

From: [Ian Addison](#)
To: [Scott Hennessy](#)
Subject: New B'water Bridge - C'tee on PW submission
Date: Monday, 9 August 2021 2:45:57 PM

NEW BRIDGEWATER BRIDGE PROJECT

The purpose of my submission is to:-

- acknowledge the positive aspects of the project as presented to the public in late 2020 in the Reference Design
- draw to your attention my concerns that the project provides a below optimal outcome
- highlight my respect for existing bridges in general as well as the importance of valuing and investing in the longevity of such infrastructure.

I am therefore respectfully asking you to insist that improvements be made to the project (along the lines that I am drawing to your attention) in order that it delivers a more valuable outcome.

While the project in question is very much about the future, I will draw on historical references as part of this submission. *I believe that community leaders and decision-makers should allow relevant historical events to help inform future decisions.*

The New Bridgewater Bridgewater Project is touted as the most significant transport project in southern Tasmania in decades. This exciting once-in-a-century development potentially affords an incredible opportunity to provide a range of high quality transport and related benefits.

The outcomes should provide much enhanced versions of what is currently provided.

These should include:-

- multi lane highway-standard bridge
- simple and direct connections to/from Brooker Ave/Midland Hwy for the key link roads on both sides of the Derwent
- long term provision for the other transport modes:- river traffic, pedestrian, cycle, rail

I make the following comments based on the Reference Design as presented to the public in late 2020.

I'll take this opportunity to thank the New Bridgewater Bridge Project Team for the considerable work in preparing the Reference Design, for bringing it to the public's attention as well as for its subsequent actions. I wish the Team all the best for the many ongoing processes yet to come in bringing the project to fruition.

Any modifications that have been made to the new bridge design following the public feedback process (in which I participated) as well as from the engagement with the preferred tenderers are confidential and therefore unknown to me.

In my view the overall outcome as presented in the Reference Design is well below an optimal result.

- While a high quality 4 lane dual carriageway bridge is provided I question the effects of the long term limitation to an 80 kph speed for a section of highway that connects the 100 kph Brooker Ave to the 110 kph Brighton Bypass section of the Midland Hwy.
- Compared to the current situation the future connecting roads have less direct, sometimes very circuitous links to the new highway section.
- River traffic is well catered for via a vertical clearance similar to the Bowen Bridge.
- Active transport is catered for although unfortunately pedestrian and cycle access appears shared which is less than ideal for both modes.
- Rail transport is vastly inferior: not only is there zero provision for rail in the new bridge design having been intentionally excluded from consideration, but the existing rail route across the river is to be cut completely by the removal of the current Bridgewater Bridge.

New Bridge Design Requirement #8, which refers to the protection of the existing rail route for potential use, is a hollow and almost useless gesture when the most difficult and expensive to replace 300+ metres of the route (across the current bridge) is to be completely removed.

I have provided constructive feedback in regard to these matters to the New Bridgewater Bridge Project Team as part of their public outreach program

I don't blame the Team for the outcome deficiencies. The fault lies with higher level decision-makers at bureaucratic and political level that have placed major constraints on the project, including:-

- funding limited to \$576 million, a commitment made over 3 years ago, arguably prior to a reasonable level of sufficient information being available
- provision for rail is excluded from the scope of the project

Funding Limit

A 2012 plan was listed as costing in excess of \$800 million. A review conducted by Infrastructure Tasmania, reported on in 2016, was aimed at recommending a modified design and much reduced cost. The new preferred design came in at \$533 million (2019 dollars). The plan involved no use of the existing causeway and recommended avoiding that structure. Removal of the existing bridge seemed to be implied.

Compromises for Boyer Rd access were mentioned, not so for the Lyell Hwy or for south Bridgewater.

As with the 2012 plan, rail was excluded from consideration.

I was somewhat concerned when Infrastructure Tasmania was tasked with reviewing Hobart Light Rail proposals and studies at a similar time to its review of Bridgewater Bridge replacement plans and cost estimates (both reported in early 2016). To my mind it compromised the consideration of what would be the northern extent of the potential passenger rail service. Due to ITas's apparent priority to limit new bridge funding to close to \$500 million, the outer limit of rail service was set at Granton. Essentially the Infrastructure Tasmania CEO at that time was recommending the (almost certain) permanent disconnection of the Hobart (western shore) rail corridor from the remainder of the Tasmanian rail network.

In my view a very superficial consideration of an ongoing rail link across the river was used to underpin this recommendation.

Derwent River Rail Crossing at Bridgewater

There is about a 145 year history of rail crossing at this location, a little over half of which has been provided by the current 1940s lift bridge. For about 95% of those 145 years the route has been fully operational, but is currently out of service.

Despite a long history of a rail crossing, over the past decade or so successive new bridge proposals coming from Tasmania's transport/infrastructure bureaucracy have consistently excluded rail.

Despite the project being reconsidered twice since 2012 and significantly revamped each time, there has been no apparent reconsideration of the 'rail' circumstance.

Over that period the reactivation of Hobart's rail corridor for passenger rail services has been seriously discussed in public and considered by government via various studies. A commitment to implement it was also made by the Liberal party in the lead up to the 2018 election, although since then it's returned to a 'possible' status within the murky Hobart City Deal processes.

There is considerable public opinion that the possibilities for passenger rail should extend beyond Hobart's western shore, indeed across the main routes of the wider Tasmania rail network.

This is one of the reasons that I (and many others) consider that it's imperative that there should have been active reconsideration of the future of a rail crossing within the Bridge replacement strategy.

This was acknowledged in the New Bridgewater Bridge Team's report on Engagement on Reference Design (Jan 2021) https://www.transport.tas.gov.au/_data/assets/pdf_file/0005/278303/New_Bridgewater_Bridge_Project_Engagement_Report_-_January_2021.pdf

"There is a strong desire from the community reflected in the feedback received for the rail line from Hobart to Brighton to be retained."

The irony is that the latest new bridge plan makes incorporating a new rail option much more feasible than previous iterations. The 2020 Reference Design is a major conceptual departure from 2012 and 2016 in that a significant part of the causeway would be reused (and reformatted) for part of the western, northbound carriageway, which had been previously advised against.

In my view this approach makes it much more viable from both an engineering and cost perspective to incorporate the rail crossing into the western edge of the northbound carriageway.

In my direct feedback to the New Bridge Project Team I outlined more specifically how this might be achieved. It envisaged the new cross-river rail route rejoining the existing South rail line near the Midland Hwy/East Derwent Hwy roundabout.

It was disappointing therefore to read the nature of certain responses from the Team in the Engagement Report apparently intended to counter this suggestion, as follows:-

"Providing for rail is not as simple as attaching an additional structure onto the side of the bridge for railway tracks. Trains require an alignment with shallower slopes, wider curves and different load capacities than loads built for cars and trucks."

My response? Firstly I accept completely the veracity of these comments. Indeed these facts were firmly in mind when I made calculations about potential curvatures and gradients of a complementary rail route. Highway curvatures are absolutely compatible with rail, while for gradient and vertical alignment it would necessitate the designers equally considering the technical requirements of both the highway (northbound) and rail routes, which I believe is achievable.

Given also that the road bridge will be catering for heavy goods vehicles of the future, the load issue is also manageable I believe.

My point is that, compared with the engineering challenges of installing twin carriageway bridges right across the river, providing for a rail route is a relatively minor additional challenge.

The Tasmanian Rail Network

2021 is a year in which the genesis of this network is being celebrated. The opening of the Launceston & Western Railway in February 1871 marked the beginning of 150 years (and counting) of operations on this network. An interconnected web of routes expanded to well over 1000 km but over time this reduced to the current 800+ km of which over 600 remains operational.

For more than 100 years to 1978 the network supported a balanced mix of freight and passenger operations, but that year marked the most recent time in which regular passenger trains operated on the State network. (It should be noted that occasional heritage-style excursions continued operating for about a further quarter of a century).

The mid-late 1970s was also an era in which our State ceded ownership and control of the network and operations to the federally owned Australian National Railway Commission. The ensuing three decades marked a period of minimal apparent interest in or responsibility for rail by State administrations.

The first decade of this century, the rail network and operations now under private ownership, was a turbulent era as changes

of ownership and declining commitment created a significant low point in the system's 150 year history. A reluctant State administration eventually saw wisdom in rescuing the situation with first the tracks (early 2007) and then operations (late 2009) being brought back into State ownership.

It was significant, and unfortunate to a degree, that the re-establishment of the new Tasmanian Railway Company (TasRail) reinforced the notion of our rail network as supporting freight-only operations.

For me this was an indication that a mid 20th Century perspective towards modern passenger rail continued to be taken by our State's transport decision makers.

A special feature of our State's rail network is the connectivity it provides, linking numerous small and larger conurbations - from Hobart through Launceston to Georgetown in the north, and west/northwest from Launceston through to Burnie. It should also be mentioned that in the east both Fingal and Scottsdale are linked although the latter is under threat due to State Government willingness to balkanise out of service routes. So many Tasmanian communities are directly linked by this network of routes.

To me it beggars belief that forward thinking transport planners and decision-makers intend to disconnect Hobart from the network.

The passenger rail mode, originating in the UK, has a successful history of about 200 years and counting. It is well known for many valuable features including the energy advantages emanating from the low rolling resistance of the flanged ferrous metal wheels on parallel metal rail guideway concept.

The mode continues to evolve both to incorporate all manner of technological developments as well as to cater to ongoing societal changes.

The three decades or so following World War 2 was a particularly trying era for passenger rail around the World in which there was a significant contraction in network reach and service provision in numerous jurisdictions. Tasmania was no exception.

From towards the end of the 20th Century there has been a steady re emergence of the various sub-forms of passenger rail in many parts the World. The value of and relevance to communities of this important travel mode has become more evident to forward thinking decision makers.

Another of the great assets of well run passenger rail services is safety. Operated by properly trained professionals across the range of operative facets in a highly controlled, regulated and timetabled environment it is easy to recognise the high safety factor when compared with the much more haphazard environment of a road network. Vehicle drivers vary so greatly in aptitude, skill, judgement and attitude. Fitness to drive at particular times, as well as levels of distraction are also factors impacting road safety.

Similarly wide variations occur in road infrastructure and vehicles.

Travel Safety

I was dismayed at the news of the recent tragic double fatalities in crashes on each of the Midland and Bass Highways. I firstly pay my respects and condolences to the extended families affected. Thoughts also go to the first and subsequent responders linked with these events.

I can only guess at the number of fatalities and life changing injuries occurring on both these Highways since the our State concluded operating passenger rail services in 1978. Thoughts turn to speculating on how many might have been avoided had we continued to offer increasingly modernised services over this period.

Of course my point is that passenger rail services are valuable contributors to the overall travel mix on the major routes. Many Tasmanian's recognise this fact, as do many visitors.

Forward thinking governments should at a minimum be strategising as to how such services could be reinstated.

I, like many other Tasmanians, see the potential for our rail network to support local passenger rail services not only in Hobart and northern suburbs (as per various schemes studied these past 10 or so years), but also in the vicinity of the other most significant conurbations: around Launceston and between the major towns and cities of the North-West Coast. Equally important to consider is the potential to utilise the intrastate connections between regions.

Why then would Governments actively cut Hobart out of the network and create conditions that make reconnection extremely problematic.

Bridges

I have a high level of interest in bridges, a fabulous type of structure that simultaneously joins and separates. For example the current Bridgewater Bridge joins together the highway, the rail route and (to a degree) an active transport route from both sides of the Derwent River. These three routes are separated from the waterway.

Current existing bridges around the World vary so greatly in scale, engineering style, materials used, transport modes carried, and era of construction and opening.

To me it is so interesting that communities around the World value their longstanding structures and retain them for a modern purpose. Usually that will entail some combination of ongoing maintenance, refurbishment and repurposing.

I consider that approach so valuable.

How phenomenal that a bridge dating from more than 3000 years ago in Greece (Arkadiko or Kazarma Bridge) is still in place.

I've taken great delight in traversing some of the World's iconic structures, including:- Manhattan* (NY City, opened 1909); Long Bien* (Hanoi, 1903); Forth Rail Bridge (Edinburgh, 1890); Luis I or Dom Luis* (Porto, 1886); Stephenson High Level* (Newcastle UK, 1849); Oresund* (Copenhagen <-> Malmo, 2000) and Steel Bridge* (Portland, Or, 1912).

I can mention several on the Australian mainland, but I'll focus now on Tasmania. Many locals will be familiar with historic bridges such as at Richmond (1825), Ross (1836), Red Bridge, Campbell Town (1838) and perhaps also King's Bridge, Launceston (1864, widened 1904).

It's likely that fewer people will be familiar with the Longford Rail Bridge (1871), recently featured in TasRail's celebratory event to recognise 150 years of Tasmanian rail operations.

The choice of overseas bridges mentioned above represents a breadth of styles. Nearly all are multi-modal (* asterisked) and were built for road and rail. Some have been slightly repurposed to cater for modern circumstances.

The current Bridgewater Bridge fits into this same category of road/rail bridges.

Like Bridgewater, the Portland Steel Bridge is a truss bridge with lift function, but is also twin level with dual lift - impressive!

Each of the overseas bridges continues to fully function despite other more modern bridges being built nearby over the same waterway.

What a narrow and wasteful perspective it is that underpins the plan to trash a relatively youthful structure, the current Bridgewater Bridge.

While it is agreed that the current structure is not fit for purpose as an ongoing component of the National Highway network, I question whether it has been properly assessed for use as an ongoing rail route for medium weight rail vehicles.

The Brighton Bypass Project

I contend that there is more than just a direct physical connection between the Brighton Bypass and the current New Bridgewater Bridge projects.

"While the Committee believed that consideration of the rail mode was important within the conceptual overlay of the project, members accepted that the Department had as much as was practicable allowed for the alignment of rail in future. The Committee also acknowledged that the rail mode was not within the scope of the current project."

This is an excerpt from a previous report from the Standing Committee on Public Works (Brighton Bypass, 2009).

I engaged to a significant degree with the public outreach program for that project including a submission to the Public Works Committee of the day.

Part of the State's transport bureaucracy's project proposal (from within DIER - Dept of Infrastructure, Energy & Resources) was a list of 14 intended outcomes to be delivered, the last of which was:-

- *"Opportunities to realign rail infrastructure to provide optimum service requirements."*

One of the key points of my submission was the importance of multi-modal transport planning.

Given that the new Brighton Bypass was to cross the Jordan River Valley in reasonable proximity with the already existing rail route, I encouraged designers of the highway project to take the opportunity to make significant preparations within the earthworks of the highway construction to allow for a future much improved rail route.

The rail route at the time retained its low standard curvature and gradients from its 1870s cheap construction approach.

The new highway route was to adopt a very high standard alignment.

A future improved rail route closely paralleling the new highway would remove 3 level crossings and provide a much higher standard alignment.

The actual outcome for the rail route was only the removal of one sharp curve, essentially to create room to build access road links from the Bypass to Brighton and the new Brighton Transport Hub.

While it was one helpful improvement, no other earthworks preparations were planned which would have more easily facilitated a future more direct rail crossing of the valley.

It was disappointing therefore that the opportunity to provide for future "optimum service requirements" was not delivered.

It wasn't a consolation that two of the Committee members personally indicated to me that my recommendations were both sensible and valuable.

The Committee was correct to note "that the rail mode was not within the scope of the current project." Hence DIER was not required to do any more to allow for future rail improvements.

At the time the North and South Brighton Bypass Projects along with the Brighton Transport Hub were part of a major package of infrastructure investments, the Brighton Transport Projects. The Hub was a multi-modal project.

The Department could have made the whole package multi-modal thereby giving the rail corridor increased significance. For a marginal additional investment a higher quality overall transport outcome could have been delivered.

Of course the point must be made that the current rail route across the Jordan Valley has not been negatively impacted by the construction of the Brighton Bypass.

Comparisons with the New Bridgewater Bridge

While there are some similarities, the new bridge project has some notable differences.

These include:-

- unlike the Brighton Bypass plans where the existing (previous) Midland Hwy and rail corridor occupied vastly different corridors, the two modes are closely interlinked on the current bridge
- unlike the Brighton project, the new bridge/highway plan does negatively impact the existing rail route by completely removing the current road/rail bridge

What is strikingly similar in both projects is the Departments' (now State Growth) decision to exclude the rail corridor from the scope of the new project.

Is that an intentional strategy designed to minimise responsibility for making much greater provision for future rail opportunities?

Engagement Report - further comment

The report notes that *"feedback from the community showed an assumption that removing the bridge would preclude the future use of the rail corridor"* and further that *"the new bridge doesn't preclude the future use of the existing rail corridor on the causeway."*

It is not reassuring to read further the suggestion that a new rail bridge utilising a lift span or swing span could in future span the gap between end of causeway and Bridgewater.

Back to the future?

It is fair to assume that knowledgeable contributors to the feedback process have speculated on the high cost, likely to be in the hundreds of millions, of a new stand alone rail bridge which would create an extreme obstacle to future rail use of the crossing.

Perhaps these contributors considered a refurbished and maintained current lift bridge a more realistic option, likewise for the relatively marginal additional investment needed to allow for future rail use on the new bridge.

I'll conclude my submission to your Committee by including the final two sections from my submission to the New Bridgewater Bridge Project Team, made November 2020.

"RECOMMENDATIONS FOR CONSIDERATION

1. Road connections between the new highway and other roads, the Lyell Hwy in particular, should be reviewed with a view to providing more direct links.

2. Much greater consideration must be applied to maintaining, for the long term, a rail link connecting across the Derwent as an integral part of the new Bridgewater Bridge project.

#2 could be achieved by :

3. EITHER developing a strategy for a significant life extension of the existing road/rail bridge as a rail bridge

4. OR by incorporating a new rail track into the western edge of the new northbound carriageway, with appropriate separation from road lanes

5. If #3 is the chosen strategy, modification of the new bridge alignment towards the east would be required in the more northern sections.

Replacing some non-truss bridge road/rail spans of the existing bridge by much narrower rail-only spans nearest the outer end of the causeway might minimise the degree to which the new bridge alignment would need to be adjusted.

6. Even if #3 is chosen, some very basic allowances for a future #4 strategy should be considered for incorporating into construction. This could include widening bridge piers & abutments on the northbound carriageway to more easily allow future rail bridge spans and earthworks formation.

7. Road planning of the Lyell Hwy link road that parallels the rail track near the river should allow for an improved rail alignment in the vicinity of the new highway overpass.

The rail track in that location has reverse curves with some of the tightest radii in place on the western shore."

"CONCLUDING COMMENTS

Notwithstanding the many great aspects of the work done to develop the 'reference design', my high level of interest in this exiting and momentous bridge project is negatively impacted to a degree by the absence of genuine consideration for the 145 year old rail corridor that is needed to make it a truly integrated multi-modal project.

Highway and river traffic, as well as cycle and pedestrian movements, have each been catered for with the long term in mind; rail seems to have barely figured.

For me some exceptional reasons would be required to support a new bridge strategy that effectively eliminated the potential for central Hobart to be accessed by rail.

In that case it would become the only one of eight state, territory and federal capitals, as well as the most populous Australasian city, to be lacking that amenity."

I.J Addison
August, 2021