



Freight Transport Solutions for the Adelaide Hills

September 2021



Flywheel Advisory
SUPPLY CHAIN MANAGEMENT



Contents

Acknowledgments	1
Introduction.....	2
Background.....	2
Route and Vehicle Classifications	2
Existing Freight Transport.....	3
Committee Methodology – Strategic Considerations	6
Barriers to Freight Movement.....	6
Spatial Separation Options	7
Current Infrastructure Australia Initiatives	8
Time Separation Options.....	8
Potential Freight Solutions – Hills Freight Bypass	10
The “Bronze Plus Standard”	10
The “Silver Standard”	11
The “Gold Standard”	16
Other Freight Issues.....	19
Hills Rail Bypass	19
Metropolitan Freight Movement	20
Recommendations.....	22
Short Term to 2025 (Bronze Plus Standard).....	22
Medium Term to 2030 (Silver or Gold Standard)	22
Summary.....	23
Appendix 1A: Initial Workshop Invitees/Participants	24
Appendix 1B: Freight Transport Working Committee.....	25
Appendix 2: Related Work.....	26
Related Studies	26
Relevant Plans	26
Department Infrastructure and Transport	26
Appendix 3: Current Infrastructure Upgrade Projects	27
Report Contact	28



Acknowledgments

This work is an initiative of and funded by Regional Development Australia Adelaide Hills, Fleurieu and Kangaroo Island, and Regional Development Australia Adelaide Metro.

Regional Development Australia Adelaide Hills, Fleurieu and Kangaroo Island are proud to partner with Southern & Hills Local Government Association.

We thank all workshop participants who shared their knowledge, professional views and otherwise contributed to make this piece of work possible.

We thank the consultants, HDS Australia and Flywheel Advisory who guided this work and made significant contributions to this report.



Introduction

Background

On 1 December 2020 Regional Development Australia Adelaide Hills, Fleurieu & Kangaroo Island (RDA AHFKI) hosted a workshop to bring stakeholders together (refer Appendix 1A: Initial Participants) to collaboratively formulate a plan of action to address the challenges associated with the Adelaide Hills Transport Corridor. The workshop focussed on:

- Recapping transport challenges (mass transit and freight) faced by the Hills regions and the constraints of the Hills/Adelaide corridor;
- Revisiting previous studies to reach agreement on what remains relevant;
- Agreeing a process or processes for resetting the ideas that will define the solutions; and
- Agreeing who is responsible for delivering and managing any recommended outcomes.

A key conclusion from the initial workshop recognised that people movement and freight movement, while generally using the same road and rail corridors, have differing needs and seek substantially different outcomes. These outcomes may be complementary but are more often in conflict.

It was therefore agreed that two Working Committees be formed, one to examine Freight Transport (chaired by John Olson from HDS Australia) and one to examine People Movement (chaired by John Devney from GTA Consultants now Stantec). Members of the Freight Transport Working Committee are listed in Appendix 1B.

This report outlines the findings and recommendations for improvement to freight transport through the Adelaide Hills corridors.

Both the people and freight transport reports are available at <https://rdahc.com.au>.

Route and Vehicle Classifications

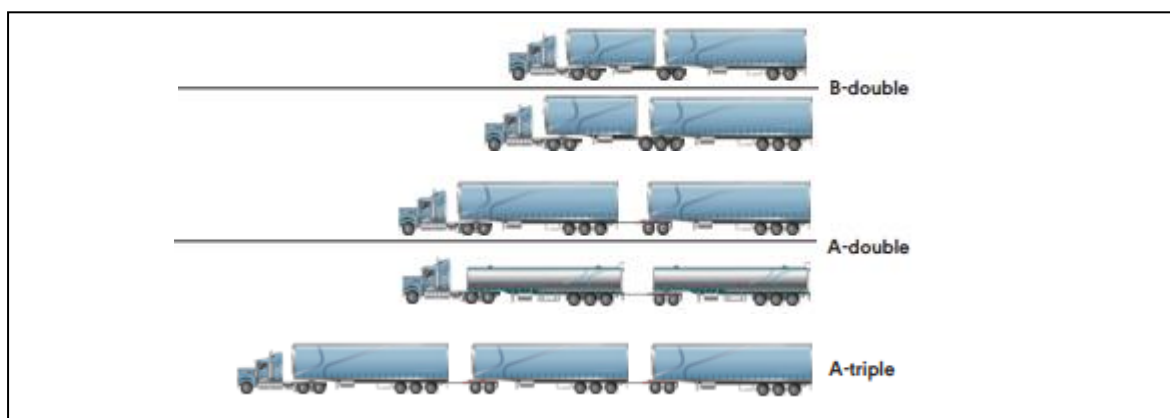
National Transport Commission Performance Based Standards (PBS) vehicle routes (Figure 1) are classified into four national network levels (Levels 1 to 4). These network levels include a Class A and Class B category for the vehicle lengths and cover general mass limits, concessional mass limits and higher mass limits.

The approved PBS route network for South Australia is available through the RAVnet map system. Examples of typical PBS Level 2A and PBS Level 3A heavy vehicles are shown in Figure 2.



Figure 1 – PBS Vehicle Routes (<https://www.sa.gov.au>)

Road network	Vehicle length (metres)	PBS network level	Close present vehicle description
Level 1A	Equal or less than 20 m	1	Single articulated vehicle or truck trailer combination
Level 2A	Equal or less than 26 m	2	B-double
Level 2B	Greater than 26 m but equal or less than 30 m	2	B-double fitted with quad axle groups
Level 3A	Equal or less than 36.5 m	3	Double road train (type I)
Level 3B	Greater than 36.5 m but equal or less than 42 m	3	Double road train (type I)
Level 4A	Equal or less than 53.5 m	4	Triple road train (type II)

Figure 2 – Example Class 2 Heavy Vehicles (<https://www.nhvr.gov.au>)

Existing Freight Transport

The Adelaide Hills region is a natural barrier to heavy road freight movement, due to the steep descent/ascent associated primarily with the hills face zone.

Existing gazetted options for movement of PBS Level 2A heavy vehicles (typically 26m B-Doubles) through the Adelaide Hills are shown in Figure 3. Primary routes are limited to the South-Eastern (SE) Freeway and Sturt Highway, with a southern access (too long to be practical, except in an emergency) via Strathalbyn and Mount Compass.

Existing gazetted options for PBS Level 3A heavy vehicles (typically 36.5m A-Double road trains) through the Adelaide Hills are shown in Figure 4. There is only one available route, namely the Sturt Highway, with a connection to the Dukes, Princes and Mallee Highways via the Hills Freight Bypass Route.

Figure 3 – RAVNet Map for 26m B-Double Movement through/around Adelaide Hills.

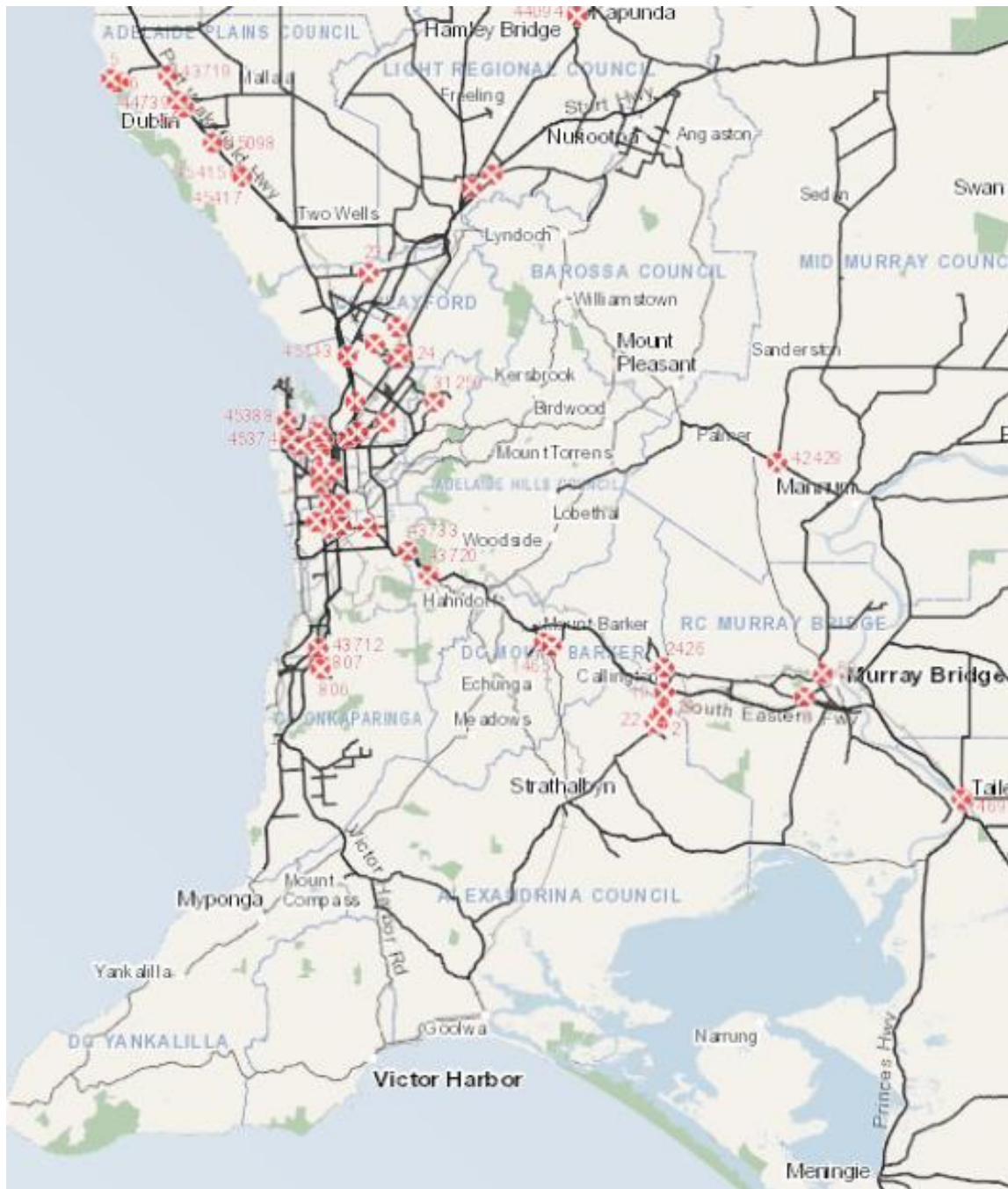


Figure 4 – RAVNet Map for Road Train (typically 36.5m A-Double road trains) movement through/around Adelaide Hills.



Committee Methodology – Strategic Considerations

Barriers to Freight Movement

The Adelaide Hills Transport Corridor workshop held on 1 December 2020 highlighted a range of issues facing the movement of people and freight through the Adelaide Hills, predominantly via the SE Freeway but also recognising existing and emerging alternative routes (such as the Hills Freight Bypass and the South Coast Freight Corridor).

Following establishment of two Working Committees, one with a focus on People Movement, the other Freight Movement, the Freight Working Committee met on two subsequent occasions. Workshop 1 was held on 10 February 2021, while Workshop 2 was held on 26 March 2021.

During Workshop 1, the Freight Committee explored barriers to moving freight through the Adelaide Hills and summarised:

- The Adelaide Hills are a natural barrier to heavy freight movement, due to the steep descent/ascent associated primarily with the hills face zone.
- Existing options for 26m B-Double Movement are:
 - SE Freeway (B-Doubles will continue to use this option by choice or because the freight origins are along the SE Freeway, or due to destinations in the central/south of Adelaide, as it is the shortest route in distance and time).
 - Southern Gazetted Route (via Strathalbyn and Mount Compass onto Victor Harbor Road) will only be used in the event of closure of the SE Freeway and access is required to southern Adelaide suburbs.
 - Hills Freight Bypass (via Murray Bridge and Sedan onto Sturt Highway) will generally only be used in the event of a SE Freeway closure and access is required to the northern Adelaide suburbs, or by choice if the B-Double has a destination north of Adelaide.
- Existing options for Road Train Movement, covering PBS Level 3A (equal or less than 36.5m Standard (Double) Road Train) are –
 - Hills Freight Bypass (via Murray Bridge and Sedan onto Sturt Highway) is the only current option. The route is 90km longer than the SE Freeway route, which will take about 50 minutes extra at off-peak times, but as little as 20 mins extra during metro peak times.



Spatial Separation Options

Workshop 1 also considered likely freight demand in the short, medium, and long term. This was framed considering what the committee participants considered to be “Bronze Standard”, “Silver Standard” and “Gold Standard” solutions for various freight route options and heavy vehicle classifications. In summary:

“Bronze Standard” – This utilises the current Hills Freight Bypass for PBS Level 3A and possibly 3B, incorporating three bridge widening upgrades as presently planned by DIT. Two further realignments between Murray Bridge and Sedan would take the route to a “Bronze Plus Standard”. The solution also incorporates the current SE Freeway for B-Doubles, with at-grade improvements at Glen Osmond intersection, plus intersection upgrades along Portrush, Hampstead and Grand Junction Roads, as currently scheduled by DIT for completion over the next two years.

“Silver Standard” – This would utilise the current Hills Freight Bypass for some B-Doubles and all PBS Levels 3A/3B, but with major upgrades at the:

- Murray Bridge end (possibly redirected through Monarto); and,
- Sturt Highway end (grade separation at the existing location and/or a greenfields link from Sedan to Truro).

Upgrades to the Sturt Highway would also be required (i.e., full duplication from the existing duplicated section near Nuriootpa to the start of the Hills Freight Bypass).

The “Silver Standard” solution would also involve the SE Freeway remaining the main route for B-Doubles, with grade separation at Glen Osmond intersection, major upgrades to Cross Road and a connection into the North-South Corridor as the preferred metropolitan route.

Additionally, freight operators might be given the option to break Road Train’s into B-Doubles, with a stop point / break point at Monarto or Murray Bridge, then send them down the SE Freeway as semi-trailer movements.

“Gold Standard” – This is a free-flowing, low risk solution which can be delivered in rural areas without extreme budgets. This would be a GlobeLink (Road Element) type solution for the majority of B-Doubles and all PBS Levels 3A/3B and possibly 4A. The committee agreed that previously considered Eastern Hills Tunnel and Southern Hills Tunnel options are no longer worth pursuing, as the benefit/cost ratio will never stack up. On the other hand, the Greater Adelaide Freight Bypass (a planning study for which was announced by the State Government in late May 2021) may achieve a “Gold Standard” solution, depending upon the chosen alignment and construction standard.

During Workshop 1, participants generally agreed that the hills face zone of the SE Freeway will likely never be suitable for PBS Level 3A or 3B, with negative community perceptions about safety being a significant factor in this assessment.



Current Infrastructure Australia Initiatives

At Workshop 2, a number of Infrastructure Australia projects which have an impact on freight and passenger movement through the Adelaide Hills Corridor were discussed. These included:

- South Australia High Productivity Vehicle Network Access
- Adelaide North-South Corridor Upgrade
- Adelaide's Outer Ring Route Capacity
- Adelaide Public Transport Capacity and Access
- Melbourne to Adelaide Freight Rail Improvements
- National Road Maintenance Backlog
- Regional Road Network Safety Improvements

From the above list, the project with the highest impact on the future of the Hills Freight Bypass is the first. This "Priority Initiative" within Infrastructure Australia's latest list of major infrastructure projects has as an outcome, the safe and efficient movement of PBS Level 3B (up to 42m AB-Triple Road Train or equivalent) and even possibly PBS Level 4A (up to 53.5m A-Triple Road Train or equivalent) along key national highways and state links. The existing Hills Freight Bypass is one such key link (or it may be replaced by a potential future Greater Adelaide Freight Bypass).

The second and third projects above have a significant impact on the ability for B-Doubles to continue using the SE Freeway as the most direct route to major logistics depots in metropolitan Adelaide. These projects provide for the efficient travel along the existing Portrush Road (Bronze Standard) route and future travel along the Cross Road / North-South Corridor (Silver Standard) route.

Time Separation Options

While discussions at Workshops 1 and 2 mostly focussed on opportunities for spatial separation of heavy freight vehicles from other lighter freight and commuter traffic along the SE Freeway and metropolitan routes (mainly Portrush Road and in the future, Cross Road), time-based separation of freight and commuter traffic was also briefly considered. This option becomes a more realistic possibility as current investigations into heavy vehicle road user charging progress and the introduction of related technology improvements with regard to heavy vehicle route and performance tracking.

At Workshop 2, Evan Knapp (Executive Officer, SA Freight Council) noted that:

- a) Across Australia, time-based control of heavy freight movement has been removed since COVID-19, and there is a strong push by multiple industries to keep freight curfews removed. Attempting to introduce new freight curfews in the Hills would not be supported by industry – both the freight industry and those whose freight is carried.
- b) However, industry may be more amenable to differential pricing mechanisms, once road user charging gets off the ground, whereby heavy vehicle operation outside of peak hours is charged at lower than standard rates, thereby encouraging operational time shifts without the need for curfews.

This opportunity needs to be further explored for those B-Doubles which need to continue using the SE Freeway and Portrush/Cross Road routes as the quickest and/or most practical route to their destinations. Off-peak capacity of this route remains capable of handling such vehicles at a reasonable level of service, but the level of service during peak periods is already at a sub-optimal level, with further strain expected as Hills population growth continues at a rapid rate (particularly in and around Mount Barker).



Potential Freight Solutions – Hills Freight Bypass

The “Bronze Plus Standard”

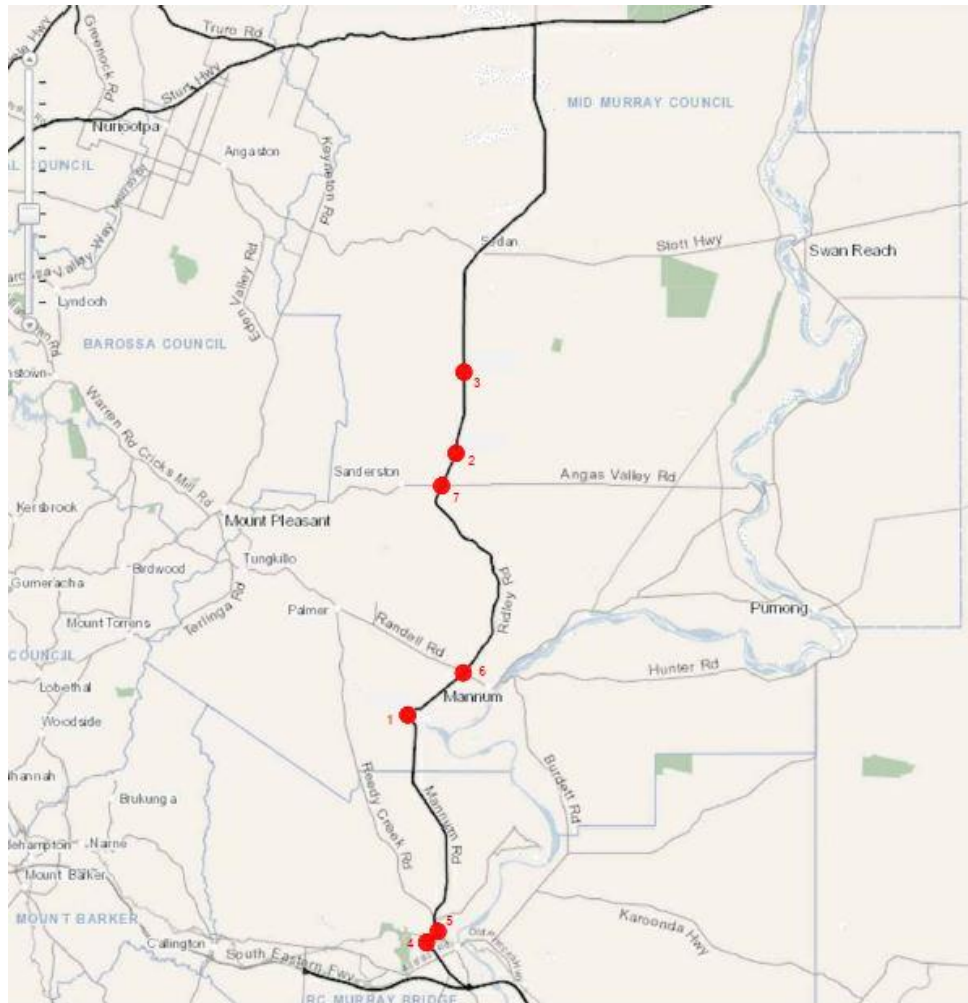
There are general carriageway improvements and pavement rehabilitation works currently underway or planned by DIT for sections of the Hills Freight Bypass from Angas Valley Road to the Sturt Highway.

In addition, there are seven specific sites where road improvements are required before the route will be fully fit-for-purpose as a gazetted PBS Level 3A (36.5m Road Train) route. These sites are shown on the map on the next page (Figure 5) and listed as follows:

1. Reedy Creek Bridge Upgrade. This project is approved by DIT, fully funded and underway, with completion expected in 2022.
2. Saunders Creek Bridge Upgrade. This project is approved by DIT, fully funded and underway, with completion expected in 2022.
3. Marne River Bridge Upgrade. This project is approved by DIT, fully funded and underway, with completion expected in 2022.
4. Intersection Widening at Maurice Road / Cypress Terrace in Murray Bridge. This requirement was identified in a 2017 Heavy Vehicle Route Assessment (HVRA) carried out by HDS Australia on behalf of DIT as a “very high risk” site for PBS Level 2 and PBS Level 3 vehicles. The Rural City of Murray Bridge is currently the road manager for this section of the Hills Freight Bypass and has not indicated any timeline or funding approval for this upgrade.
5. Intersection Widening at Cypress Terrace / Mannum Road in Murray Bridge. This requirement was identified in the 2017 HVRA as a “very high risk” site for PBS Level 3 vehicles. DIT is the road manager for this section of the Hills Freight Bypass and has not indicated any timeline or funding approval for this upgrade.
6. Intersection Priority Realignment at Randell Road. This requirement was identified in the 2017 HVRA as a “low risk” site for PBS Level 2 and PBS Level 3 vehicles but offers a significant opportunity for efficiency improvement. DIT has not indicated any timeline or funding approval for this upgrade (noting that this is unlikely to occur until current relevant planning studies are completed).
7. Intersection Priority Realignment at Angas Valley Road. This requirement was identified in the 2017 HVRA as a “low risk” site for PBS Level 2 and PBS Level 3 vehicles but offers a significant opportunity for efficiency improvement. DIT has not indicated any timeline or funding approval for this upgrade (noting that this is unlikely to occur until current relevant planning studies are completed).



Figure 5 – Proposed “Bronze Plus” Improvements along Hills Freight Bypass



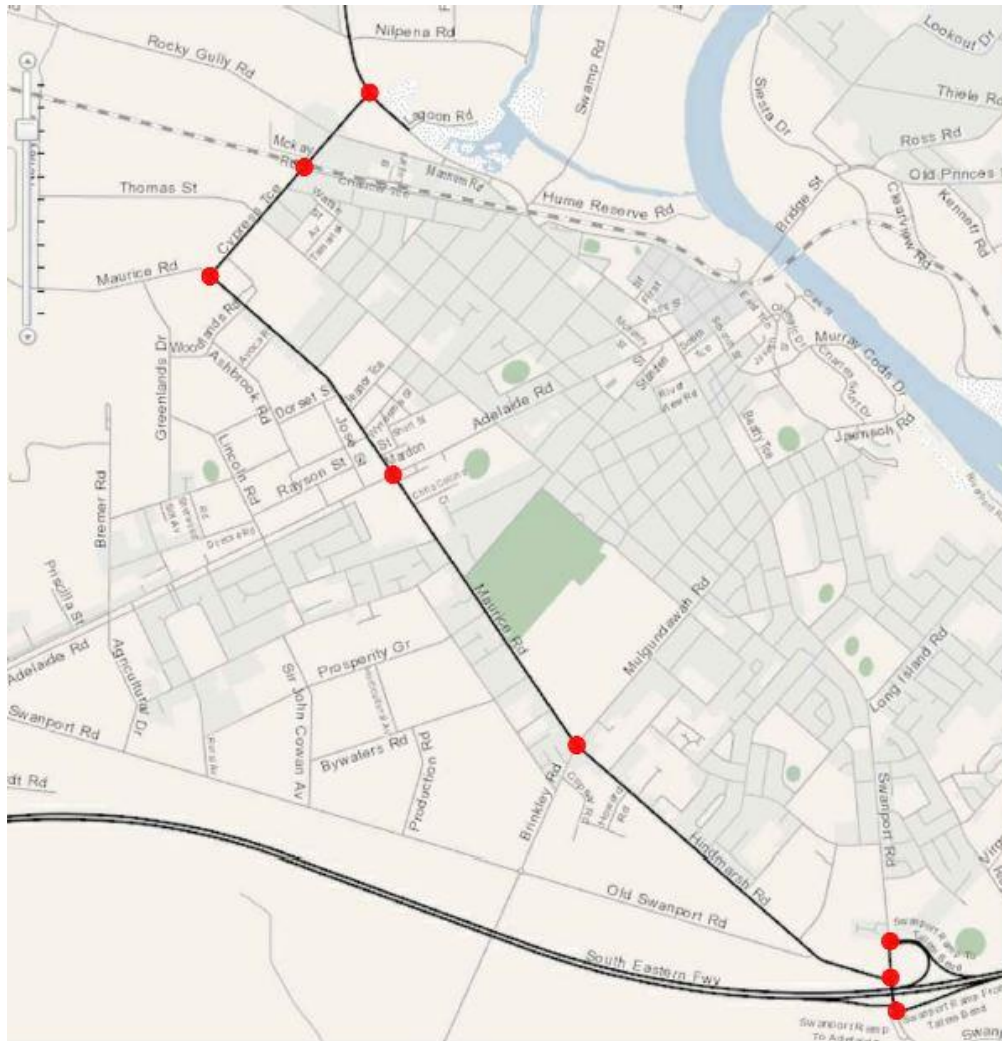
The “Silver Standard”

The Infrastructure Australia “Priority Initiative” titled South Australia High Productivity Vehicle Network Access targets, as a minimum, use of the proposed network by PBS Level 3B (42m Long Road Train) and preferably by PBS Level 4A (up to 53.5m Triple Road Train). To achieve this target for the Hills Freight Bypass, it requires a “Silver Standard” solution that incorporates all of the “Bronze Plus” upgrades listed above, together with additional considerations as discussed in this section.

Turning movements for PBS Level 3B vehicles generally track similar to PBS Level 3A. Hence from a turning movement perspective, the “Bronze Plus” Solution for the Hills Freight Bypass (including Improvements 4 and 5) will accommodate PBS Level 3B turning movements. Turning movements for PBS Level 4A vehicles are marginally larger than PBS Level 3B, but likely to be sufficiently similar that they can also be accommodated within the “Bronze Plus” Solution for the Hills Freight Bypass.

However, the additional length of PBS Level 3B and PBS Level 4A vehicles is a significant consideration in the capacity of the existing alignment of the Hills Freight Bypass to accommodate these longer vehicles. Potential traffic delays may occur at the SE Freeway Swanport Interchange on and off ramp intersections with Swanport Road, as well as subsequent Murray Bridge OD Route junctions with Swanport Road, Brinkley Road, Adelaide Road, Cypress Terrace and Mannum Road. These locations are shown in the map below (Figure 6).

Figure 6 – Proposed “Silver” Improvement Locations along Murray Bridge OD Route



Further delays (and associated high safety risks) are likely at the current at-grade junction of the Hills Freight Bypass and Sturt Highway.

Traffic modelling for all the above intersections will be necessary to determine whether each intersection will have the capacity to safely handle current and future projected traffic volumes (both heavy vehicles and general vehicles).

Also of concern is the impact of larger vehicles crossing the active Adelaide – Melbourne railway line on Cypress Terrace. The added length of PBS Level 3B or PBS Level 4A vehicles travelling over

the level crossing will require longer active signal times. Short stacking¹ is not an issue though, since the north-east approach to the crossing has 450m length back to Mannum Road, while the south-west approach has 750m back to Maurice Road.

Potential Solutions – Southern End

Upgrade Murray Bridge Over Dimension Route

Clearly the lowest cost option for achieving a fit-for-purpose standard to accommodate PBS Level 3B and potentially PBS Level 4A vehicles at the southern end of the Hills Freight Bypass is to firstly model and then upgrade, as required, the eight sites shown on the previous page. This may, or may not, achieve a solution suitable to the Murray Bridge community since the Level of Service associated with each intersection (under current and/or future traffic volumes) may degrade to an unacceptable level. Inherent safety risks related to the time taken for these longer heavy vehicles to turn across traffic flows on Swanport Road and Mannum Road, potentially also Maurice Road, will also need to be considered, with all listed sites potentially requiring traffic lights to ensure safe manoeuvre of the extra-long vehicles.

Implicit within the above level of improvement to the Murray Bridge Over Dimension Route, and its role as part of the Hills Freight Bypass, in turn part of the South Australia High Productivity Vehicle Network, is the need for DIT to assume responsibility as road manager for care and control of the Murray Bridge Over Dimension Route. It may be appropriate for a road swap with the Rural City of Murray Bridge to be arranged, with Council assuming road manager responsibilities for Swanport Road and Mannum Road between the Swanport Interchange and Cypress Terrace.

Monarto to Hills Freight Bypass Link

This link has already been identified in the Murraylands & Riverland Local Government Association (MRLGA) 2030 Regional Transport Plan and the MRLGA Regional Roads Freight Movement Study as a Key Regional Freight Route. It is not currently gazetted to PBS Level 2A due to several isolated improvements which are still needed, mainly some curve widening and shoulder sealing. Improvements to make it fit-for-purpose as a PBS Level 2B route have been planned by the Rural City of Murray Bridge, which is the road manager for the regionally significant local roads that make up the bulk of the Monarto to Hills Freight Bypass Link. A commitment to funding the improvements was deferred from FY 2021-22 budget planning until the state government's intent (through DIT) regarding other upgrades to the Hills Freight Bypass and its ultimate PBS Level (as discussed in previous sections) was made clear.

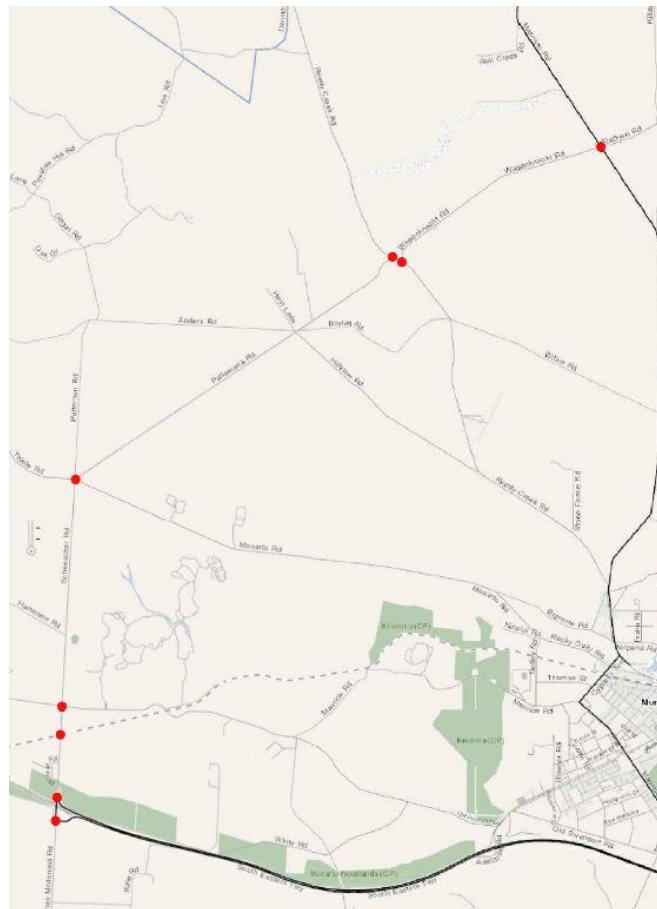
Should upgrades to the Murray Bridge OD Route fail to meet satisfactory levels of traffic capacity or safety or should the Murray Bridge community reject PBS Level 3B and/or PBS Level 4A heavier vehicles travelling through their township, significant upgrades to the Monarto to Hills Freight Bypass Link should be considered as the most viable alternative. The route would be longer than

¹ Short-stacking occurs when a long vehicle such as a semi-trailer does not have enough space to completely clear the crossing and stops while part of the vehicle is still within the crossing.

using the Murray Bridge OD Route, but not a significant time loss for their overall journey (which might be to/from Melbourne or the far north of South Australia).

Upgrade of the Monarto to Hills Freight Bypass Link to PBS Level 4A would require, in the first instance, a full length HVRA to determine general improvements along the route (such as pavement width), together with site specific safety and capacity investigations at Monarto Interchange on/off ramps, the Adelaide – Melbourne Railway Crossing, Old Princes Highway, Five Ways Intersection, Reedy Creek Road and Mannum Road. These locations are shown on the following map (Figure 7).

Figure 7 – Proposed “Silver” Improvement Locations along Monarto to Hills Bypass Link



Potential Solutions – Northern End

At-Grade Improvements to Sturt Highway Junction

The Hills Freight Bypass / Sturt Highway at grade junction was last upgraded in 2017 as part of DIT's most recent investment in the Hills Freight Bypass to achieve a PBS Level 3A fit for purpose standard. A photo of the construction works is shown through Google Street View in Figure 8.

Figure 8 – Hills Freight Bypass / Sturt Highway Intersection Upgrade



Further improvements to turning movement capability at the junction to accommodate PBS Level 3B and PBS Level 4A vehicles are undoubtedly feasible, as there is plenty of land area available. This will ensure that left turn movements from Sturt Highway (eastbound) into the Hills Freight Bypass (southbound) and from the Hills Freight Bypass (northbound) into Sturt Highway (eastbound) will be achievable without crossing adjacent through traffic lanes.

However, a major safety risk occurs with right turn movements, due to the high volume of traffic on Sturt Highway, restrictions on site distance in both directions on the Sturt Highway, and the extra length of PBS Level 3B and PBS Level 4A vehicles increasing the time that these vehicles are exposed to a potential collision while crossing through lanes.

As a minimum upgrade, significant separation and channelisation of the right turn movements (including raised traffic islands) is recommended (akin to the Augusta Highway / Copper Coast Highway intersection before its most recent grade separation). This will ensure that stationary heavy vehicles waiting to turn right from Sturt Highway into the Hills Freight Bypass, or slowly accelerating heavy vehicles turning right from the Hills Freight Bypass into Sturt Highway, will have dedicated lanes in which to undertake their deceleration/acceleration manoeuvres. Even so, a Rural Junction Active Warning System (RJAWS) may also need to be introduced to compensate for sight distance limitations along Sturt Highway.

Grade Separation Sturt Highway Junction

As with all rural intersections involving the at-grade turning movement of large heavy vehicles in an otherwise high-speed environment, significant residual risk remains no matter what the treatment. As volumes of traffic (both general use and heavy vehicles) increase, so does the probability of an adverse event and the associated safety risk.

The only way to significantly reduce risk at the Hills Freight Bypass junction with Sturt Highway, particularly to accommodate PBS Level 3B and PBS Level 4A vehicles, is to grade separate one or both heavy vehicle right turn movements. Since the likely primary direction from which PBS Level 3B and PBS Level 4A vehicles will travel is to/from Adelaide, it may be possible to introduce a single

“flyover” allowing eastbound vehicles on Sturt Highway to turn right into the Hills Freight Bypass without crossing westbound Sturt Highway traffic. This would be a significant safety improvement, however it would still leave an at-grade right turn movement from the Hills Freight Bypass into Sturt Highway (eastbound). Not ideal, given the potential for PBS Level 4A stock vehicles to be taking that route as part of the Strzelecki Pastoral Route.

A better, but more expensive solution, is the introduction of a partial clover-leaf solution (such as now being introduced at the Augusta Highway / Copper Coast Highway intersection). Alternatively, a half diamond interchange on the northern side of the Sturt Highway with an overpass, whereby a separate slower speed junction permits right turn movements into and out of the Hills Freight Bypass to cross each other, would be feasible.

The “Gold Standard”

GlobeLink was proposed, evaluated, and subsequently abandoned as a possible road and rail corridor behind the Adelaide Hills. Other “Gold Standard” solutions variously proposed in the last few years have included Eastern Hills Tunnel and Southern Hills Tunnel options running off the SE Freeway. However, these multi-billion-dollar projects are also considered no longer worth pursuing, as the benefit/cost ratio is never likely to stack up.

A greenfields high-speed (average 80km/hr +), high-capacity dual highway between Murray Bridge or Monarto, connecting into the recently announced Truro Bypass (i.e., Sturt Highway Duplication) may still present a viable long-term option, but would be subject to a separate business case and economic study akin to (and using data from) the GlobeLink analysis. The primary point of difference would be utilising an available corridor as much as possible, possibly commencing with a single two-way carriageway then duplicating later.



Based upon this outline, a potential “Gold Standard” alignment is shown in Figure 9. It starts at Monarto Interchange on the SE Freeway, travels north along Ferries McDonald and Schenscher Roads to Five Ways Intersection, then along Pallamana Road to Reedy Creek Road. This section of the route constitutes most of the current Monarto to Hill Freight Bypass Link.

At Reedy Creek Road, the route would head north, using current sub-arterial and local roads that broadly follow the now disused Monarto to Sedan Rail Corridor. This includes Reedy Creek Road, Western Boundary Road, Millendella Road, Angas Valley Road and Old Sanderston Road, reconnecting with the existing Hills Freight Bypass (Ridley Road) south of Cambrai. The route would then follow the existing Hills Freight Bypass through Cambrai to Sedan.

North of Sedan, a much more direct link exists to connect with the Sturt Highway, which would be beneficial to Adelaide (westbound) traffic, though heavy traffic heading east to NSW or north via Murraylands Road to the Strzelecki Pastoral Route would still use Halfway House Road.

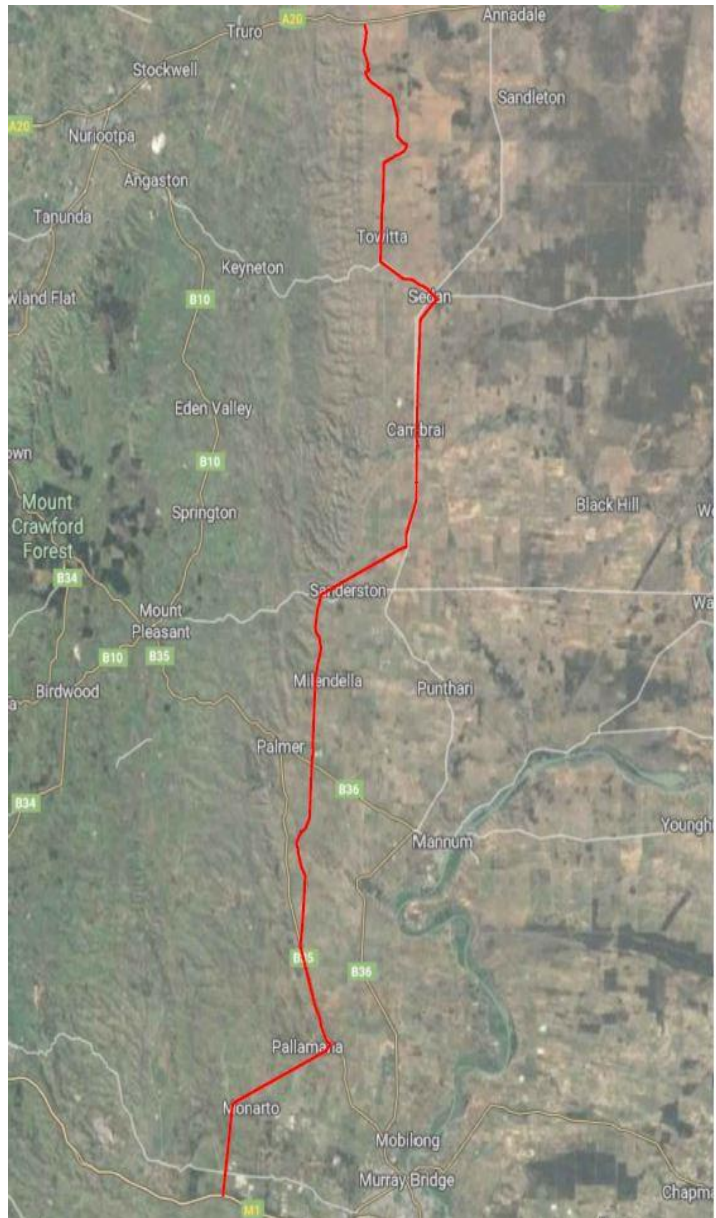


Figure 9 – Possible “Greenfields” Freight Bypass Route

The direct link could utilise Angaston – Swan Reach Road, then Towitta Road and Three Chain Road to Baldon Road, which is likely to connect into the eastern end of the Sturt Highway Truro Bypass.

An alternative route, with greater upgrade requirements but potentially less disruptive to local communities, would use Three Chain Road (or close parallel roads) from Millendella Road all the way to Baldon Road, traveling along the hills face for all that route.

Clearly a major technical investigation of this route to develop an expected total project cost is required. Land acquisition through road widening will still be needed along the route, but this is unlikely to be as disruptive as large greenfields acquisitions. Numerous bridge and culvert crossings will be required, but no tunnelling. The subsequent business case may still not stack up, but the

benefit/cost ratio will almost certainly be much better than the GlobeLink or other “Gold Standard” proposals.

As announced in late May 2021, a DIT planning study related to a possible Greater Adelaide Freight Bypass may achieve exactly this outcome.

Note that, utilising a route that goes through Sedan effectively allows for the Sedan to Sturt Highway Truro Bypass direct link to be introduced as a stand-alone project, connecting into the rest of the existing Hills Freight Bypass in what could be classified as a “Silver Plus Standard” solution.



Other Freight Issues

Hills Rail Bypass

The question of a rail freight bypass of the Adelaide Hills has been posed repeatedly over the last 15 years, including three early reports, namely:

1. South Australian Rail Freight – A Bypass to Save the Heart of Adelaide, Mitcham Community Rail Freight Task Force, 2007;
2. Adelaide Rail Freight Movements Study – Discussion Paper, GHD for DITRDLG, October 2009; and
3. Adelaide Rail Freight Movements Study – Final Report, GHD for DITRDLG, June 2010.

The “Adelaide Rail Freight Movements Study – Final Report” concluded in 2010 that there would be no net economic benefit to the community compared to the Base Case in upgrading the existing rail line and/or constructing a new line on the scale assessed by this Study, which included several Hills Rail Freight Bypass routes. As a result, grade separation of two rail interchanges in metropolitan Adelaide (Goodwood and Bowden) was undertaken to improve the efficiency of rail freight movement through metropolitan Adelaide to key destinations at the Dry Creek General Rail Freight Terminal and the Outer Harbor Grain Rail Freight Terminal. These two grade separation projects have improved rail freight performance on the existing network, thereby lessening the demand for a rail freight bypass.

In 2018, RDA Adelaide Hills, Fleurieu and Kangaroo Island commissioned Tonkin Consulting to revisit the demand for a hills rail freight bypass. The “Northern Rail Bypass Scoping Study – Final Report” was released in July 2018. The scoping study updated and extended the Adelaide Rail Freight Movements Study to reflect current costs and considered a much broader set of social and economic circumstances. Further, the study has also highlighted the state’s critical economic position, and the very real risks of not ensuring our key infrastructure fosters and supports strong investment and growth. More detailed investigations to properly quantify a revised Cost Benefit Analysis for the project were recommended, and to complete a robust Business Case in accordance with the requirements of Infrastructure Australia. Unfortunately, further detailed investigations did not proceed at that time, as the state government was focussed on preparation of a Master Plan and Business Case for GlobeLink, including a rail component for that project.

As mentioned previously, the state government committed to the preparation of a Master Plan and Business Case for GlobeLink, the final report being released in 2019. The KPMG report found that GlobeLink was economically unviable, costing taxpayers \$7 billion with limited benefits and low demand. As such, the state government determined that GlobeLink would not be pursued.

The RDA AHFKI Adelaide Hills Transport Corridor Workshop held on 1 December 2020 included a re-visit of rail freight requirements and the on-going issue of whether a rail freight bypass was warranted. They highlight that Australian Rail Track Corporation (ARTC) still do not see a positive economic benefit in constructing and operating a hills rail freight bypass. During the subsequent Freight Committee Workshop 2, Infrastructure Australia’s Priority Initiative “Melbourne to Adelaide Freight Rail Improvements” project was discussed. This highlights the significant cost of achieving double stack container capability along the Melbourne – Adelaide Rail Corridor, with over

1,020 structures that impact on clearance. Without economic benefits from double stacking along the whole route, ARTC does not consider the capital cost of a hills rail freight bypass to be justified. Local proponents are separately arguing that shipment of grain by rail freight from Tailem Bend and further afield in the Mallee would justify the rail freight bypass. ARTC presently does not agree with this economic justification and has no plans to change its shipment arrangements for grain.

Further consideration of a Hills Rail Bypass would only be warranted if the economic and social imperative of using the existing Mount Barker to Adelaide rail corridor for passenger services drives further investigations. Following discussion by the RDA AHFKI "People Transport Solutions" Working Committee, no significant short- or medium-term benefit of using the existing rail corridor for dedicated passenger services was identified. Some discussion on time-based sharing of the rail corridor between freight and passenger services has been explored but is not seen by either RDA AHFKI Working Committee as a feasible solution.

Metropolitan Freight Movement

As referred to above, none of the "Bronze Plus", "Silver" or even "Gold" standard solutions for a Hills Freight Bypass will eliminate the need for the SE Freeway and roads through Metropolitan Adelaide (notably the existing Portrush Road / Hampstead Road route and the proposed Cross Road / North-South Corridor route) to carry B-Doubles for the foreseeable future. As such, options for continued use of these routes by B-Doubles, under ever increasing commuter traffic loads, must be explored. There are fundamentally three means by which this can be done, which are already being addressed through various infrastructure planning and delivery programs initiated by the State Government and managed by DIT. They are:

1. Transport Infrastructure Upgrades. Recently completed widening of sections of the SE Freeway is a capacity improvement, which can be combined with recent, current, or soon to be undertaken safety improvements including pavement works, intelligent traffic system upgrades and Heysen Tunnel upgrades. Along the existing Portrush Road / Hampstead Road route, capacity upgrades at Hampstead Road / Grand Junction Road (substantially complete) and Portrush Road / Magill Road (underway) are examples of a "Bronze Plus Standard" solution. Such proposed works are reflected in the Infrastructure Australia High Priority Initiative "Adelaide's Outer Ring Route Capacity". Future intersection upgrades and possible road widening along Cross Road, combined with eventual connection into a completed North-South Corridor, will produce a "Silver Standard" solution in the medium term (by 2030). A "Gold Standard" solution (involving intersection free movement along Cross Road) is highly unlikely in the medium term (even long term) because of the very high cost and/or significant social disruption.
2. Public Transport Upgrades. As a logical alternative to continual infrastructure upgrades in response to ever increasing growth in commuter and freight traffic volumes, demand management options have been considered by the "People Transport Solutions" Working Committee, which in turn has a direct benefit to freight movement. In particular, improved capacity and frequency of public transport options between Mount Barker (and other hills communities) will encourage greater patronage and therefore reduce the number of individual 1- or 2-person car-based commuter trips, by consolidating passengers onto bus or other higher volume transport modes. Such proposed works are reflected in the Infrastructure Australia Priority Initiative "Adelaide Public Transport Capacity and Access". This initiative will substantially improve the capacity and safety of freight movement along

the SE Freeway and either Portrush Road or Cross Road metropolitan freight routes, provided the general public embrace the services offered.

3. Time Based Freight Management. As an alternative to public transport upgrades which remove commuter vehicles from the traffic stream, or as a complementary initiative, lowering the number of large freight vehicles (primarily B-Doubles) in the traffic stream during peak hours also provides significant capacity improvements. This may be feasible once heavy vehicle road user charging is adopted as a traffic management practice in Australia. As mentioned earlier, the freight industry is more likely to support this initiative if it is structured as incentives for freight to travel outside peak hours, rather than by way of peak hour curfews.



Recommendations

Short Term to 2025 (Bronze Plus Standard)

DIT's current program of targeted road safety and capacity improvements to the existing Hills Freight Bypass (for PBS Level 2B and higher classification vehicles), and to the SE Freeway and Portrush Road / Hampstead Road metropolitan freight route (for PBS Level 2A B-Doubles) is supported.

DIT's planned design and construction of the Sturt Highway Truro Bypass is supported.

It is recommended that, in the short term:

1. Hills Freight Bypass – Additional Works

State Government support (via DIT) is sought for four additional targeted road safety and capacity improvements to the existing Hills Freight Bypass, namely;

- a. Intersection Widening at Maurice Road / Cypress Terrace in Murray Bridge.
- b. Intersection Widening at Cypress Terrace / Mannum Road in Murray Bridge.
- c. Intersection Priority Realignment at Randell Road.
- d. Intersection Priority Realignment at Angas Valley Road.

2. State Government support is sought to improve public transport services between Mount Barker and Adelaide, with patronage of the improved services actively encouraged, thereby reducing commuter traffic growth pressure on the SE Freeway and its intersection with Portrush / Cross and Glen Osmond Roads.

Note that further exploration of a rail freight bypass proposal is not supported unless significant passenger rail transport benefits can be identified that necessitate use of the Mount Barker to Adelaide rail corridor for passenger services.

Medium Term to 2030 (Silver or Gold Standard)

It is recommended that, in the medium term:

3. Greater Adelaide Freight Bypass

DIT's current Greater Adelaide Freight Bypass planning study is supported, with a view to establishing as soon as possible;

- a. In the event of a negative business case for a greenfields route, State Government support is sought for a "Silver Standard" solution which incorporates significant upgrades of the existing Hills Freight Bypass at the southern and northern ends; or
- b. In the event of a positive business case for a greenfields route, it is supported as a "Gold Standard" solution to the movement of PBS Level 2B and higher classification vehicles to Northern Adelaide sites, bypassing the SE Freeway and metropolitan freight routes.

4. Metropolitan Freight Movement

State Government support is sought to create a "Silver Standard" solution for metropolitan freight movement of up to PBS Level 2A (B-Doubles), with the primary route becoming Cross

Road and a completed North-South Corridor. Subject to further planning studies, this should include the following:

- a. Grade separation of elements of the SE Freeway / Portrush Road / Cross Road / Glen Osmond Road intersection, particularly to prioritise the SE Freeway / Cross Road movement;
- b. DIT's planned upgrade to the Cross Road / Fullarton Road intersection, along with other intersection capacity improvements as traffic performance dictates and funds permit;
- c. Grade separation of the Cross Road rail crossing; and
- d. Suitable linkages for B-Doubles to access the completed North-South Corridor.

5. Heavy Vehicle Road User Charging Scheme Trial

Once the appropriate technology is in place, State Government support is sought for a heavy vehicle road user charging scheme trial that incentivises off-peak travel along the SE Freeway, while not supporting heavy vehicle curfews.

Summary

Two Working Committees, representing key stakeholders with an interest in the Adelaide Hills Transport Corridor, have worked together with a focus on development of options and making recommendations for improving freight and people transport through the Adelaide Hills.

This report provides a synopsis of recommendations that all stakeholders can refer to including government, government departments and agencies. The five key recommendations for improvement to freight transport through the Adelaide Hills divide between;

- Short-term, high cost-benefit (Bronze Plus) improvements to capacity and safety; and
- Medium-term (Silver) improvements to capacity and safety.

Some long-term, high cost (Gold) improvements to capacity have been considered, but mostly discounted unless detailed planning studies and business case development currently underway through DIT should prove otherwise.



Appendix 1A: Initial Workshop Invitees/Participants

Name	Position	Organisation
Adrian Teaha (A)	Rail Policy Manager	Australian Rail Track Corporation
Andrew Aitken	Chief Executive Officer	Adelaide Hills Council
Andrew Stuart	Chief Executive Officer	Mount Barker District Council
Ben Fee (A)	Chief Executive Officer	RDA Murraylands and Riverland
Cathy Allen	General Manager – SA – Bus	Keolis Downer
Charles Mountain	Senior Manager Safety & Infrastructure	RAA
Chris Haskas	Manager Engineering	The City of Mitcham
Damien Cooke	Chief Executive Officer and Director	RDA AHFKI
Daryll Conlon	Head of Operations	Keolis Downer
David Lovell	Deputy CE	Infrastructure SA
Evan Knapp	Executive Officer	South Australian Freight Council
Graeme Martin	Executive Officer	Southern and Hills LGA
Henry To	Manager Infrastructure Strategy	Australian Rail Track Corporation
James Sexton	Chair	RDA AHFKI
Jarrold Bielby	Regional Manager - Infrastructure	RDA Murraylands and Riverland
Jim Nikas (A)	Business Development Manager	Keolis Downer
John Ashcroft	Board Member	RDA AHFKI
John Devney	Director	GTA now Stantec
John Olson	Managing Director	HDS Australia Pty Ltd
Karen Raffan	Chief Executive Officer	RDA Adelaide
Luigi Rossi	Principal Consultant	Luigi Rossi & Associates
Marc Voortman	GM Planning and Development	Mount Barker District Council
Mark Hennessy	Planning Leads	Dept. for Infrastructure and Transport
Matthew Vertudaches (A)	Traffic Engineer	RAA
Melissa Bright	Manager Economic Development	Adelaide Hills Council
Michael Sedgman (A)	Chief Executive Officer	Murray Bridge Council
Michelle English (A)	Business Development Manager	Flinders Port Holdings
Mike Wilde	Manager, Network Planning	Dept. for Infrastructure and Transport
Peter Tsokas	Chief Executive Officer	City of Unley
Phil Burton	General Manager Infrastructure	Mount Barker District Council
Rob Kerin	Chair	RDA South Australia
Rod Hook	Partner	Rod Hook and Associates
Scott McKay	Founder and Principal	Flywheel Advisory
Steve Shearer (A)	Executive Officer	SA Road Transport Association
Steve Shotton	Regional Development Manager	RDA AHFKI
Wayne Buckerfield	Executive Director, Transport Planning & Program Development	Dept. for Infrastructure and Transport

(A) Apology

Appendix 1B: Freight Transport Working Committee

Name	Position	Organisation
Charles Mountain	Senior Manager Safety & Infrastructure	RAA
Damien Cooke	Chief Executive Officer and Director	RDA AHFKI
Evan Knapp	Executive Officer	South Australian Freight Council
Graeme Martin	Executive Officer	Southern and Hills Local Government Association
Henry To	Manager Infrastructure Strategy	Australian Rail Track Corporation
Jarrod Bielby	Regional Manager - Infrastructure	RDA Murraylands and Riverland
John Olson (Chair)	Managing Director	HDS Australia Pty Ltd
Karen Raffin	Chief Executive Officer	RDA Adelaide
Mike Wilde	Manager, Network Planning	Department for Infrastructure and Transport
Scott McKay	Founder and Principal	Flywheel Advisory

Appendix 2: Related Work

Related Studies

- Regional Road Assessment – Adelaide Hills, 2020, RAA
- Regional Road Assessment – South Eastern Freeway, 2020, RAA
- Hahndorf Township Traffic Planning and Interchange Study, Jacob 2020
- GlobeLink, 2019, KPMG/AECOM
- Regional Public Transport Study, 2019, RDA AHFKI
- Northern Rail Bypass Scoping Study, 2018, RDA AHFKI / Tonkin
- Southern & Hills Local Government Association, 2020 Transport Plan – 2015 Update (HDS)
- The Integrated Transport and Land Use Plan, Government of South Australia, 2013
- Adelaide Rail Freight Movements Study, 2010, GHD

Relevant Plans

- 20 Year State Infrastructure Strategy - ISA 2020
- The 30-Year Plan for Greater Adelaide 2017 Update. Department of Planning, Transport and Infrastructure, Adelaide, South Australia, 2017.
- The Integrated Transport and Land Use Plan, Department of Planning, Transport and Infrastructure, Adelaide, South Australia, July 2015. (no longer State Government policy)

Department Infrastructure and Transport

Planning Studies & Upgrades: Transport Network Planning Studies Program 2020-21

- Crafers and Verdun Park and Rides
- Bus Corridor Improvements – Glen Osmond Road
- Intersection Efficiency – Portrush Road/South Eastern Freeway/Cross Road intersection
- Corridor Planning – South Eastern Freeway

Other Studies

- Greater Adelaide Freight Bypass – Business Case
- Bus Rapid Transit Strategy and Investment Plan
- Public Transport Infrastructure Strategy, 10-year plan and selected preliminary business cases
- RAV Network expansion strategy
- Adelaide Hills Bus Rapid Transit (City to Mt Barker)
- Hahndorf Township Strategic Traffic Planning Study
- SE Freeway Freight Corridor Plan



Appendix 3: Current Infrastructure Upgrade Projects

Department Infrastructure and Transport: committed and/or recently completed projects:

- Glen Osmond and Fullarton Roads Intersection Upgrade
- Heysen Tunnels refit and upgrade
- Keeping Metro Traffic Moving
 - Bus Indents on Glen Osmond Road to improve travel time for express buses and general traffic
 - Extended Clearway and Parking Restrictions – Glen Osmond Rd, Greenhill Road to Portrush Road
- South Eastern Freeway Pavement Rehabilitation: Crafers to Tollgate
- Mount Barker On-demand Bus Trial



Report Contact

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