2 Fatal)

In 2013, it was Britannia Roundabout that dominated the Risky Roads results. In 2017 it was Main South Road. With 406 nominations, this was by far the most that had been received for any road or intersection.

Main South Road runs between Darlington and Cape Jervis, providing road users with a gateway towards the rapidly expanding suburbs of Seaford, Aldinga and Sellicks Beach as well as Myponga, Yankalilla, Normanville and Cape Jervis; the latter of which connects the mainland with Kangaroo Island. Between Darlington and Griffiths Drive, Old Noarlunga the road is multi carriageway. From Griffiths Drive, heading south it is predominantly a single carriageway in each direction, with the exception of a handful of overtaking lanes.

Whilst nominations were dotted along Main South Road, the majority of them related to the section that runs between Noarlunga and Myponga. 380 out of the 406 respondents dropped a pin on the map along this section. In March 2017, The Advertiser ran an article in which the 'Main South Road Seaford to Sellicks Action Group' did their own campaigning to encourage users of this road to make nominations for it through the Risky Roads campaign. It seems likely therefore that the high number of nominations is in part as a result of this.

Starting at Noarlunga, from the intersection with Griffiths Drive, the set speed limit is 60km/h. Shortly after it increases to 90km/h, where it remains until Aldinga, with the exception of a short stretch from Little Road to Hart Road where the speed drops to 70km/h. Much of the rest of Main South Road is posted at 100km/h, except when passing through the towns of Myponga, Yankalilla and Normanville, where the speed limit is dropped to reflect these built up areas. The speed limit has changed on Main South Road in recent times. In 2016, which is outside the scope of the crash analysis in this report, the speed limit between Seaford Heights and Aldinga was reduced from 100km/h to 90km/h and between Little Road and Hart Road it was reduced from 80km/h to 70km/h.

Traffic Volumes have increased substantially in recent years with some sections of road experiencing almost a doubling of the number of vehicles that use it. This is particularly evident between Griffiths Drive and Rogers Road.

Traffic Flow along Selected Sections of Main South Road

Start Section	End Section	2007 VPD*	2017 VPD*	% Change
Griffiths Road	Tatachilla Road	8,700	13,300	↑ 53%
Tatachilla Road	Port Road	8,800	17,000	↑ 93%
Port Road	Aldinga Road	9,800	15,600	↑ 59%
Aldinga Road	Aldinga Beach Road	9,700	17,600	↑ 81%
Aldinga Beach Road	Rogers Road	7,000	10,400	↑ 49%

**Data from Traffic Flow Maps as produced by DPTI and LocationSA*

Respondents to the Risky Roads survey nominated Main South Road for its uneven or undulating surface, a lack of overtaking opportunities, as well as being too narrow. Respondents also nominated it for its inadequate crossing or turning opportunities, which is borne out by the number of intersections along Main South Road that also made the top 10 list. The number of pot holes was also highlighted.

The most common comment made by respondents regarding Main South Road was that it was inadequate for the sheer volume of traffic that uses it. Respondents cited the poor condition of the existing surface, stating that when localised repairs are made, they do not last very long before they break down and pot holes re-emerge. The undulating surface was another factor that led to respondents nominating this road. Several respondents also highlighted the damage that had been caused to their vehicles as a result of hitting potholes on Main South Road.



The lack of overtaking opportunities was another reason why respondents nominated Main South Road. The increase in traffic volumes, and the increase of heavy vehicles on the road, combined with few opportunities to overtake was a concern for road users. Respondents claimed that the road has not been upgraded to cater for the housing increase in the area over the past 10-15 years.

Given the urban sprawl into areas such as Seaford and Aldinga, amongst others, it was also suggested that the road was not safe for cyclists. In particular, the road was too narrow and that having to leave the required 1.5m gap when overtaking cyclists was unsafe.

There is some crossover between those who nominated Main South Road and those who nominated intersections along it. These individual intersections are covered later in the report, although some nominations for Main South Road made reference to intersections as a collective, stating that the speed limit and lack of turning opportunities made them risky.

When respondents were asked how it should be improved, the response was overwhelmingly in favour of having Main South Road duplicated. Better street lighting, and separated bicycle paths were amongst the other suggestions.

Suggestions for Improvement:

- *This section of Main South Road needs to be made into a dual lane road as soon as possible as it is so crowded and dangerous.*
- *Main South Road would be much safer if it was a dual lane road as the traffic has increased. By adding a bike lane that would make it safer for bicycle riders as well as motorists.*
- *This section of road needs to be duplicated to cope with the growth of the southern area.*

RAA Comment: As part of the 2016 changes which led to a speed reduction along certain sections, the State Government also announced that they would be spending \$11.2m on safety improvements for Main South Road. These improvements included the construction of a roundabout at the intersection of Main South Road and Port Road, and 1.5km of median wire rope installed between Port Road and Malpas Road. These works were expected to be completed in 2017 but at the time of writing it is unclear what progress these works are at.

Whilst any upgrades to the road network are welcomed, there now needs to be some commitment from all of the state political parties to upgrade and duplicate Main South Road. There also needs to be a plan for this duplication which would take into account vehicle movements at intersections. Currently there are few other single carriageway roads in the state that have higher traffic volumes than Main South Road. These traffic volumes, which have increased so dramatically in recent times, are only likely to increase further as urban sprawl and more housing developments occur.

RAA has recently carried out a piece of analysis which looked to establish which of those higher speed sections of Main South Road carries the highest crash risk, based on recent history. This gives the best indication of which sections of road should be targeted for safety upgrades. This type of analysis highlights the safety issues that Main South Road currently faces, but also indicated that any upgrade, which may include the duplication of the road needs to go beyond the Seaford to Sellicks Beach section that most respondents raised in the Risky Roads survey.

3.2 Horrocks Highway

Risky Road Nominations: 100

Casualty Crashes between 2011-15: 102 (76 Minor Injury, 21 Serious Injury & 5 Fatal)

The Horrocks Highway is part of a regional section of Main North Road between Gawler and Wilmington. It was renamed in 2011 and provides a link to the popular Clare Valley tourist region. It is a state maintained road which carries between 1,400 and 7,800 vehicles per day. Traffic volumes are highest between Clare and Sevenhill. It is typical of a rural highway, being undivided. Apart from when the road passes through towns, the designated speed limit is 100km/h and there are overtaking lanes north of Hamley Bridge Road and then north of the intersection with the Barrier Highway.

There was an even split between those who nominated the whole of Horrocks Highway and those who nominated a section of it. For the latter, respondents mainly wanted to highlight their concern with the section between Roseworthy and Clare.

Respondents mainly nominated the Horrocks Highway for its uneven or undulating surface. They also had issue with pot holes, crumbling road edges and for the roads rough and loose surface. The primary focus of the comments that respondents left highlighted the often large undulations in the road surface which makes for a bumpy and unpleasant journey. Respondents noted the advisory 'Uneven Surface' and recommended reduced speed limit signs that had been installed, but highlighted that this should only be an interim measure. The undulations in the road surface are not only a problem for regular users of this road but pose increased risks for tourists, especially those who may be towing caravans or trailers.



As this road carries a mix of vehicle types, in their comments respondents also highlighted a lack of overtaking opportunities. Respondents said that this was particularly an issue at harvest times and during peak tourist seasons.

Based on the aforementioned issues, it will come as no surprise that respondents wanted the undulations to be fixed. A number of respondents also suggested that the road needed to be

widened and in certain sections that guard railing needed to be installed to protect from drop offs at the side of the road.

Suggestions for Improvement:

- *There is no other option but to completely re-do the entire road. Get rid of the undulating surfaces and potholes properly and increase overtaking opportunities.*
- *Resurface the road correctly, don't just scrape the top and top dress the road.*
- *I believe many of the undulations on this road are due to the heavy grain trucks that frequent this area especially from the Roseworthy grain storage facility. Surely the road can be made more solid due to the known usage by these heavy vehicles.*
- *The worst undulating section north of Roseworthy requires a long term solution beyond the band aid maintenance work currently applied.*

RAA Comment: The Horrocks Highway offers one of the most picturesque drives in the state with some of the best outlooks of South Australian countryside. It is another example of a road that leads to one of the states' premier tourist destinations, yet when road users travel on it the main thing that they remember is how poor the road is. If the state has serious ambitions to improve tourism, then it simply must invest in the infrastructure that tourists use in order to access it. The drive north from Roseworthy can be particularly unpleasant due to the undulations in the road.

Advisory signs highlight the uneven surface along the road, along with a recommended speed limit, but this is a reactive measure and infrastructure improvements need to be planned in order to address these issues. In addition to this, several overtaking lanes should also be installed.

The upgrade to the intersection with the Barrier Highway that was done in 2014 was welcomed.

3.3 Princes Highway

Risky Road Nominations: 36

Casualty Crashes between 2011-15: 131 (88 Minor Injury, 39 Serious Injury & 4 Fatal)

The Princes Highway is a state maintained road that carries between 1,000 and 4,000 vehicles per day, with heavy vehicles comprising up to 31% of the total traffic volume. The busiest section of the Princes Highway is located between Mount Gambier and the state border with Victoria. The road is undivided and has a speed limit of 110km/h.

The main reasons why respondents nominated the Princes Highway was for its uneven or undulating surface as well as for having unsealed road shoulders. Respondents also nominated the road for its crumbling road edges and for being too narrow.

Around two-thirds of all nominations for the Princes Highway were for a particular section of the road. Where respondents nominated a section, it tended to be between Kingston SE and Millicent, with a particular focus around the Clay Wells area.

The narrowness of the road was an issue that was highlighted in the comments that respondents made. It was suggested that the road is too narrow for vehicles, especially the heavy vehicles that use it. This in turn adds pressure to the road edges and as such leads to crumbling. Respondents commented that when facing a heavy vehicle that is approaching them, it often feels too close when they pass.



Similar to the Horrocks Highway, respondents that nominated the Princes Highway called for it to be rebuilt in order to smooth the road surface. This would need to include road and shoulder widening as well as the installation of edge line markings.

Suggestions for Improvement:

- *Road requires solid shoulders to enable lanes to be widened slightly and edges to be secure and well-marked. Many of the drainage culverts need to be better marked and perhaps barriers erected for improved safety.*
- *Fix the surface making them even. Don't just patch - re-surface and widen the entire road.*
- *Paint lines on edges so motorists facing oncoming traffic at night can determine the edge of the road. At present it is very difficult to see the edge and quite possibly a driver could run off the edge when facing glare of oncoming traffic.*

RAA Comment: The Princes Highway is another example of a tourist route that is not up to scratch. It is possibly the closest to what South Australia has as a 'Great Ocean Road' and provides a link to the actual Great Ocean Road in Victoria. RAA has conducted many highway assessments along the Princes Highway and the levels of roughness and rutting as well as the narrow width of the road have been documented as ongoing concerns. There are a handful of overtaking lanes, although these are mainly located between Mount Gambier and Millicent. The Princes Highway would benefit from significant investment to widen the seal of the road, to resurface it and to add more overtaking lanes.

The margin of error that heavy vehicles have to operate with on this road is way too small. Therefore RAA recommends the highest priority for this road, in particular between Kingston SE and Millicent should be to widen it to ensure adequate room for large vehicles to pass one another in sections that are currently narrow. Some work to improve road safety has been done on the Princes Highway, but there are still a number of things that need further improvement such as installing audio tactile line marking.

3.4 Owen Road

Risky Road Nominations: 32

Casualty Crashes between 2011-15: 9 (7 Minor Injury & 2 Serious Injury)

Owen Road, which is located in the north of Adelaide, stretches for 44km between Templers, through the towns of Hamley Bridge and Owen before heading towards Balaklava where it intersects with Traeger Road. It is a state maintained sealed road and has a speed limit of 100km/h, although there have been temporary speed restrictions in place dropping the limit to 60km/h since late-2016. It carries between 550 and 1,200 vehicles per day, of which 6.5%-10% are heavy vehicles. These traffic volumes have changed little in the past 5 years. It is classed as a rural arterial road.

The majority of respondents who nominated Owen Road did so for its entire length. Those who nominated a section of Owen Road tended to make reference to the sections between Owen and Hamley Bridge as well as between Hamley Bridge and Templers. The road was nominated due to having crumbling road edges in the main. It was also nominated for having pot holes, an uneven or undulating surface and one that is rough, slippery or loose. Respondents highlighted the many patchwork jobs that have been done on Owen Road to fill potholes, which then quickly deteriorate.



For ways in which the road can be improved, respondents were unanimous in highlighting that the road itself is beyond the point where local patching can be done. They have called for the entire road to be resurfaced from scratch. Respondents claim that the road has been left in a state of disrepair for too long.

Suggestions for Improvement:

- *The whole stretch of road needs to be resurfaced or at least a better patch up than they have been doing. The last lot of patching that was done didn't last a week!*
- *Needs a whole new road instead of patch ups all the time making it worse.*
- *The road has been left in a state of disrepair for too long.*

RAA Comment: The condition of Owen Road is reminiscent of the Bute to Kulpara Road that was featured in the 2013 Risky Roads report. In February 2017 it was announced that \$1.7m would be spent on a five kilometre section of Owen Road, between Alma South Road and Emu Road which is north of Hamley Bridge. RAA welcomes this investment but is concerned that it falls well short of what is required to bring the road up to an acceptable standard.



3.5 Main North Road

Risky Road Nominations: 30

Casualty Crashes between 2011-15: 902 (855 Minor Injury, 43 Serious Injury & 4 Fatal)

Main North Road is a main arterial road that connects urban centres of North Adelaide and Gawler. It extends well beyond Gawler and represents an alternative route to Port Augusta. However, for the purposes of the Risky Roads survey, the section to Gawler will be referred to. For the most part, Main North Road carries between 35,000 and 60,000 vehicles per day.

The main reason respondents nominated Main North Road was for its confusing layout. It was also nominated for having an uneven or undulating surface, crumbling road edges and potholes. Most people were inclined to nominate a section of Main North Road rather than its entire length. For those who nominated a section of Main North Road, their main area of concern was between Grand Junction Road at Gepps Cross and The Grove Way at Salisbury Heights.



For those who nominated Main North Road for its confusing layout they mainly made reference to the number of intersections along it where additional lanes are added, only for them to disappear soon after passing through. Respondents claimed that the constant requirements to merge causes frustration and congestion.

In response to this particular complaint, respondents suggested that an additional lane should not just be added at intersections, but installed along this particular stretch of Main North Road.

Suggestions for Improvement:

- *A reseal of surface, better lighting and extension of road from two lanes to three lanes.*
- *I would like to suggest clear way times be extended to 0700 to 0930 and 1500 till 1900. This will help flow and students riding bikes not having to go around parked cars.*
- *Make it 3 lanes for the entire length rather than constantly changing between 2 and 3.*
- *The three merging lanes should be combined into a third lane. The existing exit lane could be as the third lane.*

RAA Comment: The additional lanes that respondents refer to in their nominations have been installed in an attempt to try and increase the amount of traffic that can pass through these intersections. However, respondents in their comments tend to find them frustrating, claiming that they interrupt the flow of traffic and cause frustration amongst road users. RAA is unaware of any research that has been conducted that demonstrates their effectiveness.

There have been some significant increases in traffic volumes along sections of Main North Road, particularly north of Elder Smith Road, which now carries over 56,000 vehicles per day. Given these recent increases there is now a requirement to extend the number of lanes on Main North Road to three lanes all the way through to Gawler.

3.6 North East Road

Risky Road Nominations: 27

Casualty Crashes between 2011-15: 560 (526 Minor Injury, 30 Serious Injury & 4 Fatal)

North East Road stretches for 77km and connects Adelaide with Mannum, passing through the Adelaide Hills. It passes through both built up as well as less urban areas. From Tea Tree Gully through to Adelaide it can carry up to 50,000 vehicles per day, although through the hills, this drops to 3-5,000.

In terms of location, a wide variety of issues have been raised in both the built up sections of North East Road as well as the hills section. As a collective, respondents nominated North East Road mainly for a lack of overtaking opportunities. They also highlighted its confusing layout, the number of tight curves and for being narrow.

One of the main issues that was raised related to the ban on right turns at the intersection with Sudholz Road which was completed in 2015. Respondents claim that when travelling north east, there are gaps in the median strip beyond Sudholz Road which allow road users to turn right into businesses. Respondents questioned why these movements were still allowed, especially when right turns had been banned at Sudholz Road. This causes unnecessary congestion and frustration amongst road users which leads to risky behaviour. Some respondents suggested that there should be no right turns allowed until the intersection with Tarton Road.

Other issues that respondents highlighted along the built up section of North East Road was the poor quality of the road surface, with numerous pot holes and sunken pit covers as well as the resulting damage from recent burst water mains. Also, from a cycling perspective, others commented on how the bicycle lanes are part time. Outside the bicycle lane hours of operation, road users park along them which they are entitled to do. However it was reported that by having parking, which effectively reduces North East Road from three lanes to two, it forces traffic to undertake risky lane changes.

In the hills section of North East Road, east of Tea Tree Gully, respondents highlighted the tight curves and a lack of overtaking opportunities. There were also complaints regarding the speed of vehicles being either too high, resulting in tailgating, or too low and that the latter do not use the slow turnout lanes that are provided.

Some respondents also made reference to the intersection of North East Road and South Para Road. This particular location received enough nominations for it to be featured in the top 10 intersections list and is covered later in this report. However, that section of North East Road, between Tippett Road and South Para Road drew complaints for having an overtaking lane that was too short. It was also commented that along various sections, there are roadside hazards, including trees, rocks and banks that are too close to the edge of the road.

In the hills section, respondents wanted more policing of driving behaviour and they also requested more overtaking lanes.

Suggestions for Improvement:

- *There needs to be non-stop bicycle lanes and the clearway times need to be extended.*
- *The road surface has numerous patches where it has been repaired - the whole length of the road (particularly from City to Modbury) should be completely resurfaced, and the access pits rationalised.*

-
- *Block the median strip so that there are no turns allowed until Tarton Road.*
 - *Better policing of driving behaviour is required throughout the Chain Of Ponds area.*
 - *The road needs more overtaking lanes and people educated to use them.*

RAA Comment: Unlike other roads that have been nominated, the problems described on North East Road are varied and as such a single solution does not apply. In the built up section of North East Road, traffic movements need to be investigated in the vicinity of Sudholz Road. North East Road is a primary arterial road and as such the clearway hours should be reviewed, like they have been done on Greenhill Road. In addition, the road surface needs to be improved to address the sunken pit covers and where there has been burst water mains damage.

Through the Adelaide Hills section of North East Road work has been carried out along a dangerous section, particularly between Tippett Road and South Para Road. This included installing a right turn filter lane and a separated left turn lane for those vehicles entering Tippett Road. This upgrade has meant that the previous non-compliant overtaking lane which passed through the intersection with Tippett Road was shortened, thus limiting overtaking opportunities. What was an overtaking lane was converted into a slow vehicle turnout lane. Risky Road respondents called for this section of road to be reverted back to the way it was, but given the crash history at this location, this is no longer an option. What needs to occur from now on is to investigate the installation of lane widening along North East Road in the Adelaide Hills to facilitate the safer movement of vehicles.

3.7 Copper Coast Highway

Risky Road Nominations: 27

Casualty Crashes between 2011-15: 45 (33 Minor Injury, 8 Serious Injury & 4 Fatal)

The Copper Coast Highway runs in an east-west direction along the northern part of the Yorke Peninsula, connecting Port Wakefield with Kadina and Wallaroo. It featured in the top 10 Risky Roads of 2013, continuing that trend in 2017. It is operated by the State Government and, with the exception of when it passes through local towns, has a designated speed limit of 100km/h. Between Port Wakefield and Kadina, there is on average 2,100-4,900 vehicles a day with up to 17% of these being heavy vehicles. Further west, between Kadina and Wallaroo there are 7,000-9,000 vehicles per day. The road has experienced moderate increases in traffic volumes in recent years, although these have been more pronounced between Kadina and Wallaroo.

Out of the 27 nominations, 16 respondents said that their nomination related to the entire stretch of the Copper Coast Highway, with the remaining 11 highlighting a particular section. Those who highlighted a section, said that a stretch of the Copper Coast Highway starting approximately two kilometres east of Paskeville and running west through to beyond Thrington Road was particularly poor.

The most common nomination type for the Copper Coast Highway was that it has an uneven or undulating surface. Respondents also highlighted the presence of pot holes as well as crumbling road edges. In their comments, respondents stated that the Copper Coast subsides unevenly in several directions, particularly in the aforementioned section in the vicinity of Paskeville. This makes it all the more difficult to drive on, especially if the road user was a motorcyclist or even towing a trailer or caravan. The latter is particularly pertinent given that the road connects to a tourist region.

In terms of how respondents want the road to be improved, having it levelled out was a common suggestion. Many respondents said that it needs rebuilding from the base and not just filled where the existing depressions are. The installation of overtaking lanes were also suggested.

Suggestions for Improvement:

- *There are different patches of this road that need resurfacing and there are dips in the road. It needs fixing considering it is the only road in and out of the Copper Coast.*
- *The whole section of road between Kulpara and Kadina is in terrible condition and needs replacing.*
- *Patching the road does very little in terms of making the road safer because it is not long before the depressions return. The road needs rebuilding.*

RAA Comment: Similar to the Horrocks Highway, the condition of the Copper Coast Highway is poor and does little to enhance the area as being one of the state's prime tourist regions. The Bay of Biscay soil that it sits on does little to give the road the stability that it needs. Therefore, work needs to be carried out to stabilise the soil and most likely needs more road base material. Consideration needs to be given towards complete road rehabilitation, particularly in the vicinity of Paskeville.

3.8 Port Wakefield Road

Risky Road Nominations: 26

Casualty Crashes between 2011-15: 481 (424 Minor Injury, 47 Serious Injury & 10 Fatal)

Port Wakefield Road is a federally maintained road that connects Adelaide to Port Wakefield which then opens up to the regions of the Mid North, the Yorke Peninsula as well as Port Pirie and Port Augusta. It is dual carriageway until the outskirts of Port Wakefield. Between Gepps Cross and the Northern Expressway it carries 40,000-50,000 vehicles per day, although north of the Northern Expressway through to Port Wakefield this drops to 8,000-10,000 vehicles per day.

The split of those nominating Port Wakefield Road for its entire length to those nominating a section was roughly 50-50. However, many respondents dropped the pin on the map between Dry Creek and Lower Light.

Port Wakefield Road was nominated mainly for its condition. Respondents highlighted the number of pot holes, the uneven or undulating surface and the rough and loose surface as being the primary reason for their nominations.

Comments that accompanied the nominations highlighted the poor condition of the left hand lanes in both directions. Respondents highlighted issues with rutting, pot holes and undulations.

Perhaps unsurprisingly, respondents called for the road to be resurfaced.

Suggestions for Improvement:

- *Complete re-surfacing of both left lanes between Virginia & Inkerman. Patches do not make for the smooth ride that is available in the right hand lanes.*
- *Northbound road needs proper compaction because of the increase in size and numbers of heavy vehicles.*
- *The road is clearly suffering surface failure due to heavy traffic. This section clearly needs complete surface replacement and not spot repairs currently being applied.*

RAA Comment: The Northern Connector project, which will link the South Road Superway with the Northern Expressway will alleviate some of the pressure on Port Wakefield Road. However, many people complained about the quality of sections of Port Wakefield Road that are located north of the Northern Expressway. The sheer quantity of heavy vehicles that use the left hand lane of Port Wakefield Road have led to significant rutting, which in wet conditions can cause hydroplaning. Some of these sections have been identified by DPTI and there are works currently occurring to rectify them, particularly in the southbound direction. DPTI announced in March that they would be conducting 6.4km of resurfacing works, mainly on southbound lanes but this should just be a first step towards addressing the ride quality issues in both directions. Moving forward, RAA would like to see additional Commonwealth funding to improve this important strategic route.

3.9 Main Road (Blackwood & Coromandel Valley)

Risky Road Nominations: 26

Casualty Crashes between 2011-15: 117 (107 Minor Injury, 7 Serious Injury & 3 Fatal)

Main Road runs through Blackwood and Coromandel Valley in the Adelaide Hills. It is a state maintained road that connects Belair with Blackwood, Hawthorndene, Coromandel Valley and ends at Chandlers Hill Road. There are several speed limits in operation along Main Road. From Belair it begins at 60km/h reducing to 50km/h beyond the level crossing through to Blackwood Roundabout. Beyond the roundabout it returns to 60km/h as it passes through Coromandel Valley. Beyond Black Road it increases to 70km/h where it remains until Chandlers Hill Road.

Respondents nominated Main Road because of how narrow it is. They also flagged that it has crumbling road edges, pot holes, a rough surface and that there are hazardous roadside objects that exist. Whilst a handful of nominations were for locations north of Blackwood Roundabout, many of them were actually for a section further south, particularly near Black Road.

For this particular section, respondents felt that the road has a dangerous drop off for most of its distance between Black Road and Oakridge Road without guard barrier protection. It was also highlighted that the road surface along this particular section was breaking down. The lack of cycling infrastructure was also mentioned, with respondents highlighting the risks that poor sight lines and badly worn edges when passing through corners poses.



Respondents have called for the road to be realigned, widened and resurfaced. They also called for the installation of guard barriers and some also called for a speed limit reduction.

Suggestions for Improvement:

- *Reduce the speed limit, widen the road and repair it to acceptable standards.*
- *Complete the Armco railing. Maintain railing, signs & posts. Clear obstructing vegetation. Provide some additional width in tight areas.*
- *Reduce speed and more warnings for very sharp bends.*

RAA Comment: This section of Main Road in Coromandel Valley certainly needs barrier protection to protect from drop-offs. Guard barriers are evident prior to Black Road but none south of it where the road narrows substantially through to Oakridge Road. Ideally the road needs to be widened but this would need to involve significant excavation of the hillside. The geography of the area that Main Road passes through makes upgrades difficult. The quality of the road surface and signage is acceptable but the road width is a concern.

3.10 South Eastern Freeway

Risky Road Nominations: 23

Casualty Crashes between 2011-15: 190 (160 Minor Injury, Serious Injury & 8 Fatal)

The South Eastern Freeway is a Commonwealth road that is on the National Land Transport Network. It too featured in the top 10 list of the Risky Roads survey of 2013. Stretching between Taillem Bend and Glen Osmond, the freeway has a speed of 100km/h or 110km/h, although restrictions are placed on the downtrack of the South Eastern Freeway between Crafers and Glen Osmond. Within this section, heavy vehicles are restricted to 60km/h whilst other vehicles are restricted to 90km/h.

Between Glen Osmond and Crafers, the South Eastern Freeway carries in the region of 50,000 vehicles per day, with 9% of these being heavy vehicles. The type of crashes that tend to occur on the South Eastern Freeway tend to involve either rear end crashes as a result of driver inattention or those where a vehicle leaves the road, hitting fixed obstructions.

Whilst the freeway stretches to Taillem Bend, the majority of respondents nominated it due to issues that occur between Hahndorf and Glen Osmond.

Respondents nominated the South Eastern Freeway for its inappropriate speed limit, a lack of overtaking opportunities, the number of pot holes and for its uneven or undulating surface. There were many comments raised regarding the disparity between the speed limit for trucks and for other vehicles and the problems that this can cause. Respondents also raised issues with the 'on ramps' at several interchanges, particularly at Crafers, Stirling and Hahndorf, stating that those entering the freeway often push their way onto the main carriageway without giving way.

A cycling related issue was raised by a number of respondents. The dangers that cyclists face when trying to cross the freeway at the tollgate at peak times to get to the bicycle lane were reported.

In response to the issue of road users pushing their way onto the freeway, respondents suggested that give way signage be installed to remind those motorists of their obligations. A suggestion of extending the length of the on ramps was also made.

Suggestions for Improvement:

- *Road needs resurfacing and needs to cater for very heavy loads. There are a lot of very large trucks on this road.*
- *Please improve the crossing for cyclists coming down the bike track. A bridge would be helpful or improve the footpath on the Northern side of the road to enable cyclists to continue down all the way to the Portrush Road intersection.*
- *Appropriate signage, road markings and even small raised borders on entering the freeway from a carriage way to enhance the smooth transition into oncoming traffic.*
- *Give way signs at entry to freeway or intermittent traffic lights to control ingress.*

RAA Comment: One of the largest projects to occur on the South Eastern Freeway in recent years has been the construction of a new interchange at Mount Barker. This has provided vehicles with long on and off ramps for vehicles to enter and leave the freeway. This should now facilitate a review of the other on ramps, particularly at the Crafers and Stirling interchanges which are too short. They would have been designed to accommodate a much smaller number of vehicles than they currently have to cater for and they need to be improved.

This is potentially one of the reasons why respondents complained about road users forcing their way onto the freeway from these on ramps. It is likely that this is necessary because there is little time and space to undertake alternative action.

When travelling on the freeway, the requirement to 'Keep Left Unless Overtaking' can often be a challenge due to the presence of slower moving heavy vehicles which are subject to a lower speed, either due to the steep incline of the uptrack or the requirement to travel slower than other vehicles on the downtrack. Therefore, many motorists choose not to use the left hand lane because of the disparity in the speed limits that apply between heavy vehicles and passenger vehicles. RAA supports the need to have a reduced speed limit for heavy vehicles which was imposed in 2013, but there needs to be further investigation into the impacts of longer term freight movement on the freeway.

RAA has also long called for an increase in signage to control vehicle movements, particularly on the downtrack of the freeway. It is clear that this is an issue due to the high number of expiation offences that are detected at the fixed safety cameras that are positioned at Crafers and at Leawood Gardens.

3.11 Southern Ports Highway

Risky Road Nominations: 23

Casualty Crashes between 2011-15: 39 (21 Minor Injury, 14 Serious Injury & 4 Fatal)

The Southern Ports Highway, located on the Limestone Coast is a state maintained 120km highway that connects Kingston SE and Millicent, which passes through the popular tourist destinations of Robe and Beachport. It is a typical rural highway in that it is an undivided road, with a speed limit of 110km/h. Up to 2,000 vehicles use this road on a daily basis.

Out of the 23 nominations it received, 13 were for the entire road, whilst 10 were for a section of it. However, for those who nominated a section, these varied across the whole highway, with some respondents highlighting poor sections between Kingston SE and Beachport and some flagging up sections that were between Beachport and Rendelsham.

In the Risky Roads survey, it was nominated for its uneven or undulating surface, for crumbling road edges and for pot holes. Respondents stated that the road has lacked maintenance for a number of years. Given that the road operates as a major tourist route for the region, respondents flagged the difficulty that those towing caravans or trailers have when trying to drive along it due to its unevenness. It has been alleged that this is due to the ongoing patching of the road, which does little to improve the ride quality.

In their suggestions for how they would improve the road, most people agreed that the patching of the road had achieved very little, and that it was time for the road to be resurfaced.

Suggestions for Improvement:

- *Full resurface instead of the poor quality patchwork repairs. This is a main coastal tourist road which appears to be neglected.*
- *Widen the road and remove all undulations, remove dense shrub, trees on either side of the road and re-seal the road evenly.*
- *The road needs to be resurfaced, not patched. Patching it only makes it worse.*
- *Badly needs the edges filled up to bitumen height and a white line on the edge of the road would be fantastic when it is wet and hard to see the road.*

RAA Comment: The Southern Ports Highway is another road that leads to key tourist destinations that appears to be lacking in basic road safety infrastructure. As another key tourist route, it needs to be brought up to standard with wider lanes and shoulder seals in addition to addressing the existing poor road surface.

3.12 Barrier Highway

Risky Road Nominations: 23

Casualty Crashes between 2011-15: 57 (37 Minor Injury, 16 Serious Injury & 4 Fatal)

The Barrier Highway is a primary freight route that connects Adelaide with the NSW state border and Broken Hill. It is a state maintained road that predominantly is undivided with a speed limit of 110km/h. There are no overtaking lanes on the Barrier Highway. Traffic volumes are generally low, with average flows of 500 to 1,700 vehicles per day. Approximately 15% to 37% of this traffic is heavy vehicles.

The split of those who nominated the entire road to those who nominated a section was roughly 50-50. For those who nominated a section of the Barrier Highway, it tended to fall between Saddleworth and Manoora.

Nominations regarding the quality of the road surface were prominent for the Barrier Highway. Respondents nominated it due to its crumbling road edges, as well as for having an uneven or undulating surface. Issues with pot holes were also raised as well as the road width being too narrow.



In their comments, respondents stated that there can be sharp drop offs at the edge of the road where heavy vehicles wear the gravel shoulders away. Perhaps one of the reasons why this occurs is because of the undulating surface of the road, which makes it more difficult for heavy vehicles to stay in their lane. Respondents also stated that there are potholes, of which some have been repaired, although once filled, it doesn't take too long for the holes to form again.

Respondents that nominated the Barrier Highway have called for the road surface to be improved as well as for the road to be widened.

Suggestions for Improvement:

- *This road needs to be widened & the surface needs to have a decent foundation.*
- *At least widen the road & outline the edges. This makes such a difference to safety in wintery & night driving conditions to have an outline to see.*
- *Narrow sections of the road should be widened and sealed.*

RAA Comment: RAA has long called for improvements to be made to the Barrier Highway. Like a number of other regional roads that have been nominated as part of the Risky Roads survey, the road surface and width are issues that need to be addressed to bring it up to an acceptable standard. Insufficient funding has been allocated towards improving or even maintaining pavement standards and as a result what is left is a highway that has a poor ride quality and one where safety is compromised due to the narrow lanes and lack of sealed shoulders. Money has been spent in recent times to install shoulder sealing, particularly between Hallett and Terowie, but more work is required to get the Barrier Highway up to an acceptable standard.

4.0 Intersections

This section provides a summary of the top 10 intersections that received the most nominations, with the reasons for their nomination provided and comments received around how to improve them listed in *italic*. Note that the following comments and suggestions are those that have been made by respondents through the nomination process and would need to be validated by a roadside audit.

4.1 Diagonal Road & Morphett Road (Oaklands Rail Crossing)

Risky Road Nominations: 101

Casualty Crashes between 2011-15: 13 (All Minor Injury Crashes)

As the most nominated intersection in this year's Risky Roads campaign, the intersection of Diagonal Road and Morphett Road, otherwise known as Oaklands Rail Crossing, received 101 nominations. As a major traffic route, which is operated by the State Government it currently experiences 42,000 vehicles a day as well as housing a level crossing for the high frequency Seaford rail line. A number of suggestions of how to improve the crossing, including an overpass or an underpass have been mooted in recent years and it has been subject to numerous planning studies.

There is a dedicated website 'Fix Oaklands Crossing' which has been authorised by the sitting member for the Mitchell electorate, Corey Wingard MP. The website which has been live since 2014 prompted its subscribers to enter nominations for Oaklands Rail Crossing.



For respondents who nominated the Oaklands Rail Crossing, they highlighted that it had a confusing layout, that there were inadequate crossing or turning opportunities and that the traffic signals were also inadequate. Comments not only reflected the poor travel times at this intersection throughout the day but also flagged the confusing layout and the high number of traffic signals which can be interpreted incorrectly.

Perhaps unsurprisingly, the overwhelming call from respondents as to how this intersection could be improved was to have some form of grade separation. There seemed to be little preference of whether it should be an overpass or an underpass or of which mode of transport should be subject to the grade change.

Suggestions for improvement:

- *Needs total redesign as there are two intersections and a railway line too close to each other. Very time consuming and frustrating to travel through.*

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- *This whole intersection needs to be redesigned so that the rail and roads are separated.*
 - *Separation of roads and railway line and associated improved traffic signalling.*
 - *There needs to be a bridge here. The traffic can sit at either side trying to cross the train line for more than 20 minutes.*

RAA Comment: Grade separation would appear to be the most logical solution for this intersection. The State Governments preferred option for this location is to install either an overpass or an underpass for the train line to pass through this crossing. It has been claimed that this project could largely be funded as a result of approximately \$150m worth of savings that have been made from the joint State and Federally funded Northern Connector project although it would also require some additional Commonwealth funding. In the lead up to the 2016 Federal Election the Federal Liberal Party announced that they would contribute \$40m for the Oaklands Rail Crossing project but would not be drawn towards allocating any additional funding until actual savings from the Northern Connector had been realised. RAA calls for a firm commitment from both State and Federal Governments to fund this problematic intersection.

4.2 Coromandel Parade & Main Road (Blackwood Roundabout)

Risky Road Nominations: 100

Casualty Crashes between 2011-15: 7 (6 Minor Injury & 1 Serious Injury)

Blackwood Roundabout received the second highest number of nominations in 2013, and so it proved to be the case once again in 2017. However, it was just one nomination short of the Oaklands Rail Crossing. Blackwood Roundabout has five approach roads, providing access to Coromandel Parade, Main Road, Shepherds Hill Road and Station Avenue. The roundabout is maintained by the State Government despite Coromandel Parade and Station Avenue being operated by the City of Mitcham.

In the Risky Roads survey, respondents flagged issues with its confusing layout as well as how there were inadequate turning opportunities. They also highlighted how there was a need for traffic signals at the roundabout and that pedestrian crossing facilities needed to be improved.



Generally, respondents highlighted how dangerous it is to navigate Blackwood Roundabout because it is too small for the volume of vehicles it is expected to handle. It was suggested that road users take many risks when navigating it and that it can be confusing to know which lane to get in prior to entering; in particular flagging the left turn lane from Shepherds Hill Road onto Main Road as an issue. Similar to Britannia Roundabout before it was upgraded, respondents claimed that motorists try and avoid it, thus putting more pressure on side streets. Another frustration that respondents flagged was with the height of vegetation within the roundabout, which can restrict visibility.

In terms of improvements, there were a range of suggestions which included installing traffic signals, either full time or part time. Others stated that the roundabout needed to be redesigned and that one of the arms such as Station Avenue needed to be blocked off. As a short term measure respondents welcomed having vegetation within the roundabout but commented that it needed to be smaller, which would help visibility.

Suggestions for Improvement:

- *Close Station Road and put in traffic signals.*

-
- *It would be great to upgrade the Blackwood roundabout to make it larger so that people have more time to assess those entering/exiting.*
 - *Provide adequate means for pedestrians to cross Coromandel Parade and Station Road.*
 - *Install part-time traffic signals like the roundabout at Blythewood Road.*

RAA Comment: Similar to Britannia Roundabout, this roundabout in Blackwood has been subject to numerous planning studies. The Roads Management Plan for Main Road in Blackwood lists a number of options, all of which were reflected in the comments that respondents made. The preference for DPTI is to alter the geometry at the roundabout as it would represent a safety improvement without having too much impact on vehicular movement. This upgrade may need to be complemented with the closure of one of the arms of the existing roundabout. However, any upgrade would need to be sympathetic towards the nature of the area as well as accounting for pedestrian and cyclist movements.

This location represents a long-standing issue for the communities of Blackwood, Coromandel Valley and beyond, and based on the number of nominations it received it replaces Britannia Roundabout as the 'worst roundabout in the state'. It is vital that it does not take as many decades to fix as its predecessor.

4.3 Aldinga Beach Road & Main South Road (Aldinga)

Risky Road Nominations: 42

Casualty Crashes between 2011-15: 10 (8 Minor Injury & 2 Serious Injury)

The intersection of the state maintained Aldinga Beach Road and Main South Road is one of several intersections on the top 10 list that are located along Main South Road. The current speed limit on South Road when passing through this intersection is 70km/h and latest traffic volumes indicate that 17,600 vehicles pass between Aldinga Road and Aldinga Beach Road on a daily basis; an increase of 81% when compared with a decade ago. This particular section now has the highest traffic volumes along the whole of Main South Road between Noarlunga and Cape Jervis. It is a T-intersection, although there is an extended slip lane and filter lane for vehicles wishing to head north on Main South Road from Aldinga Beach Road. A stop sign controls the movement of vehicles wanting to turn right from Aldinga Beach Road.

This particular location is the worst intersection on Main South Road for casualty crashes in the past five years. The crashes that occurred mainly involved vehicles making right turns either into or out from Aldinga Beach Road and were caused by failure to stand or by disobeying a stop sign.

In responses to the Risky Roads survey, respondents highlighted that there were inadequate crossing or turning opportunities at this intersection and that it had a confusing layout. An inappropriate speed limit was also flagged as well as the presence of pot holes. In mirroring the crashes that have occurred at this intersection, respondents to the survey highlight the risks of turning out from Aldinga Beach Road onto Main South Road. They pointed out that it can often take a lot of time exiting Aldinga Beach Road because of high traffic volumes on Main South Road, which in turn means that road users are more likely to undertake more risky manoeuvres in order to progress.



The most common suggestion for improvement at this intersection was to install traffic lights. However, respondents also stated that the road needed to be duplicated to cope with the increase in traffic volumes that has occurred due to the expansion of residential development in the area. The installation of a roundabout was also suggested as was the lowering of the

speed limit on Main South Road, although with the latter it is unclear whether this referred to the reduction in speed that already occurred in 2016.

Suggestions for Improvement:

- *Lower the speed limit through that section of road (from OTR Aldinga until past the Aldinga Beach Road intersection) and either install a roundabout or traffic lights. The number of people using this area has increased and we need the infrastructure to support this.*
- *A roundabout would help especially when trying to turn right from Aldinga Beach Road onto South Road*
- *Install traffic sights. Main South Road requires upgrade to dual lanes.*

RAA Comment: The increase in traffic volumes that have occurred on this section of Main South Road, most likely as a result of the expansion in Aldinga and its surrounds means that a more strategic solution is required not only for this intersection, but for Main South Road as a whole. The short to medium term proposal by DPTI is to install a roundabout, subject to funding, although consideration now needs to be given towards the duplication of Main South Road and how this would impact on any short term improvement at this intersection.

4.4 Main South Road & Tatachilla Road (Tatachilla)

Risky Road Nominations: 23

Casualty Crashes between 2011-15: 5 (3 Minor Injury & 2 Serious Injury)

Approximately 17,750 vehicles pass through this intersection on a daily basis; a figure that has increased by more than 13% in the past five years. In the past ten years, traffic volumes along Main South Road between Tatachilla Road and Port Road to its south have almost doubled. Tatachilla Road and Maslin Beach Road provide links to the popular tourist region of McLaren Vale and have a designated speed limit of 80km/h, whilst Main South Road has a speed limit of 90km/h. This was reduced down from 100km/h in 2016. Separated right turn lanes are present on Main South Road for vehicles wishing to turn into either Tatachilla Road or Maslin Beach Road. Both Main South Road and Tatachilla Road are maintained by the State Government.

At the intersection with Tatachilla Road, 4 out of the 5 crashes were right angle, with each one caused by a vehicle travelling east on Maslin Beach Road disobeying a stop sign and failing to give way to a vehicle travelling north.

Respondents to the Risky Roads survey stated that this intersection posed inadequate crossing or turning opportunities and that it has an inappropriate speed limit. They also flagged the lack of traffic signals and the poor sight distance. In their comments, respondents highlighted that this intersection is particularly risky during school pick-up/drop off times as it is the direct access to McLaren Vale schools. Respondents stated that vehicles travelling from Maslin Beach to the schools at McLaren Vale often take risks through the intersection.

To improve this intersection, a range of suggestions were submitted. Respondents felt that even with the reduction of the speed limit to 90km/h on Main South Road, that this was still too high and that it needed to be reduced further. Traffic signals were suggested to control vehicular movement as was the installation of a roundabout. Several respondents also suggested that the risk should be minimised completely at this intersection by installing an overpass, similar to the one that exists further east where Victor Harbor Road passes over Tatachilla Road or at the McLaren Vale turnoff from Victor Harbor Road.

Suggestions for Improvement:

- *The intersection needs traffic lights.*
- *More dedicated turning lanes and visibility required.*
- *Install a roundabout like the Victor Harbor ring route intersection.*
- *Installing an overpass is best option; but traffic signals or a roundabout could work.*

RAA Comment: The preferred option by DPTI at this intersection is a roundabout as listed in its short to medium term Roads Management Plan for Main South Road. In previous years it was unsuccessful in securing Black Spot money to upgrade it. RAA agrees that in the short term a roundabout is required and would welcome its installation. However, given the existing traffic volumes on Main South Road and the rate that they have increased in recent years, along with projections of future growth, consideration needs to be given towards the need to duplicate Main South Road and how that would impact this particular intersection. Grade separation, ensuring that it could compliment the duplication of Main South Road would ultimately be desirable which would also make the intersection more accessible for pedestrians and cyclists.

4.5 Dalkeith Road & Main North Road (Kudla)

Risky Road Nominations: 18

Casualty Crashes between 2011-15: 20 (19 Minor Injury & 1 Serious Injury)



The intersection of Dalkeith Road and Main North Road is a new entry onto the top 10 list, despite having been a concern for some time. It received a handful of nominations in the 2013 Risky Roads survey, but didn't garner enough votes to make the top 10 list. It is a four-way unsignalised intersection in Kudla, on the outskirts of Gawler. Main North Road, which passes through the intersection, is a dual carriageway which has a speed limit of 90km/h and accommodates an average of 34,800 vehicles per day. This traffic volume is an increase of 10% when compared with five years ago. The exit from Dalkeith Road is controlled by a stop sign, whilst the exit from the opposite Smith Road is controlled by a give way sign. The intersection is maintained by the State Government.

A scroll through the archives from The Bunyip brings up many articles regarding resident frustration regarding this intersection and how there have been several unsuccessful attempts to secure Black Spot funding to make it safer. The majority of crashes that occur at this intersection are right angle crashes, most often as a result of vehicles on Dalkeith Road disobeying the stop sign, by virtue of either not bringing their vehicle to a complete halt or by not giving way to vehicles on Main North Road.



The main focus of the nominations for this intersection were that there was inadequate crossing or turning opportunities and that there was a lack of traffic signals. Respondents also highlighted the confusing layout of the intersection as well as the lack of road lighting. In their comments, respondents highlighted that there had been many crashes at this intersection. They suggested that traffic can often be banked up on Dalkeith Road, which leads to frustration. This may lead to road users taking unnecessary risks when they arrive at the intersection. They also highlighted the risks of trying to navigate across a highway where the designated speed is 90km/h. It was also suggested that there is inadequate provision for cyclists at this intersection as it is the only practical route between Blakeview and Evanston South.

There was a general consensus amongst respondents that vehicles needed to be controlled better through this intersection, by way of traffic signals or a roundabout. It was also suggested that installing a similar seagull treatment that is used at the intersection of Main North Road and Karri Street at Munno Para West would improve safety.

Suggestions for Improvement:

- *Traffic Lights are needed to make this road significantly safer.*
- *I believe this intersection needs traffic lights, it's very busy and can take a long time to turn right from Dalkeith Road.*
- *Mark a proper bike lane through the intersection as there is at Tiver Road further north.*
- *It is very hard to pull out from Dalkeith Rd onto Main North Road due to heavy traffic flow. People have to take risks to pull out or sit for ages queuing.*

RAA Comment: It is clear from the crash history and the level of community concern that an upgrade to this intersection is vital. The most cost effective solution would be to install a seagull treatment although this would only offer limited protection from right turning vehicles onto Main North Road. An alternative approach may be ban right turns and straight ahead movements on Dalkeith Road at the intersection, forcing vehicles to turn left and then make a U-Turn in the median strip. However, this could pose risks at peak time. The most suitable, and most expensive solution would be to install traffic signals.

4.6 Old Princes Highway & Woodside Road (Nairne)

Risky Road Nominations: 16

Casualty Crashes between 2011-15: 0

The 2013 Risky Roads report highlighted issues at the intersection of Old Princes Highway and Bald Hills Road, which have since been addressed by the upgrade of the Bald Hills interchange project. However, the intersection that is located slightly east of that is the Old Princes Highway and Woodside Road. It attracted a handful of nominations in 2013 but more so in 2017. Located in Nairne, it is an unsignalised T-intersection and both roads have a speed limit of 50km/h. However, there is a pedestrian crossing located immediately due east of the intersection on Old Princes Highway. Approximately 14,600 vehicles pass through it on a daily basis, which is an increase of 17% when compared with five years ago. This increase is likely to be as a result of the opening of the Bald Hills Interchange. Both roads are operated by the State Government.

People nominated this intersection because they felt that it has inadequate crossing or turning opportunities and they also felt that the traffic signals were inadequate. Respondents flagged the sight distance as being poor due to the intersection being located on a bend.

In commenting about this intersection, respondents highlighted that it is particularly bad at school drop off/pick up time where delays are bad. In addition, because the traffic signals are pedestrian activated only, on occasions when they are on red motorists stop across the intersection with Woodside Road and thus blocking traffic from exiting it. Traffic build up on Woodside Road at this time can be significant.

Suggestions for Improvement:

- *Move the traffic lights to the actual intersection, this will make it much safer for everybody, including all the school traffic flowing from Nairne Primary School.*
- *Roundabout installation or traffic lights for turning and pedestrians crossing.*

RAA Comment: A pedestrian crossing in some form is required due to the proximity of Nairne Primary School. The increase in traffic volumes is something that needs to be taken into account and maybe having a Pedestrian Activated Crossing is now insufficient to handle such an increase. RAA recommends that this T-intersection be signalised to fully control vehicular movements from all directions, although it would have to be managed accordingly to ensure that traffic does not back up through to the roundabout at the intersection of Bald Hills Road.

4.7 Bull Creek Road & Paris Creek Road (Paris Creek)

Risky Road Nominations: 16

Casualty Crashes between 2011-15: 1 (Minor Injury)

The intersection of Bull Creek Road and Paris Creek Road is well known to RAA. It also featured in the top 10 intersections in the Risky Roads survey of 2013. This state maintained intersection is on a bend and there is an acute angle where the two roads meet. Paris Creek Road sweeps around a right hand bend and meets Bull Creek Road which is also on a bend at an angle of approximately 10-20°. A stop bar and stop sign are used at the intersection for vehicles on Paris Creek Road. In addition there is a dirt road that shoots off Paris Creek Road to meet Bull Creek Road at a less severe angle. However, where the dirt road intersects with Bull Creek Road is at the apex of the bend and as such visibility would also be very restricted. There have been few injuries at this intersection over the past five years, which is surprising given the high risk that it poses to road users.

Survey responses for this intersection highlighted the poor sight distance, as well as the tight curves that are present on both roads. Respondents flagged that there were inadequate turning opportunities at the intersection and that it has a confusing layout.



In respondent comments, they flagged that in particular, when turning north from Paris Creek Road onto Bull Creek Road towards Meadows it is very difficult to see approaching traffic. It is a blind intersection and some respondents claimed that when negotiating it they just have to drive out and hope for the best. This is compounded by the fact that when turning onto Bull Creek Road, as well as having visibility issues, road users are then faced with an incline which means that it takes them longer to get up to speed.

Comments on how to improve this intersection varied. Short term measures included installing a mirror to try and improve visibility at the intersection, changing the speed limit as well as changing the priorities for who is required to give way. More long term suggestions included installing a separation lane on Bull Creek Road with an entry lane from Paris Creek Road.

Suggestions for Improvement:

- *Create a separation lane on Bull Creek Road with an entry lane from Paris Creek Road.*
- *Install a mirror where Paris Creek Road traffic are able to see vehicles (on their left) coming from Ashbourne and vice versa.*
- *Re-align Paris Creek Road to make a T-intersection with levelling of the approach road. Clear all scrub, trees, etc. to allow a long line of sight.*
- *Redesign the intersection so that Meadows-bound Bull Creek Road vehicles are made to give way.*

RAA Comment: This is an extremely dangerous intersection. The crash statistics may not support the need to upgrade the intersection but it poses significant risks to road users and is not conducive towards a safe systems approach. The condition of the alternative dirt road section of Paris Creek Road down to Bull Creek Road is not in an acceptable condition.



The best solution at this intersection is to undertake significant earthworks removal and road realignment to provide a single access point with increased sight distance onto Bull Creek Road. However, this would clearly be the most expensive treatment.

As a minimum, the unsealed filter lane down to Bull Creek Road should be sealed and the curve on Paris Creek Road, as shown in the above image, needs to have guard rail protection.

4.8 North East Road & South Para Road (Chain of Ponds)

Risky Road Nominations: 15

Casualty Crashes between 2011-15: 1 (Serious Injury)

The T-intersection of these two state maintained roads carries approximately 4,800 vehicles per day. This is an increase of 19% when compared with five years ago. The intersection occurs within a series of bends on North East Road in the Adelaide Hills. The designated speed limit on North East Road passing through the intersection is 80km/h, although curve advisory signs with a recommended speed of 55km/h exist for vehicles travelling east and 35km/h for vehicles travelling west. Vehicles travelling east on North East Road that turn left onto South Para Road pass through a slip lane in which they are obliged to give way to vehicles turning right from the opposite direction. In 2016 DPTI carried out some upgrades to the line marking. This involved accentuating the slip lane by moving it away from the curve as well as installing a give way sign at the end of the slip lane. This move was done in order to slow vehicles down when passing through the intersection.



The main reasons respondents nominated this intersection is because of its poor sight distance as a result of the many curves and blind crests on North East Road. They also nominated it due to inadequate crossing or turning opportunities and for its confusing layout. Poor signage was also flagged as being an issue. These issues were also raised in the Risky Roads survey of 2013, although it received more nominations this year.

The comments that respondents left were mainly in relation to the aforementioned line marking upgrades that were made at the intersection in 2016. Respondents complained about the need to give way when turning left onto South Para Road and also about the way that the modified slip lane places vehicles in the path of oncoming vehicles on South Para Road.

In commenting on how this intersection could be improved, respondents made reference to the line marking upgrades from 2016 and how they wanted them reverted back to what they used to be. Respondents suggested that the give way sign be removed. A suggestion made by one respondent was that the lanes needed to be widened when passing through the bend on the approach to South Para Road.

Suggestions for Improvement:

- *The road marking are very poorly thought out and are confusing.*
- *Please reinstate the setup of the corner and the two lanes as they used to be as they worked well.*
- *Modify the left uptrack lane to be 'left turn only', deleting a short (and not very useful) overtaking lane to allow freer traffic movement. Perhaps even cutting into the corner itself to make it clearer would be beneficial.*

RAA Comment: Since the line markings were refreshed at this intersection in October 2016 RAA has received a number of complaints from the local residents' association regarding the work that had been carried out. In refreshing the line markings the left slip lane on North East Road was enhanced and a give way sign was installed. The problem that has been raised is that road users believe that these line markings represent a change in the requirement to give way, yet this has always been the case. This in itself highlights a concern as well as the risk that is posed by this intersection. It is possible that the previous line markings combined with the crest of the hill made it difficult for road users to interpret.



These upgraded line markings have made no difference to the fact that the requirement to give way is placed upon those vehicles turning left onto South Para Road. However, road users do not understand why this is the case. Respondents highlighted that the left turn follows a blind bend but this is equally the case for those vehicles turning right and arguably the risk of a crash occurring is higher for those vehicles that are stationary on North East Road whilst waiting to make this manoeuvre.

These line marking upgrades can only be a short term measure. What is recommended is that lane widening is conducted prior to this intersection to enable the left hand slip lane to be lengthened.

4.9 Playford Highway & Tinsmith Road (Kingscote)

Risky Road Nominations: 15

Casualty Crashes between 2011-15: 3 (2 Minor Injury & 1 Serious Injury)

The intersection of Playford Highway and Tinsmith Road, located a few kilometres west of Kingscote on Kangaroo Island. It is a four arm intersection which also incorporates North Coast Road, but in addition, the intersection of Playford Highway and Bullock Track is located just metres from it. The intersection is located on a bend and as such is known locally as 'Tinsmith Corner'. For westbound vehicles travelling on Playford Highway an additional lane is provided to allow vehicles to turn right onto North Coast Road. It is maintained by the State Government.

The main reason respondents nominated this particular intersection was due to its inappropriate speed limit. They also highlighted that it had inadequate crossing or turning opportunities and has a confusing layout. Comments that were left for this intersection were that the speed limit is too fast for the bend and that vegetation is encroaching onto the road space. Respondents highlighted that turning onto Playford Highway was a problem due to the high speed limit and that visibility was an issue due to the bend in the road.



Most people who nominated this intersection agreed that the speed limit needed to be dropped on Playford Highway, although there were also some suggestions that vegetation needed to be better managed and the road needed to be widened to improve sight distance.

Suggestions for Improvement:

- *Lower speed limit. Redesign of intersection.*
- *Speed limit needs reducing as drivers can't see oncoming traffic in either direction. Diagonally opposite it is the Bullock track intersection which is always slippery due to the cement works rubble on the road.*
- *Creating a better shoulder to the road, with turning lanes would be a great start.*

RAA Comment: RAA has conducted two highway assessment of roads on Kangaroo Island in recent years, the most recent of which was done in September 2016. As part of the latest assessment, RAA carried out a formal road safety audit at the intersection of Playford Highway, Tinsmith Road and North Coast Road and submitted this to the State Government. Within the road audit RAA noted the main risks as being restricted sight distance, high vehicle speeds and lack of provision for street lighting. It was recommended at the time that consideration should be given towards reducing the speed limit at this intersection to 80km/h. Midway through the Risky Roads survey it was announced by the local member for Kangaroo Island that the speed limit on Playford Highway when passing through this intersection would be reduced from 100km/h to 80km/h. RAA welcomes this change but would highlight the need to carry out additional infrastructure improvements at the intersection which would include vegetation trimming to make signage more visible and earthwork removal to improve sight distance.

4.10 Golden Grove Road & Hancock Road (Surrey Downs)

Risky Road Nominations: 15

Casualty Crashes between 2011-15: 4 (3 Minor Injury & 1 Serious Injury)

The intersection of Golden Grove Road and Hancock Road in Golden Grove received several nominations in the 2013 Risky Roads survey although this was not quite enough to feature in the main summary. In contrast, it received enough nominations in 2017 to make the top 10 list. Operated by the State Government, it carries just over 14,000 vehicles per day. This current traffic volume represents an increase of 22% compared to what it was five years ago. It is an unsignalised T-intersection and Hancock Road as the terminating road approaches Golden Grove Road at an angle of approximately 45°. The designated speed limit on both roads is 60km/h.

All four casualty crashes that have occurred at this intersection were right angle crashes that were caused by vehicles turning from Hancock Road.

The main reasons why respondents nominated this intersection were due to the inadequate crossing or turning opportunities and because of its confusing layout. Respondents also cited that sight distance was poor at the intersection. The comments highlighted the risks experienced by road users wishing to turn right from Hancock Road onto Golden Grove Road. Vision, which is already compromised due to the acute angle where the two roads meet is also affected by the presence of large trees due north east of the intersection. High traffic volumes, which include heavy vehicles, restricts the opportunities that road users have to turn onto Golden Grove Road.

Many respondents that nominated this intersection suggested that a roundabout would be a suitable option in order to improve safety at this intersection as well as the movement of vehicles. Other suggestions were that the road needed to be realigned so that the two roads meet at a 90° angle.

Suggestions for Improvement:

- *Maybe a roundabout set back into Hancock Road, leaving Golden Grove Road a straight road.*
- *There is ample space on the road reserve to realign the intersection and make a low profile roundabout, including suitable for heavy vehicles, just like the one at the intersection of Golden Grove Road and One Tree Hill Road.*
- *Re-align Hancock road to enter Golden Grove Road at 90° using the vacant land on the left side of Hancock Road.*

RAA Comment: A Roads Management Plan from 2006 discussed longer term traffic management options which included the realignment of the intersection or the provision of a roundabout. As a short term measure it recommended that a protected right turning lane along Golden Grove Road be installed although this was never carried out. Installing a roundabout that is sympathetic towards heavy vehicle movements would appear to be the most logical solution at this intersection.