REPORT

Review of Reports on Railway Crossings on Tauranga Harbour

Prepared for

Environment Bay of Plenty

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Prepared for Environment Bay of Plenty, 25 September 2008
Executive Summary

This report is a digest of information taken from TCC corporate paper file number 5860-1 up to mid 2004 when an electronic document storage system was introduced in the Council. The electronic files have not been searched.

It covers three periods of activity when the location of the East Coast Main Trunk (ECMT) railway line as it crosses Tauranga Harbour was considered by TCC, consultants and Tranz Rail staff and options investigated.

The first of these investigations was undertaken as part of the initial investigations for the location of the second harbour bridge, now called Tauranga Harbour Link (THL), during 1997 to 1999. The purpose of these investigations was to consider if the new road bridge over the harbour should include a railway track or make provision for a track to be added at a later date. The 1997 report could not be located. However the information in it was subsequently used as the basis for two reports from Beca Carter Ferner and Hollings Ltd (Beca) arising from the Waterfront Development discussed in a later paragraph. On the basis of the Beca report in 1998 Tauranga District Council (TDC) commissioned Tranz Rail to have R.B. Coker prepare a report on the feasibility from an engineering perspective of a rail bridge next to the existing bridge and the possible rail route from the Waikareao Estuary to connections with the ECMT near Hull Rd. Its conclusions were reported to Tauranga District Council Policy and Resources Committee on 7th December 1998 Report DC917 resolutions M98/110.10 with a recommendation that no further action be taken to consider or promote the relocation of the railway.

The second of these investigations was undertaken as part of the Waterfront Development to see if the impact of the railway line running along the Strand between the shops and the sea front could be reduced. These reports drew on work that had been done earlier by Beca as part of the THL investigations in 1997. The outcomes of the work on relocating the railway along the Strand were reported to Tauranga District Council Evaluation and Resources Committee on 17th December 2001 Report DC 603 resolution M01/117.6.

The third of these investigations was in response to a proposal by Mr G Claridge in September 1999 in an attempt to have the designation of land for a railway track running from Te Maunga to the Port south of its present alignment uplifted and the land sold back to the original owners and available for development. Mr Claridge was the developer of the Bayfair Estate residential housing area from which this land was purchased in the 1980s and he was seeking to get the land back, if it was not to be used for railway or road purposes. In March 2000 Mr Claridge’s solicitor was advised that the designation would be retained by Tranz Rail and Transit and the proposal would not be progressed.

In reading this report acknowledgement needs to be made of the changes to the physical area and to the legal and cultural environment that have occurred since 1996. These have made some of the earlier suggestions most unlikely to be achievable.

The reports do not identify any easy or obvious alternate routes for the ECMT railway through the Tauranga CBD. All routes have significant difficulties, some of which relate to the geography, some to the geology and some to the urban development of the area.

The cost of any of the options has not been well defined. A range would be $100 million to $200 million. From correspondence with TDC ONTRACK and Kiwi Rail are unlikely to make a significant financial contribution to the capital cost of relocation the railway.

Given the difficulties none of the options reviewed in this report seem viable for relocating the railway from the Strand.
Section 1

Introduction

1.1 Background

This report is a digest of information taken from TCC paper file 5860-1 up to mid 2004 when an electronic document storage system was introduced in the Council.

It covers three periods of activity when the location of the East Coast Main Trunk (ECMT) railway line was considered by TCC, consultants and Tranz Rail staff and options for its relocation were investigated.

The first of these investigations was part of the initial investigations for the location of the second harbour bridge, now called Tauranga Harbour Link (THL), during 1997 to 1999. The purpose of these investigations was to consider if the new road bridge over the harbour should include a railway track, or make provision for a track to be added at a later date. The first report by Beca Carter Hollings & Ferner (Beca) was not on file 5860-1.

Following consideration of the Beca Report Tranz Rail was commissioned by TDC to prepare a report on the feasibility of a railway bridge adjacent to the existing road bridge. This report was prepared in 1998 by R.B. Coker. It considered the track route from the Waikareao Estuary across the harbour to connections with the ECMT near Hull Rd. Its conclusions were reported to Tauranga District Council Policy and Resources Committee on 7th December 1998 Report DC917 resolutions M98/110.10.

The second of these investigations was undertaken as part of the Waterfront Development to see if the impact of the railway line running along the Strand between the shops and the sea front could be reduced. The two reports drew on work that had been done earlier by Beca as part of the THL investigations in 1997. The outcomes of the work on relocating the railway along the Strand were reported to Tauranga District Council Evaluation and Resources Committee on 17th December 2001 Report DC 603 resolution M01/117.6.

The third of these investigations was in response to a proposal by Mr G Claridge in September 1999 in an attempt to have the designation of land for a railway track running from Te Maunga to the Port south of its present alignment uplifted and the land sold back to the original owners and available for development. Mr Claridge was the developer of the Bayfair Estate residential housing area from which this land was purchased in the 1980's and he was seeking to get the land back, if it was not to be used for railway or road purposes. In March 2000 Mr Claridge's solicitor was advised that the designation would be retained by Tranz Rail and Transit and the proposal would not be progressed.

In reading this report acknowledgement needs to be made of the changes to the physical area and to the legal and cultural environment that have occurred since 1996. A short list of these is as follows.

- The Sebel Trinity Wharf Hotel has been built.
- The Edgewater and CBD upgrades have been completed to encourage the use of the waterfront area between the Strand and the harbour.
- The Foreshore and Seabed Act 2004 has been passed.
- TCC has set up the Tangata Whenua /TCC Committee.
- The Land Transport Management Act 2003 has been passed.
- Tranz Rail is now Kiwi Rail owned by the Government.
- NZTA (formerly Transit) has taken financial responsibility for the construction of the duplicate harbour bridge from TCC. It now is under construction planned to open early in 2010. This was a TDC (now TCC) project to be funded from tolls (backed by rates).
- The existing and new harbour bridges are to be funded from central government with no tolls and no rate payer funds.
- There is no longer a plan to establish a Bay of Plenty Airport near Paengaroa.
- The Port of Tauranga has grown from about 5 million tonnes a year to 13 million tonnes per year freight through put.
- The Smart Growth Strategy has been adopted for growth which includes intensification of residential population densities in areas adjacent to the railway line in other parts of Tauranga.
- Treaty of Waitangi Claims have been lodged for the Tauranga Harbour Bed.
- A new marina has been built on the eastern side of the Harbour Bridge Causeway.
Section 1

Introduction

- The wood chip piles are no longer present at the southern end of Tasman Quay.
- More tanks have been built on the Agri-Feeds site at the harbour end of Hewletts Rd.
- Maui Street has been closed and building erected on the land between Totara Street and Maru Street.
- The Kaimai Express passenger train no longer runs and there is no longer a passenger station at the Strand.
- The TCC District Plan is currently under review for public notification in 2009 which provides for public input by submissions and the railway designation could be considered then.

1.2 Plans

The plans from the previous reports have been reproduced from the black and white photo copies in the TCC files. To help distinguish routes colours have been added, but no additional drafting has been done. Consequently the detail is not particularly sharp but the intent of the various options is apparent.

1.3 Estimates

The reports contain estimates of varying degrees of complexity and completeness. Some include professional fees for design and consent applications and contractors expenses. For others the basis is not clear. The costs should only be used as very broad indications of costs and no reliance should be placed on them other than as a relative ranking within a report as to costs of each option. The report shows the original estimate and the estimate multiplied by the appropriate cost factor to bring it to March 2008 costs which is the latest available cost factor in September 2008.

In general land purchase has not be considered and this report does not make any attempt to estimate the cost of that.
2.1 Background

In 1996 a start was made on establishing plans to duplicate the existing harbour bridge and to construct a road viaduct from the end of Takitimu Drive (Route P) over Marsh Street to connect to the two bridges. At this stage the traffic growth was accelerating and the toll revenue was beginning to rapidly repay the outstanding debt for the bridge and the northern section of Takitimu Drive known as Route P. It appeared that the existing bridge would have been paid for in about 2005 and capacity of the bridge reached about the same time. The toll was lifted in July 2002 and the bridge has operated at well over theoretical capacity since soon after the toll was removed.

One of the initial investigations for the new bridge was to consider if other locations, away from the existing bridge, might result in a more effective road network. This included considering if a railway bridge could be built north of the existing harbour bridge and if the existing railway bridge and railway route through Matapihi could be used as a road if the railway were removed.

The ultimate conclusion was that the railway bridge did not have the structural capacity for a road bridge and that there were significant practical and legal difficulties in transforming the railway route through Matapihi into a major road.

These conclusions are not relevant to this report so they will not be repeated in this report. The report which confirmed the decision not to proceed with alterations to the railway to build a new rail bridge by the Tauranga Harbour (road) Bridge was prepared in 1998 by R.B.Coker a consultant for Tranz Rail on behalf of TDC.

A sketch of the proposal is in Appendix A.

2.2 Tauranga Mt Maunganui Rail Link by R B Coker – September 1998

This preliminary report was prepared in 1998 by Dick Coker relating to a rail bridge next to, and north of the existing road bridge, and the possible rail route from the Waikareao Estuary to connections with the ECMT near Hull Rd. It considers a vertical and horizontal alignment for the track and follows one of the alignments set out in the 1997 report by Beca, which is discussed in passing in Section 3.

It considered the connections on the western side of the harbour to Sulphur Point that would replace the existing marshalling yards. Three locations for passenger stations were considered, at the Strand along a spur line, in the area of the current THL site Office at Dive Cres or on the embankment rising from the Waikareao Bridge.

At the time that this report was written the Kaimai Express had a daily service from Tauranga to Auckland and there was pressure from the District Council to have a passenger station at Mt Maunganui.

At the eastern side of the harbour the first option for the railway track was on an elevated embankment along the causeway to reach ground level at the entrance to the marina where a level crossing would be needed. From there it would begin to climb again to clear Tasman Quay. Reclamation would have been needed in the area of Butters landing near the old toll plaza. The route then curves east to cross over Totara St and then to come back down to ground level on an existing siding in the block of land between Totara St and Maru St. There was a sub option for the connection from the marina to the ECMT to be at ground level with a level crossing of Totara St near Hewletts Rd.

The second option for the eastern side was for the railway to cross over the road on the causeway, and to run along the south side of the causeway, then to follow Talho Place to connect with a siding crossing Hewletts Rd north of the log yard. The rail crossing at Hewletts Rd is still in place but it is not currently used.
Section 2

Alternatives Addressed as Part of the Planning to the Tauranga Harbour Link

The effects of this option can be summarised as follows:

- High embankments about 1000m long would be needed on both sides of the harbour to raise the track enough get onto a bridge with the required navigational clearance. These would be up to 11 m above existing ground and could be over 50 m wide at the bridge.
- These embankments could interfere with the airport glide path.
- There would be visual effects on the harbour crossing and environmental effects on the harbour bed.
- The (then) existing station, road crossings access to both marinas and the Whareroa boat ramp would need to be rearranged which would be difficult to do satisfactorily.
- Port operations would be compromised by having the main rail ECMT travel through the cargo marshalling areas.
- Larger areas would be affected by noise and vibration from the train as it would be elevated and pass closer to residences and the marae.
- The options that run close to the marae, airport or fertiliser works would conflict with existing land uses.
- Land to be used has been taken for port or airport purposes under the Public Works Act and its transfer to other uses may prove complicated with legal uncertainties if the land is offered back to the original owners first.

A number of other issues with this design have arisen as a consequence of the developments mentioned in Section 1.1.

The original rough order cost estimates completed for this work, considering the civil engineering, track work, signals and level crossings, is $60 million when multiplied by cost indices current at March 2008. This estimate is a combination of costs in the Coker Report and additional items identified in a letter from Tranz Rail that accompanied the report. To that needs to be added property costs, professional fees and RMA consents costs to give a very rough idea of the project cost at over $100 million but under $200 million.

2.3 Report to TDC

The conclusions of the report by R.B. Coker were reported to Tauranga District Council Policy and Resources Committee on 7th December 1998 Report DC917 resolutions M98/110.10.

The two relevant parts of the resolution are:

(b) That no further action be taken to consider or promote the relocation of Tauranga Mount Maunganui rail link.

(c) That the scheme design for the Route P to the Harbour Bridge link now be proceeded with.
Section 3 Alternatives Addressed as Part of The Strand Development

In 2001 TDC began a project to redevelop the Waterfront along the edge of the CBD adjacent to the Strand. This was a process which had an urban design competition judged by two professors of architecture and design from Auckland University.

As part of this process the impact of the ECMT railway passing through the area was raised as a matter of concern.

Two reports were prepared on options for relocating the railway away from the Strand were commissioned from Beca.

The first presented in June 2001 considered 9 options and the second presented in November 2001 considered 3 options in more detail as they related to the CBD and Strand development.

The options for work to relocate the railway along the Strand were reported to Tauranga District Council on 17th December 2001 Report DC 603 resolution M01/117.6.

Sketches of the options are shown in Appendix A.

3.1 Overview of Railway Options for the Central Business Area of Tauranga by Beca - June 2001

The options are presented in the order of the report with a summary of the points for and against. The first four options look at removing the rail link along the Strand and the crossing to Matapahi, three options look at reducing the effects of the railway on the users of the Strand while maintaining the rail track in its present location and the final two options are for other routes away from the Strand.

3.1.1 Option 1 Rail Bridge North of a Duplicated Harbour Bridge

This option is essentially the one considered in detail by R B Coker and discussed in section 2.2. It assumes a navigational clearance under the bridge similar to the existing road bridge(s), with a 1:100 approach embankments on each side. It has three possible routes on the eastern side of the Harbour to connect with the rail network. The first is through the port, the second is through the Whareroa Marae and either north of south of the main airport runway. On the western side of the harbour it has an approach ramp rising from the eastern end of the Waikareao Railway Bridge (by the Nautalis apartments) which would cross Mirrieless Rd and the harbour with the same navigation clearance as the existing bridge for all options.

This option is discussed in detail in Section 2.2 and the anticipated effects are set out there.

The report gives a “Guestimate” range, updated to March 2008 costs, of $59 to $79 million. There is no indication of what these costs included.

3.1.2 Option 2 Combined Road and Rail Bridge

To allow for electrification Tranz Rail required a 5.5 m square clearance envelope for the railway track. If the road were to sit above the rail track it would be about 6 m higher than the existing bridge (and the one under construction). This would require viaduct structures on each side of the harbour crossing to get the roadway up to that level.

This option has all of the effects of option 1, as detailed in Section 2.2, but because the structure is higher the visual and noise effects would be greater. The interchanges at each end would require considerable land take to allow the construction of ramps from the road bridge level to existing ground level. This option would exclude a route to the east towards the Whareroa Marae and Airport.

The stated cost “Guestimate”, updated to March 2008, is $92 million again with no indication whether this includes the road bridge as well as the rail bridge.
Section 3

Alternatives Addressed as Part of The Strand Development

3.1.3 Option 3 Rail Adjacent to Existing Bridge (South side)

This option crosses over or under the proposed viaduct from Takitimu Drive, through the Mission Cemetery next to the Trinity Wharf Sebel Hotel and crosses to land either to the east or west of the Whareroa marae but at an elevated level.

The effects of this option can be summarised as follows.

- Most of the comments for Option 1, as set out in Section 2.2, apply.
- The Mission Cemetery is an archaeological site and one of cultural significance.

The stated cost "Guestimate", updated to March 2008, is $79 million again with no indication of what this includes.

3.1.4 Option 4 Rail Tunnel from Sulphur Point to Mount Maunganui

This option has a tunnel with two western portals, on at the end of the Waikaree Railway Bridge and the other in the Sulphur point marshalling yards. The eastern portal would be in Port of Tauranga (POTL) land or possibly link to the existing sidings near the Gulf Oil Tanks with a level crossing of Hewletts Rd at the currently disused level crossing.

The effects of this can be summarised as:

- Visual, landscape, ecological, noise and vibration effects reduced from above ground options.
- Difficult linkages to existing rail yards at each end
- Interference with stevedoring areas at the Mt Maunganui side of POTL.
- If Trench method used to construct a tunnel, significant ecological and hydrological effects on the harbour bed.
- Level Crossing of Hewletts Rd would interfere with traffic flows.
- Geotechnical design issues with the stability of the tunnel during seismic events.

The stated cost "Guestimate", updated to March 2008, is $125 million again with no indication of what this includes.

3.1.5 Option 5 Tunnelling the Railway Along and Under the Strand

This option has a tunnel portal near the Marsh Street bridge over Dive Crescent and a tunnel running along the water front below the current track location to cross over the harbour and emerge at Mataphi on the alignment of the current track. The existing bridge could be retained for pedestrian use.

The effects of this are similar to Option 4 with the extra effects of removing the possibility of an above ground passenger railway station on the Strand. The practicality of constructing a tunnel parallel to the line railway line and maintaining the operation of the track is not discussed.

The stated cost "Guestimate", updated to Mar 2008, is $105 million again with no indication of what this includes.

3.1.6 Option 6 Sinking of the Railway along the Strand, Including Providing a Raised Area to See Over the Rail to the Harbour

This option is to lower the rail way on the existing alignment so that the track bed is at about mean sea level until it needs to climb up to cross the Mataphi Bridge, which would be lowered at the Tauranga end so that the track was climbing as it went on to the bridge.

A raised platform could be built on the landward side of the Strand or the road, and the rail bridged to provide open space above the railway. Building space for commercial activities over the rail is another possibility. This would have the railway passing underneath the floor of restaurant or office space. This would be difficult to insulate from the noise and vibration of the passing trains.
Section 3

Alternatives Addressed as Part of The Strand Development

This option has the same difficulty as Option 5 of operating the railway while the construction works go ahead on the same railway track alignment.

The stated cost "Guestimate", updated to March 2008, is $20 million just to lower the railway track.

3.1.7 Option 7 Rail from Otumoetai along the Waikareao Estuary at Grade and then by Tunnel under the Peninsular (near Elizabeth St) to Matipipi

The original plan in the 1920’s was for the railway to run along the Waikareao estuary from Otumoetai and through a cutting to a bridge which was planned to be straight rather than curved. The citizen’s of Tauranga successfully petitioned to have the route changed to run past the wharf on the waterfront at Dive Cres and so the bridge was altered to be built with a curve on the present alignment.

The railway would have to be lowered to pass under Chapel St and the road raised to pass over it.

The effects of this can be summarised as follows:

- There would be visual, noise, vibration and ecological effects on the Waikareao Estuary and residents who do not have these effects at present.
- It would be difficult to fit railway track curves of the desired radius fitting into the Waikareao Estuary that would be needed at Chapel St and Elizabeth St. These would require significant reclamations of the estuary to fit them in.
- There would be insufficient cover for under ground tunnelling methods. Cut and cover tunnelling techniques would be disruptive to city streets and to existing buildings.

The stated cost “Guestimate”, updated to March 2008, is $65 million with no indication of what this includes.

3.1.8 Option 8 Long Tunnel or Bridge from Dive Crescent to the Southern Side of the Airport

This option is a direct tunnel curving across the harbour. It has the advantage of avoiding the existing railway corridor. It requires railway access over what is now airport land. The report does not develop the option in any detail. It has similar effects to the other tunnel options such as 4 and 5.

No “Guestimate “ of cost is provided but as the tunnel would be longer than options 4 and 5 it would cost more than them.

3.1.9 Bridge between the End of Sulphur Point and the Mount Maunganui directly linking the North and South Ports

This option was briefly discussed before being discarded due to the need to have 30m navigation clearance which implies 3000m long ramps approaching it. These approach ramps would take up significant port stevedoring space and this option was considered not to be compatible with port developments.

3.2 Railways Options Concept Development for Tauranga Central Business Area by Beca - November 2001

This report was commissioned to consider three of the options in the June report in more detail. These were:

- Option 5 Tunnelling the railway along and under the Strand
- Option 6 Lowering the Railway along the Strand, including providing a raised area to see over the rail to the harbour, “at grade enhanced” option tidying up the existing alignment.
Section 3

Alternatives Addressed as Part of The Strand Development

The effects of the options were considered in more detail than in the June 2001 Report and mitigation measures presented to manage the effects. The final recommendation of the report was that the "At Grade Enhanced Option" be adopted.

The report noted for the other two options that the Tunnel option was seen as needing 1.8 km of tunnel for 0.4 km of benefit and the "Lowering" option was seen as only giving 0.25 km of benefit which led to the conclusion that the engineering, operational, and legal difficulties of these options were not worth pursuing.

3.3 Report to TDC

The outcomes of the work on relocating the railway along the Strand were reported to Tauranga District Council Evaluation and Resources Committee on 17th December 2001 Report DC 603 resolution M01/117.6. The relevant items for the resolution are:

(b) That the railway remains in its current position.

(c) That the railway be lowered by up to 0.5 metres on the Strand between Dieve Cres and Spring Street so that it sits level with the surrounding ground.

(d) That the visual impact, public safety, noise and vibration problems associated with the railway be addressed through design techniques in consultation with Tranz Rail.

(e) That the long term future location of the railway be considered in any regional/subregional transportation planning that Council may be a party to.
Alternative Proposed by Mr Claridge

In September 1999 Mr G Claridge proposed new routes for both the ECMT and SH2/29 in the Matapihi/Te Maunga area. The reason for this proposal was an attempt to have the designation of land for a railway track running from Te Maunga to the Port south of its present alignment uplifted and the land sold back to the original owners so that it was available for development. Mr Claridge was the developer of the Bayfair Estate residential housing area from which this land was purchased in the 1980’s. He was seeking to get the land back, if it was not to be used for railway or road purposes, so that it could be used for a bowling club. His request was supported by legal counsel seeking uplifting of the designation.

The proposal is shown on sketches in Appendix A.

The proposal keeps the road and rail way side by side and deviates the connection from the current alignment of the ECMT and SH2 at Mangatawa where the road and the rail way are moved to the south to cross through the offices of Trustpower, pass south of the Te Maunga Treatment plant across the head of Rangataua Bay, across the narrow neck of the Matapihi Peninsula, across Waipu Bay on a causeway with a major junction west of the airport runway about where the Whareroa Maree and the fertiliser works are. The crossing of the Harbour would be a low level bridge with an opening span for boats to pass through. The highway would terminate on the Strand and the Railway would connect to the existing track between the Dive Crescent Cargo Shed and the Trinity Wharf Sebel Hotel.

The SH2 could then be diverted through Matapihi onto the alignment of the redundant railway and the rail bridge used as the duplicate road crossing of the harbour with the State Highway terminating in Elizabeth Street.

At the time TCC Transportation staff sought the views of a number of key stakeholders such as: the Airport Manager and the Environmental Policy Manager from TCC, the Port of Tauranga, Tranz Rail, Transit NZ and ‘access’.

A summary of the concerns identified follows:

- The RMA issues with an embankment across Waipu Bay
- Encroachment into the Airport Glide path
- The effect on Whareroa Maree
- The use of the fertiliser works branch line as an access to the port across Hewletts Road
- The practicality of a bridge with a movable navigation span
- The practicality of the intersection with SH29 at Matapihi
- The likelihood of the necessary resources consents being granted.
- The Arterial road terminating at Elizabeth Street and at the Strand.
- The benefits and costs of the proposal
- The willingness of Tranz Rail to take financial responsibility for the work
- The sealed runway could not be shortened to allow a road to pass at its southern end.
- A road at the end of the runway would need to be in a tunnel or cutting
- The runway is 4.0m above mean sea level so that the road and rail would have to be lowered below sea level.
- The proposal is possible provided appropriate measures were taken to give total safety to aircraft operating at the airport.
- Tranz Rail commented on the difficulties identified in the previous Coker Report and advised that Tranz Rail is unlikely to agree to a movable bridge on its network.
- The port commented on many of the above but concluded “Notwithstanding these challenges, from the point of view of access to and from the Port, the concept looks pretty darn good.”

Tranz Rail advised in February 2000 that the designation must remain and that the curve for the turning triangle must remain at 600m radius.
Section 4

Alternative Proposed by Mr Claridge

The outcome of this consideration of this proposal was a letter in March 2000 from the Strategic Roading Network Co-ordinator to Mr Claridge's solicitor advising that there was no intention to uplift the designation.

In March 2000 TDC advised Tranz Rail that in its view there was little to be gained at present by pursuing the scheme as the land is either owned by TDC, multiple owned Maori land zoned rural, airport land or harbour bed. None of this land is likely to be built on or to become more difficult to designate for road or rail in the future.

No further work has been undertaken on this proposal.
Section 5

Various Options Relating to Hewletts Road and to the Final Alignment of Tauranga Harbour Link

Only one option is discussed in this section as other options that were raised by the public and by Councillors were variations of those already discussed in this report and offered no new ideas.

5.1 Option Suggested by Bernie Coleman

Mr Coleman suggested a route for the railway that had the track turning out across the harbour from Dive Cres passing to the south of the Trinity Wharf Sebel Hotel on a bridge to pass under the Harbour Bridge and turn onto the Causeway at a low level so that the train could pass under the existing bridge. Once the track was on the causeway it travelled to the POTL land and joined up with the ECMT. This plan ignored the 300 m minimum turning radii and 5.5 m clearance requirements for the railway. It also ignored the requirement for small boats to be able to use the upper harbour. It was not pursued in any detail because of these flaws.
Section 6

Conclusions

The reports do not identify any easy or obvious alternate routes for the ECMT railway through the Tauranga CBD. All routes have significant difficulties, some of which relate to the geography, some to the geology and some to the urban development of the area.

The main constraints are as follows:

- The narrow widths of the two peninsulas on either side of the main port area give little room to establish the ramps up to a bridge or down to a tunnel. The approach ramps to a railway bridge, or tunnel, need to be about a kilometre long to maintain acceptable grades for the operation of trains.
- The height of the bridge must allow clearance for small craft to pass underneath it. This sets a deck level which requires the long approach ramps for the railway bridge.
- The height of any bridge is limited by the approach slopes for the Tauranga Airport as shown on the Tauranga District Plan and the Regional Coastal Environment Plan.
- The soft ground of the harbour bed makes tunnelling difficult.
- The soft ground makes large embankment fills difficult and requires bridges to have deep foundations.
- The existing port and city developments have grown up around the rail track as it was established in the 1920’s therefore the redevelopment required for a new or modified railway route will involve complex and costly procedures for property acquisition, compensation and relocation of existing activities. This will be more complex than working with a “Greenfield” site.
- In the last 10 years significant investment in developing port marshalling areas, shopping centres, a hotel and the Tauranga Harbour Link has occurred in the critical area which have could have been used for a railway track for alternative crossings of the harbour.
- The Foreshore and Seabed Act, the RMA and the Waitangi Treaty Claim on the harbour bed all pose legal uncertainties to the outcome of a process to establish resource consents and costal permits to construct a crossing of the harbour.
- The consultation and permitting programme required to meet Local Government Act and Resource Management Act requirements for any proposal affecting the harbour bed, esplanade reserves and the Tauranga Harbour bed will prove to be lengthy and challenging. Particularly as the harbour is shown as being an area of conservation and cultural value under the Regional Coastal Environment Plan near Whareroa Marae.
- The cost of $100 million to $200 million for any alternative.
Section 7

Limitations

URS New Zealand Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Environment Bay of Plenty and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated 28 July 2008.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared between 13 – 28 September and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.
Appendix A

Appendix A - From R B Coker Report
Appendix A

Appendix A - From Beca Reports
SECTION THROUGH BRIDGES
LOOKING WEST

FIGURE 2    OPTION 2 (Road/Rail Bridge)
FIGURE 8  OPTION 6

Parti. Lowering of Rail Along The Strand
Appendix A

Appendix A – Claridge Option
Appendix A

Appendix A – Coleman Option
Appendix B - Brief for this Report

The following is the agreed brief for this report.

1. Identify the files for the reports with TCC and arrange to have them recovered from storage.

2. Read the reports and related papers. If possible find reports to Council and resolutions that were made as a result of those reports.

3. Prepare a report identifying the routes considered in the earlier reports, the pros and cons of the routes considered and updating the estimates to current cost factors. The report will update any of the original conclusions to reflect the present situation with respect to the Tauranga Harbour link project, the Tauranga Harbour Railway Bridge and the port of Tauranga. The report will be prepared for presentation to the Smart Growth Implementation Committee once it has been considered by the Implementation Management Group. The report will summarise the existing information and make no recommendation as to further work."
Appendix C

Appendix C - References

