

Princes Highway Corridor Strategy

RAA submission to the Department of Infrastructure,
Regional Development and Cities

April 2019



Introduction

The Royal Automobile Association of SA (RAA) is South Australia's leading non-government organisation representing the interests of more than 740,000 members. Through our member services such as Roadside Assistance, Insurance, Travel, Finance and Security, we are an organisation which prides itself on trust and supporting our members. Servicing both metropolitan and regional members, the organisation is uniquely placed to understand the needs of South Australians.

RAA members look to the Association to represent their interests on a broad range of motoring and mobility related topics. RAA consults with industry and Government to advocate for increased investment in transport solutions and promote safer mobility options, along with ensuring all South Australians have the ability to access business, travel and employment opportunities.

RAA undertakes a range of activities to identify, report on and advocate for improvements to the road network to facilitate safer, more effective mobility for all road users and pedestrians. Our priorities are based on information that we derive from surveys of our members, analysis of open source data and on-site investigations.

RAA has long advocated for ongoing investment on key South Australian highways to improve safety and efficiency. As such, RAA welcomes the opportunity to provide comment on the Department of Infrastructure, Regional Development and Cities 'Princes Highway Corridor Strategy'.

Key Issue 1: Safety

Designing roads to minimise the consequences of collisions has the potential to significantly reduce the death and injury rate among road users. While efforts to improve driver behaviour should be maintained, road authorities should be held accountable to ensure that, as far as practicable, roads are designed to reduce the risk of death and injury to road users. Many safety treatments, such as shoulder sealing, edge line marking, vegetation clearance and roadside hazard reduction/protection are relatively low cost and have been identified by RAA during its road inspections as providing significant improvements to driving where such work has been undertaken. Rural road maintenance and improvement programs such as shoulder sealing should therefore be expanded as these factors significantly increase the level of safety and driveability of roads.

RAA acknowledges recent safety improvements along the corridor, including:

Tailem Bend to the SA/Victoria border

- 2014 – 4.3km of shoulder seal at junction with Southern Ports Highway (Kingston) including safety barriers, street lighting and rumble strips (\$590,000)
- 2015 – 2.7km of resurfacing north of Millicent
- 2015 – Intersection upgrade at Main Road 300 (Hatherleigh), improving layout and removing hazards along with improved signage and installation of rumble strips (\$145,000)
- 2016 – Reduction of speed from 110km/h to 80km/h for 2.1km through Hatherleigh
- 2017 – Intersection upgrade at Clay Wells Road including shoulder sealing, drainage upgrades, improved delineation and installation of solar flashing warning signs on approaches (\$470,000)
- 2018 – Shoulder seal for sections between Kingston and Millicent (\$3.3M)
- 2019 – Total of 6.5km of surfacing works at various locations east of Mt Gambier

Augusta Highway (Princes Highway, Port Wakefield – Port Augusta)

- 2015 – Installation of street lighting at Ellis St and Torrs Gap Road intersections (\$200,000)
- 2016 – Upgrade of intersection with Spencer and Park Roads (Mambray Creek) (\$1.3M)
- 2016 – Installation of sheltered right turn lane into Nelshaby Rd, Port Pirie and 500m of reseal
- 2018 – Mambray Creek overtaking lane (Part of \$4.4M package for 3x overtaking lanes on Augusta, Lincoln and Eyre Highways)
- 2019 – Rocky River Bridge upgrade (Part of \$40M regional bridges upgrade program)
- 2019 – Joy Baluch AM Bridge Duplication, Port Augusta (\$200M commitment)
- 2019 – Copper Coast Highway overpass, Port Wakefield (\$90M commitment for overpass and duplication)

Traffic volumes

Since 2007, traffic volumes on sections of Princes Highway between Tailem Bend and the SA/Victoria border have increased by more than 10%. The section with the most substantial increase in traffic is between Millicent and Mount Gambier, where an increase of more than 20% has been seen since 2007.

Traffic volumes on Augusta Highway are high, with almost 4,000 vehicles per day using most sections of the highway. When compared to 2007 estimates, traffic volumes have increased by approximately 25%. Commercial vehicle volumes have increased at about the same rate since 2007, however, the maximum size and weight limits of these vehicles has also increased. This suggests that the total volume of freight transported on this section of Augusta Highway may have actually increased by substantially more than 25% since 2007.

Crash history

Between 2013 and 2017, 127 casualty crashes occurred on Princes Highway or at intersections with Princes Highway between Tailem Bend and the SA/Victoria border. This consisted of four fatal crashes, 37 crashes resulting in serious injury and a further 86 resulting in minor injury. As a result of these 127 crashes, 7 people were killed, 42 people were seriously injured and 172 people suffered minor injuries. The most serious crash during this period was a quadruple fatality at the intersection with Main Road 300 in Hatherleigh.

The number of casualty crashes occurring annually on Princes Highway has decreased (on average) in the past decade, however, this number is still very high with an average of more than 25 casualty crashes occurring

annually on the highway for the 2013 – 2017 period. The primary crash type is ‘hit fixed object’, with these crashes mostly attributed to inattention. ‘Right angle’ and ‘roll over’ crashes the next most common. Inattention is, by far, the most common apparent error leading to crashes, with 54 crashes likely due to inattention. Failure to stand (14), and failure to give way (13) are the next highest apparent errors leading to casualty crashes on the Princes Highway.

Between 2013 and 2017, 133 casualty crashes occurred on, or at intersections with Augusta Highway. Of these, 14 were fatal, 30 resulted in serious injuries, and 89 resulted in minor injuries. High severity crash types such as ‘hit fixed object’, ‘roll over’, and ‘head on’ are common on Augusta Highway with inattention the most common error attributed to crashes. Failure to keep left is the primary cause of ‘head on’ crashes on Augusta Highway.

RAA assessed the Princes Highway corridor between Tailem Bend and the SA/Victoria border in 2013 and again in March 2019, with Table 1 detailing the recommendations noted in our 2019 assessment.

Table 1: Recommendations for Princes Highway (Tailem Bend to SA/Victoria border)

Tailem Bend to Meningie	Meningie to Kingston	Kingston to Millicent	Millicent to Mount Gambier	Mount Gambier to Victorian border
<ul style="list-style-type: none"> - Local undulation repairs - Protection of roadside hazards with w-beam or wire rope barrier - Refreshing of audio tactile line marking - The intersection with Dukes Highway in Tailem Bend has been identified as a possible concern when duplication of the Dukes Highway eventuates. It will require a significant upgrade and may warrant a fully grade separated interchange. 	<ul style="list-style-type: none"> - Refreshing of audio tactile line marking as necessary - Surface rehabilitation works/resealing - Widening of Blackford Drain Bridge, north of Kingston - Installation of an overtaking lane in each direction between Kingston and Salt Creek - Review of speed limits - Widening of clear zone and roadside hazard protection 	<ul style="list-style-type: none"> - Shoulder sealing and widening - Lane widening - Installation of audio tactile line marking - Intersection upgrades including at Clay Wells Road (recent upgrades need to be complemented by adding turning lanes and further delineation at the intersection) - Surface rehabilitation as required - Installation/upgrade of rest stops to cater for large vehicles. - Widening of bridges - Widen clear zone and install roadside hazard protection 	<ul style="list-style-type: none"> - Extend overtaking lanes to minimum 1.6km length each - Surface rehabilitation as required - Widen clear zone and install roadside hazard protection - Widen Snuggery Drain 56 bridge between Millicent and Tantanoola - Improve curve delineation with use of chevron alignment markers as required - Remove ‘Rail X’ line marking and disused rail tracks from the former Mount Gambier to Millicent line between Glens Lane and Tantanoola Road 	<ul style="list-style-type: none"> - Widen clear zone and install roadside hazard protection

The section of road between Kingston SE and Millicent was identified as one of the worst along the Princes Highway due to the narrow lane widths and sections with no, or inadequate, sealed shoulders (as shown over page). Another section of concern is along the Coorong between Meningie and Kingston, due to the curvilinear alignment and a deteriorating surface in combination with various unprotected roadside hazards.

The road between the Dukes Highway and Meningie was identified as one of the better sections of the Princes Highway due to having wide lanes, reasonable road quality and minimal roadside hazards. Recent work between Mount Gambier and the SA/Victoria border has substantially improved this section of the corridor.



Map showing shoulder sealing along Princes Highway (Tailem Bend to Mount Gambier)

The following sections provide further information on specific segments of the corridor as assessed by RAA.

South Eastern Freeway (Callington – Tailem Bend)

This section of the South Eastern Freeway is generally constructed to a high standard and comprises two lanes in each direction, with the exception of the Swanport Bridge in Murray Bridge. Interchanges are constructed at Callington, Monarto and Murray Bridge providing safe access to and from the freeway.

Port Wakefield Road (Two Wells – Port Wakefield)

Port Wakefield Road is currently a two lane, two way divided road for the majority of its length. The State and Federal Governments have committed to duplicating the northern end of Port Wakefield Road through the township and through to the intersection with Copper Coast Highway, including construction of an overpass that will dramatically improve safety at this notoriously dangerous intersection.

Improvements required on Port Wakefield Road include:

- Vegetation removal and hazard protection
- Intersection upgrades (Mallala Road as a priority) including extending acceleration/deceleration lanes
- Shoulder widening
- Replacement of old and damaged guide post delineators

Augusta Highway (Port Wakefield to Port Augusta)

Augusta Highway is one of South Australia's busiest regional roads. Forming a vital link to the state's north, more than 4000 vehicles travel this route everyday – including cars and heavy freight vehicles such as b-doubles, b-triples and road trains.

Road geometry is very good for a two lane, two way road, with lanes a suitable width for high freight use, and at least 1.5 metre sealed shoulders for most of the road between Port Wakefield and Port Pirie. Augusta Highway is constructed to a good standard generally, with 31 overtaking lanes between Port Wakefield and Port Augusta. Some of these overtaking lanes only just meet the minimum length of 1600 metres (for road train routes) recommended in *Austroads Guide to Road Design Part 3: Geometric Design (2016)*, with nine falling below this length (mostly between Port Wakefield and Port Pirie). Only four of the overtaking lanes exceed two kilometres in length, which is approximately the minimum distance required to safely overtake a vehicle travelling at 100km/h without exceeding the 110km/h speed limit. There are other opportunities available for overtaking outside of the designated overtaking lanes, but high opposing traffic volumes often restrict the availability of the oncoming lane for overtaking.

A number of rest stops are provided in each direction, providing basic facilities including a shelter, rubbish bin, seating and solar lighting at some locations. Generally, these are well signed and entry points are clearly defined. Turnoffs to townships are also signed clearly, and drivers are encouraged by advisory signs to take the turn off into town if they need a break.

Construction of overtaking lanes has delayed the need for a four-lane carriageway on Augusta Highway for some time, however due to the consistently high and increasing traffic and freight volumes, RAA concludes that duplication is the most effective and safest way forward for improving safety and efficiency on Augusta Highway. Duplication of Augusta Highway is also necessary to futureproof the corridor in preparation for the inevitable introduction of autonomous vehicles, which will require at least two lanes in each direction.

Considerably more traffic is predicted along Augusta Highway in years to come on the back of Whyalla's forecast population boom, which will put even more pressure on the roadway and jeopardise the safety of motorists even further. In addition, the highway remains a vital road link to South Australia's Eyre Peninsula, which provides 82% of the state's seafood product, 45% of the state's iron and steel output and 40% of the state's wheat crop. The progression towards higher mass vehicles means that the route will eventually need to accommodate larger freight vehicles in the future.

RAA is currently campaigning for the Federal Government to commit funding for a staged duplication of Augusta Highway to allow safer operation of freight, tourist and regional traffic, and to reduce the number of people injured and killed on the road every year. Whilst the current funding allocation of \$200M announced in the 2019 Federal Budget is not sufficient to duplicate the highway, some of this funding should be used to develop a business case and begin preliminary design work.

In the short term, further hazard removal and barrier protection is required, as well as a review of the 80km/h speed limit in Lochiel and extending short overtaking lanes.

General comment on safety improvements along the corridor

RAA recommends the installation of median barriers (where possible) as an appropriate measure for reducing 'head-on' crashes. Expanding the clear zone is shown to reduce the occurrence of 'fixed object' type crashes, as demonstrated by a >50% reduction in this crash type on Dukes Highway following implementation of this strategy in 2012-13. Where this is not possible, barriers to protect fixed objects should be installed.

Rural highways must be multi-lane when warranted in terms of traffic volumes and crash rates. Where the provision of multi-lane roads is not economically justified, the provision of overtaking lanes at regular intervals provides safer overtaking opportunities compared with overtaking on a two-way single lane rural road. Such treatments can reduce crashes associated with inappropriate overtaking manoeuvres, reduce driver frustration and improve road capacity.

Roads should be assessed using the ‘safe system approach’ (i.e. safer roads, safer speeds, safer vehicles, safer people) when establishing speed limits. While safe system guidelines state that a 110km/h speed limit should only be applied to rural arterial roads of the highest standard, such as those with divided carriageways, the document acknowledges that in many cases the majority of the rural road network consists of two-lane, two-way roads. In the case of these roads, it recommends that 110km/h should be limited to those inter-regional routes that provide the principal connection between townships. Roads that form part of key rural routes but do not substantially meet the characteristics specified for a 110km/h limit should be upgraded to allow vehicles to safely travel at the 110km/h limit.

Where the corridor continues to travel through townships there should be consistency of speed limits (and signage), along the route. RAA supports a review of speed limits through rural towns along the National Highway to ensure consistency of speed limit changes and signage.

RAA recommends that the following measures be undertaken to improve the road network to mitigate the impact of driver fatigue:

- ensure the provision of adequate rest areas adjacent to roads that form part of the National Highway network, rural main roads and tourist routes. There should be provision of specific heavy vehicle rest areas which meet NHVR guidelines, which are of a suitable size, layout and spacing, and well signed with entry and exit points clearly delineated.
- audit existing rest areas to ensure they are being maintained and identify locations where rest areas should be provided as part of the audit programme of the National Highway network.
- install audio tactile line marking as a priority on road sections identified as having a high potential for fatigue related crashes and ultimately on all roads on the National Highway network.
- sealing of shoulders on all roads that form part of the National Highway network and other rural main roads, in priority order based on traffic volumes and crash history.

To help avoid driver fatigue, the development of higher standards of cleanliness for roadside rest areas, rest room facilities and other amenities available to the travelling public should be encouraged. Roadside rest areas should include the following minimum facilities:

- rubbish bins
- shaded areas with tables and seating; and
- safe and easy entry and exit points

RAA Key Recommendations: Safety

Consideration given to the specific recommendations outlined in Table 1 and as stated above for specific sections of Augusta Highway.
Develop a business case and begin preliminary design work on duplication of Augusta Highway.
Installation of median barriers (where possible) to reduce ‘head-on’ crashes and expansion of the clear zone to reduce the occurrence of ‘fixed object’ crashes.
The provision of overtaking lanes on single lane routes that currently do not provide regular, safe overtaking opportunities.
Installation of audio tactile line marking and shoulder sealing as a priority on road sections identified as having a high potential for fatigue related crashes.
Review speed limits and signage through rural towns to ensure consistency.
Audit existing rest areas to ensure there is a sufficient number provided along the National Highway, including those with specific amenity for Heavy Vehicles.

Key Issue 2: Access and Connectivity

It is important to ensure that the function of road corridors is clearly defined to avoid future tensions between competing requirements for residents, businesses and the transportation task. This is essential to ensure that the current and future transport demands on key corridors are not compromised by short and medium term planning decisions, as an increase in road freight is predicted to meet changing consumer purchasing patterns. RAA supports the 'Functional Hierarchy for South Australia's Land Transport Network' (2013) which identifies the role of transport corridors in catering for the various transport modes and users on the transport network, recognising that some corridors will have multiple functions.

While road corridors are mainly used for goods transport and tourism, where they continue through townships consideration must be given to active transport modes. Sealed shoulders of a sufficient width provides increased safety for cyclists along a corridor. RAA recommends that a review of existing infrastructure be conducted to identify any high-risk areas for cyclists, and incorporate facilities for safe cycling participation. The provision of suitable continuous cycling infrastructure, which improves safety by minimising interaction with traffic where practicable should also be considered. Footpaths and pedestrian facilities need to be accessible by all and be of sufficient width to be navigable by pedestrians, those using motorised wheelchairs, prams and cyclists. Pinch points such as adjacent trees, lighting columns, street signs, fire hydrants, electricity cubicles and ramps need to be carefully assessed. A provision for future maintenance to ensure that access is maintained and any pavement irregularities are rectified must be considered.

Transport hubs that bring people to South Australia and generate activity such as airports and ports are essential considerations in infrastructure planning. RAA believes sufficient provision of public transport options along a corridor to reduce the reliance on private vehicle use should be incorporated. The integration of technologies such as ride sharing and autonomous vehicles as a means of addressing 'last mile' issues should also be considered where appropriate.

RAA Key Recommendations: Access and Connectivity

Review existing infrastructure to identify any high-risk areas for cyclists, and incorporate facilities for safe cycling participation.
Include sealed shoulders of a sufficient width to increase safety for cyclists along the corridor.
Incorporate public transport options along the corridor which reduce the reliance on private vehicle use.
Incorporate new technologies and transport modes which address any 'last mile' issues.

Key Issue 3: Efficiency and Sustainability

Better integration of transport and land use planning has the potential to significantly reduce travel demand as well as reduce adverse environmental and community impacts from transport activities. Consequently, RAA believes that land use planning must give adequate consideration to the resultant traffic impact and aim to minimise direct conflicts between major traffic flows, local traffic and pedestrians.

RAA advocates for infrastructure funding to be directed towards projects that raise living standards, deliver economic benefit and provide the greatest return on investment. South Australia requires an integrated transportation system incorporating all modes of transport including private and public transport, freight movement, cycling and walking to support economic and population growth.

Any active rail lines along the National Highway should be removed and grade separated. The separation of road and rail at level crossings helps improve safety and reduce travel times. RAA supports the provision of funding towards grade separation projects, which also reduce the delays for motorists caused by freight trains. Infrastructure remaining from disused rail lines should be fully removed to ensure consistency and to avoid any confusion for motorists regarding whether or not a rail line is in use.

RAA Key Recommendations: Efficiency and Sustainability

Ensure planning along the corridor reduces any adverse environmental and community impacts which arise due to transport activities.

Infrastructure remaining from disused rail lines should be fully removed to ensure consistency for motorists.

Key Issue 4: Investment and Vision

RAA believes that transport infrastructure investment is crucial to improve road safety and efficiency, prevent worsening congestion and increased vehicle emissions, and limit the deterioration of our highways and freight routes. Strong investment in land transport infrastructure should be a priority for all levels of government. Funding, including investment in early planning and securing transport corridors, is needed to help keep pace with the increasing demands placed on the road network. Infrastructure Australia predicts that between 2011 and 2031 the land freight task in Australia will grow by up to 80%.

As we move towards an age of autonomous and more environmentally-friendly modes of transport, it is vital that our road infrastructure and supporting legislation are examined as a matter of urgency, and subsequently updated to underpin the progression of tomorrow's vehicles today. RAA is currently calling on the Federal Government to show leadership by creating a nationally consistent approach that will allow the development and trial of autonomous vehicles. This includes working with state and territory governments to incentivise the development of driverless vehicles and their use on Australian roads, as well as setting measurable performance targets for transport system efficiency, taking into account the unique needs and preferences of Australian motorists. In addition, a new federally-driven scheme is needed to ensure owners and operators of all vehicles on our roads continue to contribute to maintaining and upgrading the transport network they use in order to maximise its quality, safety and efficiency for future generations.

The evolution of autonomous and zero-emission vehicles has the potential to solve many personal and social issues, by enhancing mobility for children, the elderly and people with disability. By 2040, it is predicted that 4 out of every 10 vehicles on Australian roads will be autonomous. With a number of driverless vehicle trials already being held, there is an urgent need to improve road infrastructure. Future proofing the National Highway network and bringing it up to a standard which supports new technology, and allows for efficient operation in the future is essential.

To help support the uptake of electric vehicles, RAA believes a comprehensive network of fast chargers with standardised fittings is needed in country towns and along highways.

RAA Key Recommendations: Investment and Vision

A nationally consistent approach towards the development and trial of autonomous vehicles.

Future proof the National Highway network by bringing it up to a standard which supports new technology.

Include a network of fast chargers with standardised fittings along the corridor.

Key Issue 5: Corridor Activation (regional development)

RAA acknowledges the importance of tourism for both regional and metropolitan South Australia and that intrastate tourism and domestic day trips are the largest contributor to South Australian net visits and overnight stays. In 2016/2017, 17.2 million visitors embarked on a self-drive holiday in South Australia, with 62% of these trips being to regional areas (NRMA, 2018). RAA encourages consultation with relevant stakeholders in the development and implementation of tourism-related strategies along the corridor that have the potential to impact on transport infrastructure.

Having regard to road safety requirements, areas adjacent to roads should be developed to be compatible with the immediate environs and to conserve or rehabilitate native flora. Where rural roadsides are significant areas of native flora and fauna, they should be preserved wherever possible, having regard for road safety requirements. RAA believes that it is important to conserve natural features on road reserves as far as is consistent with road safety and, therefore, would support the declaration and designation of selected scenic or tourist routes on which such features are to be retained and on which appropriate vehicle speed controls could be introduced.

Attention must be given to ensuring a consistent level of reliable mobile coverage is maintained along the corridor, with technology incorporated to support safe operation along the route. Mobile blackspots along the corridor need to be identified, and while preference should be given to ensuring a consistent mobile network, conventional telecommunications should be considered where this cannot be achieved.

There is a recognised need for population growth in South Australia, particularly in regional SA. Transport infrastructure is vital to support population growth and economic development in the state, therefore continued investment in safe, convenient and efficient transportation is essential to deliver a prosperous future. Meeting the mobility needs of people living in regional Australia poses a challenge due to low population density, but efficient and accessible options must be provided to ensure regional residents are connected with health, education and other services. Driverless buses could provide a viable option to address transport requirements in rural areas along the corridor, along with providing an alternative community transport option for the elderly and mobility impaired. Connecting smaller towns with larger regional areas through localised public transport services, improved road connections, and sufficient supporting infrastructure i.e. communication technologies, will help to reduce the economic challenges faced by smaller regional towns. RAA believes community consultation should be undertaken in order to identify barriers to the uptake of regional passenger services.

RAA conducts a range of community education programs annually including Street Smart Primary, Street Smart High, Carfit and the Years Ahead Program, along with being South Australia's largest provider of driver education. As such, RAA would encourage initiatives which increase the road safety knowledge and awareness of all road users and pedestrians.

RAA Key Recommendations: Corridor Activation

Consult relevant stakeholders in the development and implementation of tourism-related strategies that may impact transport infrastructure along the National Highway.
Identify mobile blackspots along the corridor and ensure a consistent mobile network is provided, or conventional telecommunication infrastructure provided where this cannot be achieved.
Deliver initiatives which increase the road safety knowledge and awareness of all road users along the corridor, including visitors and tourists.
Ensure smaller towns are connected with larger regional areas through public transport services and sufficient supporting infrastructure along the corridor.