

# Appendix A

## **Strategic options assessment**

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# A

# Strategic options assessment

## 1. Heavy rail

The heavy rail option assumes the construction and operation of heavy rail services on the disused freight rail line, connecting the northern suburbs to Hobart CBD, including construction of new heavy rail stations and tunnelling in the Hobart CBD.

This option also assumes additional supporting infrastructure including a high frequency feeder bus service, improved active transport connectivity, as well as the reopening and operation of multiple heavy rail level crossings.

Option 1	Transport Service	City Shaping	Affordability	Deliverability
Heavy rail	++	+	--	--

As a transport service, when compared to all other transit modes, heavy rail offers the potential for high capacity services and if run at a frequent headway has the potential to reduce reliance on private vehicles and reduce congestion. However, heavy rail generally serves fewer stations than other transit modes (e.g. bus or light rail). Short distances between stations hinder the operational performance and benefits of heavy rail systems as much of the operational effort is spent in accelerating and decelerating between stations instead of travelling at the optimal commuting speed.

A heavy rail line connecting Hobart's northern suburbs to the CBD would likely allow for significant density, as it unlocks highly connected precincts around stations along the corridor and catalysing urban renewal. However, due to the assumed lower number of stations along the corridor, the number of opportunities for urban renewal would likely be lower than other transit modes. In addition, heavy rail may have a greater impact on noise which will have some impact on urban renewal along the Transit Corridor.

The greatest shortcoming for heavy rail is the associated cost and deliverability. It is expected that heavy rail would likely have the most expensive capital works due to the infrastructure requirements, vehicles, and the need to facilitate access to the Hobart CBD (including tunnelling and underground station in Hobart CBD). In addition, heavy rail would likely require the operation of a feeder bus system to generate sufficient demand from the wider network and significant capital works due to the construction and operation of multiple level crossings.

## 2. Light rail (on corridor)

The light rail on corridor option will repurpose the existing rail corridor connecting the northern suburbs to the Hobart CBD for the construction and operation of light rail services.

It's likely this option would require additional supporting infrastructure including a high frequency feeder bus service, improved active transport connectivity, the reopening and operation of level crossings, the construction of new stations and prioritisation at intersections.

Option 2	Transport Service	City Shaping	Affordability	Deliverability
Light rail (on corridor)	++	++	-	-

The light rail on the corridor offers a high capacity public transport option, and if run at a frequent headway will reduce dependency on cars and reduce congestion. Light rail would improve access to the Hobart CBD for commuters in the northern suburbs and improve social equity.

A light rail service would increase incentives for residents and investors to turn the existing rail corridor to high density residential the most out of any option, particularly because it is seen as a modern and high-class transport option.

The density and location of development (particularly residential and commercial) in the corridor would allow many customers to access the stations by walking, bike, or feeder buses which would reduce car usage and hence environmental impact of transportation.

This option would however represent a significant capital investment combined with the resulting operational costs. It is estimated that a light rail would be more costly than a bus solution but less costly than heavy rail.

This option would require significant capital works including light rail infrastructure, modifications to the existing network especially at at-grade crossings and traffic signalling to accommodate light rail, the establishment of a passenger rail operator and the establishment of a feeder bus system which must operate very reliably if the benefits of this option are to be realised.

### 3. Light rail (off corridor)

The off corridor light rail option is similar to the on corridor except that it has been assumed to divert from the separated rail corridor to the existing road network south of New Town and follows New Town Road and Elizabeth Street.

This option requires construction and operation of a number of level crossings on the existing road network on the northern section, with the southern section needing to be integrated with existing roads including allowances for prioritisation.

Option 3	Transport Service	City Shaping	Affordability	Deliverability
Light rail (off corridor)	0	+	-	-

The light rail off corridor option offers a high capacity public transport option and if run at a frequent headway will reduce dependency on cars and reduce congestion. In comparison with the on corridor option, the off corridor option would require the repurposing of existing road lanes for mass transit. It would also require new intersections, lower speeds and potentially increase travel times for road users. The potential for increased congestion associated with this option will reduce attractiveness of the option in comparison to the on corridor option.

This option is expected to influence changes in density because it would still be seen as a modern and high-class transport option. The density and location of development (particularly residential and commercial) in the corridor would allow many customers to access the stations by walking, bike, or feeder buses which would reduce car usage and hence environmental impact of transportation.

This option would potentially require significant capital works including light rail infrastructure, modifications to the existing network especially at at-grade crossings and traffic signalling to accommodate light rail, the establishment of a passenger rail operator and the establishment of a feeder bus system which must operate very reliably if the benefits of this option are to be realised. This option is also likely to be the one of the more costly options due to the need for land acquisition, upgrades to existing roads to become suitable for light rail use and higher risk profile (e.g. higher planning procedure risks, construction risks, etc).

### 4. Bus rapid (on corridor)

The bus rapid on corridor option involves the construction and operation of rapid bus services on the disused rail freight corridor.

This option requires shifting the existing infrastructure of the disused rail freight corridor to a road corridor, construction of new bus stops, and investment in supporting infrastructure including a high frequency feeder bus service and improved active transport connectivity to the corridor to maximise integration of services into communities.

Option 4	Transport Service	City Shaping	Affordability	Deliverability
Bus rapid (on corridor)	++	+	-	-

This option might improve the speed and reliability of bus services in Greater Hobart, incentivising residents to use more public transport and reduce reliance on private vehicles. A bus rapid system is relatively more flexible than the rail options, as buses can divert to existing roads in cases where there are incidents on the corridor. An efficient and reliable transit corridor is likely to provide greater incentives for people to move closer to the corridor, with potential for higher density living.

A bus rapid system is expected to be less costly to construct than rail options, however this option will represent a significant capital investment and operational costs - where operational costs would be higher than light rail options as more drivers are required. Bus rapid options poses the least risk for construction, as it does not require special pavements to function and is more flexibility to implement than the rail options.

### 5. Bus rapid (off corridor)

The off corridor bus rapid option is similar to the on corridor except that the route to diverts from the separated rail corridor to the existing road network south of New Town.

This option requires integration with the existing road network implying the need for the construction of multiple intersections, separated bus lanes, bus prioritisation and new bus stops.

Option 5	Transport Service	City Shaping	Affordability	Deliverability
Bus rapid (off corridor)	0	0	--	--

This option could improve the speed and reliability of bus services in Greater Hobart, incentivising residents to use more public transport and reduce reliance on private vehicles. This option would also provide greater incentives for people to move closer to the corridor, with potential for higher density living.

Consistent with findings for the on corridor options, the impacts on the transport network and densification of development would not be as significant as the on corridor option. As the use of existing roads are likely to reduce the attractiveness of the mode option by increasing congestion, it will increase costs due to land acquisitions and result in a higher risk profile (e.g. higher planning procedure risks, construction risks, etc).

#### 6. Trackless Tram (on corridor)

Trackless trams are a relatively new public transport technology currently operational in China and Europe. Trackless trams perform like a hybrid of light rail and bus systems combining the benefits of rail systems such as ride quality and lower dwell times, with the lower implementation and operational costs associated with bus systems.

This option would likely require shifting the existing infrastructure of the Transit Corridor to a road corridor, construction of new stops, as well as investment in supporting infrastructure including a high frequency feeder bus service and improved active transport connectivity.

Option 6	Transport Service	City Shaping	Affordability	Deliverability
<b>Trackless Tram (on corridor)</b>	++	+	-	-

The use of new vehicles, combined with rail-like levels of comfort and boarding will make this option a more attractive option for passengers to select, even though it might have lower timetable reliability than rail-based systems. Similar to bus options, trackless trams offer the improved speed and reliability of mass transit connecting the CBD and the northern suburbs.

Trackless tram technology is however untested in Australia meaning the land market response and city shaping benefits are unknown, however this mode could be seen as a more attractive transport option given international precedents.

The vehicles are able to run on pavements meaning it is less costly than the rail options but the risks around operational experience and the need to import equipment from overseas from a relatively small number of suppliers is a key consideration for the deliverability of this option.

#### 7. Trackless Tram (off corridor)

The off corridor trackless tram option is assumed to divert from the Transit Corridor to the existing road network south of New Town and follows New Town Road and Elizabeth Street.

This option leverages existing infrastructure on the road network but would likely require the construction of multiple intersections on the northern and southern sections of the alignment, integration of the trackless tram infrastructure with existing roads including separated lanes and new tram stops.

Option 7	Transport Service	City Shaping	Affordability	Deliverability
<b>Trackless Tram (off corridor)</b>	0	0	--	--

The use of new vehicles, combined with rail-like levels of comfort and boarding could make this option a more attractive option for passengers to select, even though it might have lower timetable reliability than rail-based systems. Similar to bus options, trackless trams offer the improved speed and reliability of mass transit connecting the CBD and the northern suburbs. Trackless tram technology is however untested in Australia meaning the land market response and city shaping benefits are unknown.

Compared with the on corridor trackless tram option, the use of existing roads is likely to increase congestion, decrease timetable reliability and reduce the overall attractiveness of the option for land market responses. This option is also likely to result in a high cost compared to the on corridor option due to the necessity to acquire land to accommodate additional lanes and upgrades to existing road infrastructure to accommodate the trackless tram infrastructure.

### 8. Dedicated bus lane on Main Road

Main Road is a single carriageway in Glenorchy with on street parking, retail access and traffic calming measures. This option considers the construction of a dedicated bus lanes on Main Road, involving the construction of new bus stops and bus prioritisation.

Option 8	Transport Service	City Shaping	Affordability	Deliverability
Dedicated bus lane on Main Road	-	0	+	+

Providing a dedicated bus lane along Main Road could result in faster and more reliable bus services in Greater Hobart. However it is likely to negatively impact on congestion through reducing road capacity with the removal of traffic lanes and provision of bus priority at intersections.

This option is not likely to encourage changes in urban renewal along the corridor and is expected to have a relatively high capital cost, as road widening will be accompanied by land acquisition and intersection upgrades. Due to potentially extensive land acquisitions likely required it runs a high risk of stakeholder dissatisfaction and planning delays.

### 9. Dedicated bus lane on Brooker Highway

Brooker Highway is a dual carriageway linking the CBD to the northern suburbs. To provide a dedicated bus lane along its length, it would likely require either a new lane to be constructed on both carriageways, or the repurposing of an existing lane for bus priority.

Option 9	Transport Service	City Shaping	Affordability	Deliverability
Dedicated bus lane on Brooker Highway	-	0	+	+

Consistent with the findings of the dedicated bus lane on Main Road, there would potentially be faster and more reliable bus services. However, this has the potential to negatively impact road capacity, increase congestion and have little impact on urban renewal.

The option is expected to have a low capital cost compared to the rail options to encompass upgrades along the length of the highway, repurposing of traffic lanes and the upgrades at intersections. The deliverability of this option is lower as the risks mostly involve construction risk and planning delays.

### 10. Expansion of existing road capacity

Expanding the road capacity on Brooker Highway and Main Road could involve widening of these roads along the alignment and/or adoption of a more focused approach to address bottlenecks along the route.

Depending on the nature and scale of bottlenecks, this option could range in cost and complexity including additions of extra turning lanes, removal of on-street parking, provision of grade separation, etc.

Option 10	Transport Service	City Shaping	Affordability	Deliverability
Expansion of existing road capacity	-	--	-	-

Expanding the existing road capacity might locally solve issues associated with congestion but this might lead to a mode shift towards car. The benefits from removing congestion through this option might be short-lived with the increase in car trips resulting in higher dependency on car as the main transport mode and lead to potential increases in congestion.

This option would likely not encourage urban renewal along the existing rail corridor due to land acquisition required to increase road capacity, increased noise and pollution, and it is likely to not solve the strategic challenge of over-reliance on car as the main mode of transport.

Overall, this option may have one of the lower costs but risks in terms of possible land acquisition and due to topography and the nature of the road environment of Brooker Highway and Main Road, it is unknown whether adding additional lanes would be possible.

### 11. Expansion of active transport (micro-mobility) network

Expansion of the active transport network assumes a new connected network of separated cycleways and footpaths linking into the existing cycle corridor running alongside the Transit Corridor.

Option 11	Transport Service	City Shaping	Affordability	Deliverability
Expansion of active transport network	+	0	++	++



Expansion of the active transport network would likely provide greater connectivity from suburbs to the main cycle network encouraging a mode shift from motorised vehicles to active travel modes, improving urban quality, air quality, reduce noise and promote greater physical activity levels which leads to improved social well-being and a greater sense of community.

This option would be relatively low cost and low risk it is not however likely to significantly reduce congestion or catalyse urban renewal.

### 12. Improvement of existing bus services (off corridor)

All public transport provision in Greater Hobart is currently provided through the bus network which is not currently meeting the needs of residents (e.g. bus services are infrequent and stops not located in areas with high demand).

There are a number of potential options for improving existing bus service including the increasing the frequency across the network, providing additional network capacity at busier parts of the network or more targeted changes through increased frequency in areas where demand is high.

Option 12	Transport Service	City Shaping	Afford-ability	Deliver-ability
Improvement of existing bus services (off corridor)	0	0	++	+

Improving the existing network is not likely to have a significant impact on the transport network but it could result in increasing congestion if more services are added and public transport patronage is likely to increase if the location of stops are improved.

Overall this option is unlikely to contribute to urban renewal and won't shift the dependency on car as the main mode of transport.

This option does however involve the lowest capital cost and risk but it may require the purchase of additional buses.

### 13. Road (congestion) pricing

The mechanism of road pricing such as congestion pricing aims to disincentive the use of private transport within the CBD to reduce congestion, especially in peak periods.

Option 13	Transport Service	City Shaping	Afford-ability	Deliver-ability
Road (congestion) pricing	+	-	-	--

This option is likely to result in reduced traffic volumes and increase mode shift to private transport. It is low cost and could result in a potential revenue stream for Government. However, road pricing is likely to be challenging to implement, particular in the absence of concurrent increase in public transport capacity to support mode shift, will likely require a long planning period and extensive stakeholder consultation.

### 14. Legislative interventions

The range of legislative interventions that could be applied to the corridor including the land use rezoning, infill targets, increased provision of health and education services, intensification of employment hubs, public housing policies and parking charges/levies.

These measures could be implemented individually or in combination with any of the capital options assessed.

Option 14	Transport Service	City Shaping	Afford-ability	Deliver-ability
Legislative interventions	0	0	0	0

Given the variety of legislative interventions which could be enacted, it is difficult to judge each policies impacts at this stage but they are unlikely to deliver on the transport and city shaping objectives.

While the cost of enacting the policy is relatively low for the Government, the total cost of implementing options is unclear at this stage as it is highly dependent on the policy chosen.

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