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Tūranga ki Wairoa Rail

Feasibility study into
reinstatement of rail line

Whiringa-ā-rangi 2019

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The wellbeing impacts of three options for the future of the Tūranga ki Wairoa rail line

CLOSURE	Full closure of the line, releasing the corridor with likely Right of First Refusal processes being initiated.
STATUS QUO	Limited use of some sections of the line by a few tourism providers.
REINSTATEMENT	To a standard that is resilient to natural events that have, in the past, closed the line.

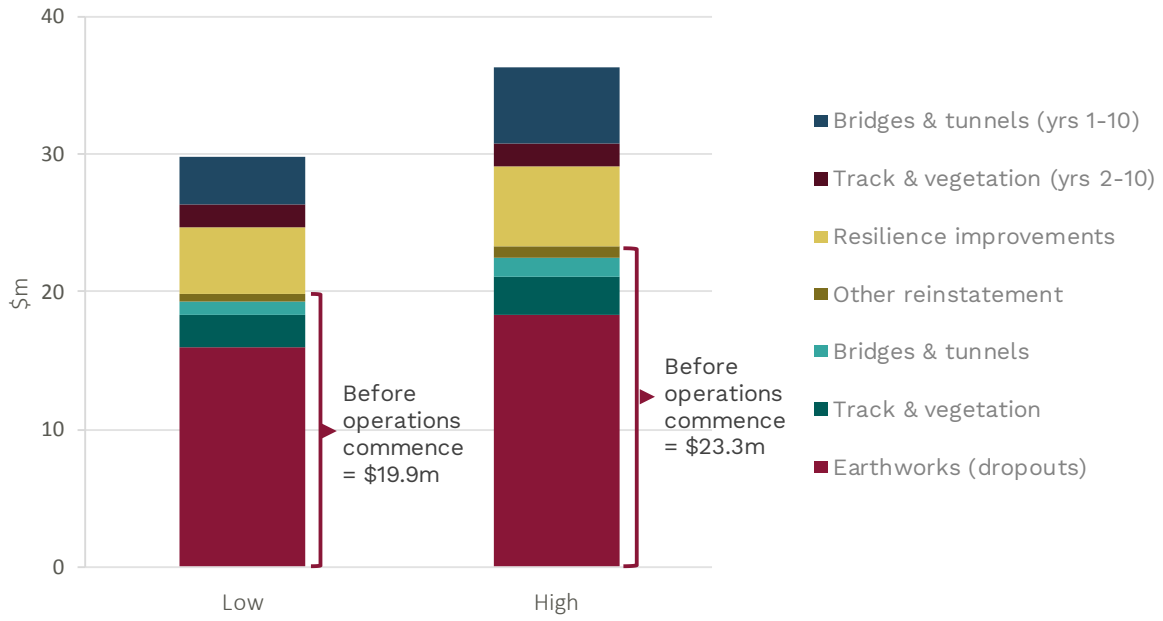
1 Whakarāpopototanga (Summary)

- In the context of a multi-modal transport system the underlying assumption of the benefits of rail can be reframed as:
    - "Rail enables access and mobility, transporting people and goods to where they need to go, supporting productivity and business growth, reducing emissions, congestion and road deaths, and strengthening social and cultural connections between communities".
- In line with the above, KiwiRail's rail freight network was re-valued within the latest Government Financial Statements to now total $6.3 billion.

1.1 Reinstatement to resilient standard

- To reinstate the Tūranga[1] ki Wairoa section of the Palmerston North to Gisborne rail line (PNGL) to an operational level requires estimated one-off expenditures of between $19.9 million and $23.3 million. These estimates are based on the work being carried out by a consortium of local contractors, supported and managed by specialist engineers and utilising the services and equipment of a private rail operator from Gisborne operating under his own licence. As illustrated in Figure 1.1, the significant majority of this cost is required for earthworks to repair six dropouts.
    - Additional works to improve the resilience of the line to adverse weather events are estimated at $4.9 million to $5.8 million. This work would not have to be completed in order to reopen the line, but would be cost effective to undertake at the same time as the heavy earthmoving equipment will be available on site.

Figure 1.1 Estimated capital costs to reinstate line and to improve to resilient standard



[1] Through this report we use the terms Gisborne, Tai Rāwhiti, and Tūranga interchangeably. However, when referring to names of organisations we revert, as appropriate, to their more commonly known name for the area – i.e. Tairāwhiti.

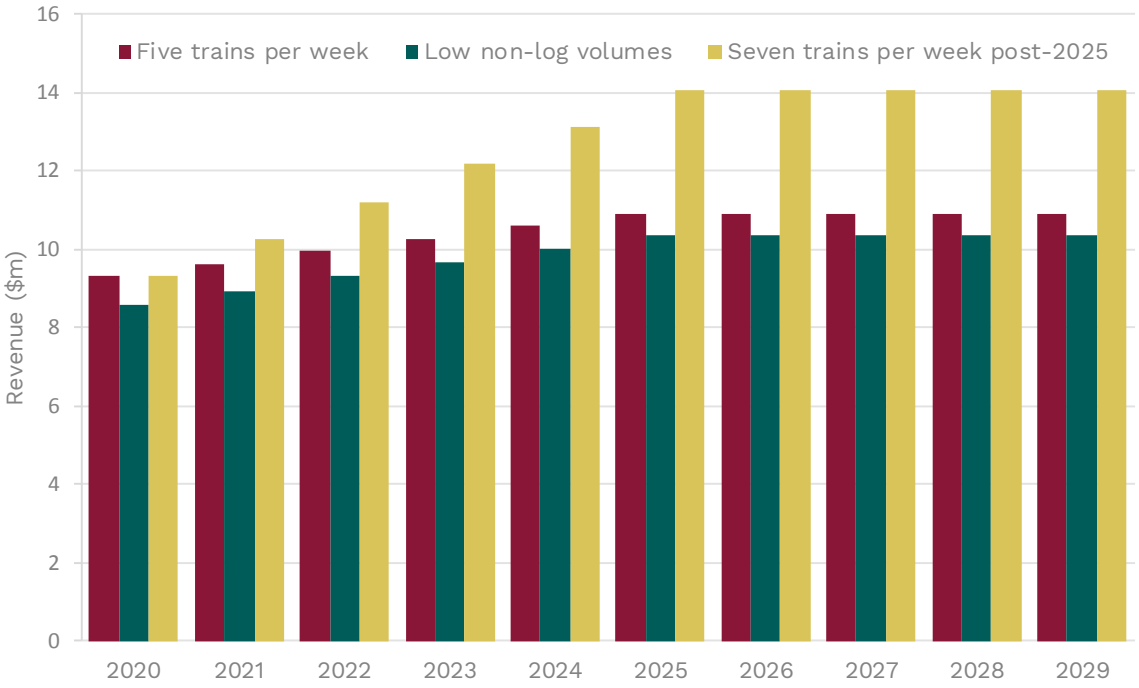
- Over the 10 years following reopening, an additional estimated $5.1 million to $7.2 million will be required in additional bridge, tunnel, and track works.

- Due to the restricted sites and site access, work will likely take place over two earthworks seasons. To achieve opening for the 2021/22 summer peak horticultural and log harvest season reinstatement work would need to begin by April 2020, with earthworks from September 2020 over the 2020/21 summer for completion in March 2021. Much of the track and clearance of culverts work could be carried out over the 2020 winter period ahead of the main dropout repair earthworks, and with the remaining work completed over the 2021 autumn/winter period.
  - This is an indicative timetable for possible reinstatement work. Undoubtedly, there is further detailed information required and many decisions to be finalised before works could begin. These are discussed further in section 1.6 – Caveats and critique.

1.2 Demand for rail freight service

- Generating a range of credible, but conservative projections and assumptions as to demand for rail freight indicate annual transport operator freight revenue totalling between $8.6 million and $9.3 million in 2020. These revenues increase to a range of $10.4 million and $14.1 million in 2025. Consequently, over a 10-year horizon these revenues total between $98.4 million and $126.4 million.

Figure 1.2 Scenarios for indicative annual operator revenue from rail freight



- The rail freight story, is underpinned by demand from a range of commodities requiring containerised transport options. Processed timber, squash, meat, and apples provide the majority of this demand. The known expansion in the volume of apples planted, provide confidence that future volumes would increase demand for rail freight were it an option.

- Noticeably, the rail freight story is not about logs. Log volumes, though, can be used to fill up capacity on freight trains, and can also smooth demand noting the seasonal nature of other commodity demand.
- Reinforcing the conservative nature of these estimates, note they include southbound freight only. Further, they do not include the potential and likely (but currently unknown) expansion in kiwifruit volumes.

1.3 The rail line options

We explore the wellbeing impacts of three options for the future of the Tūranga ki Wairoa rail line:

- The status quo that sees limited use of some sections of the line by a few tourism providers
- The full closure of the line, releasing the corridor with Right of First Refusal processes likely to be initiated
- The full reinstatement of the line to a standard that is resilient to natural events that have, in the past, closed the line.

1.4 The wellbeing impacts

In the context of these options, the Tūranga and Wairoa areas remain isolated and reliant on a narrow range of transport connections. Across the range of wellbeings there are numerous impacts under each of these options that need to be recognised.

1.4.1 Social wellbeing

Social wellbeing depends, amongst many other factors, on levels of trust in organisations and institutions and the sense of inclusion or connection by individuals, families, whānau, hapū, iwi, and communities.

The full reinstatement option assists social wellbeing by lifting trust through reverting the use of the corridor to that for which it was originally taken. It was taken for the purpose of use as a rail line. Connections to the land on the corridor by Māori in the rohe cannot be understated.

Reinstatement will also reduce the isolation of communities of the districts. Another transport connection will also improve the resilience of the community and its businesses to external events.

The reinstatement option will see a reduction in the number of serious injury or fatal road accidents.

The status quo option will see the current use of the corridor to continue to be questioned. This has the potential to degrade social wellbeing through further eroding trust in institutional structures. The resilience of the community will be less than the reinstatement option, as the sense of isolation remains.

The full closure option will make the future use of the land on the corridor uncertain. Almost certainly, there will be calls for the land on the corridor to be returned to iwi and Māori owners. Social wellbeing will be undermined by permanent closure as the sense of isolation will become entrenched. Efforts to build community resilience will be further compromised.

1.4.2 Economic wellbeing

Economic wellbeing is fostered through full reinstatement by removing constraints on the opportunities to lift production and processing activities. The range of horticultural products being grown in the Tūranga and Wairoa districts is increasing. Reinstatement of the rail line would enable transport of significant volumes of freight through this alternative connection. Further development of tourism opportunities would also become possible.

The status quo option for the rail line would act as a constraint on the development of economic activity in the area. Projected volume expansion and diversification of products could be slowed or stalled should transport connections remain limited. Road maintenance costs would increase due to the increase in volumes to be transported by road.

Tourism opportunities would remain limited under the status quo option. Current tourism activities could continue, although ongoing maintenance and operational costs may curtail their life.

The option of rail line closure would, by further entrenching and confirming its isolated status, reinforce and sharpen the constraints on the development of the economy of Tai Rāwhiti. Opportunities to establish higher value processing operations and the delivery of quality services would likely be compromised. It will be increasingly difficult to attract businesses focussed on higher value activities to the area. Tourism businesses may be able to explore alternative options for uses of the corridor.

1.4.3 Environmental wellbeing

The wellbeing of the environment is fostered through reinstatement with lower emissions of greenhouse gases. Improved management of land and water is also possible through the attractiveness of diversified land use options.

The status quo option would see increased (from current) emissions of greenhouse gases as there would be an increase in volumes to be transported by road.

The full closure option would also see greenhouse gas emissions increased from current levels. However, they are likely to be less than that in the status quo option as the attractiveness to increase production volumes recedes.

1.4.4 Cultural wellbeing

The reinstatement option will see the corridor being well-maintained for efficient use. This will enable improved access to sites of significance on land that can only be accessed via the current corridor. These sites themselves could then become well maintained, respected, and valued by the community. Cultural, tourism, and other activities associated with these sites could potentially be developed.

The status quo option retains access to land adjacent to the corridor. With this option though, such access may deteriorate over the future depending on security of access. Securing such access will also influence the ability to develop and undertake cultural, tourism, and other activities associated with sites of significance.

The full closure option jeopardises access to land adjacent to the corridor. Connections to sites of significance would also be jeopardised, which would degrade the level of cultural wellbeing of whānau, hapū, iwi and other communities of the Tūranga and Wairoa districts.

1.5 Conclusion

It is clear that the reinstatement of rail services over the Tūranga ki Wairoa line has many supporters. The rail corridor has a history for many in the community. The land was taken from Māori for use as a rail line.

Many in the community see the connection as critical in reducing the reliance on State Highway Two (SH2). The sense of isolation is reinforced by a relative lack of alternative transport connections. This has reduced the level of resilience inherent in the region. In the absence of the rail connection, road transport effectively acts as a lifeline for the region, with its maintenance critical to future prospects.

Nevertheless, the region's prospects are bright with considerable investment in the primary sector seeing land use changing to higher-value uses. Expansions in horticultural produce, along with ongoing forest harvests, foreshadow opportunities to develop and expand processing capacity within the region. Additionally, the region is serviced by a well-resourced community trust along with port infrastructure and airport connections.

In terms of feasibility, engineering reports assess that it is feasible to reinstate the rail line to a level that would be resilient to weather events that in the past have led to its mothballing. While the financial cost of this reinstatement to a resilient level totals between $24.8 million and $29.1 million, there is considerable evidence of demand for rail freight services that would generate significant revenues for a prospective rail operator. Even adopting conservative assumptions yield levels of demand for containerised rail freight, augmented by logs, which are more than sufficient to fill a service of five trains per week.

The commercial feasibility of such a service would need to be assessed in greater detail given the business model of the operator, alongside the allocation of network infrastructure costs and the shareholder owner's expectations of return on investment. Nevertheless, there is a *prima facie*[2] case established of the commercial feasibility of a reinstated rail service.

Against this background, the reinstatement versus status quo choice should also consider the broader wellbeing impacts. At the headline level, these include:

- A 70 percent reduction in annual greenhouse gas emissions[3], totalling between 11,400 and 13,800 tonnes. At $25 per tonne, these savings amount to between $290,000 and $345,000 per year in carbon charges
- A reduction in annual road maintenance costs of between $1.2 million and $1.7 million
- A reduction in noise and dust associated with the reduction in the number of heavy vehicle movements
- A five percent reduction in the number of serious and fatal injury road accidents.

In contrast, the status quo option has the potential to constrain the development of the region. A shift to higher-value land uses with increased productivity and processing is already underway. This shift could be delayed or deferred, or the necessary investment deterred, given the ongoing prospect of limited transport options facing potential business operators or investors. Similar comments can be made in this regard about the closure option.

[2] At first sight; or, on first look.
[3] CO_2 equivalents.

Table 1.1 Selected externality impacts of reinstatement (compared to status quo)

Scenario	Five trains per week	Low volumes	Seven trains per week post 2025
Greenhouse gas emissions savings (tonnes)			
2020	12,634	13,059	12,634
2025	11,437	11,698	13,805
Greenhous gas emissions savings ($000s)			
2020	316	326	316
2025	286	292	345
Reduction in truck movements (number)			
2020	9,888	10,276	9,888
2025	8,898	9,148	13,021
Road maintenance savings ($000)			
2020	1,257	1,264	1,257
2025	1,217	1,218	1,708
			Across all scenarios
Severe and fatal injury road accidents (SH2 Gisborne-Napier)			5% reduction

Tourism opportunities are available across all options. However, the reinstatement option provides a potentially broader range of opportunities; although these would need to be secondary to freight use of the rail corridor.

Social and cultural wellbeing associated with resilience, relative isolation, and disconnection of communities in the status quo option are inferior to those in the reinstatement option. Furthermore, access to lands adjacent to the corridor is not secure in the status quo option, but could be improved in the reinstatement option.

Additionally, noting the original purpose for which the land was taken, the social licence to operate for those currently using the corridor could be called into question should the status quo option be chosen.

Given these considerations we conclude:

- It is feasible from an engineering perspective to reinstate the rail line
- There is a *prima facie* case established that there is sufficient demand for rail freight services
- There are numerous environmental, social, and cultural wellbeing advantages in favour of the reinstatement option, over either the closure or the status quo option.

Consequently, our recommended option is for the community and associated stakeholders to pursue the reinstatement of the Tūranga ki Wairoa rail line; to a resilient standard; to deliver regular containerised and log freight services; and to support tourism opportunities to be developed utilising the rail corridor.

Table 1.2 He kākano – the kernel of the picture

Option	Economic wellbeing	Environmental wellbeing	Social wellbeing	Cultural wellbeing
Status Quo	Constrains options to increase primary production Limited tourism opportunities • Current activities requiring coverage of ongoing maintenance and operational costs Road maintenance costs to increase (compared to current) as volumes transported increase	Greenhouse gas emissions to increase (compared to current) as volumes of production transported increase Port expansion will require dredging	Does not revert corridor use to that for what it was originally taken Social licence to operate for those currently using corridor called into question Resilience of community not supported as relative isolation and disconnection remains	Access to land adjacent to corridor is maintained; future access may not be secured Connections to sites of significance for iwi and hapū remain Possible development of activities related to marae and sites of significance along corridor, depending on security of access Port expansion would impact on sites of significance
Closure	Constrains options to increase primary production Constrains options to move to higher value processing Road maintenance costs likely to be less than status quo option, as attractiveness to increase production volumes recedes • But potential to develop new activities using the corridor (e.g. cycle tours)	Greenhouse gas emissions likely to be less than status quo option, as attractiveness to increase production volumes recedes Port expansion will require dredging	Use of land on corridor questioned Rights of First Refusal almost certainly to be actioned to return land on corridor to iwi and Māori owners Resilience of community undermined as relative isolation reinforced and heightened sense of disconnection	Access to land adjacent to corridor jeopardised Connections to sites of significance for iwi and hapū jeopardised Potential return of land to original owners Port expansion would impact on sites of significance
Reinstatement	Capital costs to reinstate the line total an estimated $19.9 million to $23.3 million, with a further $4.9 million to $5.8 million for resilience, and a further $5.1 million to $7.2 million spread over 10 years following reinstatement • This expenditure represents 0.5 to 0.6 percent of the $6.3 billion value of the KiwiRail rail freight network (as per the Government Financial Statements) Ongoing annual maintenance costs of the order of $650,000 Enables growth of primary production diversification and additional processing opportunities Introduces potential new tourism opportunities, but need to work closely with freight operators to optimise utilisation of rail line • But some existing tourism offerings using the corridor may be curtailed Containerised freight (not logs) are principal products to be transported by rail. Indicative estimates for annual operator freight revenues • 2020: $8.6 million to $9.3 million • 2025: $10.4 million to $14.1 million Reduction in annual road maintenance costs (compared to status quo) in the range of • 2020: $1.2 million • 2025: $1.2 million to $1.7 million	Reduction (compared to status quo option) in greenhouse gas emissions 70 percent • 2020: from 17,750 to 5,100 tonnes • 2025: from 16,400 to 4,960 tonnes Reduction (compared to status quo option) in noise and dust associated with heavy vehicle movements Diversification towards more optimal land use options enable improved land and water management	Reverts corridor use to that for what it was originally taken Resilience of community improved through presence of additional transport connection, relieving relative isolation Renewal of asset lifts confidence in future of region. Recognition of region's contribution to nation builds trust and lifts levels of inclusiveness Five percent reduction in number of road accidents involving serious injury and/or fatalities over the Tūranga to Wairoa section of SH2 Reduction (compared to status quo option) in health impacts arising from noise and dust associated with from heavy vehicle movements	Access to land adjacent to corridor is improved Connections to sites of significance for iwi and hapū improved Possible development of activities related to marae and sites of significance along corridor

1.6 Caveats and critiques

In line with most studies, there are caveats to our findings. There are also critiques that reflect differing perspectives and objectives.

Drafts of this report and findings were circulated to members of a Steering Group that have assisted the project team throughout this study. Their general assistance and guidance was undoubtedly helpful, and is acknowledged by the project team.

Further, critiques of drafts from Steering Group members assisted in finalising our perspectives and understanding how differing perspectives could or would view these findings. This section highlights some of the important caveats and critiques that are central to the correct interpretation of our findings.

In particular, feedback from KiwiRail is clearly of importance and we acknowledge their feedback. While not addressing all of the points raised by KiwiRail, our response to their comments form the basis of the discussion below. Feedback from other members of the Steering Group also serve as direction for this discussion.

The project team also stress the importance of this report and its conclusions being read within the context of its terms of reference and understood within the wellbeing framework adopted.

1.6.1 Not a business case

The first and foremost caveat is that the project team were tasked with preparing a feasibility study. We were not asked to deliver a business case for reinstating the rail line, nor a commercial case for the provision of rail services on the line. To complete either of these it would require the detailed objectives and financial goals (and business model) of the rail operator, the intent of the network owner, and its expectations as to the financial return on capital. These were well beyond the scope and resources of this study. Indeed, our terms of reference explicitly state that "Identifying a potential provider of a rail service on a reinstated railway is out of scope".

In addition, this feasibility study did not adopt a narrow benefit-cost analysis approach. Thus, this study does not provide benefit-cost ratios for each option. Rather, it uses a broader wellbeing framework, best reflected in the purpose of local government to "promote the social, economic, environmental, and cultural wellbeing of communities". Such an approach may be difficult for some who would prefer conventional monetary valuations across a range of measures. Such a relatively simplistic approach belies the complexity underlying any decision about reinstatement. A wellbeing approach, we argue, is more consistent with the complex range of stakeholders in the community along with the range of tangible and intangible benefits and costs relevant to this study.

1.6.2 Costs of reinstatement works

More specific critiques have been raised about the estimated costs of works to reinstate the line and the revenue from potential rail freight services.

The terms of reference, as well as the budget, for this feasibility study did not envisage precise or detailed reinstatement costings. More detailed costings will undoubtedly be required should a decision to reinstate be progressed to the next stage. Nevertheless, it is informative that some consider these to be overly optimistic, while others suggest they are overly pessimistic.

The estimated costs of works for reinstatement were derived from investigations carried out by engineering consultants using readily available information, along with site inspections. The

costings assume the works are undertaken by a consortium of local contractors, supported and managed by specialist engineers and utilising the services and equipment of a private rail operator from Gisborne operating under his own licence. Alternative assumptions regarding the processes undertaking these works would well see a different set of costings emerge.

The project team directed these consultants to include a generous level of contingency within their cost estimates. Further, an additional contingency of between 20 percent and 60 percent is included in the higher range estimates presented in this report.

1.6.3 Freight revenue estimates

As noted, the study adopts conservative estimates for quantity (or volumes) of freight for transport by rail. Further, a low quantity estimate for those preferring a more cautious scenario is also provided.

It is important to recognise that the revenue figures stated in this report are not those that accrue to the rail operator. The rail cost component is not separated as that could result in an unrealistic expectation by freight users and customers. As noted in this report, all parties in the freight chain must be able to trade profitably, including those providing 'road bridging costs'. The revenue is best viewed as the revenue returning to the total transport chain ultimately using the rail mode, with the road transport mode as a reference point.

We understand that there is an expectation on the part of freight users and customers that rail will be cheaper than road and that may turn out to be the case. However, the feasibility study team is not acting for any participant in the transport sector that might become involved in any rail service. We are not privy to details such as costs, profit margins, or discounts for large freight providers. Facing this constraint, the project team proceeded by using expected freight volumes and existing road rates, to determine if a financially sustainable service was possible.

1.6.4 Other operational elements

A timetable for reinstatement to achieve opening for the 2021/22 summer peak horticultural season is noted for indicative purpose. This is likely to be an optimistic goal, although we note the longer reinstatement is delayed then the greater the potential for additional damage to the line due to the lack of care and maintenance to the track, including tunnels, bridges, and culverts.

In the event of a decision to progress reinstatement, operational considerations will no doubt also impact on the above potential timing. We understand that locomotives are not readily available to KiwiRail to begin a freight service along this line. Their best estimate for reopening the line is 2023/24. However, we are also aware that there are other parties that own and operate locomotives of the type capable and licensed to provide such a service. Consideration of who the operator of a reinstated rail service could be was excluded from the terms of reference for this feasibility study.

Clearly, such factors influencing the timing of reinstatement works and the commencement of services will need to be incorporated in the light of any decision to progress reinstatement.

In a similar vein, the rail operator will need to assess the level of service to be offered based on its commercial objectives, revenue and pricing strategies, and any relationships with associated freight operators. The revenue scenarios presented in this report assume a service that is the equivalent of 24 containers per train running a five days per week schedule. The precise mix of 20-foot

containers, 40-foot containers, and log wagons we consider (and associated pricing) are operational decisions that would be made by the rail operator.

1.6.5 Alternative transport options

There are a range of transport options to provide alternatives to existing services that could be explored. For example, improved state highway connections (south, north, and west from Gisborne) and coastal shipping options were mentioned. Other unconventional suggestions were also forwarded. Investigation and assessment of such alternatives were well outside the scope and budget of this feasibility study. Importantly, this feasibility study was not a comparative study of a range of transport options. Rather, it was explicitly a study into the feasibility of reinstating the rail line, and the potential freight/tourism use of such a line.

1.6.6 Organisations represented on Steering Group

Organisations that were represented on the Steering Group are listed below. This group assisted the project team in its work.

- Tairāwhiti Rail Limited
- Activate Tairawhiiti (now part of Trust Tairāwhiti)
- Provincial Development Unit
- KiwiRail
- New Zealand Transport Agency
- Ministry of Transport
- Gisborne District Council
- Wairoa District Council
- Hawke's Bay Regional Council
- Ngāi Tāmanuhiri

Steering Group members and organisations have no responsibility for this report, its conclusions, or its findings. This responsibility lies solely with Business and Economic Research Limited and the project team.

2 Tīmatanga kōrero (Introduction)

The rail line from Napier to Wairoa was established in the early part of the 20th century and was extended to Gisborne[4] in the 1940s. The line provided both freight and passenger services for many years. In 2012 severe weather resulted in a number of washouts along the track. This significant damage led to a decision by KiwiRail to mothball the line rather than making the necessary repairs. The rail services between Napier and Gisborne ceased at this time.

In 2016 KiwiRail entered into an agreement with the Hawke's Bay Regional Council (HBRC) to provide a weekend service transporting logs from Wairoa to Napier Port. Work to reinstate this section of the line has now been completed, and this service is planned to commence once a marshalling yard in Wairoa is operating.

KiwiRail have previously investigated the cost of reinstating the Gisborne to Wairoa section. This work has indicated, based on the information available at the time, that reinstatement was not commercially viable. They noted however, that no detailed in depth study had been undertaken.

KiwiRail acknowledges that it has previously received proposals from the HBRC and other train operators for reinstatement of the line. Notwithstanding KiwiRail's view since 2012 that reinstatement could not be justified, there are reasons to believe that this situation is changing. Both Tairāwhiti Rail Limited (TRL) and Activate Tairāwhiti (AT)[5] are focussed on changes to the nature and growth prospects for the local economy and key sectors within it. TRL and AT applied to the Provincial Growth Fund (PGF) for funding of projects relating to the Gisborne to Wairoa rail line and the associated corridor.

Because these two applications both concerned the same piece of infrastructure, the Ministry of Business, Innovation and Employment (MBIE) and the Provincial Development Unit (PDU) suggested these parties should work together to determine the best use of the Gisborne to Wairoa line in the future. TRL and AT requested Business and Economic Research Limited (BERL) to manage the task of preparing this feasibility study into the reinstatement of the rail line between Gisborne and Wairoa.

2.1 A feasibility study – not a business case

This feasibility study seeks to respond to specific questions and proposals put by TRL and AT in their applications to the PGF. While it will provide valuable information for determining the next steps, it is not intended as a business case. A business case relies on the objectives and financial goals (and business model) of the rail operator. Of course, the financial viability of the line also depends on the intent of the network owner and its financial return on capital objectives.

This feasibility study is an assessment of the practicality of the reopening of the Gisborne to Wairoa rail line to connect Gisborne with Wairoa and onwards south to Napier and the rest of the national rail network. The feasibility study aims to objectively uncover the strengths and weaknesses of the reinstatement and future operation of the line. The study includes assessing the opportunities and

[4] Through this report we use the terms Gisborne, Tai Rāwhiti, and Tūranga interchangeably. However, when referring to names of organisations we revert, as appropriate, to their more commonly known name for the area – i.e. Tairāwhiti.

[5] Activate Tairāwhiti, which was part of the Eastland Community Trust, was recently (November 2019) formally brought together with ECT into the newly-named Trust Tairāwhiti.

threats present in the natural environment, the resources required, and ultimately the prospects for success.

The feasibility study identifies the combinations of operationally feasible uses that maximise the commercial viability of reinstating the Gisborne to Wairoa rail line, having regard to the costs of reinstatement and ongoing maintenance.

Figure 2.1 Locations of communities along State Highway Two and the rail line

While this feasibility study concerns the reinstatement of the track from Gisborne to Wairoa, freight will travel to Napier and beyond. The study is based on the assumption that the line from Wairoa to Napier will remain open.

The Terms of Reference agreed with the PDU are attached as Appendix 14.1 to this report.

2.1.1 Rail is one component of transport network

Gisborne is a large but remote region with linkages to the rest of New Zealand confined to road, and small air and sea ports. Road transport is available to the north (Whakatāne) through the Waioheka Gorge and to the south to Hawke's Bay via Wairoa. Both roads, especially to the north, can be affected adversely by heavy rain with washouts and slips closing the northern road every year. The alternative route north around the top of the East Coast on State Highway 35 (SH35) doubles the journey time to the Bay of Plenty and the roads are subject to similar interruptions.

Road safety is a large concern to the community. There are many crashes in the area and a strong perception that the large number of trucks on the roads contribute to this problem. Traffic volumes are climbing, as well as the heavy vehicle proportion of traffic.

Accordingly, the question of the optimal transport network for the region is fundamental. The network must service the region and diversify risks, sufficient to provide confidence for business investment and capacity for increased exports.

The question for this study is around the feasibility of the line being reinstated, based on the costs of reinstatement and expected commercial usage, rather than a strategic question around the place of rail.

2.2 Four wellbeings approach

The concept of wellbeing is embedded in existing government policy and local government legislation. The local government legislation specifies four aspects: Social, Economic, Environmental and Cultural. The legislation does not provide definitions for each of the wellbeing components. This report has adopted some commonly understood definitions.

We will assess the options for future use of the Gisborne to Wairoa rail line on each of these wellbeings to understand the positive and negative impacts the feasible uses of the line will have on the local communities and the people of the Gisborne and Wairoa districts.

2.2.1 Social wellbeing

Social wellbeing is about people feeling a sense of belonging and inclusion in the place where they live. It is also about the ability of people to participate in groups, activities and events. A state of social wellbeing can be important for individuals' health, as well as their life satisfaction and happiness.

2.2.2 Economic wellbeing

Economic wellbeing is about the ability of people to create their own livelihoods by running a business, or to access rewarding employment opportunities. It is also about households being able to purchase goods and services that go beyond merely meeting the bare necessities of life.

2.2.3 Environmental wellbeing

Environmental wellbeing is about the health of the flora and fauna in a locality. It is also about water and air quality. A state of environmental wellbeing exists when people can live harmoniously and sustainably with nature.

2.2.4 Cultural wellbeing

Cultural wellbeing is an ambiguous term that can refer either to the customs of a group in society, or to artistic and intellectual activities.

2.3 Engagement with community and stakeholders

While the scope of this study did not allow a full-scale comprehensive community consultation exercise, engagement with a range of stakeholders was undertaken to explore local views on the region's transport infrastructure. Engagement with stakeholders, both in the local community and more widely, enquired about the appetite for reinstatement of the rail line.

Engagement with iwi and local communities along the rail corridor was of paramount importance to this study. BERL recognises Māori as tangata whenua of Aotearoa and acknowledges the partnership between Māori and the Crown as reflected in Te Tiriti o Waitangi.

Whānau, hapū, and iwi

BERL requested Nikki Searancke to assess, advise, and report on Tai Rāwhiti community perspectives, specifically inclusive of hapū and iwi. This report is attached as Appendix 14.2, with a summary as follows.

Hui and kōrero undertaken centered on the rights of kinship ties to the land by whakapapa and the natural desire to retain, grow and use the land wisely. This included the existing rail line from Tūranga through the ancestral lands onward to Wairoa and through to Napier and Palmerston North.

The survey of land held in whānau and hapū ownership from 1890 to 1900 tracks a path through this land from Hawke's Bay, or Kahaungunu iwi owned land, north through iwi of Tūranga and onward to Potikirua or Hicks Bay. The original survey for railway acquisitions under the public works regime was within hapū owned lands. Without a detailed assessment it appears it is still in their ownership today, with much now being used for forestry.

The message was very strong throughout Tai Rāwhiti, regardless of how far they were living in proximity to the rail line. Kōrero and the stories attached to the rail line supported its retention and reiterated the needs of whānau and hapū living close to the rail line. Knowledge has been retained in whānau and hapū of the original rail network built north to Matawai, but which was discontinued and demolished in the 1950s. The story of the return of the WW2 Māori Battalion, C Company stopping the train at Muriwai to let their men from there off to enter their marae to mourn their lost whanaunga with their hapū is still talked about as if it was yesterday. These stories serve to keep the association of whānau, hapū and iwi closely tied to the land and its uses and, naturally, the rail line and its future.

Both whānau and hapū in Tūranga were excited with the possibility that tourism companies using trains that are tailored to higher paying tariff guests that stay longer than three nights would enjoy a marae stay experience along with all the attractions on offer.

However, there were concerns expressed around the other industry impacts of logging operations at the port. These concerns included safety for tourists and the environmental impacts associated with the current port operations and expansion plans. Hapū and iwi in Tūranga are opposed to planned future expansion.

Whānau, hapū and iwi engaged in preparation of this report included: Ngāti Konohi, Ngāti Oneone, Ngāti Wakaraara, Ngāti Hau, Ngāti Ira, Whānau a Iwi, Ruataupare, Whānau a Rua, Nga hapū o Waipiro, Uepohatu, Rauru Marae, Puatai, Wahoterangi, Tuere, Tuwhakairiora, Ngāti Porou, Hauiti, Hinerupe, Mahaki, Rongowhakaata, Rangiwaho, Kahungunu ki Wairoa, Rongomaiwahine

The project team engaged with local iwi representatives from Ngāti Porou, Ngai Tāmanuhiri, and Rongowhakaata. The project team also worked closely with these and other leaders to identify community groups, trusts and incorporations to engage with. The support of these leaders was significant and ensured the study had maximum possible reach within the community.

The team worked with local authorities to engage with communities living along the rail corridor.

To establish the interest in a return of freight services, local business leaders, including transport operators, were engaged to understand the quantity of freight that could move to rail, and the service provision requirements that businesses would need to make use of rail.

As well as engaging with local businesses and communities, the project team also engaged with those responsible for the provision of local infrastructure. This included meetings with Gisborne District Council (GDC), Wairoa District Council (WDC), Trust Tairāwhiti, Eastland Group, Hawke's Bay Regional Council (HBRC), KiwiRail and the New Zealand Transport Agency (NZTA).

The team also engaged with local and national tourism operators including Gisborne City Vintage Rail (GCVR), Pounamu Tourism, Railbike Adventures Limited (RAL), Federation of Rail Operators (FRONZ), and promotional agencies including Activate Tairāwhiti and Tourism Hawke's Bay.

The study was guided by a Steering Group that was made up of representatives from central and local government and the Wairoa and Gisborne communities.

2.4 Map through this report

This report is structured as follows:

- Section 3 provides a summary of the views of a range of community groups, business, local government, and other stakeholders in Tūranga and neighbouring areas
- Section 4 outlines the engineering works required to reinstate the rail line to operational and resilient standards. Associated with this section are three separate reports that provide details of the works required, which are attached in the appendices
    - Engineering report (refer Appendix 14.3)
    - Track inspection report (refer Appendix 14.4)
    - Bridge and tunnel condition report provided by KiwiRail (refer Appendix 14.5)
- Section 5 provides, as context for this study, the situation of Tai Rāwhiti today – demographics, economic structure, existing freight flows and tourism activities. Further details are provided in a separate report that is attached as Appendix 14.6
- Section 6 discusses, as further context for this study, the various demographic, economic, infrastructure, and environmental changes and challenges facing Tai Rāwhiti
- Section 7 summarises the three options for the future of the Tūranga to Wairoa rail line, and these are assessed in the following sections
- Section 8 assesses future commodity production and processing volumes in the region and calculates potential demand for rail freight; generating three scenarios of freight demand. Details of freight demand are provided in a separate report that is attached as Appendix 14.7

- Section 9 summarises tourism opportunities and the potential use of a reinstated rail line for tourism and related activities. A report on tourism options was commissioned and provided by TRC Limited. This report is attached as Appendix 14.8
- Section 10 concludes with the recommended option
- A list of abbreviations used in this document is contained in Section 11. With a glossary of terms in Section 12, references are listed in Section 13 and appendices are listed in Section 14.

3 Kōrero – local views

The support of the local communities, businesses and leaders is critical to the potential success of a reinstated rail line between Gisborne and Wairoa. A large part of this study was establishing the degree of support from communities located along the rail line. To understand the views of the community, representatives from community groups, iwi and hapū, as well as with local business leaders, elected representatives and council staff were engaged.

During engagement there was limited opposition to the reinstatement of rail. However, some in the local community were sceptical of the potential for rail and were unwilling to back it themselves. However, they would welcome rail if it returned.

The overwhelming majority of people engaged with had positive views of reinstatement, although views differed on how the rail line should be used. The key themes from conversations with the communities, businesses and local representatives are summarised below, along with more detailed summaries of the views of Trust Tairāwhiti, Eastland Group, GDC, WDC and HBRC.

The views expressed in this section reflect the nature of discussions that were had during the engagement for this study. These views do not necessarily reflect the views of the project team. The comments expressed have been incorporated into the findings of this study.

3.1 Summary

- The rail line is an asset that should be used to its maximum potential for the benefit of the region and its people.
- There is potential and interest for tourism to take advantage of the rail line being reinstated. However, the tourism opportunities are not yet developed as people are unwilling to make decisions and investment until there is some certainty around the future of the line and an understanding of how it will be used.
- If freight that is currently moved by road is moved onto rail this will reduce the number of trucks using the road, making it safer for road users and communities that live along SH2. Reduced road use will also reduce the environmental impacts of road transport.
- Businesses are generally supportive of rail. Rail is seen as an alternative route out of the region for exporters. Rail offers competition on the route which will force transport to become more efficient and competitive.
- GDC and Trust Tairāwhiti will not stand in the way of rail if it will be of benefit to the local community and would welcome it if it came. However, they were not willing to invest themselves as they felt there were better areas for their investment. WDC and HBRC were supportive of the reinstatement.

3.2 From the community

3.2.1 Economic

The rail line is seen as an asset that needs to be used to its maximum potential to benefit the region whether this is tourism, freight or a combination of the two. The rail is seen as a potential game changer for the region.

- Rail could force the port to improve its offering and become more efficient in the face of competition from rail. If competition forces the port to become more efficient this would have a benefit to the community who are the ultimate beneficiaries of the port operations through Trust Tairāwhiti.
- There are concerns that the train will not be competitive with the port and road transport due to the double handling that is required to transfer the goods from a truck to rail rather than just driving the truck straight to the final destination. The managers of one large farm mentioned that rail would be of limited benefit to sheep and beef activities because of the double handling required.
- Some believed that the reintroduction of rail would create opportunities to develop facilities and jobs in communities that are located along the rail line, while others thought that the reintroduction of the rail line would reduce the number of trucking jobs.

> "More jobs will be created locally if we can increase production. Rail can support this."

- Ngai Tāmanuhiri have just purchased the J2 cool store and is looking at ways to use the asset. The cool store is right next to the rail line in Muriwai and the building is already equipped to handle rail freight. A siding would need to be re-established to connect the facility to enable access to rail freight options.
- There will be jobs created directly by rail and indirectly through increased production.
- A concern that was raised in Gisborne and Wairoa was that it could cost local truck drivers their jobs because the goods would be moved by train which only requires one driver for 24 wagons as opposed to 24 trucks with 24 drivers.

Tourism opportunities

For communities between Gisborne and Wairoa the benefit of rail was seen to come from tourism opportunities. Rail could lead to an increase in the number of visitors to the region and could create increased cultural tourism opportunities. However, these opportunities were at the very early stage and there was limited information available on the potential of this opportunity.

- The train service would offer tourism opportunities for Wairoa. Wairoa is the gateway to the northern Hawke's Bay. It could become more than just a stopping point between Gisborne and Napier.
- There was a warning that marae and cultural tourism will be similar along the line.
- There are concerns that multiple cultural tourism offers may not be sustainable. A combined effort for tourism was needed. Everyone cannot offer the same thing.

GCVR is fully subscribed when the cruise ships are in town. Increasing the range that GCVR could travel would provide a boost to the local economy. If the line was repaired then GCVR would be able to offer an extended trip or a greater range of excursions.

3.2.2 Social

Accidents and road safety concerns were some of the most common issues raised during consultation and are major concerns for local communities. Local residents felt that the roads

were becoming more dangerous and some people feared traveling on the roads due to the number of trucks and the deteriorating condition of the road in some locations.

Attracting people back to communities is seen as a benefit of reinstating rail. However, views on this were mixed.

- Rail is seen by some as an enabler of economic activity in the region while others thought that it would only benefit producers, the rail line operator and Napier Port.
- If new jobs can be supported by the introduction of rail, it will attract people to locate in the region or return home to the region. If people are moving in to the region or are returning home this will strengthen local communities.
- Some thought rail would have a limited impact on the communities north of Gisborne which are some of the most deprived in the region.

There was the belief from some that freight does nothing for communities along the line. Some communities wanted to see the line carry more than just freight.

> "The only thing we see from rail is the ass end as it goes through our community."

Some local residents would like to see passenger tourist trains stopping in their communities and villages to provide more opportunity for people living in these communities.

The current state of the road has peaked community interest in the reintroduction of a passenger rail service using the line. A passenger service would enable people to travel between Gisborne and Wairoa and then further south. This would improve people's transport to medical and other appointments in the Hawke's Bay and Gisborne.

3.2.3 Environmental

The number of trucks using the road has put a strain on the road network and has increased the wear on the road. This has increased the impact that transport is having on the region's environment and roads. The community believed that the road wear south of Gisborne on SH2 south to Napier would be reduced if freight could be moved from road to rail.

> "We need to get those big trucks off the road."

- Taking trucks off the road and putting freight onto rail would reduce the noise pollution created by trucks.
- Road noise, low frequency noise and dust from road and tyre wear caused by trucks were identified as environmental concerns. The noise impacts of rail did not come up during consultation except in relation to the current Gisborne rail yard where new houses have been built nearby.
- An increasing number of vehicles using the road between Gisborne and Wairoa has caused an increase in emissions. A common theme that came up during consultations was that if the freight currently carried by trucks could be transferred to rail it would reduce emissions.

There was general acceptance that the Right of First Refusal should apply if the line is closed. This would see the land offered to the original owners before land was taken for the rail corridor. However, some warned that this could cause division between communities along the corridor.

It has been proposed that the corridor could be used as a cycle trail. For this to happen it would require all land owners of the former line to be in agreement. This is unlikely to happen as one landholder has already ruled out using the land for a cycle or walking trail.

- Despite the potential positive impact of tourism some in the local community were concerned about the possible environmental impact that increased tourism could have.
- Local landowners have reported tourists going onto their land uninvited to relieve themselves. There were concerns raised about rubbish being left by tourists. If tourism is to develop and grow then it needs to ensure that any environmental impacts are managed and harm to the environment caused by increased tourism is mitigated.
- Rail has the potential to reduce the demand on Eastland Port. This would reduce the need for continued dredging of the port and a second berth.
- This would protect key sites that are important to local iwi, including the unique lobster colony located at the port that local iwi believe would be put in danger from port expansion.
- Ensuring that natural resources are maintained and protected for future generations was important to local iwi. It was expressed strongly that developments around rail should not impact on their land and the maintenance of this land for future generations.

"Natural resources need to be protected for future generations."

3.2.4 Cultural

Cultural tourism opportunities were raised by a number of communities along the rail line. If a tourism or passenger train was to operate along the line it would create opportunities for tourism and the chance to share more of the local culture with visitors to the region. The opportunities provided by cultural tourism could also help people employed to work in these tourism jobs to reconnect with their culture and their own connection to the land and the region. However, this view was not universal.

- Cultural tourism provides opportunities for local people to learn more about their own history and the history of the region.
- It is not just visitors that would benefit from increased cultural tourism offers. If the culture is shared it will ensure that it is kept alive and can be passed down through generations.
- The view was expressed by communities along the rail line that freight services would do nothing for them and there would be nothing that would improve cultural wellbeing.

"Freight services only would not promote or grow the local culture with visitors."

- The rail line and services along it would provide opportunities for local people to access more of their historic land and significant sites that cannot be accessed from the road. Having the line in place allows people to access these sites that would otherwise be difficult to access.

- The construction of the rail line was carried out by local people. During construction, over 30 people were killed in what was, at the time, New Zealand's worst industrial disaster. Reopening the line would honour the lives lost in construction.

Expansion of the port and the loss of culturally significant sites is a concern. The introduction of rail provides an alternative mode of transport. If goods can be moved south by rail this could reduce the demand on the port and reduce the need for expansion. This will protect these tapu sites and maintain them for future generations.

As well as the issues around the port, one group noted that the rail line currently runs through a site of significance for their people. They would not mind if the line did not re-open as removing the line would remove the barrier between the land and the sea.

3.3 Views of business

There are a number of local businesses that want confidence that the transport logistics are there to handle the major growth in exports that they can see coming within the next few years. They believed reinstating the rail line would provide confidence. Businesses appeared to be supportive of rail as it offers an alternative transport solution and is another connection to the rest of New Zealand. Businesses could not see how reopening the rail could be anything but beneficial for the Gisborne region.

> Export pack house producers, wood processors, and road transport operators interviewed all expressed support for the reopening of the rail line to provide better access to markets, especially given the growth of container based freight.

Generally business leaders supported reintroduction of rail, even if their business would not use it. This was usually because their product is not suitable for rail or was sent to markets north of Gisborne rather than south.

The views of local businesses were that they wanted to see more transport options and believed rail offers an alternative to the port. Businesses commented that if the port cannot compete with rail then the introduction of rail should be a wakeup call for Eastland Port, which will be forced to improve its offering to compete.

Caution against proceeding with rail was expressed by some, as the port is a significant local asset that is important to the local economy.

People did not want to see the port suffer due to the introduction of rail. As well as being an important strategic asset for the region, the port profits are returned to the local community. In contrast, freight moved through Napier Port ultimately benefits the shareholders of Napier Port.

The Chamber of Commerce believed containerisation would encourage local processing and that the rail line re-opening would improve access to Napier Port which is better equipped to handle containers.

Local businesses see the ability to send 40ft containers direct to export from the business door as a game changer. Especially during the main horticultural season when there is always pressure on

ensuring enough trucks and drivers. Rail will provide the opportunity to send fully loaded containers from Gisborne and Wairoa for export without requiring re-packing.

Transport companies such as Weatherell Transport were supportive of the potential for rail to return. The option of rail reduces the need to organise additional trucks and drivers for the peak season. Transport companies that find it difficult to attract drivers to the region in peak times see a benefit in putting 20 containers on a train rather than sending 20 trucks down the road every day. They could use this trucking resource locally.

The Chamber of Commerce believed it would be a hand brake on the local economy if the rail line is not used for commercial services.

The Chamber of Commerce was of the belief that, in the long term, freight will offer more value than the existing tourism offering and seasonal tourist trains.

One business noted that the reintroduction of rail services would not solve the issue of trucks moving through central Gisborne. The business owner noted that the rail line would only reduce trucks in central Gisborne if the port company was using rail to bring logs into the port from the south.

Survey of businesses

Members of the Gisborne Chamber of Commerce were surveyed to understand the local business interest in re-establishing the rail line between Gisborne and Wairoa. 59 people responded to the survey from approximately 150 members.

78 percent of businesses that responded to the survey supported the re-opening of the rail line. However, just 53 percent of respondents said that they would use rail if a new service was required.

When asked what the key drivers were of a business's transport decision 43 percent of respondents identified cost as a key driver, 40 percent identified timeliness, and 36 percent found ease of use to be a key driver of the decision.

33 percent of businesses used rail before the line was closed. 53 percent of these businesses had replaced rail by transferring products to truck, 18 percent changed to using cars. None of the businesses surveyed had moved their goods to transport by sea.

Survey respondents identified a set operating timetable and a pickup and delivery service to and from the rail line as the most popular services that businesses would like to see provided to enhance and support the reinstatement of the rail line. Provision of containers was also seen as a service businesses would like to see provided with 29 percent of respondents identifying this as a feature of the rail service they would want included.

47 percent of business respondents want to see a passenger service provided, 22 percent were against a passenger service.

3.3.1 Eastland Group

Eastland Group has previously been held up as being in opposition to the rail. However, this is not the case. Eastland Group will do what is best for the community. Eastland Group has received feedback from customers that the increased costs caused by double handling required from truck onto rail made rail a more expensive option for the port. However, Eastland Group believes that if rail can be proven to be economic they would be interested in the potential for rail to bring goods into the port.

Management from Eastland Group expressed their view that rail would only work if it were subsidised. If rail was to be subsidised then Eastland Group would like to see all transport modes

subsidised. Eastland Group is looking to coastal shipping as an alternative to rail or road transport and believes that the increased containerisation of produce, and timber products from the region, will enable them to take advantage of coastal shipping.

Eastland Group is aware of the capacity constraints that the port faces from southerly swells restricting access at times, and that currently the port is only able to load one 185 metre ship at a time. The port has made an application to expand the port to allow two 185 metre ships to be loaded at once and additional developments to mitigate the impact of the swell to enable ships to more easily use the port. Stage One of the required consents has been granted, with work expected to commence in early to mid 2020. The rebuilt berths will be able to accommodate a large coastal container vessel and a log ship at the same time.

Trust Tairāwhiti

Trust Tairāwhiti plays an important role in Tai Rāwhiti, including owning Eastland Group. Trust Tairāwhiti will support something if they believe it is good for the region under their Regional Wellbeing Framework. Currently, the region's transport priorities are agreed in the Tairāwhiti Economic Action Plan (TEAP). The current TEAP only prioritises rail from a tourism perspective, providing an alternative route south.

In recent years, Trust Tairāwhiti has funded over $275,000 repairing and maintaining the rail corridor to support tourism operators. In the view of Trust Tairāwhiti, the current access licences from KiwiRail places unreasonable financial responsibilities on operators and are not in the best interests of the region. Regardless of the outcome of this report Trust Tairāwhiti would like to see this addressed by KiwiRail.

Trust Tairāwhiti echoed the comments of the GDC when it stated that the north of the Gisborne region is isolated and has some of the most deprived communities in the region. The rail line reopening will have a limited benefit for those communities up the coast.

Trust Tairāwhiti raised concern regarding the impact on local trucking firms that take goods south. Smaller local businesses may be forced out by rail.

3.4 Views of local government

Gisborne District Council (GDC)

The GDC has advised that it will definitely be supportive should central government choose to fund the reinstatement of rail. The Regional Land Transport Strategy reinforces this position. GDC recognises the broader gains to, and opportunities for, the community from the additional transport options that would be introduced through the reinstatement of rail.

However, GDC views the best use of the current resources available to it is for improving road infrastructure consistent with community feedback and the Tairawhiti Economic Action Plan and funding gained through the Provincial Growth Fund. GDC intends to use transport spending to maximise road infrastructure investment in the region. GDC also advises that it does not see the use of ratepayer funds as being appropriate for rail reinstatement.

GDC would have liked to see an integrated transport case being advanced, not a sole focus on rail, including a blue highway strategy. For example, rail reinstatement will have limited impact on pressure being placed on the roads on the East Coast north of Gisborne. Consultation being carried out on the GDC spatial plan will identify integrated options and there is a view that north of

Gisborne is where there is a strong need to unlock the productive capability of Māori freehold land and get product to market. The roads in the north of the district are in a poorer condition compared to those south of Gisborne. The northern part of the district is also where more of the most deprived communities in the region are located.

GDC is also aware that some exporters may be inclined to look north towards Tauranga rather than moving goods south through Napier. This also reinforces the need for investment in roads to the north and looking broader than one transport option. Additionally, noting that the GDC is the capital beneficiary of Trust Tairāwhiti and Eastland Group, GDC is also supportive of Eastland Port in its efforts to meet the freight needs of local industry and keeping local benefit in the region.

Wairoa District Council (WDC)

WDC is supportive of the return of rail and outcomes that benefit the local community. WDC will support and facilitate the return of rail. WDC would like to see iwi involved as active participants in the process and would like to see the benefits of the rail line reopening spread into the local community.

Wairoa recently saw the return of rail to the community when the Wairoa to Napier line was re-opened for log services. The re-opening of the line has provided another route into and out of Wairoa, reducing the dependence the district has on the road network and strengthening the connection to the rest of New Zealand.

The Gisborne to Wairoa line provides the opportunity to expand this connection. Wairoa has the potential to become a hub for the logging industry with an increase in trains. WDC also believes that moving logs from road to rail will reduce the number of logging trucks using the state highway south to Napier and will make the roads safer.

WDC would be interested in a passenger service that improves connectivity south to Napier and north to Gisborne. Wairoa believes that they can build a unique tourism offer built around culture and the outdoors. Tourism in Wairoa is niche and offers an authentic experience. The tourist season in Wairoa peaks in summer. Wairoa wants to become a tourist destination rather than just acting as a stop for people travelling between Gisborne and Napier.

WDC has also identified that a passenger service would provide local school teams with better access to competitions in Gisborne and the Hawke's Bay.

Hawke's Bay Regional Council (HBRC)

HBRC believes that the extension of the line from Wairoa to Gisborne to join up with the reopened Napier to Wairoa line makes sense in terms of it being part of a national rail freight network. HBRC believes that the road network is suboptimal for growing heavy freight movements. Export freight in Gisborne requires better connectivity to get to market. HBRC has identified that Eastland Port is not a specialist container port and that containerised horticultural products from Gisborne and Wairoa are going to increase.

HBRC acknowledges that reopening the rail line alone will not create much of an employment impact in Wairoa. However, the line will act as an enabler for economic development in Wairoa. HBRC is looking actively at horticulture development in Wairoa. The rail line may help to enable this development.

HBRC does not see a case for regular passenger services on the line. HBRC sees potential for tourist trains to run services on the line between Gisborne and Napier, or parts thereof. In particular, the scenic beauty of the line north of Wairoa was identified by HBRC representatives.

HBRC believes that the justification for promoting rail is to promote economic development and improve environmental outcomes and road safety.

4 Engineering requirements

This section presents a summary of three reports by engineers into work required and costs to repair the dropouts, bring the condition of the track to a useable standard and the work required on the bridges to ensure that trains can run safely over them. These three reports are an important element of this study and are included as Appendices 14.3, 14.4, and 14.5 to this report. All distances in this section refer to the distance from the start of the line in Palmerston North.

The line suffered significant damage in a storm in 2012, and further damage has occurred since due to the lack of maintenance and subsequent weather events. The locations of damage requiring major works are presented in Figure 4.1.

Figure 4.1 Locations of major track works required

4.1 Summary

The cost to bring the line back to a standard that could enable freight and visitor services to travel between Gisborne and Wairoa is estimated to be $19.9 million to $23.3 million. These estimates are based on the work being carried out by a consortium of local contractors, supported and managed by specialist engineers and utilising the services and equipment of a private rail operator from Gisborne operating under his own licence. The majority of the cost is for the earthworks required

to repair the dropouts. These repairs are estimated to cost between $16.0 million and $18.3 million and will be fully compliant with KiwiRail and NZTA requirements. However, an operational risk analysis over the whole route and commissioning charges as required by NZTA have not been allowed for in these costings.

Before freight operations could commence, repairs and upgrades are required on a number of bridges and some tunnels. These are estimated to cost in the range of $1 million to $1.5 million. Other large costs include $2.3 million to $2.7 million for track work and vegetation clearing. Smaller costs include $300,000 for train control radio equipment, $300,000 for level crossing reinstatement and $200,000 for improvements to the freight loading yard.

Additional works to improve the resilience of the line to adverse weather events are estimated at $4.9 million to $5.8 million. This work does not have to be completed in order to reopen the line. However, it would be cost effective to undertake this work at the same time as reinstatement work is underway as the heavy earthmoving equipment will be available on site.

Over the 10 years following reopening, an additional estimated $5.1 million to $7.2 million will be required in additional bridge, tunnel and track works.

Table 4.1 Capital cost estimates to reinstate the railway between Gisborne and Wairoa

	Capital costs ($000s)	
Estimates of capital works required	**Low**	**High**
Reinstatement works		
Earthworks to reinstate line for operations	16,034.5	18,330.7
Track and vegetation (before operations commence)	2,250.0	2,700.0
Bridges and tunnels (before operations commence)	948.9	1,487.6
Other (radio, signals, level crossings, freight yards)	650.0	780.0
Sub-total (before operations commence)	**19,883.4**	**23,298.3**
Resilience and other works		
Resilience works	4,873.3	5,847.9
Track and vegetation (over years 2-10)	1,650.0	1,650.0
Bridges and tunnels (within 10 years)	3,454.0	5,526.4
Sub-total (resilience and other works)	**9,977.3**	**13,024.3**
Total (all works)	**29,860.6**	**36,322.6**

Ongoing costs to maintain the below rail infrastructure has been assessed at an average of $650,000 per annum.

It is assumed that the reinstatement of the formation will be undertaken under the auspices of KiwiRail but with KiwiRail utilising the services of competent engineering and geotechnical consultants experienced is this type of work. Key to the successful delivery of this project will be a project manager able to co-ordinate the various activities at both ends of the site.

Due to the restricted sites and site access, work will likely take place over two earthworks seasons. To achieve opening for the 2021/22 summer peak horticultural and log harvest season reinstatement work would need to begin by April 2020, with earthworks from September 2020 over the 2020/21 summer for completion in March 2021. Much of the track and clearance of culverts

work could be carried out over the 2020 winter period ahead of the main dropout repair earthworks, and with the remaining work completed over the 2021 autumn/winter period.

4.2 Earthworks required to reinstate line

An in-depth study has been undertaken into the work required to reinstate the formation between Gisborne and Wairoa, this study is detailed in Appendix 14.3 of this report. The headline work is the reinstatement of the six dropouts. Five of these dropouts occurred in 2012, with the sixth at some later date.

A preliminary assessment (30 percent confidence) to repair the dropouts, as detailed in Appendix 14.3 and summarised in Table 4.2, has been estimated at between $16.0 million and $18.3 million. The upper range of these estimated costs includes, amongst other elements, a 20 percent contingency allowance.

Table 4.2 Estimated costs of reinstatement earthworks required

	Capital costs ($000s)	
Reinstatement - earthworks	**Low**	**High**
Preliminary and general (P&G)	4,104.0	4,924.8
Dropout one	1,530.5	1,836.6
Dropout two	1,496.2	1,746.4
Dropout three	2,248.3	2,798.5
Dropout four	5,510.4	5,650.2
Dropout five	164.0	196.8
Dropout six	981.2	1,177.4
Total reinstatement earthworks	**16,034.5**	**18,330.7**

From a formation perspective the line between Gisborne and Wairoa can be divided into three sections:

- Wairoa to Blacks Beach (331km), a distance of 37km
- Blacks Beach (331km) to Maraetaha (366km), a distance of 35km
- Maraetaha to Gisborne, a distance of 24km.

All of the formation issues are in the section between Blacks Beach and Maraetaha. In this section are all the tunnels and tight curves, and the rail formation is either running along the shore line or benched into the hillside above the coast.

As well as the specific repairs to the various features, all of the culverts will be cleaned out and inlet structures cleaned and or rebuilt as required. There will be a program of drain cleaning throughout the length of the track from Wairoa to Gisborne but with emphasis on the section through the Wharerata Range. Particular attention will be paid to the drainage in and outside of the tunnels.

Repairs to the formation can occur from both ends of the line, with dropouts one to four being worked on from the northern end using locally sourced fill. Dropouts five and six can be accessed from the south using mainly imported fills. Dropout four is likely to be worked on from both ends but due to the location of this dropout being immediately north of tunnel 22, the majority of the work and the materials will have to come from the north.

Rail access will be required from both ends for fill materials and to get plant and machinery into the various work sites. Some access direct to the corridor is available by clearing roads and tracks and utilising forestry roads, but this option is generally only suitable for tracked or four wheel drive vehicles.

There are no specialist forms of construction that will require international construction companies. It is considered that local contractors, with suitable engineering and adequate programme management support, have the capability to carry out all of the earthworks. Rail support from the Gisborne end using equipment provided by a local operator will be required. This will minimise costs and potentially avoid accommodation issues that may arise if the alternative of using external operators and labour is pursued.

4.2.1 Dropout one - 358.3km

This is a relatively minor dropout. It could be temporarily bypassed by moving the track away from the dropout, but this would create a long term maintenance issue and substandard track curvature.

It is proposed to widen the formation and install a new culvert higher up to allow for a one in one hundred year flood event. This new culvert will act as a bypass if the lower level culvert is blocked.

Photo 4.1 Dropout one (358.3km)

4.2.2 Dropout two - 357.14km

This dropout is at the south end of Beach Loop (357.14km). The formation under the track and south end turnout has fallen away leaving the track suspended.

Photo 4.2 Dropout two (357.14km)

This dropout will be repaired with an earth embankment, probably using imported fill reinforced with Geogrid, a type of reinforcing mesh. The culvert will be improved with good access to the inlet for cleaning.

4.2.3 Dropout three - 355.5km

Similar to dropout two, this dropout will require a 40 metre high embankment to be built. The existing culvert is adequate for normal flows but requires extending on the outlet end to prevent the water washing away the supporting cliff face. Local fills available from adjoining faces could be used to form the embankment, this will be reinforced with Geogrid.

Photo 4.3 Dropout three (355.5km)

4.2.4 Dropout four – 353.95km

This dropout is the most difficult to repair. The location is difficult to access, immediately north of tunnel 22, and it is large at about 90 metres wide and 30 metres deep.

An embankment solution is possible, but it is more cost effective to install two bridge spans directly north of the tunnel, linking to a new embankment at the northern end of the dropout.

Most of the reconstruction effort will have to happen from the north due to the close proximity of tunnel 22. There is limited space for holding materials close to the site.

Photo 4.4 Dropout four (353.95km)

4.2.5 Dropout five - 349km

This is an embankment of fill that has failed due to water scouring. The damage will be repaired and stabilised with a concrete block wall. Water control and an additional culvert will be required.

Photo 4.5 Dropout five (349km)

4.2.6 Dropout six - 347.73km

This dropout was not part of the damage sustained in 2012, but has occurred sometime between 2014 and 2016. The repair will use imported fill reinforced with Geogrid mesh. The existing culvert requires cleaning and an additional culvert should be installed to act as a high-level bypass.

Photo 4.6 Dropout six (347.73)

4.3 Bridges and tunnels

A report on the works required on bridges and tunnels was commissioned from KiwiRail and is attached to this report as Appendix 14.5. This section gives a summary of the key points of that report.

There is a modest amount of work required to bridges and tunnels before the rail reopens. This work would be carried out as the earthworks proceed and access is available to the various sites. The report concludes that the structures are suitable for an axle load of 16.3 tonnes.

Tunnels are expected to require work to the value of $480,000 prior to opening for operations. Of this amount $24,000 is for tunnel warning signs, $120,000 for drip shields, and $40,000 for crack repairs. The balance of the cost is the installation of "stabilising ribs". This amount is essentially a place holder as the detail of what is required is still to be determined.

Estimates of costs are summarised in Table 4.3. As noted, the report recommended a range with a 60 percent contingency. Consequently, the estimated cost of works required before operations commence range from $0.9 million to $1.5 million. Total works required, including the work over the following 10 years, are in an estimated range of $4.4 million to $7.0 million.

Table 4.3 Cost of works required on bridges and tunnels

	Work to complete $000s			
Asset class	Before trains run	Before operations commence	Within 10 years of operaions	Total
Bridges	302.2	162.7	1,124.0	1,588.9
Tunnels	-	484.0	2,330.0	2,814.0
Total	**302.2**	**646.7**	**3,454.0**	**4,402.9**
Plus 60 percent contingency	483.5	1034.7	5,526.4	7,044.6

The report is heavily qualified as the inspections on which the report is based were done between two and ten years ago. It is likely that further degradation has occurred since the last inspection. Further inspections are recommended to give more certainty to the findings.

4.3.1 Bridges

There are 49 bridges between Wairoa and Gisborne, ranging from short single span bridges to the large Kopuawhara Viaduct.

The report from KiwiRail identifies the work that is required to make each bridge suitable for line reopening. Initially the standard required is for work trains, and as a second stage the additional work required before the route is opened up for regular services.

There is still a number of timber piles and timber caps on this route and much of the work required is associated with timber repairs and installation of bolts.

Suggested cost to make the existing bridges suitable for operational services is $465,000. Over the next 10 years a further $110,000 per annum is required.

Photo 4.7 Bridge 264, the Kopuawhara Viaduct

Source: KiwiRail

4.3.2 Tunnels

There are 12 tunnels between Wairoa and Gisborne, all of them on the section between Blacks Beach (331km) and Maraetaha (366km). These are numbered 14 to 26 (number 24 was converted to a cutting in 1956). All of these tunnels are large enough for hi cube containers on standard Container Flat Top (CFT) wagons.

All tunnels are lined with concrete in generally good condition, apart from tunnel 26 where there is an area of cracking that has been stabilised with steel supports. There appears to have been no recent movement but a survey should be undertaken to establish if the movement is ongoing.

The majority of tunnels require drain clearing, particularly at the portals where ponding is leading to weed growth, further choking the drains. There is no work which must be completed before the work trains operate.

4.4 Track and vegetation

The track between Wairoa and Gisborne is 95km in length, as measured from Kiwi Road at Wairoa (296.3km), to Gisborne Port (391.6km). A report with detailed information on the track and works required is included as Appendix 14.4 of this report. It has been assumed that the work will be carried out over a period of one to two years, and will progressively be undertaken as the earthworks are undertaken.

Costs to bring the track to the standard suitable for reopening are assessed to be between $2.3 million and $2.7 million. A further $165,000 per annum of work (from year two) that could be classed as capital should be added to this amount as level crossing upgrades, face sleeper and rail replacement and other items will be required. Ongoing maintenance costs to maintain the below rail infrastructure has been assessed at an average of $650,000 per annum.

4.4.1 Work required

Wairoa to Gisborne is a secondary line with lighter rail and a reduced line speed as compared to the main trunk lines. It is expected that the line could reopen with a 40kph speed restriction. It may

be possible to raise the line speed to 50kph after a settling-in period, however there would still be some quite lengthy sections restricted to 40kph.

Prior to 1988 the line was used for passenger services. These services were permitted to travel at 70kph over parts of the route between Napier and Gisborne. To enable trains to operate again at these speeds would require more work than has been allowed for in this assessment.

In addition to the main line there are crossing loops at:

- Opoutama 335.8km
- Kopuawhara 338.4km
- Paritu Loop 341.5km
- Beach Loop 357.3km
- Muriwai 373.8km
- Matawhero 385.0km.

The track is largely composed of 70 to 72lb/yd rail in 42ft lengths. There is a small amount of second hand 91lb/yd rail welded into 38 to 76 metre lengths. The sleepers are mainly tanalised pinus radiata (TPR) with a small number of Peruvian hardwood sleepers, particularly on bridges, that will need to be replaced as these are prone to fail. The normally accepted axle load for 70lb track is 16.0 tonnes but locomotives with a 16.3 tonne axle load are permitted. However, KiwiRail has run 18 tonne axles on 70lb track in the past. With this restriction a payload of 45 tonnes per wagon is possible.

The track that existed prior to 2012, apart from the washouts, remains intact and the condition has not changed materially. In some locations the track has been accessed by four wheel drive vehicles and feral goats. This activity has affected the ballast shoulder, but little permanent damage has occurred.

Initially about 1,050 concrete sleepers will be required mainly in the track to be reinstated over the area of the dropouts, together with 800 bridge sleepers and 700 second hand TPRs. More ballast will be required coupled with a program to pull up ballast from the area of the cesses to strengthen the shoulder. The track recording car should be run through the length prior to opening to identify faults and measure rail wear. This would be followed up by a tamper to lift and line the track.

The majority of the rail on straights and on curves of greater than 200 metre radius is largely original from when the track was laid. Given the rate of rail wear experienced over the past 80 to 100 years there is no need to replace it. Rail wear has occurred on curves, particularly those with a radius of less than 200 meters. Many of these curves have been re-railed with second hand 91lb/yd rail, and this practice should be continued.

Track estimates allow for re-laying track at the site of dropouts using short second hand recovered rail and sleepers. This approach will get the track open quickly, allowing work trains and track machinery to operate. It has been allowed for these sections to be re-laid in second hand heavy weight rail on concrete sleepers.

Trees and other vegetation has encroached into the path taken by rail vehicles. This vegetation along the corridor will need to be cut back and weeds removed prior to trains operating. An initial program to cut back the vegetation will be required, followed by weed spraying on a regular basis.

4.5 Rail line equipment and supporting infrastructure

The estimated cost for level crossing reinstatement is a one off cost of between $250,000 and $300,000. Also, a placeholder cost of $250,000 to $300,000 has been allowed in the estimates for the train control radio system. This will need further refinement at the time a business case is undertaken. The estimated cost for improvements to freight loading yards is between $150,000 and $180,000.

4.5.1 Level crossing alarms

Level crossing alarms between Gisborne and Matawhero are still operable. Due to the line being mothballed, rust on the rails mean the detection of trains is unreliable. All level crossing alarms have been converted to a system whereby the driver can activate the alarms by stopping and using a remote control device. This will not be satisfactory with regular freight train movements, but with daily freight trains the rust will be removed and trains can again be detected reliably by the system.

Level crossing alarms at other major road crossings are still in place and will need to be reactivated. There will be a small cost to recommission these alarms.

4.5.2 Signals

Prior to the closure in 2012 the section from Matawhero to Gisborne was signalised. This section included the crossing of the runway at Gisborne Airport which was controlled via a set of colour light signals which gave the railway priority over aircraft.

Since 2012 the priority over the runway has been altered so that aircraft have the right of way and trains can only operate across the runway with the permission of Air Traffic Control in the Gisborne Tower.

For a service level of one freight train per day, provided that the trains operate while Gisborne Tower is on watch, the existing arrangement for crossing the runway at Gisborne will be satisfactory with only minor modifications. The signals between Matawhero and Gisborne do not need to be recommissioned as the whole line between Napier and Gisborne can be operated under Track Warrant Control.

4.5.3 Train control radio

Prior to 2012 KiwiRail provided train control radio between Napier and Gisborne. The coverage was not up to full Advanced Transportation Controller (ATC) standard and accordingly all trains were double manned. This system could be recommissioned, but it is obsolete and no longer fit for purpose.

Limited tests of a radio system to the forestry and trucking industry out of Gisborne carried out to date indicate that good radio coverage seems to be available across the rail corridor. Testing has not been rigorous though, and it is suspected that coverage will not be adequate through some of the longer tunnels.

It is proposed that a radio system fully up to ATC standards for single person operation be developed in co-operation with the commercial provider. This will involve expenditure on systems for tunnels and a linkage will be required back to Train Control in Wellington, probably via a fibre link.

4.5.4 Freight loading yards

When the line last operated, all freight into and out of Gisborne was handled through the Gisborne yard. KiwiRail has a yard measuring approximately three hectares, parts of which are leased to Toll and to GCVR. However, there is adequate space to assemble and load trains of 24 CFT wagons that are likely to be used on the service from Gisborne.

There is no gantry or other loading equipment and loading would best be accomplished by either swing lift or other specialised container loading equipment. Only part of the yard is sealed.

There are likely to be issues of noise if loading and marshalling of trains occurs outside of normal working hours. There is a motel adjoining the yard on what used to be rail land and there are apartments approximately 200 meters from the closest loading point, and a hotel 400 meters away.

It is anticipated that train loading and marshalling will occur generally within daylight hours. Increase in demand for freight could be catered for by running trains on weekends. If in the future a two train per day service is required then loading might well be extended to 24 hours per day, in which case there is a reasonable case for relocating the yard to Matawhero.

4.5.5 Matawhero – 385km

There are advantages in developing the Matawhero site as an all-purpose loading yard. The land available at this location measures about four hectares. It is more remote than the Gisborne yard but there are three houses that adjoin the KiwiRail land. There is a meat plant nearby, a fertiliser depot and Far East Sawmill. The sawmill and the fertiliser depot have private sidings.

This location is considered to be the best site for a freight hub for servicing all rail customers, with the benefits of minimising noise and disturbance in the central city area. Matawhero is more central to the horticultural and industrial areas of Gisborne. An initial estimate of the cost to develop this site is around $2m to $3m.

There is a siding off the Matawhero yard that serves a fertiliser plant. This siding could be reactivated. This also gives the option of providing a loading site for the adjacent wood processing plant.

About four kilometres south of Matawhero is the siding that enters the Far East Sawmill site. This siding branches off the mainline towards the east with the turnout facing to the north. There is straight track for loading with a useful length of about 220 meters (approximately 12 CFT wagons).

From day one the logical place to load logs is Matawhero. There has also been interest expressed by the log yard operators in being able to rail logs directly to Eastland Port.

4.5.6 Makaraka Branch – 388.5km

The remains of the Makaraka Branch comes off the mainline towards the north and has in the past had a number of private sidings along its length. The Branch has been closed for over 15 years but the formation and track is still in place. It could be reactivated at minimal cost if there was a demand from adjoining land owners for private sidings to be constructed or reactivated.

4.6 Resilience improvements

The study of the rail line formation has identified areas where additional work will make the route more resilient to weather events.

Resilience work will ensure the long term sustainability of the rail line and enable a robust and reliable rail service to be run. The work does not have to be completed in order to reopen the line, however it will be more cost effective to undertake this work at the same time the line reinstatement work is underway as the heavy earthmoving plant will be available on site. This work includes the following:

- Earthworks to improve resilience (including face scaling)
- House site slump repairs at 335.05km
- Seawall reinforcement
- Blacks Beach road realignment.

4.6.1 Earthworks to improve resilience (including face scaling)

Photo 4.8 Example of erosion which would be prevented by face scaling

There are a number of areas where the land above the rail corridor is unstable and at times sections of rock and other parts of the hillside can come down on the rail corridor. This has been managed in the past by removing debris and the slip material when it occurs. With machinery in the area working on dropouts, and in order to form a more weather proof corridor, it would be prudent to scale the hillsides. Benches cut to catch rock falls and a general tidy up would help to weather proof the corridor.

4.6.2 House site slump at 335.05km

Photo 4.9 House site slump

This slip has come down onto the rail line. As the adjoining land owner there would seem to be some obligation on KiwiRail to retain and stabilise the land above. With the corridor currently closed the slip is stable, but as soon as the rail line is cleared to permit trains to operate without some retaining structure the slip will become unstable and is likely to move, particularly with heavy rain. The obligation to redirect the culvert that is thought to run under the road may be the responsibility of the landowner or NZTA.

4.6.3 Seawall

Areas of the seawall near Opoutama have failed due to erosion over a length of about 60 metres. Additionally, other parts of the reinforced concrete wall have been undercut by wave action. Much of this coastal area has been protected with old rail wagons which have been filled with concrete and dumped onto the base of the rail embankment, probably in the late 1930s. Most of this protection, and the concrete seawall constructed about the same time, are still working well.

The repairs to the breech will involve the placing of large bags of approximately 15 tonnes of pumped concrete or large concrete blocks of a similar size to the railway wagons used in the past.

The area of the undercut seawall will be grouted below the wall at low tide with concrete pumped in to link the underlying rock with the sea wall. There is also a need in places to raise the top of the seawall by 500 millimetres (0.5 metres) to improve the ballast retention to stabilise the track.

Photo 4.10 Previous protection works continue to prevent erosion

Photo 4.11 Erosion of the sea wall leaves the track exposed

Photo 4.12 Undermining of the remaining seawall

4.6.4 Blacks Beach road realignment

Photo 4.13 Slumping on the Nuhaka-Opoutama Road at 331.4km

This area of slumping on the Nuhaka-Opoutama Road at Blacks Beach (331.4km) is technically not a rail issue, as the rail line is unaffected by this slumping. However, a cost effective solution would be to move both the road and the rail corridor away from the unstable land into the hillside by about eight metres. If this option were to be pursued by Wairoa District Council the rail corridor would have to be realigned. The cost of this work has not been included at this stage but a combined road/rail realignment is thought to be in the region of $1.5 million.

5 Gisborne and Wairoa today

This section summarised the current position of Gisborne and Wairoa districts and provides the current local context to inform the study. A fuller Tai Rāwhiti community, people, and economy picture is provided in Appendix 14.6.

5.1 Summary

Gisborne and Wairoa are districts with significant natural assets and a favourable climate. The population is growing, and there are a large number of young people who will be seeking employment and housing in the decades to come.

Growth in employment and Gross Domestic Product (GDP) are both positive, but are well below the New Zealand average. This indicates that the economy has potential to improve if current constraints can be alleviated.

With the rail line inactive, the major transport infrastructure is road and sea as well as an airport at Gisborne. State highways in the area are narrow and winding, unsuited to large trucks. There is a significant vehicle crash rate. On State Highway Two (SH2) between Gisborne and Wairoa there is an average of five crashes each year resulting in either severe injury or death.

The Gisborne area supplies wood products, fruit, and vegetables to the rest of New Zealand and internationally. Raw logs are shipped directly from Eastland Port, but the majority of other freight types must travel on the state highway network. There is a thriving tourism sector in Tai Rāwhiti, with two enterprises making use of the rail line, even in its mothballed state.

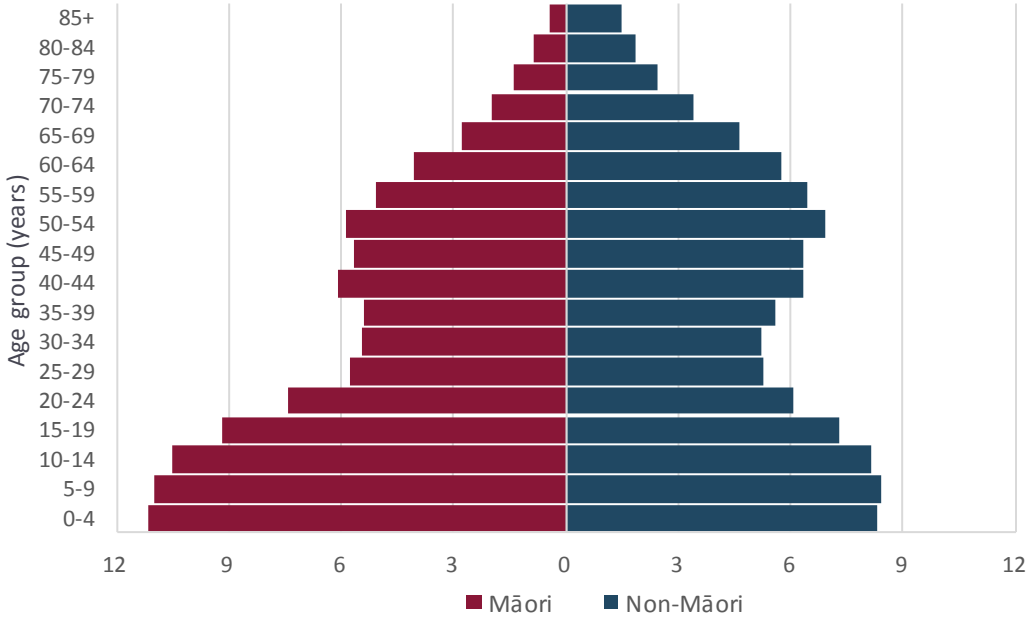
Overall, the Gisborne and Wairoa districts have significant potential in their climate and natural beauty. The economy is currently constrained by its isolation from the rest of New Zealand and the vulnerability of the existing transport links.

5.2 People and the economy

People will always be the greatest strength of the Gisborne and Wairoa districts. As at 2013 the Census showed there were around 55,000 people living in the districts of Gisborne and Wairoa. In 2018 this was estimated to have grown to between 56,000 and 57,000 people.

The area has a much greater than average population of people identifying as Māori and slightly fewer identifying as European, while the proportion of people identifying as Asian and Pasifika is also lower in the Gisborne and Wairoa districts. There are a large number of very young people who will be in (or will be entering) education and in the near future. These young people form the base of the future workforce for the area.

Figure 5.1 Population distribution by age and ethnicity

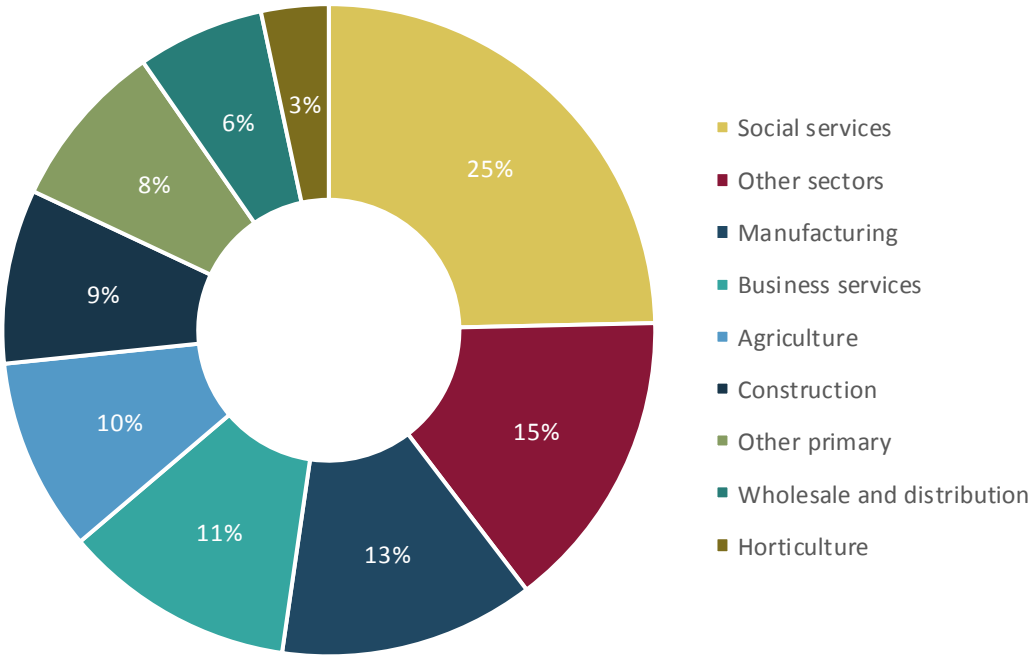


Source: Statistics New Zealand

5.2.1 Employment

Overall employment in the area is growing at a rate ahead of the rate of the general population increase of 1.9 percent. Employment in the area is estimated at a total of 23,452 full time equivalent jobs. This employment is mainly in the primary and social services industries with these accounting for 10,773 full time equivalent jobs. Figure 5.2 shows that the primary sector is a major contributor to local employment. Note that processing of primary products is included under the manufacturing industry, and some agricultural services including contract workers will be counted under business services.

Figure 5.2 Full time equivalent employment, by industry in Gisborne and Wairoa, 2018



5.2.2 Gross domestic product (GDP)

Gisborne and Wairoa together is a mix of provincial city and rural economy. The primary sector contributed over $650 million to the local economy in 2018.

Table 5.1 GDP by sector, Gisborne and Wairoa

Sector	Value Added or GDP (2018$m)				%pa change	
	2008	2016	2017	2018	2018	2008-2018
Primary	530	713	659	653	-0.8	2.1
Social services	458	462	485	495	2.2	0.8
Business services	389	366	366	361	-1.4	-0.7
Manufacturing	297	313	325	340	4.6	1.4
Wholesale and distribution	160	183	200	209	4.4	2.7
Construction	177	144	155	170	9.9	-0.4
Other sectors	603	656	668	672	-18.3	1.2
Total Gisborne and Wairoa	**2,614**	**2,837**	**2,857**	**2,900**	**1.5**	**1.0**
New Zealand					**2.7**	**2.1**

5.3 Existing major infrastructure

The Gisborne and Wairoa districts have a number of key pieces of infrastructure required to facilitate development. With both SH2 and SH35 subject to disruption due to weather events and challenging terrain, the port and airport provide crucial links to the rest of the country.

5.3.1 State highway network

SH2 provides the only major road connection to the south, while SH2 and SH35 connect Gisborne to the Bay of Plenty.

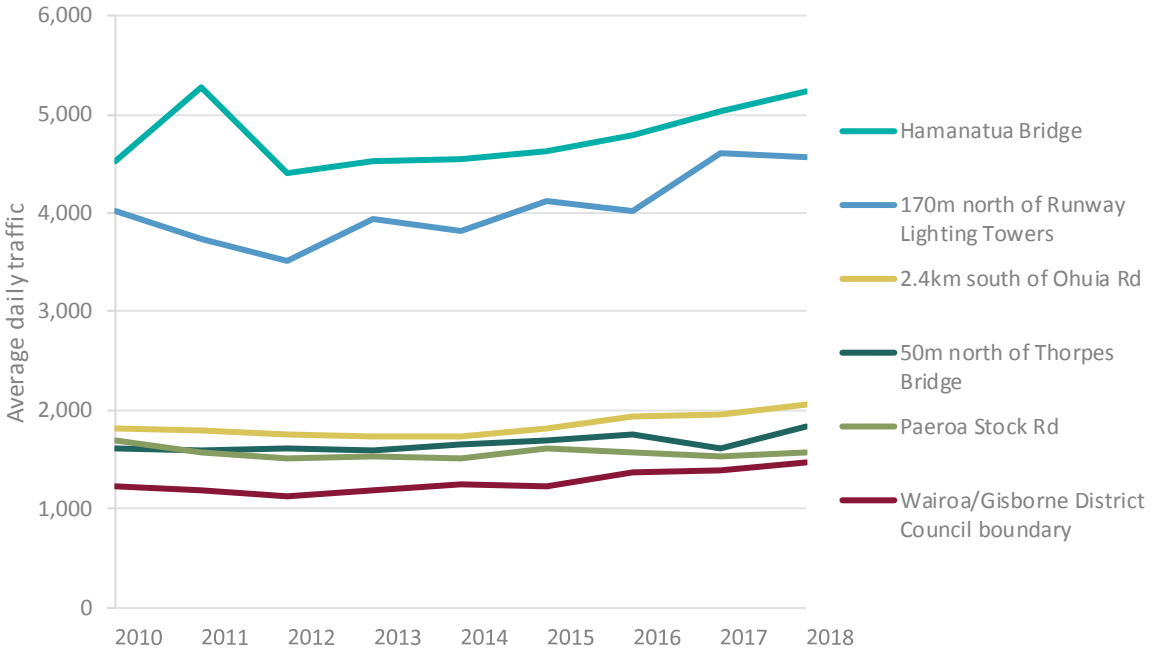
Traffic volumes

Selected traffic volume monitoring sites are chosen to reflect the traffic situation in urban and rural areas.

Figure 5.3 Location of traffic monitoring sites

As shown in Figure 5.4 traffic volumes have been increasing across all monitoring sites from just north of Gisborne down into Hawke's Bay. The monitoring site "South of Harris Street" is omitted as the volumes of traffic in this downtown Gisborne location are much higher than at the other locations analysed.

Figure 5.4 Average daily total traffic, selected sites

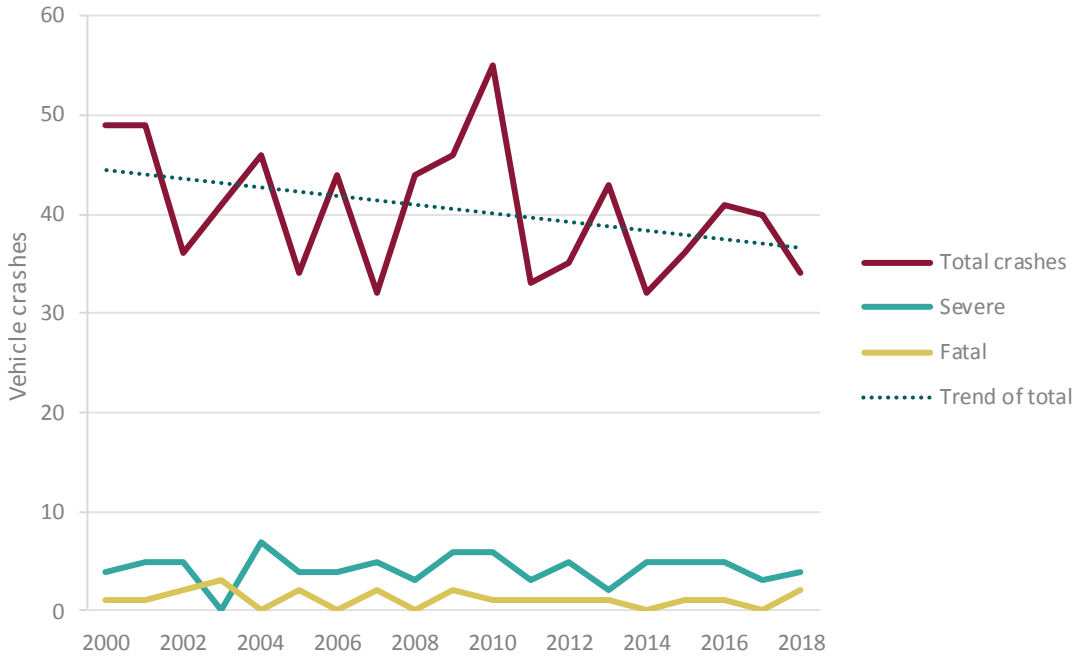


The traffic monitoring site with the highest daily average heavy vehicles "South of Harris St" is in central Gisborne, on SH35 near the port. This site will capture most of the heavy vehicles coming from north of Gisborne, but those approaching from the southern areas will not go through the monitoring site, indicating that the actual numbers of heavy vehicles in downtown Gisborne will be higher. Heavy vehicles coming from north of Gisborne have actually decreased since 2010. This could be due partially to changes to vehicle mass and volume rules that came into force in 2010 that allowed larger heavier vehicles on national roads.

Vehicle crashes

SH2 between Gisborne and Wairoa has significant numbers of vehicle crashes every year. Although the total number of crashes is declining, the number of fatal and serious crashes remains fairly constant. The decline in total crashes result from a fall in the number of non-injury crashes.

Figure 5.5 Vehicle crashes on State Highway Two between Wairoa and Gisborne



New Zealand Transport Agency (NZTA)

NZTA is the Crown entity tasked with managing funding of the land transport system, in particular the state highway system, and the regulatory requirements for transport on land. NZTA issues guidelines for, and monitors the development of, regional public transport plans.

With the annual road toll increasing in recent years there is a renewed focus on transport safety. NZTA already investigates and reviews accidents and incidents involving transport on land. The current position statement on deaths and serious injuries states that it is unacceptable for anyone to be killed or seriously injured while travelling or working on the land transport system[6].

Investment in Gisborne from the 2015-18 National Land Transport Programme (NLTP) was planned to be $120 million and was focused primarily on developing and maintaining a resilient transport network. NZTA has identified lifelines in the region for the local population and to enable the movement of freight.[7]

NZTA has also identified affordability issues faced by GDC in maintaining a large and dispersed road network that is heavily used by freight.

5.3.2 Eastland Port

Located in Gisborne, Eastland Port is New Zealand's second largest log exporter, exporting up to three million tonnes of wood per year. Despite its proficiency in exporting logs, Eastland Port currently has a limited ability and capacity to handle containerised freight. This means goods that cannot be loaded at the port must be transported by road, to either Tauranga or Napier. 20,000 tons of non-containerised kiwifruit and squash is currently exported via the port on reefer ships.

Eastland Port is owned by Eastland Group.

[6] NZ Transport Agency (2019) New Zealand Transport Agency Amended Statement Of Intent 2018–2022
[7] NZ Transport Agency (2015). 2015–18 National Land Transport Programme Gisborne.

5.3.3 Gisborne Airport

Gisborne Airport is located 4.2km from the city centre of Gisborne and is one of the few airports in the world that has a rail line crossing the main runway. The airport has a single terminal with four tarmac gates. It has a sealed and night-capable runway at 1,310 metres in length, as well as three grass runways suitable for light aircraft. In the year to March 2019 the airport had 29,674 take-offs and landings, and over 191,600 passenger movements (up 12 percent on the year before).

GDC owns the airport and the Eastland Group manage the airport and lease the assets until 2048.

Eastland Group is currently building a new airport terminal to accommodate increasing passenger numbers. The overall concept for the terminal was developed in collaboration with Ngai Tāwhiri, who hold mana whenua over the area. The project is being funded by Eastland Group ($2 million), Trust Tairāwhiti ($5 million), and the Provincial Growth Fund ($5.5 million). The new terminal will be completed mid-2020.

5.3.4 Napier Port

Napier Port is a port located in Hawke's Bay and is New Zealand's fourth largest port by container volume. Napier Port is positioned on New Zealand's main shipping route with core national rail and road network connectivity.

Napier Port provides a range of port and logistics services, with its core revenue streams arising from container services, bulk cargo and cruises. In the 2018 financial year Napier Port managed the arrival and departure of over 680 ships, carrying over five million tonnes of cargo and over 100,000 cruise passengers. Napier Port is interested in the opportunity to handle additional freight from Gisborne and Wairoa.

5.3.5 UltraFast Broadband

Gisborne and Wairoa districts have some of the poorest rates of internet connection in the country. UltraFast Broadband (UFB) is limited to Gisborne and Wairoa and a few pockets outside of these main centres. This has had an impact on the local communities who do not have access to reliable internet and mobile connections to support business and educational opportunities. Businesses in the region are trying to do more but are restricted by the limited availability of new technologies.

Given the geographic isolation of the region, fast and reliable mobile and internet connections are necessary for local businesses. Without connectivity local producers and businesses are unable to connect with customers, access knowledge and share innovations and culture with the rest of the world.

In addition to the economic benefits of improved connectivity local communities will benefit from greater access to education and information that will improve the wellbeing of local communities.

Figure 5.6 UltraFast Broadband access in Gisborne to Wairoa

Source: UFB NZ

5.4 Freight

Gisborne produces export goods, wood in the form of logs and processed timber products, horticultural products such as fruit and vegetables, and other primary products from fishing and sheep and beef farming. Since the rail line ceased operation in 2012 the only export routes from the region are by road or sea.

Eastland Port exports up to three million tonnes of raw logs, which is close to the capacity of the port in its current configuration. 20,000 tons of kiwifruit and squash are exported on reefer ships. Eastland Group believes that the proposed rebuilt port will be able to accommodate over 4.5 million tons of logs and all of the region's foreseeable requirements for export containers.

Road freight is the only other option for moving goods out of the region as air freight is prohibitively expensive for all but very high value goods.

The 2015-18 National Land Transport Programme (NLTP) included funding for provision of additional High Productivity Motor Vehicle (HPMV) routes from Gisborne to the Hawke's Bay, with a focus on key journeys between forest harvesting areas and Eastland Port. This was an important programme of works, enabling permitted trucks to weigh up to 62 tonnes and allowing more freight to be carried on fewer trucks. The HPMV work programme included bridge strengthening, such as replacing the Mata Bridge deck. The HPMV work programme was intended to improve safety by reducing the effects of freight movements on the urban environment.

5.5 Tourism

5.5.1 Gisborne and Wairoa as destinations

Tai Rāwhiti is the first to see the sun in the summer and the first to see the stars in winter. High sunshine hours and amazing beaches means Tai Rāwhiti offers some of New Zealand's best breaks for surfers, paddle boarders and swimmers.

Gisborne is also a developing wine hotspot. Gisborne is home to some of New Zealand's most awarded Chardonnays and has a growing reputation for varietals such as Gewurztraminer. The wine is supported by world class restaurants and cellar doors.

Further south, Wairoa is the gateway to the northern Hawke's Bay. Wairoa provides proximity to fishing, hiking, surfing, horse treks and more. Highlights of activities in and around Wairoa include Lake Waikaremoana, waterfalls, the largest tract of native rainforest in the North Island, Morere Hot Springs and the Mahia Peninsula, where Rocket Lab launches attract those with an interest in space travel.

The Ministry of Business, Innovation and Employment (MBIE) Monthly Regional Tourism Estimates (MRTEs) provide an estimate of regional monthly expenditure on tourism from both international and domestic consumers. The most recent estimate results (June 2019) for Tai Rāwhiti show that:

- Visitors spent $165 million in the Tai Rāwhiti region (excluding Ōpōtiki) to year end June 2019, up six percent on the previous year, and just over double the national average growth rate of three percent
- Domestic visitor spend currently makes up over 80 percent of all tourism spending at $132 million
- The Tai Rāwhiti visitor economy represents less than one percent of the total New Zealand visitor economy.[8]

5.5.2 Tourism offerings using the rail line

Gisborne City Vintage Rail (GCVR) was running scheduled and chartered return excursions as far as Māhia, prior to the damage to the line.

There are two tourism operators who currently have licensed access to the existing rail line and associated corridor. GCVR has a licence to occupy with KiwiRail for the line between Gisborne and Muriwai, and Railbike Adventures Limited (RAL) has a lease agreement on the line between Matawhero and Wairoa.

Due to safety regulations, RAL and GCVR cannot operate on the same section of line on the same day. Both parties signed a Joint Operability Agreement that outlines a code of conduct. The implications of this agreement for GCVR were that they would not be able to confirm new bookings less than 30 days out from the departure date without agreement from RAL.

Gisborne City Vintage Rail (GCVR)

An incorporated society with charitable status, GCVR currently operates the steam engine WA165 and up to four vintage carriages. GCVR has 20 regular volunteers and 47 financial members. GCVR is looking to run an operation that would see it able to pay staff and move away from volunteers.

[8] Ministry of Business, Innovation and Employment (2019). June 2019 Monthly Regional Tourism Estimates.

Trust Tairāwhiti invests in GCVR through grants to ensure that it remains open as a visitor attraction for the city. This is particularly important for cruise ship customers. If the rail was not offered then cruise ships may not be as interested in stopping at Gisborne.

In 2018 GCVR took 3340 people on 39 trips. The steam engine, WA165, has a capacity to pull a maximum of four carriages carrying 164 passengers.

All excursions travel as far as Muriwai, where there is a loop for the engine to reposition for the return journey. The rail journey takes 40 minutes each way. At Muriwai there is a platform and a flat grassed area for passengers to disembark overlooking pasture. Prior to the line closing in 2012 GCVR regularly operated trains further south to the scenic location of Beach Loop.

Rail Adventures Limited (RAL)

RAL operates The Gisborne Railbike Adventure. RAL is a private business that has a lease agreement for the section of line from Matawhero to Wairoa. RAL currently has a 20 year lease with KiwiRail (which began in February 2018) and one right of renewal of 10 years, which would bring the total possible lease term to 30 years. The lease states that, if at any time during the term of the deed KiwiRail decides that it requires the land for any purpose, KiwiRail shall be entitled to terminate the deed by serving 12 months' notice.

The railbike is a side by side tandem cycle that travels along the rails. RAL launched their railbike experience on 26 December 2018 and anecdotal evidence indicates they have received 3000 customers to date.

The current trip is offered to Beach Loop. The trip is 32km long and is estimated to take three hours on the bike.

6 Tūāpae Tai Rāwhiti (on the horizon for Tai Rāwhiti)

Tai Rāwhiti First! is the vision for the future of the region. The vision speaks of a region of firsts; locally, nationally and globally.

- Tai Rāwhiti Tangata - First to see the light.
- Tai Rāwhiti Taonga - First choice for people and lifestyle.
- Tai Rāwhiti Wawata - First choice for enterprise and innovation.
- First place for the environment, culture and heritage.[9]

The vision for Gisborne is a place where people want to be and are proud to live. A place that is home to productive and innovative businesses and where agriculture and natural resource strengths are leveraged into value-added job rich opportunities.

Gisborne also sees its future as a place where the environment is maintained and is an integral part of peoples lifestyles. Gisborne aspires to continue to be a place rich in history that celebrates and keeps alive its language, culture and traditions.

The vision for Wairoa for the next 10 years is around improving the environment, sustainability, pride and community involvement. Wairoa will continue to focus on growing the population, transforming the district, and delivering a world-class service. The challenges facing Wairoa are its rural isolation, population and demographic profile, and ageing infrastructure.

Through a long term plan Wairoa is seeking to overcome these challenges. Economic development remains a key priority for the district while maintaining current levels of core services and infrastructure to provide a foundation for strong and resilient communities.[10]

This section highlights some of the opportunities and challenges that Gisborne and Wairoa currently face or are likely to face in the future.

6.1 Summary

- Gisborne and Wairoa face the prospect of an aging population as younger people leave the region to take up opportunities elsewhere. Low and medium population projections both show a declining population. Changing business practices could slow this decline but this is reliant on Gisborne and Wairoa residents having access to new technologies to compete with other locations.
- Growth of the Gisborne and Wairoa economies is likely to be driven by the forestry, apiculture, tourism, agriculture and horticulture sectors.
- The region is limited by its transport options. Eastland Port is reaching capacity and expansion is not guaranteed. Meanwhile, the roads require ongoing investment to ensure that they are able to cope with the demands of an increase in heavier and larger trucks as well as a growth in residents and visitors.

[9] Gisborne District Council (2018). Our Future Plan. 2018–2028 Long Term Plan
[10] Wairoa District Council (2018). 2018-2028 Long Term Plan.

- The region currently produces primary products but they are processed outside of Gisborne and Wairoa. The region is missing out on the additional benefits that come from delivering value added activities by processing locally.
- Like most of New Zealand, Gisborne and Wairoa face the risks posed by climate change. Climate change could have serious impacts for farming, horticulture and agriculture. Changes to the environment means that some crops might no longer be economic, and a warmer climate could favour the spread of invasive plants and insects attracted by warmer temperatures.
- There may be increased risk to coastal roads and infrastructure from coastal erosion and inundation, increased storminess and sea-level rise.
- There are three options for the future of the rail line; maintain the status quo (do nothing), closure, or reinstatement.

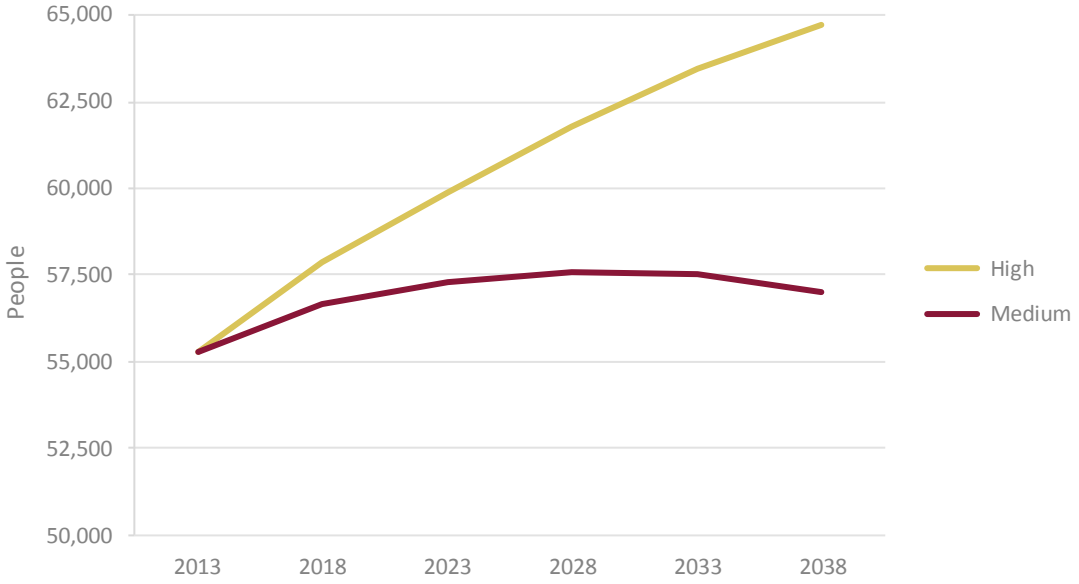
6.2 The people

Looking as far into the future as data will allow, 2038, the medium and high population projections from Statistics New Zealand are summarised below. Based on the actual trend of population changes between 2013 and 2018, it appears that these are good estimates of a lower and upper bound of population increase. Consequently, we do not present Statistics New Zealand's low population projection for the area.

The medium projection shows a slightly increasing population which will taper off and begin to decrease after 2033. While the high projection shows an increasing population over all years.

It is likely that the medium projection is conservative given technologies and business practises that are slowly being adopted. These will allow people to live in places like Gisborne and Wairoa, but continue to work in roles that previously were limited to main urban centres.

Figure 6.1 Population projections for combined Gisborne and Wairoa districts

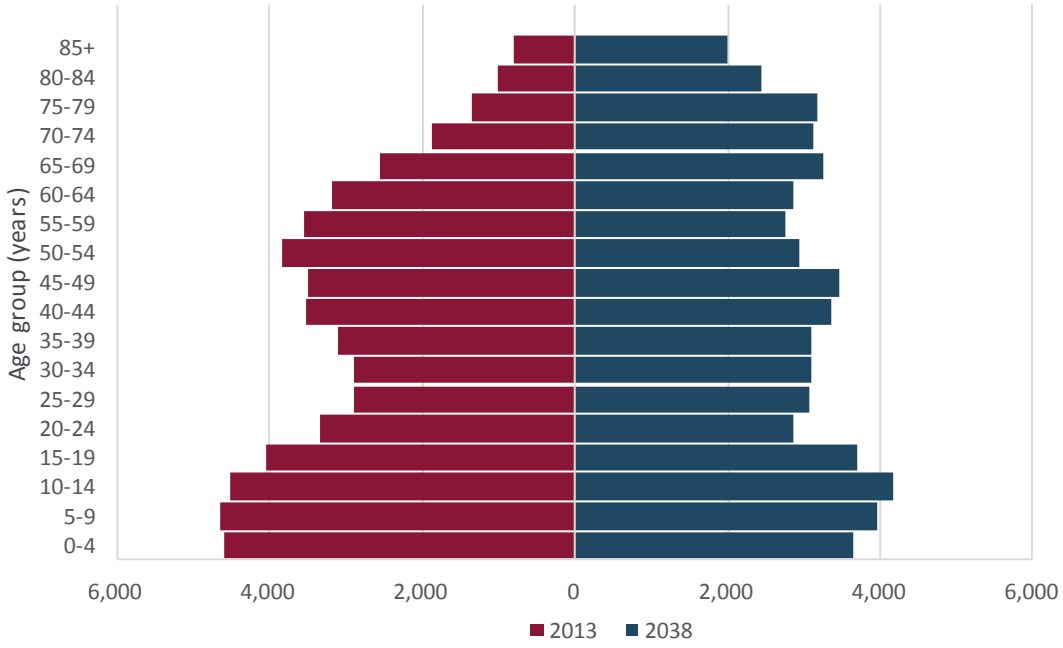


Source: Statistics New Zealand

Additionally, Gisborne and Wairoa have desirable weather and natural attractions that make it likely to be a popular destination for retirees, including those from overseas.

Population projections broken down by age group provide additional information. Figure 6.2 sets out the population pyramid of the medium projection with the 2013 population on the left hand side and 2038 on the right hand side. This shows a dramatic "flattening out" of the population across the age groups. This is an alarming projection because this sort of flattened shape is associated with an ever increasing fiscal burden due to an older population and decreasing tax base due to a declining working age population. This projection is conservative but a good lower bound estimate.

Figure 6.2 Population pyramid of the medium projection

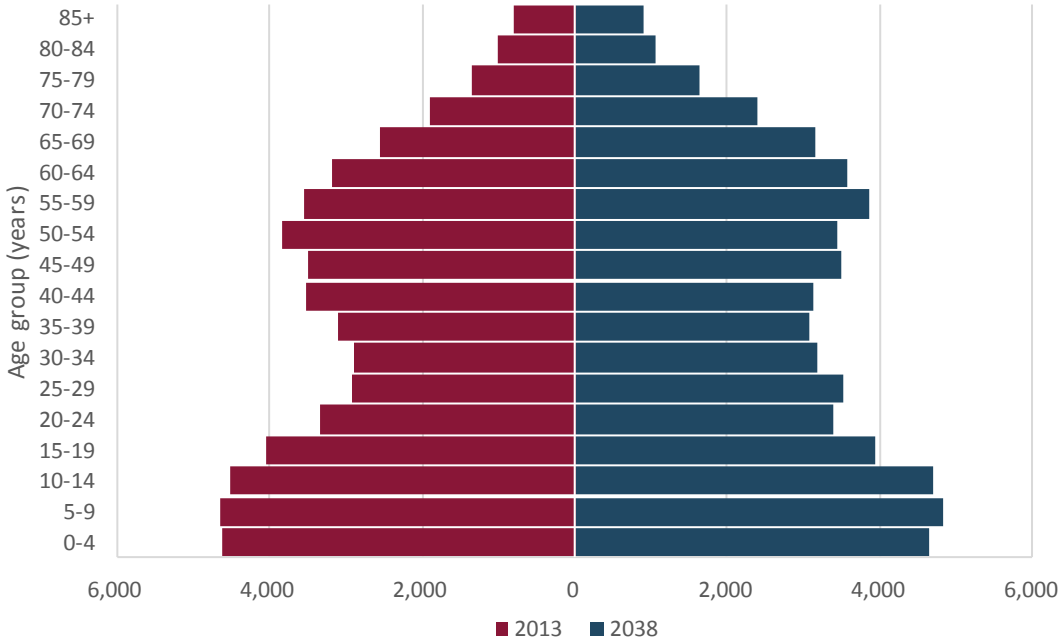


Source: Statistics New Zealand

The high projection tells a more positive story of the population increasing uniformly over the age structure. This implies that the current population age pyramid will look the same in 2038. As the retiree populations of Gisborne and Wairoa are likely to increase, it is likely that the older age group will be larger than projected.

The high projection seems to include an assumption that many of the large number of under 20 year olds (as of 2013) will leave the area by 2038. The changing face of work in the 21st century and the cultural drivers of this age group may well change this picture somewhat.

Figure 6.3 Population pyramid of the high projection



Source: Statistics New Zealand

6.3 Sectors driving the economy

Agriculture has historically been the most important industry in Gisborne and Wairoa. However, the primary sector has diversified over the years and now forestry, viticulture, horticulture and industries such as food processing are becoming increasingly important. Additionally, Gisborne and Wairoa are looking to grow tourism.

East Coast based enterprises have shown innovation and excellence in a variety of areas including cheese, wine, meat, surfboard production, cashmere fibre, honey and farming.

6.3.1 Forestry

The forestry industry is one of the largest contributors to the Tai Rāwhiti economy and this is expected to continue to be the case in the near future. In 2020 the volume of logs harvested is expected to have doubled from 1.6 million tonnes in 2017 to 3.2 million.[11] This will put pressure on local infrastructure, in particular the roads and Eastland Port. The increase in logs being harvested and an increasing average age of truck drivers is going to increase demand for experienced truck drivers. As a result, additional training for more drivers will be required.

The Tairāwhiti Economic Action Plan identifies that logs have low margins and have made tapping into potential in primary production as one of the two key actions in the plan alongside tourism.

Raw logs earn approximately $100/m^3 but cost $80/m^3 to harvest and transport. Only four percent of logs are currently processed locally. The increasing harvest is forecast to provide enough inputs to support three or four wood processing mills.

[11] University of Waikato Institute for Business Research. (Unknown date) Economic Impact Assessment of the Forestry Industry in the Tairāwhiti-Gisborne Region

Processing is beginning to return to the region. Far East Sawmills recently reopened the old Prime Sawmill south-west of Gisborne and alongside the rail line. Far East Sawmills already employs up to 60 staff to produce about 60,000 cubic metres of timber a year with plans to double production.[12] It is believed that at full capacity the sawmill could employ up to 100 people.[13]

There is a belief from the forestry sector that it is realistic that 25 percent of logs could be processed locally and that this processing would cause local returns to be three to four times greater than the returns that are generated by exporting the raw logs. Estimates for the Eastland Wood Council indicate that this increase in the volume processed locally could add $120 million per annum to local GDP.

Commodities or processing

The region currently produces primary products, but many are currently processed outside of Gisborne and Wairoa. There are opportunities to grow local processing activities. However, these opportunities are currently constrained by limited transport options out of the region. The region is missing out on the additional benefits that come from delivering more value added activities by processing locally.

The region is at a cross roads, it needs to determine how it wants its future to look. It could continue to do as they have always done and grow things or it can further diversify and increase processing in the region.

By diversifying from a focus on growing to one of processing, the region can mitigate the impact and challenges that a changing natural environment presents to regions that have a high reliance on the environment to support the local economy and local people.

6.3.2 Agriculture and horticulture

Gisborne's highly fertile alluvial soil enables the region's strong agricultural economy. The region is a major pastoral farming and horticultural centre. There are attractive opportunities to capitalise on these sectors through additional investment. The region's strong supply of livestock and horticultural commodities, combined with the availability of cost competitive commercial and industrial land, makes it an attractive location for food and beverage manufacturing and processing.

Plantings of high value produce are on the increase with new plantings of citrus, grapes, pip fruit, kiwifruit, persimmons and macadamia nuts.

Every hectare planted in a higher value product creates one on-orchard job and three additional jobs in pack houses, transport/logistics and support services. It is estimated that up to 1,000 jobs may be created over the next three years, as the current plantings begin producing.

Activate Tairāwhiti (AT)[14] is working with industry stakeholders to develop effective employment practices, and is supporting improved land management practices that will further encourage higher value production.

Horticulture is another area where the Gisborne and Wairoa districts could look to increase processing. Horticulture producers in the area are currently sending their goods down to the Hawke's Bay or up to the Bay of Plenty for packing. With the volumes of horticultural produce coming out of Gisborne and Wairoa likely to increase, the need to pack locally will also increase. Local producers believe that there is a movement towards requiring full containers to be packed at facilities in Gisborne and Wairoa. Biosecurity is becoming more of a concern and local producers

[12] Activate Tairāwhiti (2018). New era for Prime site as sawmill reopens.
[13] Eastland Community Trust (2018). New operator, new jobs, new era for Prime Sawmill.
[14] Activate Tairāwhiti has recently (November) been formally brought into the newly named Trust Tairāwhiti.

have reported shipments bound for Japan being turned around and sent back because bugs and insects have been found in containers. Packing full containers in Gisborne or Wairoa would reduce the need to repack containers at ports before loading onto ships for exports as is currently the case. Fully loading in Gisborne would give producers more control to ensure that the goods they export by container are free from insects and other contaminants.

To develop this opportunity will require additional investment in pack houses and cool stores in or around Gisborne and/or Wairoa. There has been considerable recent investment in processing of horticultural products. There has also been a very significant increase in investment in more intensive horticulture, with approximately 150 hectares each year planted in additional kiwifruit and apples.

Additional cool store and pack house capacity in Gisborne also enables a lengthening of the seasonal periods over which product is sent out of Gisborne.

Land use change

Land in Gisborne is facing a shift away from pastoral farming towards higher value horticulture. Pastoral farming on the flats uses 350,000 hectares and returned an average of $1,000 per hectare in 2019. By comparison, in 2019 apples and pears are returning $128,000 per hectare and Kiwifruit is returning $135,000 per hectare. Other products that are providing returns above $50,000 per hectare are stonefruit ($88,000/ha), avocados ($80,000/ha) and persimmons ($54,000/ha).

This transition to higher value horticulture products will see production of these goods increase. Forecasts indicate that hectares of apples will increase from 450 hectares in 2020 to 900 hectares in 2025. This will see the expected number of 40ft export containers increase from 720 to 1,800 in 2025.

The outlook is similar for apples which expect to increase from 450 hectares in 2020 to 700 hectares in 2025. This will lead to an increase in 20ft containers from 357 in 2020 to over 1,180 in 2025.

6.3.3 Apiculture

Apiculture is an area of potential for the region. In Tai Rāwhiti alone there is 28,000 hectares of Māori land (28 percent of total land). There is potential for some of this land to become highly productive. Manuka honey has been identified as one commodity that has extensive potential for the region due to the naturally high honey yields, particularly along the East Coast. Ngāti Porou Mīere has made significant progress to position the region as the pre-eminent manuka honey producing region.

AT believes that investment in hives, extraction, processing and manufacturing could generate a turnover of $60 million per year. Capturing more of the value chain within the region will result in higher returns and new jobs.

Apiculture requires scale to be successful. A collective of landowners is required to boost the industry and grow it to the scale where it can maintain a level of infrastructure and experience within the region.

The Provincial Growth Fund has committed $40,000 for the development of a Tairāwhiti Manuka Honey strategy.

6.3.4 Tourism

Potential exists to increase tourism in the region. The Hawke's Bay region is a popular visitor destination known for its great food, world-class wine, a favourable climate, warm community and

a lush landscape with history and beauty. The Hawke's Bay region is accessed by road and plane, and increasingly by ship. The number of cruise ship visits to Napier Port has more than doubled since the mid-2000s and the expansion of the port to support cruise ships will attract even more people to the region. When people think of Hawke's Bay and tourism they focus around Napier and Hastings. However, opportunities exist to grow tourism up to Wairoa and through to Gisborne. Wairoa is the gateway to Lake Waikaremoana, Māhia Peninsula and the wilderness of Te Urewera.

The visitor economies of Hawke's Bay and Gisborne are growing, albeit slowly. Tourism brings in visitors from across the country and the world. Tourism is highly seasonal with the majority visiting during the summer months. Combined, the Gisborne and Hawke's Bay regions account for just 1.6 percent of the international tourist spend in New Zealand.[15]

AT has set itself the goal to "improve our ability to attract talent and capital investment and to capture a proportional share off the value of the New Zealand tourism sector leading to increased revenue" of at least $6.5 million year on year and 40 new jobs. The action plan highlights the unique cultural identity and easy access to fantastic outdoor recreational activities as highlights of the local tourism offer.

The action plan identifies the opportunity for Tai Rāwhiti to carve out a niche for itself in New Zealand tourism. Māori tourism is viewed as an untapped potential for the region. AT believes that traditional Māori values, history, assets and capabilities align well with tourism.

A key focus for the region is on growing Māori tourism products as a distinctive regional offering. Traditional forms of art such as whakairo, raranga and kapa haka have been maintained and have grown as a core part of the region.

The communities in and around the northern Hawke's Bay and Gisborne have the potential to offer world class tourism experiences underpinned by Māori culture, traditions and language.

The repatriation of Te Hau ki Tūranga to Rongowhakaata has the potential to be a cornerstone for the Gisborne cultural tourism offer and could provide another tourism drawcard.

Gisborne City Vintage Rail (GCVR)

GCVR has a licence to occupy agreement with KiwiRail for rail based tourism activities along 18km of track between Gisborne and Muriwai. The agreement signed in September 2015 is for an initial term of five years with one right of renewal for a further five years. There is a six month termination clause.

GCVR has aspirations of taking the train as far as Beach Loop to provide a longer duration experience. The next two locations beyond Muriwai where there is engine repositioning capability to extend the duration of the experience are Maraetaha and Beach Loop.

Rail Adventures Limited (RAL)

RAL intends to operate seven days a week, 365 days a year, with up to 12 full time staff. Future two day experiences between Gisborne and Wairoa are being considered. RAL proposes creating a flying fox to take bikes across the washout at Beach Loop. This will allow them to operate beyond Beach Loop in its current state, before any major repairs are actioned on the rail line.

[15] Deloitte Access Economics (2019) Shaping our slice of heaven. Regions of opportunity.

RAL previously investigated the possibility of sharing the Wairoa to Napier rail corridor with KiwiRail. This application was denied by KiwiRail due to safety issues of adventure bikes and freight rail services operating along the same line, even if there were clear time separation between uses.

Research indicates that the economic impact of RAL in their first year of operation was a contribution to regional GDP of $760,000 and contributed five direct employees and an additional three full time equivalent jobs through the indirect and induced impact of RAL's operations.[16]

6.4 Infrastructure challenges

The growth of the East Coast economies faces challenges from a lack of infrastructure and a changing environment. The isolation of the region makes having strong resilient infrastructure essential, while primary industries will face challenges from the effects of climate change and an environment that is facing increasing pressures from producers.

To enable the Gisborne and Wairoa districts to reach their potential, infrastructure and technology challenges need to be overcome. The opportunity to improve the connections between Wairoa and Napier/Hastings and Gisborne is identified in the Matariki Regional Economic Development Strategy for Hawke's Bay.[17] The route is identified as important due to the range of products that are being transported in and out of Wairoa and the northern part of Hastings district.

In particular, the strategy identifies forestry as a major growth area that requires improved infrastructure. Forestry forecasts show that tonnages from the Wairoa area alone would result in an almost fourfold increase to the current tonnage. Increased tonnage south to Napier Port or north to Eastland Port will further stretch and expose the existing route vulnerabilities.

In addition to transport infrastructure needs Gisborne and Wairoa also face challenges accessing reliable and fast mobile and broadband. There are concerns developing about a warming climate and the need to access water to support growth in primary industries.

Broadband and mobile connections

Digital connectivity is a key enabler for regional economic development. The communities in the Gisborne and Wairoa districts, like many rural communities, are lagging behind in terms of access to internet and digital services. This situation on status looks set to continue.

An increasing level of business is done over the internet and has become an essential part of doing business generally. Gisborne and Wairoa districts risk falling behind if connectivity does not keep up with developments elsewhere in New Zealand.

While nothing specific has been planned for Gisborne and Wairoa, the Government has announced it will invest $21 million to ensure that marae and communities in the regions have access to modern and reliable digital services. Funding will connect marae to the internet and establish Regional Digital Hubs (RDHs) in towns, enabling local people and businesses access to digital services.

The RDHs will offer free WiFi connectivity, co-working spaces and guidance on use of the internet for business purposes. Communities in Gisborne and Wairoa districts should be candidates to benefit from this fund.

[16] BERL (2019). Estimates of economic impact of RAL (unpublished)
[17] Hawke's Bay Regional Council (2016). Matariki Hawke's Bay Regional Economic Development Strategy and Action Plan 2016

6.4.1 Road transport

Given the isolation of Gisborne, Wairoa and the communities between and up the East Coast, having a resilient transport network is crucial. For a number of people and businesses the road network is the only way for them and their goods to leave the region. Reliable and efficient transport connections remain the greatest challenge for the region. Unstable ground and weather events result in frequent slips causing road closures and high maintenance costs.

For goods to leave the region they either need to go south to Napier down SH2 or up to Tauranga using SH35 through the Wiaoeka George, or up and around the coast if SH35 is closed.

In the NLTP NZTA has forecast to spend $232 million in Tai Rāwhiti between 2018 and 2021. Of this $155 million is forecast for maintenance and operations, $68 million for regional network improvements and $7 million for public transport, walking and cycling.

Highlights of the NLTP investment in Tai Rāwhiti includes bridge strengthening to upgrade parts of the network to carry 50Max vehicles and upgrading SH2 between Napier and Gisborne to allow for full access for High Productivity Motor Vehicles (HMPV). This would allow larger and heavier trucks to use the road. NZTA believes that this will allow a greater movement of goods with fewer trucks that will improve the productivity of freight movement by 10 to 20 percent. Additional passing opportunities will be added between Gisborne to Wairoa.

As well as investment through the NLTP the PGF is also investing $137 million into the Tairāwhiti Roading Package. The purpose of the PGF investment is to accelerate regional development, productivity and employment in the region.

In September 2018 the Prime Minister announced a funding package for both local and state highway roads. Projects identified for funding over a three to five year period include investment in local roads and state highways. Local road improvements will include improving the level of service, through an enhanced maintenance programme including bridge repairs, placement of metal on unsealed roads, and drainage and culvert repairs along heavy freight routes.

State highway investment will include HPMV upgrades for SH2 between Napier and Gisborne and from Gisborne to Ōpōtiki and increasing passing opportunities package on SH2 and SH35 between Napier, Gisborne and Ōpōtiki. A resilience package of traditional and environmental works on SH35 and a realignment at Waikare Gorge on SH2 between Napier and Wairoa is planned.

6.4.2 Eastland Port

Eastland Port is growing on the back of the forestry industry. Eastland Port is nearing capacity for logs and believes it needs to expand to be able to accommodate additional volumes of logs and the region's containerised produce and manufactured timber products.

The port believes that it needs development in order to meet projected demand. At the moment the port and the entire East Coast forestry industry relies on the single log berth at the port. To handle the increasing numbers of logs, and to grow movements of other goods through the port, Eastland Port is seeking to expand and develop its existing second berth. Eastland Port believes that the best solution for the port and the region is to be able to berth two 200m long ships in the port at the same time.

The extra berth would allow for two ships to be loaded at once and will provide capacity to handle the expected increase in logs. Eastland Port wants to future-proof the port for coastal shipping and new international exports.

If the expansion of the port does not go ahead, it would limit the volume of logs that can be exported from the port. If the port cannot handle all the logs that need to be exported from the region it will force forestry production to slow or alternative transport solutions for the logs will need to be found.

To enable the port to expand to meet the increasing demands of local producers they will first need to gain resource consents to:

- Rebuild some of wharf six
- Reshape the slipway to make it smaller so the port can manoeuvre two 200m long vessels.
- Extend wharf eight by 80 metres
- Reclaim land required for a new loading area, and repair the breakwater
- Dredge to enable these larger vessels to move around each other.

The first resource consent to rebuild 60-year-old wharves six and seven and reshape the slipway was granted by three independent commissioners.

The development and expansion of the port is not certain. An iwi collective that involves Ngāti Oneone, Te Aitanga a Mahaki, Ngāti Porou Seafoods Group and Te Rūnanga o Tūranganui a Kiwa has lodged an appeal with the Environment Court over the granting of the resource consent.

The appeal is about protecting the integrity of Te Toka a Taiau, the submerged historic rock where the first meeting between Europeans and Māori took place, and the second reason was to ensure the survival of a rock lobster nursery under the wharves.

6.4.3 Napier Port

Napier Port is interested in the opportunity to handle additional freight from Gisborne and Wairoa. Napier Port has just been through an initial public offering (IPO) to enable expansion of the port. The IPO will allow Napier Port to develop wharf six. The wharf development is a long-term solution which will enable Napier Port to capitalise on future growth opportunities.

The benefits of the new wharf will include reduced congestion, the ability to handle larger vessels, growth in cruise ship demand, extending the port's capacity to handle container vessels and ability to provide 24-hour berthing of larger container vessels.[18]

The expansion at Napier Port provides an improved option for Gisborne and Wairoa exporters looking to move their goods by sea freight.

6.5 Climate change

As a coastal region with a high reliance on the environment for economic and recreational activities Gisborne and Wairoa face challenges from climate change and water infrastructure. The Ministry of Primary Industries warns that global warming is also forecast to put pressure on the region's water resources. Across the flats of Tūranganui-a-kiwa water resources are fully allocated with no capacity for irrigation available.

[18] Napier Port (2019). Product Disclosure Statement. Initial Public Offering Of Ordinary Shares In Napier Port Holdings Limited

6.5.1 Climate change

Gisborne and Wairoa are not immune to the threat of climate change. The Ministry for the Environment has forecast that, compared to 1995, temperatures are likely to be 0.7˚C to 1.1˚C warmer by 2040 and 0.7˚C to 3.1˚C warmer by 2090. As well as the temperature increases the region will also face challenges from changes to rainfall and sea level rises.

By 2090, Gisborne and the Hawke's Bay are projected to have up to 51 extra days per year where maximum temperatures exceed 25˚C. Frosts are likely to become rare in Gisborne, and the number of frosts could decrease by up to 15 days per year in the Hawke's Bay by 2090.[19]

Winter rainfall is projected to decrease by two to 13 percent while spring rainfall is projected to decrease by three to 15 percent in Gisborne. However, summer and autumn rainfall are both expected to increase. Reduced rainfall will increase pressure on water resources. More frequent droughts are likely to lead to water shortages and increased demand for irrigation.

The effects of climate change look to be disadvantageous for farming, horticulture and agriculture. Changes to the environment means that some crops might no longer be economic, and a warmer climate will favour the spread of invasive plants and insects attracted by warmer temperatures. The expected increase in intense rainfall events will mean much valuable precipitation is lost as runoff, and soil erosion will be exacerbated.

Gisborne's climate is likely to become increasingly marginal for sheep. Heat stress on animals is likely to increase and animal diseases are likely to increase in prevalence.[20]

Warmer temperatures could be advantageous for arable crops, however moisture availability may be critical, temperatures may get too high, and increased cloud cover would delay crop maturity. Perennial crops with chilling requirements, such as kiwifruit, will ultimately become uneconomic in the region.

6.5.2 Sea level rise

New Zealand tide records show an average rise in relative mean sea level of 1.7 mm per year over the twentieth century. Globally, the rate of rise has increased, and further rise is expected in the future.

There may be increased risk to coastal roads and infrastructure from coastal erosion and inundation, more recurrent extreme weather events and sea-level rise. Sea-level rise is likely to result in more coastal floods. Rising sea levels could begin to erode the coast and could cause an increase in flooding on the flats.

6.5.3 Water infrastructure

The flats of Tūranganui-a-kiwa are some of New Zealand's most productive horticulture lands. Currently there is 3000 hectares of irrigated land on the flats that contributes $160 million to regional GDP and employs over 1100 people, around 10 percent of the local workforce.[21] The Activate Tairāwhiti Action Plan identifies that there is an additional 3,000 hectares that could be intensified with irrigation to double the contribution horticulture makes to the local economy. However, natural water levels have been deemed insufficient to support existing production let alone any

[19] Ministry for the Environment (2018). Climate change projections for the Gisborne and Hawke's Bay region.
[20] Savage, L (2006). An overview of Climate Change and possible consequences for Gisborne District.
[21] Activate Tairāwhiti (2017). The Tairāwhiti Economic Action Plan. Te Huarahi Hei Whai Oranga.

intensification. Across the flats, water resources are fully allocated with no capacity for irrigation available.[22]

One of the difficulties with intensifying horticulture production is the decline of the Makauri aquifer. The Makauri aquifer is the largest underneath the flats. The aquifer is an area of gravel and sand under the flats that is saturated with water. It recharges naturally by water percolating from the river and higher aquifers through the gravel, a slow process that happens over several decades.

Since the horticultural boom in the 1980s, irrigation of crops has remained at a constant level leading to the decline of the aquifer. The aquifer has very little natural recharge from rainwater and river water because of changes to the land such as flood control, vegetation clearance, rainfall and climate changes.

To get the aquifer back to equilibrium would require water use to drop by 30 percent. Without the irrigation provided by the aquifer the potential for horticulture growth is limited, with implications for the local economy.

GDC believes that over the longer timeframe, sources of irrigation water will generally become more variable and harder to predict with climate change. The projection for levels in the Waipaoa River (the most significant source of irrigation water) is a small decline but there is much uncertainty. Recharge of groundwater sources from land is also expected to reduce with climate change. Meanwhile, hot days over 25 degrees and drought are expected to increase, increasing crop water requirements.[23]

GDC does not own any irrigation assets but is currently leading the Makauri aquifer Managed Aquifer Recharge (MAR) trial.

The MAR project aims to inject up to 360,000m^3 per year of water from the Waipaoa River into the Makarui aquifer to ensure its ongoing use for irrigation. A successful pilot trial has proven the feasibility of MAR in the Makauri aquifer. Work is now underway on stage two, which will fully investigate all potential risks.

The trial will generate hydrological data needed to determine the number and location of injection bores in a wider MAR scheme. The scheme will also look at the volume of injection water needed to sustain and then grow irrigation on the flats.

There is a clear distinction between the trial in the Makarui aquifer and any future development of a MAR scheme. Once the trial is completed, GDC's role in any MAR scheme will be regulatory. The information gained during the trial will be available to any party seeking to develop a MAR scheme.

MAR Limited has been set up by horticultural interests, including Mangatu Blocks, Kaiaponi Farms, Leaderbrand and some smaller firms. This group is planning how they can use the findings of the MAR trial for future development.

Other options to mitigate the water issues during late summer are also being explored. These include use of water from the Waipaoa River during peak seasonal flow periods to fill storage dams in the spring and ensure late summer water supply. This an affordable option already in use by some in the area.

[22] Gisborne District Council (2018). Gisborne District Council Infrastructure Strategy 2018
[23] Gisborne District Council (2018). Gisborne District Council Infrastructure Strategy 2018

7 Options for the rail line

The previous section covered the challenges that are facing Gisborne and Wairoa. A critical element to overcoming these challenges is a decision on the future of the rail line. There are three possible options for the future of the rail corridor between Gisborne and Wairoa:

- Status quo
- Closure of the line
- Reinstatement.

Each option will have a number of unique impacts. As well as assessing the wellbeing impacts of each option this report also considers the impact each of the options has on three negative externalities associated with transport; emissions, traffic volumes and crashes, and road maintenance. Table 7.1 summarises each option and sets out the expected impact that each option will have on these externalities.

Table 7.1 Options for the rail line and externalities

Option	About the option	Emissions	Traffic volumes and crashes	Road Maintenance
Status Quo	The line from Napier to Gisborne was effectively mothballed north of Wairoa in early 2012. The line remains mothballed to this day. The washouts and lack of maintenance have left the line incapable of handling any trains between Gisborne and Wairoa. GCVR and RAL are the only users of the line and only use portions of the line that are still accessible.	Emissions are unlikely to see much change. A growing population and increasing economic activity leading to more people and freight moving along SH2 in both directions may see an increase in emissions associated with the increased traffic volumes. Some of the expected emission growth will be offset by improved efficiency of new vehicles and an uptake of electric vehicles. Potential technological advances in the future could also see a decline in the level of emissions per vehicle.	There would be minimal immediate change in traffic volumes or crashes. The rail line is not a viable alternative to moving freight or people. Freight and passengers will continue to be limited in the options for moving between Gisborne and Wairoa. Transport for people will continue to be limited to air or road while freight will be restricted to road or sea. Traffic volumes are expected to increase with population growth and increasing production. Increasing traffic will put pressure on the road network and could lead to an increase in the number of crashes if accidents occur at the same rate as now.	Road maintenance costs as a proportion of total traffic volumes should see minimal change outside of expected growth. A higher volume of traffic will increase the total road maintenance cost. State highway maintenance is funded from petrol excise and Road User Charges (RUC) collected by government and distributed according to the Government Policy Statement on Land Transport (GPS) and the NLTP. Gisborne and Wairoa districts will have to compete with other districts for funding in the NLTP.
Closure	Closure of the rail line would see the track assets removed between Gisborne and Wairoa. Both existing users of the line (GCVR and RAL) would be forced to close or adapt significantly if the line was removed. The closure of the line would also leave Gisborne and Wairoa with limited alternative options for transport. For Wairoa the only way north would be by road, while for Gisborne road, air and sea would remain as options. For exporters this would limit transport options to sea or road.	There would be a minimal change in emissions from the closure of the rail line. As the rail line is currently not operational, it is not a viable alternative to moving freight. This results in all freight transported by road or sea. Closure of the line will not change this.	There would be a minimal change in traffic volumes or crashes. As the rail line is currently not operational it is not a viable alternative to road transport. All freight is already transported by road. Closure of the line will not change this. A growing population, more visitors and an increasing volume of freight moving in and out of the region may result in a long term increase in traffic volumes using the roads between Gisborne and Wairoa. This increase in traffic could lead to an increase in the number of accidents.	Road maintenance costs as a proportion of total traffic volumes should see limited change outside of the expected growth in freight and passenger vehicles. Increasing volumes of traffic will increase the total maintenance cost.
Re-instatement	Reinstatement would enable services to use the line again. Rail would provide an alternative option for moving goods south. This would reduce the reliance on the road and Eastland Port. Reinstatement could also include passenger services that could take vehicles off the road.	Moving freight by rail instead of road would lead to a reduction in emissions. Trains have significantly fewer emissions per tonne kilometre than road. With production set to increase, if freight can be moved by rail it would help to limit the potential growth in emissions that are likely to result from increased transport of local products.	If rail is reinstated it would provide an alternative to using the road. If rail can move freight or passengers that would have previously used the road it would reduce the number of vehicles on the road. If traffic accidents are related to traffic volumes and road conditions on SH2 then the number of crashes on SH2 should decrease if rail is reinstated.	If freight could be moved by rail, this would reduce the wear and damage trucks cause to SH2. Heavy vehicles cause higher levels of damage than light vehicles such as cars or light diesel vehicles. Less wear and damage to the road would reduce the road maintenance costs for SH2. Passenger services could reduce the number of vehicles using the road reducing the maintenance cost.

The following sections of the report will consider the potential for freight and tourism to use the rail corridor and illustrate the impact that each option will have on the externalities above.

8 Freight for the line

To determine the current and potential freight demand, producers and freight forwarders in the Gisborne and Wairoa districts were canvassed to determine what is being produced and how it is transported. The extent to which this freight could move to a rail service was then analysed. Some producers were able to provide information on projected production.

This section summarises a larger report on the future of freight on the line. A comprehensive freight report is attached as Appendix 14.7 and provides more detail on the products and associated freight quantities that would be attracted to make use of a reinstated rail service, both now and in the future.

8.1 Summary

- Gisborne produces significant quantities of export goods, wood in the form of logs and processed timber products, horticultural products such as fruit and vegetables, and other primary products from fishing, and sheep and beef farming.
- Most forestry products go out through Eastland Port in the form of raw logs. Currently this amounts to three million tonnes, close to the capacity of the port. A small amount of food products is exported on refrigerated (reefer) ships.
- Road freight is the only other option for moving goods out of the region as air freight is prohibitively expensive for all but very high value goods.
- Rail offers some particular advantages over road transport in the areas of biosecurity, service interruption, capacity, and safety. Some of these advantages relate to containerisation which is increasingly in demand due to convenience and to the ability to meet higher biosecurity requirements.
- The status quo option for the rail line would act as a constraint on the development of economic activity in the area. Projected volume expansion and diversification of products could be slowed or stalled should transport connections remain limited.
- The option of rail line closure would, by further entrenching and confirming its isolated status, reinforce and sharpen the constraints on the development of the Tai Rāwhiti economy, community, and people. Opportunities to establish higher value processing operations and the delivery of quality services would likely be compromised.
- Reinstatement of the rail line would enable the transport of significant volumes of freight through this alternative connection. Of note, this is not a “transport of logs” story. Rather this is a “containerised freight” story. Log wagons can be used to fill-up the capacity of each train, but the largest proportion of freight, in both quantity and revenue terms, is accounted for by non-log containerised freight.

Confidence in service

Exporters must be able to have confidence in the frequency and reliability of any freight option. Horticultural goods are sensitive to delays and interruptions. Spoilage or damage to product may result from an infrequent or delayed service.

This extends to the start date of a new service. Potential customers will require notice of several months and a high degree of confidence in the start date in order to decide to use the service.

- Revenue estimates are based on using typical container door-to-door transport rates that are inclusive of rail and truck to rail costs. It is expected that special and/or long-term contract rates for major users would be negotiated by the rail operator, dependent on market conditions and the operator's business operating model.
- Indicative estimates for freight revenue range from $8.6 million to $9.3 million in 2020, rising to $10.4 million to $14.1 million in 2025, as listed in Table 8.1. Consequently, over a 10-year horizon these revenues total between $98.4 million and $126.4 million.
- The lower revenue estimates assume the equivalent of 24 wagons per train running a five day per week schedule. These also assume non-log freight is, conservatively, 20 percent lower than estimated volumes.
- The higher revenue estimates assumes seven trains per week in 2025.
- Production volume estimates across a range of commodities are detailed in the freight report (Appendix 14.7) and summarised in this section.
- These revenue estimates are conservative and are for southbound freight only. That is, they do not include any estimate of potential revenues from northbound freight into Gisborne.
- The operation of trains from Gisborne to Napier would also provide additional opportunities to add logs and other wagons at Wairoa, thus enhancing rail services for Wairoa, as well as additional revenue to the operator.

Table 8.1 Revenue summary for freight scenarios

	2020		2025	
	Quantity number	Total $000s	Quantity number	Total $000s
Five trains per week				
Containers	4,315	7,812	5,732	10,512
Log wagons	1,925	1,502	508	396
Total	**6,240**	**9,314**	**6,240**	**10,908**
Five trains per week, 20 percent reduction in non-log volume				
Containers	3,626	6,545	5,246	9,597
Log wagons	2,614	2,039	994	776
Total	**6,240**	**8,584**	**6,240**	**10,373**
Seven trains per week in 2025				
Containers	4,315	7,812	6,946	12,671
Log wagons	1,925	1,502	1,790	1,396
Total	**6,240**	**9,314**	**8,736**	**14,067**

Note that in the seven trains per week in 2025 scenario there remain five trains per week in 2020. Hence, the quantity and revenue figures for 2020 in this scenario remain the same as for the original five trains per week scenario.

8.2 Current freight – the status quo option

The existing transport network available for freight consists of road freight on trucks and shipping from Eastland Port. Since the closure of the rail service in 2012, almost all non-log products transported out of the Gisborne region have been taken by road, mostly to ports in Napier or Tauranga, or to the South Island via Wellington.

Shipping out of Gisborne is constrained by the exposure of the port to high swell, and a small dock area. Currently the port deals almost exclusively in logs, with a small number of refrigerated ships.

The region's arterial roading network status has recently been upgraded to enable High Productivity Motor Vehicles (HPMV), which are trucks up to 60 tonnes. This enables large containers to travel by road. However, the highways from Gisborne are narrow and winding due to the geography of the region and it is likely that vehicles of this size will accelerate the wear and tear on the roads. Safety is also an issue given significant community concern about the number and size of heavy vehicles currently using the highway.

A recent inland port development at Kawerau could encourage freight forwarders to truck from Gisborne to Kawerau to transfer to rail for the last 93km to Tauranga. Whether this option is more attractive than truck options from Gisborne direct to Tauranga remains to be assessed.

Air freight is not an option for large volumes of freight as the airport cannot accommodate aircraft of the required size. The cost of airfreight precludes its use for all but small and high value products such as live crayfish.

This situation constrains the ability of the Tai Rāwhiti economy to develop and increase the prosperity of the area. The ability of the area to respond to the challenges faced will be curtailed, as the attractiveness of changing land use towards higher-value produce are limited if transport options are restricted.

8.2.1 Outbound

There has long been a perception that the primary form of freight suitable for rail transportation out of the Tai Rāwhiti area is logs. Since 2012 there have been a number of changes in the nature, quantity and type of freight suitable for transport by rail from the area. The key developments have been:

- Significant growth of seasonally intensive horticulture, particularly new varieties of apples and new crops such as persimmons and gold kiwifruit
- Reopening of the former Prime Sawmill as Far East Sawmill, now producing appearance grade kiln dried timber.

A significant number of the crops produced are under forward contracts which assists with planning of logistic requirements ahead of the next season. Ensuring that the supply chain arrangements are in place ahead of the next season is an important factor.

While logs remain a significant export for the area, other primary products needing to be transported from Gisborne include processed timber, fruit and vegetables, meat, wool and wine.

8.2.2 Inbound

Aggregate and fertiliser are the main inbound products. Inbound freight to Gisborne is much smaller than outbound. A primary inbound item is therefore empty containers. Inbound freight is predominantly carried by road.

8.3 Current freight – closure option

Since the rail line was mothballed in 2012 there have been no freight services by rail. Therefore, if the line was to be closed permanently, the circumstances around freight in and out of Gisborne would not change from the status quo situation described in sub-section 8.2. Looking ahead, however, permanent closure of the rail line would embed the perception of the region as isolated and difficult to access. This perception would discourage new enterprises from establishing in (or moving to) the region. This would further limit opportunities to develop and diversify the area's economic activities. In particular, efforts to establish higher value processing operations and the delivery of quality services in the region would likely be compromised.

8.4 Current freight – reinstatement option

Should the rail line be reinstated, the available quantities of freight that could shift from road to a rail freight service are outlined below. The estimates are based on known and projected production volumes across a range of commodities gathered during discussions with industry stakeholders. Where necessary conservative assumptions are adopted to allow for the degree of uncertainty inherent in all projections.

Consequently, three scenarios of rail freight are generated (all assuming the equivalent of 24 containers or log wagons per train):

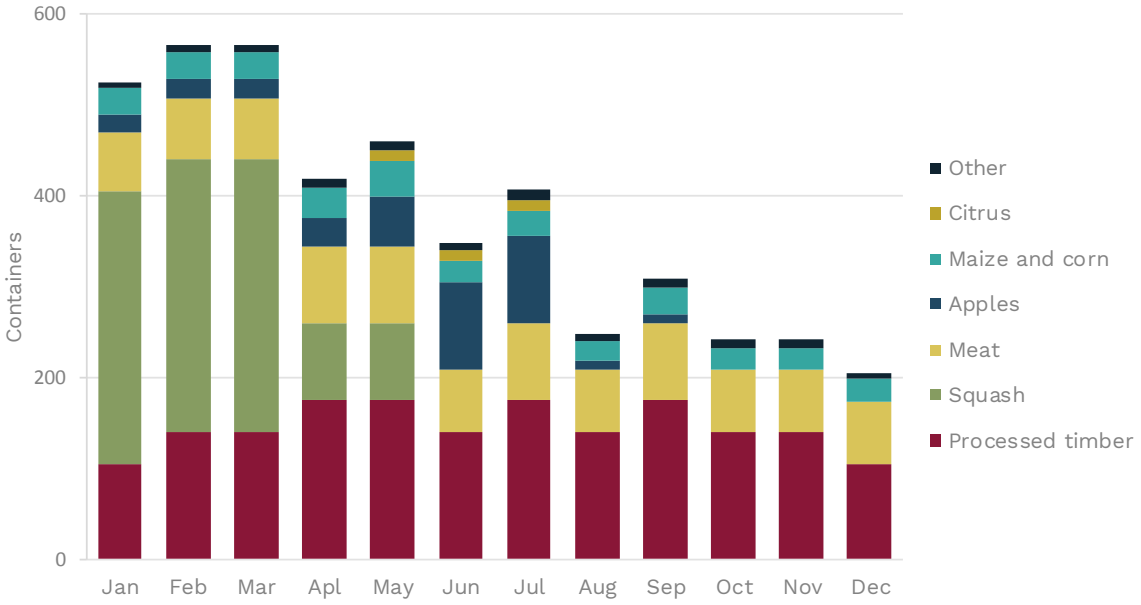
1. Assumes five trains per week, with log wagons taking up spare capacity to fill the train
2. Assumes five trains per week, but where non-log volumes are reduced to 80 percent of stated intentions, with log wagons taking up the spare capacity to fill the train
3. Assumes seven trains per week in 2025, with log wagons taking up spare capacity to fill the train.

The second scenario is an additionally conservative outcome where product volumes are 20 percent lower than originally projected. In contrast, the third scenario is motivated by the observation that with the projected non-log volumes in the first scenario, there is little spare capacity in 2025 for logs if there were only five trains per week.

8.4.1 Outbound freight – 2020

The seasonality of potential demand for freight services is clear from Figure 8.1. The seasonality is dominated by squash over January to March. However, the emergence of apples has lengthened the period where there remains significant demand for freight services. Using this pattern of demand from non-log commodities, log demand is added to generate scenarios for potential rail freight services and consequent revenue projections.

Figure 8.1 Projected seasonal demand for non-log southbound freight by product



Logs

The Tai Rāwhiti area has significant forestry generating a need to export logs overseas and for processing elsewhere. Currently up to three million tonnes are sent out from Eastland Port, though the port has plans for expansion this leaves a considerable amount of logs which are currently being trucked out of the districts.

Spare capacity on trains heading south could be made up with log wagons. This amounts to almost 58,500 tonnes of logs.[24]

Logs
Between 347,000 and 825,000 tonnes in excess of Eastland Port's three million capacity available each year from 2020 to 2034.

Processed timber

There are two timber processors in Gisborne one of which operates from the former Prime Sawmill. Both plants are located alongside the rail line at Matawhero, with a rail siding already into one site and one close to the other site.

The first company currently produces approximately 20,000 tonnes/cubic meters of Structural Laminated Veneer Lumber each year. This production is equivalent to about one 40ft container a day, five days a week, representing 250 containers and 5,250 tonnes per annum.

Processed timber
Average 35 x 40ft per week
1,750 per year
36,750 tonnes
Expected to increase

The second company produces kiln dried appearance grade timber for a range of export markets, particularly Northern Europe, Asia, North America and Australia. The finished product is mostly sent by truck to Tauranga but the company would prefer to load containers for transport on rail to

[24] Given assumptions of 24 container-equivalent trains, with five trains per week.

Napier Port. The mill produces the equivalent of six containers a day, five days a week, on a single shift. This level of production equates to about 1,500 containers a year or 31,500 tonnes.

Squash

Gisborne is one of the major squash growing areas in New Zealand. The harvest season generally runs from Christmas to early/mid-April. Squash is a heavy bulk volume product ideal for transporting by rail in fully loaded 40ft containers. During the 2011/12 season, fully loaded trains of squash went out of Gisborne to Napier Port. Over the recent years the total amount grown has varied but is generally between 20,000 and 40,000 tonnes per season.

Squash
Average 75 x 40ft per week (Jan to Apr)
1,070 per year
30,000 tonnes
Expected consistent

Up to 65 percent of Gisborne squash has been exported in wooden bins on reefer ships from Eastland Port. Containers are used on the rod network but, until recently, could only be part filled due to weight restrictions. These then require final packing and sealing at certified transhipment deports in Napier and Tauranga. This involves the management of significant biosecurity risks. Packing and sealing full containers in Gisborne offers significant advantages.

Over the course of the squash export season the total number of containers is expected to be around 1,070, based on current production. This number could increase to 1,250 over the next five years.

Meat

The major meat processor in Gisborne is located adjacent to the rail line at Matawhero. Its requirement is for a service to transport containers to Napier, totalling 14 to 20 20ft containers a week all year round. To minimise the need for additional freezer storage on site it is important that meat is transported soon after processing, five days a week.

Meat
Average 17 x 20ft per week
880 per year
17,600 tonnes
Expected consistent

Three to four containers a week are chilled meat, with the rest frozen. The meat is packed in cartons with each container holding about 20 tonnes.

There is a seasonal production period operating a double shift for the six months, from October to March, to handle the peak season.

Apples

Apples for export markets are a major new crop for the Gisborne area. The growing season is considered to be better than Hawke's Bay and the harvest can start two weeks ahead of other areas. The area planted in apples/pears has grown from just on 250ha in 2016/17 to 400ha in 2018/19, with further large increases in the planned areas to be planted over the next few years. While a small crop can be harvested two years after planting heavier crops are available from year three.

Apples
Average 35 x 40ft per week
(Peak season Apr to Jul)
357 per year
7,140 tonnes
Expected to increase

The apple crop is transported out of Gisborne starting in February, but most of the crop is moved over the May to July period. As the total crop increases it is expected that additional cool store capacity will be built resulting in apples being held in the area until as late as September.

An average of seven to eight 40ft containers a day will be required during the peak season April to July with a lower number February to March.

Maize and corn

In the 2019 season 44,400 tonnes of maize and maize seed was produced plus 20,000 tonnes of processed sweetcorn and 8,000 tonnes of fresh sweetcorn. This crop provides both seasonal fresh product freight (December to April) and all year round freight of processed product. The export product is mostly transported by truck in 20ft containers through to Napier and Tauranga for markets in the Pacific and South East Asia. Over 400 containers a year are currently sent out by road. Typically 12 to 14 containers a week during the December to April season and seven to nine containers a week for the rest of the year.

Maize and corn
Average 6.5 x 20ft per week
340 per year
6,800 tonnes
Expected consistent

There is a steady all year round quantity of processed corn currently being transported by road that could be sent to Napier by rail.

Citrus

The total quantity of the citrus crops in the Gisborne area is 25,000 tonnes. Current indications are that a total of about 35 20ft containers of lemons could be sent during the May to July season. This equates to about three containers a week over this period, representing a total quantity of about 700 tonnes which is less than three percent of total citrus production in the region.

Citrus
Average 3 x 20ft per week (May to Jul)
35 per year
700 tonnes
Expected consistent

If the rail service, with associated freight forwarding, is established, then there is potential to secure further citrus products for transport by rail. As there are a number of smaller growers and pack houses, there will be a requirement for a party to coordinate consolidation of crops to maximise rail's efficiencies over road transport. During the four to five month season around 100 tonnes a day is transported out of Gisborne.

Processed foods and other products

In addition to the main horticultural crops described above there are smaller crops grown in Gisborne including persimmons, pears for export. Other products also include manufactured products for export. While quantities are not large they represent an opportunity to containerise and transport by rail rather than by road.

Other products
Average 2 x 20ft per week
100 per year
2,000 tonnes
Expected to increase

If a regular and reliable rail service was available then the growers and pack houses of these crops could be included as prospective freight customers. Processors of horticultural products based in Gisborne produce at least two containers a week,

Containerisation and biosecurity

International export is now predominantly containerised. The efficiencies of loading and unloading on ships, ability to move to and from port, and benefits of reliability and security are high. For exporters in Gisborne this means they must send their goods via the ports of either Napier or Tauranga.

Due to weight restriction on road transport, this typically means containers are trucked only partially full. SH2 has received designation for trucks up to 60 tonnes which would allow for full container loads, but the road remains unsuited to this type of vehicle. Rail transport would alleviate this issue.

The security of containerisation extends beyond protection from interference or theft of product to biosecurity. Tai Rāwhiti has the Burnt Pine Longhorn Beetle (pine beetle), which could potentially travel inadvertently in exported goods. Containerisation offers the ability to pack export products in a protected facility. If it can be fully loaded in Tai Rāwhiti the container can then be sealed and certified as free of biosecurity risks. This is important to export markets where this beetle is not present, including Japan and North America. China also has strict biosecurity requirements.

For goods requiring refrigeration containerisation offers significant benefits. Temperature data loggers are used to increasingly ensure product has been consistently kept under appropriate conditions.

year round. Both 20ft and 40ft containers are used. All export product is shelf stable and is not time sensitive, other than to meet shipping timetables.

8.4.2 Inbound

Aggregate for sealing chip, coastal and river protection

The demand for aggregate in the Gisborne area has increased significantly in recent years due to the formation of forestry roads, and a significantly higher level of road maintenance due to the heavy road usage by trucks. There is a lack of local sources of key grades. There is also a requirement for rock boulders for coastal and river protection works.

Aggregate must be imported because Tai Rāwhiti does not contain any high strength Torlesse Terrane “greywacke” sandstone. There are some “greywacke-like” sandstone sources that have slightly lower strength and durability. The net result is likely to be the use of a mix of locally and Hawke’s Bay sourced aggregate to supply Gisborne and north to East Cape.

If reinstated, there will be an ongoing demand for ballast to maintain the rail line.

Aggregate for concrete production and cement

Aggregate for concrete comprises a mix of different sizes. Much is brought in from Hawke’s Bay sources every week with the annual amount over 12,000 tonnes.

Around 250 tonnes of aggregate a week is trucked in from Nuhaka, which used to be transported by rail. The short distance from Nuhaka to Gisborne and Wairoa makes rail less likely as an option today, but supplies from the Hawke’s Bay provides a possible option for rail transport.

Over 75 tonnes a week, year round, of bulk cement is brought in by truck from Napier Port with daily deliveries to maintain supplies to keep up with production and avoid holding silos dropping to low levels. This could potentially move to rail.

Fertiliser

Over 30,000 tonnes a year of fertiliser is transported into Gisborne from Napier and Waipukurau. It is transported by road throughout the year, typically at a rate of around 120 tonnes every week day, plus additional amounts during seasonal peak periods. Fertiliser is also trucked in from Tauranga.

Local companies have experience using top loading containers, with scope for the use of these containers to carry product to Wairoa and Gisborne. These 20ft containers require suitable unloading equipment. The containers can also provide short term storage before being off-loaded for delivery by trucks for on farm use.

Fertiliser was a significant part of the total inbound freight carried by rail leading up to the closure of the line in 2012, with most going to a depot at Matawhero. The rail siding that runs into the depot at Matawhero is still in place, but the rail infrastructure at the Napier plant has since been removed. KiwiRail has disposed of the fertiliser wagons used on the line. Today the fertiliser is carried by road transport as a back load to woodchip trucked south.

The initial projected amount of fertiliser available for rail transport is 6,000 tonnes. This is equivalent to about 300 20ft containers, spread through the year.

Other

At least one sizeable manufacturer has expressed the view that its input material, which now arrives in 40ft containers from Napier, could be transported by rail. It is also interested in using rail for export products, sent out mostly in 20ft containers on a regular basis through Napier Port.

The area's largest wine producer brings in 500 tonnes of inputs, and 250 tonnes of wine from Hawke's Bay each year.

8.4.3 Empty or back filled containers

With more freight travelling outbound, empty containers are important inbound freight. These can be transported more efficiently by rail than road.

A reliable supply of empty containers and log wagons

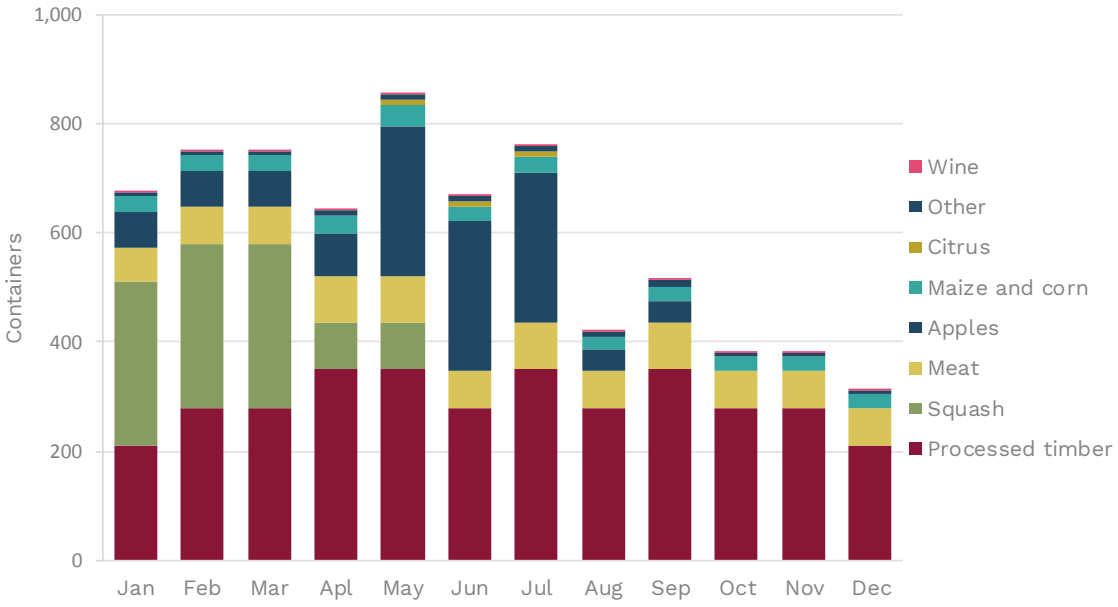
Meeting shipping schedules from Napier Port is a critical timing issue for most customers. Most producers need to dispatch their products as soon as possible after harvest or processing. There is limited storage infrastructure in the Gisborne area. Therefore, there must be a constant supply of clean empty containers and rail wagons. This includes containers for products such as squash that need to be kept temperature controlled enroute to the final destination. Similarly, log wagons must be available.

There is demand for an increased supply of export containers to be on hand in Gisborne for short notice use for export crops, especially during peak season periods. The transport supply chain must be responsive to the ebbs and flows associated with seasonal export crops.

8.5 Future freight – 2025

Projected volumes suggest potential changes for consequent demand for rail freight to 2025 arising from processed timber and apples. There are also projected to be relatively smaller increases in wine volumes. In addition, the potential for kiwifruit expansion is explored in a later section, but in line with a conservative approach it is not included in the freight demand or revenue projections.

Figure 8.2 Projected annual demand for southbound rail freight 2025



Logs

There is a view in Gisborne that the annual log harvest may rise to up to five million tonnes over the next few years as the 'wall of wood' reaches maturity. Currently available statistics do not support this view. The most current wood availability forecasts for the East Coast considered five harvest scenarios[25].

However, of the five scenarios the more likely are scenarios two and three. These are illustrated in Figure 8.3. Both project a smoothing of harvest volumes, particularly by the large forest owners, to produce regular cash flow and ensure ongoing work for harvest contractors[26].

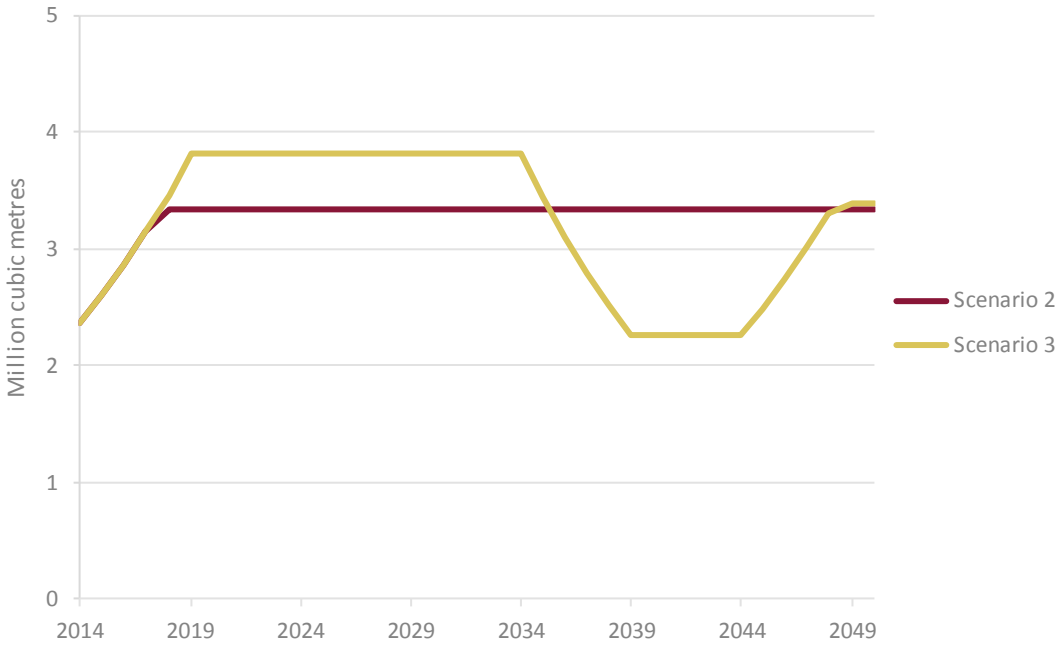
Scenario two (large-scale owners harvest at stated intentions, then at an overall non-declining yield and total wood availability is modelled at a non-declining yield over a 28 year rotation) projects recovered volumes of 3.3 million cubic metres per annum from 2020 until 2050.

Scenario three (large-scale owners harvest at stated intentions, then at an overall non-declining yield and total wood availability is modelled at a split non-declining yield over a 28 year rotation), projects a 3.8 million cubic metres from 2020 until 2036 with a reduction to 2.3 million from 2039 and then increasing to 3.4 million cubic metres from 2048.

[25] Ministry of Primary Industry (2015). Wood Availability Forecasts – East Coast 2014.

[26] For the purposes of the rail feasibility study non pinus radiata species (Douglas fir and others) have been ignored. Projected recoverable volumes were expressed as cubic metres and it is assumed that one cubic metre of recoverable pinus radiata equals one metric tonne in weight.

Figure 8.3 Two scenarios for future log harvests



Source: Ministry for Primary Industries (2015). *Wood Availability Forecasts –East Coast 2014*.

A significant fall in log prices may result in some forests to the north of Gisborne, accessed via SH35, becoming uneconomic to harvest which will affect the quantities being exported.

Eastland Port has a capacity of three million tonnes of logs per annum.

There is the possibility of a dedicated log service. A five trains per week dedicated log service would transport just over 187,000 cubic metres of logs per annum. It is clear that the addition of such capacity (should it be proposed) would impact only at the margins, if at all, on the demand for Eastland Port capacity to ship logs.

However, revenue calculations suggest that a dedicated log service is significantly less viable than the combined freight plus logs scenarios. Consequently, for 2025, it is assumed that other commodities have priority on capacity on trains heading south, with log wagons being used to fill any spare capacity.

Processed timber

Local wood processing produces over 80,000 cubic metres per annum at current production levels. Both local timber processors plan to double production within the next two years. Consequently, it is projected that rail freight demand for processed timber will increase from an annual 1,750 container loads in 2020 to 3,500 container loads in 2025.

Marshalling and sidings

Supporting infrastructure is required as part of reinstating the line. It had earlier been expected that log trains would be operating between Wairoa and Napier by October, but at the time of this report no logs have left Wairoa by train, because the proposed log marshalling area at Wairoa station has not been constructed.

It is important that all prospective freight providers see that the missing support elements such as yards and sidings are being reinstated, or constructed at the same time as the line itself is being reinstated.

Apples

Apple production is expected to increase over the coming years, which will increase the capacity needed to export this produce from Tai Rāwhiti. Planted hectares is expected to increase from 450 in 2020 to 700 in 2025. This lifts the expected annual harvest from 7,140 tonnes in 2020 to 23,660 tonnes in 2025. Consequently, the demand for rail freight for apples increases from 357 to 1,183 container loads in 2025.

Wine

Gisborne has a major wine producer exporting bulk wine that is then bottled in the purchasing country. The wine is exported in 24,000 litre plastic bladders packed in 20ft containers. Production in Gisborne is approximately five million litres, being about 5,000 tonnes per annum. The product is currently moved by road, either directly to export ports or between the company's facilities in Hawke's Bay and Marlborough.

Timeframes

Given the time it has taken to reinstate the Wairoa to Napier section of the line there is concern that there will be considerable delays if a decision is made to reinstate the Gisborne to Wairoa section of the line. Delays undermine confidence and defer the expected benefits, particularly with respect to reducing the number of trucks on the roads and wear and tear on the roads.

The need of freight forwarders and their customers is to have sufficient notice and confidence in the time the line will open so they can organise their logistics. With the peak season starting at the end of December each year, the line needs to be opened for initial trains at least two to three months ahead of this time for testing, and operating efficiently for customers ahead of the peak season.

There is a small amount of wine bottled in Gisborne, for both the domestic and export markets. Bottling including labelling is undertaken for a mix of vineyards and brands. Up to 20 20ft containers to be sent to Napier by rail each year.

Kiwifruit

Gisborne has seen significant growth in kiwifruit plantings in recent years, particularly the G3 Gold variety and the amount of kiwifruit to be transported out of Gisborne has been growing rapidly. The 2020 season will see four million export trays of kiwifruit from Gisborne, which is expected to grow to seven million trays by 2022, and 10 million trays by 2025. These numbers are based on current plantings and growing licenses issued. This number of trays equates to around 720 containers for 2020 and to 1,800 containers by 2025.

Currently most kiwifruit is transported by road to pack houses in the Bay of Plenty for packing into retail cartons and containers for shipping out of Tauranga. Much of the new kiwifruit planting in Gisborne is by Bay of Plenty growers who can harvest earlier than their local crop and achieve a higher utilisation of their pack houses and other infrastructure without having to replicate these facilities in Gisborne.

Some kiwifruit is shipped out of Eastland Port and this is expected to increase significantly, along with the associated use of cool store capacity at the port.

As the volume of the Gisborne kiwifruit grows, it is expected that additional large new pack house and cool storage facilities will be established in the Gisborne area. If grading, packing and storage are available in Gisborne then it is possible that kiwifruit produced in the Gisborne district can be sent in containers to either Tauranga or Napier for export. It is not unreasonable to project that

some or all of these containers could be sent to Napier by rail. Despite these considerations, there is a range of unknowns in terms of the development and expansion of the kiwifruit industry in Tai Rāwhiti. Consequently, to remain conservative, kiwifruit is excluded from freight volume and revenue projections.

8.6 Projected freight revenues

Converting the above projected freight volumes to revenue undoubtedly depends on the pricing strategies of the rail operator. Any operator, depending on market conditions and its own business model and objectives, is likely to adopt a range of pricing schedules across a range of customers. We assume the rail operator provides an integrated pick-up and delivery service for customers in conjunction with freight forwarding transport operators. Discounts and packages for long-term contracts are also likely to form part of an operator's pricing plans.

Our estimated revenue projections are generated, for indicative purposes, using average freight prices as follows.

- $1,700 per 20ft container
- $1,850 per 40ft container
- $780 per log wagon

Combining these rates with volumes stated earlier, the revenue projections are listed in Table 8.2.

Table 8.2 Projected rail freight volumes and revenues

		2020		2025	
	Unit cost $	Quantity number	Total $000s	Quantity number	Total $000s
Five trains per week					
40ft containers	1,850	3,177	5,877	5,115	9,463
20ft containers	1,700	1,138	1,935	617	1,049
Log wagons	780	1,925	1,502	508	396
Total		**6,240**	**9,314**	**6,240**	**10,908**
Five trains per week, 20 percent reduction in non-log volume					
40ft containers	1,850	2,542	4,702	4,530	8,381
20ft containers	1,700	1,084	1,843	715	1,216
Log wagons	780	2,614	2,039	994	776
Total		**6,240**	**8,584**	**6,240**	**10,373**
Seven trains per week in 2025					
40ft containers	1,850	3,177	5,877	5,753	10,643
20ft containers	1,700	1,138	1,935	1,193	2,028
Log wagons	780	1,925	1,502	1,790	1,396
Total		**6,240**	**9,314**	**8,736**	**14,067**

These suggest annual rail freight revenue in the range of $8.6 million to $9.3 million in 2020, rising to a range of $10.4 million to $14.1 million in 2025. Consequently, over a 10-year horizon these revenues total between $98.4 million and $126.4 million.

It is noteworthy that the scenarios are not heavily reliant on logs for freight volumes or for revenue. Indeed, it is non-log commodities that underpin the demand for rail freight and the consequent freight revenues.

It should also be noted that these projections are solely for southbound freight. Potential revenues from northbound freight would be additional to the figures above.

8.7 Other wellbeing impacts of reinstatement option

By moving freight to rail, it will remove a number of trucks from SH2. Moving freight to rail will impact on a number of areas. For the purpose of this study the focus is on the impact on traffic volumes, emissions, road maintenance and road accidents.

8.7.1 Traffic volume

If rail is reinstated it has the potential to move between 9,900 and 10,300 trucks off the road in 2020 (4,450 to 5,150 in each direction).

This would include 2,500 to 3,000 fully loaded 48 tonne trucks carrying freight south and returning empty (5,000 to 6,000 total movements) and 1,900 to 2,600 logging trucks also going south full and returning empty (3,800 to 5,200 total movements).

Assuming that traffic volumes in 2020 are similar to those in 2018, this would see the total volume of heavy vehicles fall by seven percent and the total volume of traffic would fall by just over one percent.

By 2025 a reinstated rail line could take 4,500 trucks off the road each way (9,000 total movements). This would be made up of 2,500 to 4,000 trucks carrying freight and 500 to 1,000 log trucks. There are fewer log trucks in 2025 because the growth of freight takes up a greater proportion of the 24 wagons the train can haul, meaning reduced log capacity on the train.

If freight volumes increase demand, seven trains per week may be necessary in 2025. If this were to occur 6,500 trucks would be taken off the road (13,000 total movements). This would include 4,700 trucks each way carrying freight and 1,800 carrying logs.

These trucks will be required if rail is not available.

8.7.2 Emissions

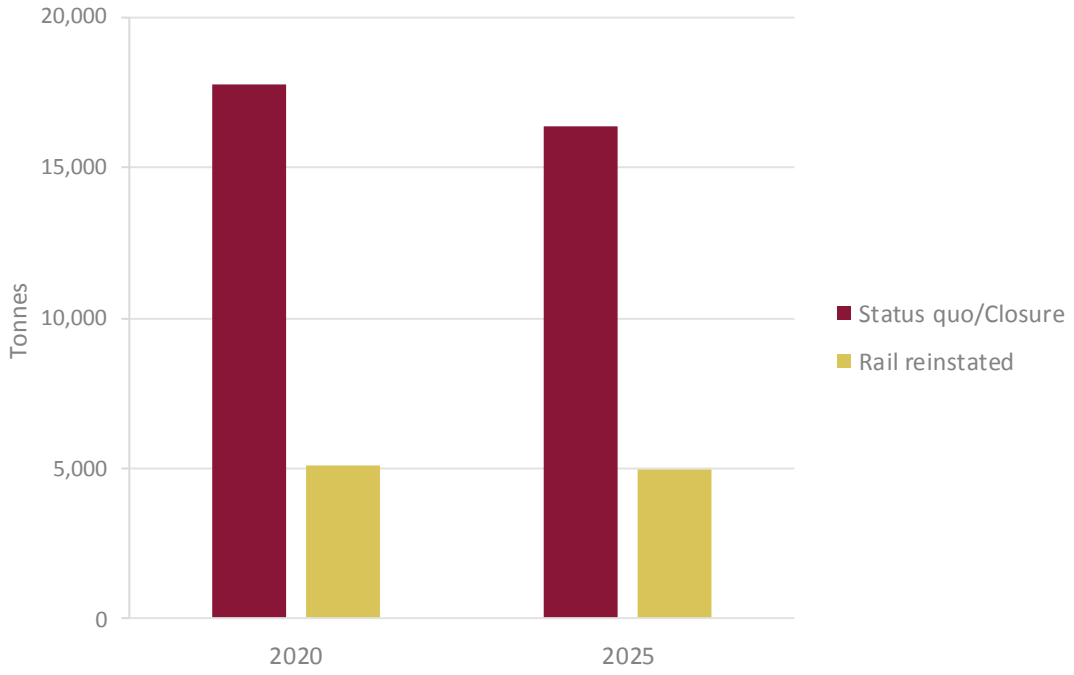
Moving freight from trucks onto rail will significantly reduce emissions of greenhouse gasses. In 2020 the estimated emissions from truck movements carrying freight that could otherwise be moved on rail is approximately 17,750 tonnes of greenhouse gas emissions[27]. This is compared to 5,100 tonnes of greenhouse gas emissions if the freight was moved by rail. This is a 70 percent reduction in the amount of emissions caused by moving freight between Gisborne and Napier.

Looking ahead to 2025 emissions will fall from an estimated 16,400 tonnes of greenhouse gas emissions from trucks to just 4,960 tonnes of emissions if the freight was moved by rail. Emissions

[27] CO_2 equivalents.

fall in 2025 for both truck and rail as a result of lighter freight (around 20 tonnes per container) replacing heavier logs (30 tonnes per wagon).

Figure 8.4 Gisborne-Napier-Gisborne greenhouse gas emissions, by transport type, tonnes



If demand is such that seven trains per week are required in 2025, using rail to move freight would save 13,800 tonnes of greenhouse gs emissions. Using trucks to move the freight and logs would generate 20,830 tonnes of emissions compared to 7,020 tonnes of emissions when moving the same freight and logs by rail.

At a carbon price of $25 per tonne, these emission reductions represent the equivalent of $290,000 to $345,000 in annual savings in carbon charges.

8.7.3 Road maintenance

The saving on road maintenance is estimated from the RUC rate that applies to the vehicle types that move freight by road. However, RUC is an imperfect measure as it allocated the costs equally across the national road network and does not account for the unique requirements to maintain each road individually. Therefore, it provides a best estimate only.

The RUC rate includes a proportion for common costs. Common costs (powered vehicle costs) are shared equally between all kilometres travelled on-road by all powered vehicles. These are costs that cannot be attributed to a specific class of vehicle and cover costs such as public transport subsidies and repairs for weather related damage. Using RUC to estimate the maintenance cost saved by taking trucks off the road includes the common costs that are required to maintain the road but cannot be attributed directly to a heavy vehicle. This may mean that maintenance savings are overstated slightly. However, this may be partially offset by the isolated nature of the road and the difficult terrain the road crosses. RUC rates assume that half the travel of the vehicle will be empty. This is consistent with the assumptions made in this report.

The road maintenance saving in 2020 with the reduction in truck movements between Gisborne and Napier would be between $1.2 million and $1.5 per annum. Looking to 2025 the total road

maintenance saving would continue to be between $1.2 million and $1.5 million per annum because the trains remain at the same frequency while carrying similar total volumes of freight and logs. The difference being, as freight grows logs move off rail and are replaced by containerised freight.

If seven trains per week were run in 2025 the total road maintenance saving would be between $1.7 million and $2 million.

8.7.4 Crashes and road safety

For the purposes of assessing the affect that removing trucks off the road it is assumed that the number of accidents on SH2 between Gisborne and Napier is related directly to the number of vehicles using the road.

Over the past five years there have been an average of 37 accidents per year on SH2 between Gisborne and Wairoa with approximately six of these involving a heavy vehicle. Between Wairoa and Napier there has been an average of 40 accidents per year with nine involving a heavy vehicle.

Assuming traffic volumes stay similar to the last five years moving from road to rail could see the number of heavy vehicles fall by seven percent on both the Gisborne to Wairoa section and the Wairoa to Napier sections of SH2. The number of accidents involving heavy vehicles will fall by approximately one accident every two and a half years between Gisborne and Wairoa and one accident every two years between Napier and Wairoa.

The number of serious and fatal accidents is expected to decrease by five percent per year based on current traffic volumes. This would be a reduction of one serious or fatal accident every 19 years on the Gisborne to Wairoa section and one every 18 years between Wairoa and Napier.

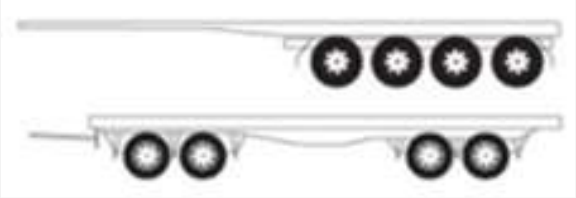
Assumptions made when assessing impacts

The following assumptions have been made when estimating the impact that moving freight from road to rail would have:

- All freight that is transported south is already transported by truck or would otherwise be moved south by truck if rail was not available
- All trucks and trains will travel from Gisborne Station to Napier Port - 422 kilometres by road and 428 kilometres by rail
- All trucks and trains will travel south to Napier fully loaded and will return empty
- All trucks carrying freight will be a H81 vehicle type towing a 14 vehicle type trailer

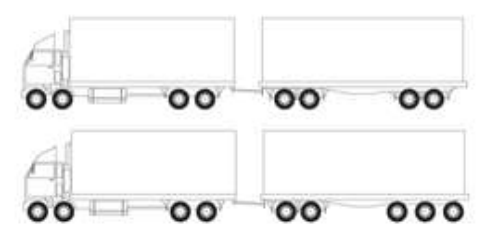
  H81: Towing vehicle that is part of an overweight combination vehicle consisting of a type 14 RUC vehicle towing a type 43 RUC vehicle with a permit weight of not more than 48 tonnes

  43: Unpowered vehicle with more than four axles

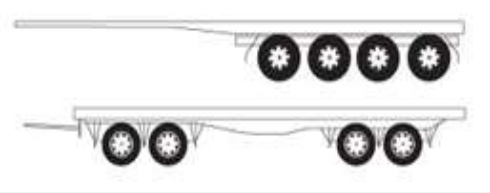


- All trucks carrying logs will be 408 vehicle type towing a 43 vehicle type trailer

  408: Towing vehicle with four axles that are part of a combination vehicle of at least eight axles



  43: Unpowered vehicle with 4 axles



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Assumptions made when assessing impacts (continued)

- Log truck trailers will be carried on the back of the truck and therefore will pay no Road User Charges (RUC) for the trailer on the return journey therefore adding no additional road maintenance costs for the trailer
- Freight trucks will have a gross laden weight of 48 tonnes when heading south and 16 tonnes on the return journey. The weight of the freight truck is 16 tonnes and weights of freight carried per truck is assumed to be 32 tonnes
- Log trucks will have a gross laden weight of 44 tonnes. The vehicle weight will be 14 tonnes and the log weight will be 30 tonnes
- All trains will have a weight of 535 tonnes when empty
- All trains will run south fully loaded with logs filling the additional capacity that is not utilised by containerised freight
- Traffic volumes (both heavy and passenger vehicles) in 2020 will be similar to traffic volumes in 2018
- All rail freight will be spread evenly across the estimated number of trains required.

9 Using the line for tourism

The objective for the Tai Rāwhiti visitor economy is to create a sustainable tourism industry (economically, socially and culturally) that provides employment and income opportunities to communities across Tai Rāwhiti.

Activate Tairāwhiti (AT) believes that the new money introduced into the economy from visitor spending will underpin improved business performance, creating an economic environment for sustainable employment and unlock additional employment opportunities.

As identified earlier there are three possible scenarios in relation to KiwiRail's decision regarding future ownership and operation of the line. Each of these would have varied consequences for tourism opportunities along the rail corridor and the potential economic, social and environmental benefits to the Gisborne and Wairoa districts. The three options are:

- Continue the status quo, with the line remaining closed to rail services with the exception of GCVR and RAL
- Closure of the line and removal of the track assets
- Full re-instatement of the rail line to enable tourist services to operate.

This section is a summary of a report prepared by TRC Tourism for BERL. This fuller report - Tourism Opportunities Using the Gisborne to Wairoa Rail Line/Corridor – is attached as Appendix 14.8.

9.1 Summary

- Any use of the rail corridor for train activities will require KiwiRail, government (central or local) or a yet unidentified party to fund the repairs to the line. Demand for tourism or passenger services alone is unlikely to generate the revenue required to fund the necessary repairs and maintenance. If rail tourism or passenger services are to be possible, freight will need to support the reinstatement of the line.
- GCVR is struggling to afford the maintenance of the line. GCVR relies on Trust Tairāwhiti funding to pay for maintenance of the line. GCVR could not afford the repairs to the line itself and would welcome KiwiRail taking over maintenance of the line.
- If the status quo remained RAL could expand operations from Gisborne all the way through to Wairoa. RAL has developed a solution for avoiding the major washouts.
- Based on the past experience of opening Napier to Wairoa, it is extremely unlikely RAL would be able to continue if freight and passenger services were to return to the line.
- There is an interest in developing tourist opportunities along the line however, these opportunities are still conceptual and have not been developed past this stage. There needs to be some certainty before investment will be made in the potential opportunities.
- There is an opportunity for a cycle trail at the Gisborne end of the rail line. This is linked to the planned extension of cycle trails associated with the planned upgrading of the Waipaoa River flood protection scheme.
- With Right of First Refusal in play, a cycle or walking trail using the line is unlikely as it would require the agreement of all land holders along the rail corridor. Land owners would need to

agree to keep the corridor available for a cycle or walking trail. One land owner has already signalled that they object to such a trail.

9.2 Status quo

Under the current KiwiRail agreements GCVR can operate between Gisborne rail station and Muriwai and RAL from Matawhero to Wairoa.

A status quo approach would likely see GCVR struggling to remain operational while RAL would likely be able to continue. Additionally, the relative certainty of the future of the line for the foreseeable future would enable RAL to expand its operations and begin to offer more trips right along the line between Gisborne and Wairoa.

Neither GCVR or RAL have a willingness to carry out the major repairs to the rail line themselves and would require investment from an outside party to fund the major repairs of the line to enable trains to use the line past the current limits.

The line would continue to be subject to the Memorandum of Understanding (MoU) between GCVR and RAL outlining protocols for agreeing alternate use of the line. This requires compromise and impacts on the ability of both parties to operate at full potential. Both entities also have aspirations of extending their use of the line.

Potential tourism expansion

Both GCVR and RAL have aspirations of extending their use of the line. Reinstating the line partially to Maraetaha would create the opportunity to establish an operating environment where both RAL and GCVR can maximise their potential.

This would require investment in infrastructure and facilities, product development support, KiwiRail cooperation and agreement and cooperation from GCVR and RAL.

GCVR and RAL could offer combination train/rail bike experiences, with a transition point at Maraetaha. A train/rail bike hub at Maraetaha could be established to support improved experience delivery for both GCVR and RAL. Facilities could be established on the platform area to provide a welcoming space for customers to transition between experiences or start and end experiences.

Neither GCVR or RAL are likely to be able to fund the investment required so it will require outside investment to make this possible.

9.2.1 Gisborne City Vintage Rail (GCVR)

GCVR is limited in the distance that they can take their service which limits the commercial potential of GCVR. GCVR has indicated that they would struggle to continue if they were only able to operate as they do now, with volunteers who are aging out of being able to maintain the steam locomotive and the carriages.

Line maintenance is currently the responsibility of GCVR. Line maintenance is one of GCVR's largest expenses. Trust Tairāwhiti invests in GCVR through grants to ensure that it remains open as a visitor attraction for the city. This is particularly important for cruise ship customers. If the rail was not offered then cruise ships may not be as interested in stopping in Gisborne.

In 2017, Trust Tairāwhiti[28] funded $200,000 for urgent rail corridor repairs (required between Gisborne and Muriwai) to enable GCVR to operate the Chardonnay Express. In 2019, Trust Tairāwhiti

[28] Eastland Community Trust, as it was then known.

committed to a further $200,000 in maintenance costs to support the current operations of the GCVR.

GCVR would need to establish a sustainable funding model for managing ongoing maintenance of the rail line, both planned and unplanned. Access to the bridge and rail line in to Eastland Port for GCVR will also need to be sorted out to allow GCVR to collect cruise passengers.

GCVR will require additional investment to enable them to meet their current and ongoing maintenance requirements. If the line were not to be re-opened then Trust Tairāwhiti would also be forced to reconsider the grants that GCVR relies upon to keep the line operational between Gisborne and Muriwai.

Figure 9.1 Tourism activities location map

GCVR will also require support to increase business capability to enable them to operate as a successful commercial tourism business that has the capacity to develop, manage and sell group charter train packages and experiences.

9.2.2 Rail Adventures Limited (RAL)

RAL intends to operate its current offering seven days a week, 365 days a year, with up to 12 full time staff. Two day experiences between Gisborne and Wairoa are being considered. RAL proposes

creating a flying fox to take bikes across the washout at Beach Loop. This will allow it to operate beyond Beach Loop with the rail line in its current state.

If RAL were to extend to Wairoa it could offer new multi-day itineraries, including experiences such as hiking and visiting other natural assets in the surrounding region. RAL could offer an expanded two day experience between Gisborne and Wairoa (with an overnight stay in Māhia). RAL could also work with landowners along the rail line to develop opportunities to complement the RAL experience.

RAL intend to emulate the Otago Central Rail Trail with the point of difference that RAL's railbikes utilise the tracks and believes that the railbikes are accessible to a far greater number of participants due to their ease of operation. RAL believes it would offer a unique experience that is scenic, climate friendly, and has suitable settlements to accommodate up to 700 riders per week.

Reinstatement for RAL would require minimal investment beyond sleeper replacement along some of the bridges, a solution to get over the dropouts and some necessary maintenance to ensure that equipment can continue to access the line for necessary ongoing maintenance. Ongoing maintenance would include track clearing, trimming growth along the edge of the track and weed spraying. A high level estimate of the costs of the investment required for RAL to expand operations and put in a flying fox to get over the major dropout would be approximately $300,000.

The RAL business case is based on the performance of the Otago Central Rail Trail. RAL has the same user demographic and believes that yearly growth projections will be equal.

If RAL is able to expand its operations, by year three RAL estimates they could increase their revenue to $1.2 million and would employ 30 full time staff. As well as 30 staff, this would have an economic impact of supporting an additional 30 FTEs in the economy through direct and induced employment. The total GDP impact of RAL operations would be $2.3 million in year three if it can meet these targets.

9.3 Closure

For a closed rail line or inactive rail corridor, a number of factors are considered before a recreational activity is approved. These include, potential future rail use of the corridor, ease of access and safety, and claims by other users and possible owners, such as adjacent land users or Treaty of Waitangi claimants.

If KiwiRail close and relinquish ownership of the rail corridor, there is a chance that the designation with Gisborne District Council will change. It is understood that if this was the case the line assets would be uplifted physically by KiwiRail.

If the Right of First Refusal was enacted the intention of mana whenua may not be to utilise the land for tourism purposes and they may have other developments or usage plans in mind and the corridor could become disconnected.

The implication of this is that all current and future rail experiences and dependant visitor experiences leveraging the rail corridor would cease.

The first step necessary, should Right of First Refusal come into play, would be a broader discussion with iwi regarding the future use of land along, beside and under the rail line.

Significant local agreement and co-ordination of all property owners and those with an interest in the land along the corridor would be required to enable a potential transition to a new ownership model that allows the asset to be kept intact to facilitate continued operations of rail related visitor experiences. This is unlikely as one land owner along the line has already indicated that they would like to see the land returned and that they would not want the corridor for a walking or cycling trail.

Closure of the rail line would see the existing tourism operations cease as there would be no track to operate on. The opportunity to use the line for walking and/or cycling opportunities would be lost. The land would likely be required to be returned to its original owners if the track was removed. Owners of land along the line have objected to the possible use of the line as a cycle trail.

Adjacent use for walking and cycling

Adjacent rail corridor and shared use cycling and walking trails currently have global appeal and have been developed successfully in other parts of New Zealand.

However, there are a number of challenges which would preclude this from being considered a viable option for the Gisborne to Wairoa rail corridor. These include:

- Limited access points for rescue or emergency services
- No shared access over bridges and through tunnels
- Limited or non-existent cell phone coverage
- Rugged terrain and likelihood of high maintenance costs
- Lack of infrastructure and visitor services along the route to service walkers and cyclists
- Potential for poaching of stock from farms along the line
- Visitor safety.

9.4 Reinstatement

The development of quality commissionable visitor experiences has been identified as a key action to support the visitor economy. There is a view in the community that there is potential to utilise the scenic rail corridor to boost productivity and economic growth in the two districts, by delivering unique tourism products that showcase and celebrate the area.

Tourism development along the rail corridor has the capacity to grow overnight visitation. Rail can connect a number of attractions and experiences in a manner that proves attractive to staying one night or more in the region. This will also grow the expenditure on local goods and services.

There is an appetite for business, mana whenua and landowners to support and benefit from the Gisborne to Wairoa rail corridor being used for tourism purposes. There is an opportunity for mana whenua and rural communities along the rail corridor to leverage off the visitor flows generated by the rail line. This could include the development of visitor experiences and services, meals and accommodation and sharing their hospitality with visitors.

For example, by extending the existing usable line GCVR could extend the timing of their current range of rail excursions creating a higher value half day experience. GCVR could offer experiences that include a stop at Muriwai on route to Maraetaha and potentially further.

Tourism Hawke's Bay and AT cannot see a stand-alone tourist train or passenger train having the year round demand to sustain the line alone. For passenger and tourist trains this will mean that freight will be the priority. Despite a regular tourist train being unlikely, there is interest from

private investors that may have the means to create a memorable and iconic experience along the Gisborne to Wairoa rail corridor that could operate in the peak tourist season.

Given the limited operations and budget of GCVR, and the limited number of tourist trains that may make use of the line, re-instatement would need to see KiwiRail (or another operator) funding the cost of re-instatement of the line and take responsibility for ongoing repairs and maintenance.

With KiwiRail taking on the majority of the line maintenance costs GCVR could continue to operate under a renewed licence to occupy with KiwiRail. GCVR could offer new itinerary options and reinstate their Beach Loop and Opoutama experience.

A private sector operator who is a financial supporter of GCVR has expressed an interest in using the WA165, or a diesel locomotive, to travel to Māhia, where the intention would be to establish a tourist venture to link up to the train experience.

If the line is reinstated, it is anticipated that RAL would no longer be able to operate as per their lease agreement with KiwiRail due to safety issues of a tourism experience and passenger/freight services operating along the same line (including the potential of each activity operating on alternate days to avoid crossover).

RAL previously investigated the possibility of sharing the Wairoa to Napier rail corridor with KiwiRail. This application was denied by KiwiRail due to safety issues of adventure bikes and freight rail services operating along the same line, even if there were clear time separation between uses.

There are a number of established passenger train rail tourism heritage operators with experience of the Gisborne line keen to reintroduce Napier to Gisborne excursion trains, in particular linked to regional attraction events.

Because of the uncertainty around what a developed tourist option will look like it is difficult to estimate the impact that use of the line for tourism will have on the local and national economies.

10 The recommended option

The terms of reference for this feasibility study explicitly excluded the preparation of a business case or commercial case for the reinstatement of the Tūranga ki Wairoa line. Such a business case would require detailed information on the commercial costs of the prospective rail operator. In particular, the allocation of capital costs to be recouped by the line's operations is unclear without comprehensive information about the operator's business model and its owners' (or Board's) expectations as to returns on capital. This information was not available to this study, nor was it sought as it was outside its scope. Further, the feasibility study was not to adopt a narrow Benefit-Cost Analysis (BCA) approach. Consequently, comparative benefit-cost ratio figures for each of the options are not the basis to determine our recommended option.

Rather, this feasibility study was to adopt a wellbeing approach – noting the four categories of wellbeing designated as the purpose of Local Government (social, cultural, economic, and environmental).

This study needed to assess:

- The feasibility, from an engineering perspective, of reinstating the corridor for rail services
- The top line feasibility, from a commercial revenue perspective, of freight and/or tourism services using the rail corridor
- The wellbeing impacts of options for use of the rail corridor.

10.1 Feasibility

Engineering reports assess that it is feasible to reinstate the rail line to a level that would be resilient to weather events that in the past have led to its mothballing.

There are no specialist forms of construction that will require international construction companies. It is considered that local contractors, with suitable engineering and adequate programme management support, have the capability to carry out all of the earthworks.

While the financial cost of this reinstatement to a resilient level totals between $24.8 million and $29.1 million, there is considerable evidence of demand for rail freight services that would generate significant revenues for a prospective rail operator. Even adopting conservative assumptions, levels of demand for containerised rail freight, augmented by logs, are more than sufficient to fill a service of five trains per week.

The commercial feasibility of such a service would need to be assessed further in detail given the business model of the operator, alongside the allocation of network infrastructure costs and the shareholder owners' expectations of return on investment.

Nevertheless, there is a *prima facie*[29] case established of the commercial feasibility of a reinstated rail service.

[29] At first sight; or, on first look.

10.2 Wellbeing impacts

It is clear that the reinstatement of rail services over the Tūranga ki Wairoa line has many supporters.

The rail corridor has a history for many in the community. The land was taken from Māori for use as a rail line. Noting the original purpose for which the land was taken, the social licence to operate for those currently using the corridor could be called into question should the status quo option be chosen.

Many in the community see the connection as critical in reducing the region's reliance on SH2. The sense of isolation is reinforced by a relative lack of alternative transport connections. This has reduced the level of resilience inherent in the region. In the absence of the rail connection, road transport effectively acts as a lifeline for the region, with its maintenance critical to future prospects.

Social and cultural wellbeing associated with resilience, relative isolation, and disconnection of communities in the status quo option are inferior to those in the reinstatement option. Furthermore, access to lands adjacent to the corridor is not secure in the status quo option, but could be improved in the reinstatement option.

The status quo option has the potential to constrain the development of the region. A shift to higher-value land uses with increased productivity and processing is already underway. This shift could be delayed or deferred, or the necessary investment deterred, given the ongoing prospect of limited transport options facing potential business operators or investors. Similar comments can be made in this regard about the closure option.

Tourism opportunities are available across all options. However, the reinstatement option provides a potentially broader range of opportunities; although these would need to be secondary to freight use of the rail corridor.

The reinstatement versus status quo comparison also provides:

- A 70 percent reduction in annual greenhouse gas emissions, totalling between 11,400 and 13,800 tonnes. At $25 per tonne, these savings amount to between $290,000 and $345,000 per year in carbon charges
- A reduction in annual road maintenance costs of between $1.2 million and $1.7 million
- A reduction in noise and dust associated with the reduction in the number of heavy vehicle movements
- A five percent reduction the number of serious and fatal injury road accidents.

10.3 Our recommendation

Given these considerations we conclude:

- It is feasible from an engineering perspective to reinstate the rail line
- There is a *prima facie* case established that there is sufficient demand for rail freight services
- There are numerous environmental, social, and cultural wellbeing advantages in favour of the reinstatement option, over either the closure or the status quo option.

Consequently, our recommended option is for the community and associated stakeholders to pursue the reinstatement of the Tūranga ki Wairoa rail line; to a resilient standard; to deliver regular containerised and log freight services; and to support tourism opportunities to be developed utilising the rail corridor.

Table 10.1 Summary numbers

Estimates of capital works required	Capital costs ($000s) Low	High
Reinstatement works		
Earthworks to reinstate line for operations	16,034.5	18,330.7
Track and vegetation (before operations commence)	2,250.0	2,700.0
Bridges and tunnels (before operations commence)	948.9	1,487.6
Other (radio, signals, level crossings, freight yards)	650.0	780.0
Sub-total (before operations commence)	**19,883.4**	**23,298.3**
Resilience and other works		
Resilience works	4,873.3	5,847.9
Track and vegetation (over years 2-10)	1,650.0	1,650.0
Bridges and tunnels (within 10 years)	3,454.0	5,526.4
Sub-total (resilience and other works)	**9,977.3**	**13,024.3**
Total (all works)	**29,860.6**	**36,322.6**

Scenario	Five trains per week	Low volumes	Seven trains per week post 2025
Freight operator revenue ($000s)			
2020	9,314	8,584	9,314
2025	10,908	10,373	14,067
10-year total	104,296	98,361	126,412
Greenhouse gas emissions savings (tonnes)			
2020	12,634	13,059	12,634
2025	11,437	11,698	13,805
Greenhous gas emissions savings ($000s)			
2020	316	326	316
2025	286	292	345
Reduction in truck movements (number)			
2020	9,888	10,276	9,888
2025	8,898	9,148	13,021
Road maintenance savings ($000)			
2020	1,257	1,264	1,257
2025	1,217	1,218	1,708
			Across all scenarios
Severe and fatal injury road accidents (SH2 Gisborne-Napier)			5% reduction

11 Abbreviations used in this report

AT – Activate Tairāwhiti

ATC - Advanced Transportation Controller

CFT - Container Flat Top, rail wagons for transporting containers

ECT – Trust Tairāwhiti (formerly Eastland Community Trust)

FRONZ – Federation of Rail Organisations of New Zealand

Ft – Foot/Feet

FTE – Full-time equivalents

GCVR – Gisborne City Vintage Rail

GDC – Gisborne District Council

GDP – Gross Domestic Product

GHL – Gisborne Holdings Limited

Ha – Hectare/Hectares

HBRC – Hawke's Bay Regional Council

IPO – Initial Public Offering

Kg – Kilogram/Kilograms

Lb – Pound/Pounds

MAR – Makauri Aquifer Managed Aquifer Recharge

MBIE - Ministry of Business, Innovation and Employment

MFS – A specialised rail wagon used for transporting of material, especially aggregate

NCEA – National Certificate of Educational Achievement

NLTP – National Land Transport Plan

NZTA – New Zealand Transport Agency

PDU – Provincial Development Unit

PHO – Primary Health Organisation

PGF – Provincial Growth Fund

PNGL – Palmerston North Gisborne Line

RAL – Rail Adventures Limited

RLTP – Regional Land Transport Programme

RUC – Road User Charges

SH2 – State Highway Two

SH35 – State Highway 35

TEU – Twenty-foot equivalent unit

TPR – Railway sleeper made from tanalised pinus radiata

TRL – Tairāwhiti Rail Limited

UFB – UltraFast Broadband

WDC – Wairoa District Council

Yd – Yard/Yards

12 Glossary

50Max – A truck with a gross laden weight of 50 tonnes.

Apiculture – Beekeeping.

Ballast – Rock aggregate which forms the foundation under the rail line.

Biosecurity – Preventing the spread of pests and diseases.

Below rail infrastructure - All the material that below the rail, the rail itself, sleepers, fastenings and ballast. Below the ballast is the formation.

Business case – An assessment of the return on investment of a proposed course of action.

Cess - The area either side of the rail line immediately off the ballast shoulder.

Container Flat Top (CFT) - Rail wagons for transporting containers.

Crossing loop – A rail siding which is joined to the main line at both ends to allow trains to pass or overtake. Also used to shift the locomotive from one end of the train to the other.

Cycleway – A path for bicycles separate to or separated from any road.

Daylighted – A tunnel which has had the overlying rock and soil removed to convert it to a cutting.

Dropouts – Sections of rail line where a landslide has occurred leaving the line unsupported. Also known as washouts.

Feasibility study - An assessment of the practicality of a proposed course of action.

Fishplate – A metal bar that is bolted to the ends of two rail line rails to join them together to form a track.

Formation – Land that is prepared and is directly below the ballast and the rail line.

Geogrid – A product type used in earthworks to stabilise soft ground and reduce erosion.

Gross domestic product – A measure of the quantity of goods produced and quantity of services delivered in the economy.

High Productivity Motor Vehicle (HPMV) – A truck with a gross laden weight of 62 tonnes.

Hi cube container - A version of the standard 20ft long shipping container with an additional 30cm of vertical space, providing larger capacity.

KiwiRail – Crown owned entity which owns the Gisborne to Wairoa rail line assets and previously ran services on it.

Managed Aquifer Recharge (MAR) – The intentional refilling of a water aquifer.

Marshalling yard – An area where wagons can be arranged to form a train. Also known as a shunting yard.

MFS wagon – A specialised rail wagon used for transporting of material, especially aggregate.

Mothball – Closure of the line without the physical removal of the rail line so that it may potentially be reopened at a future time.

New Zealand Transport Agency (NZTA) – A New Zealand Crown entity tasked with administering transport by land, including the responsibility for driver and vehicle licensing, and the New Zealand state highway network.

National Land Transport Plan (NLTP) – Details how the NZTA use national land transport funding including investment priorities and proposed projects.

Provincial Growth Fund (PGF) – A government fund established to promote economic growth in regions of New Zealand outside of the major cities.

Rail-bike – A bicycle modified to enable it to be ridden along a rail line.

Rail corridor – The land on which a rail line is built, used to run, or is kept free from development in order to allow a rail line to be built at a future time.

Rail line – Refers to the tracks and supporting infrastructure that trains run on.

Reinstatement – Repairing the damaged sections of rail line to enable safe use.

Road bridging costs – The cost of getting freight from the production site to the rail loading site.

Rusty rail – When rust forms an insulating layer on the rail that stops the wagons and locomotives passing current from one rail to the other, which is how the signals detect the presence of a train.

Second hand rail – Rail that is off main lines that is still good enough for use on branches.

Siding – A small section of rail line to the side of the main line to enable wagons to be parked for storage or loading and unloading.

Sleeper – Also called a tie or crosstie. Rectangular support laid underneath the rail lines. Traditionally made from wood, sleepers may also be concrete or other strong material.

Tamper - A machine used to pack (or tamp) the track ballast under rail tracks to make the tracks more durable.

Track Warrant Control - A set of instructions issued to a train crew authorising specific train movements.

Twenty-foot equivalent unit (TEU) – A unit of cargo capacity approximately equal to a 20ft container.

Washouts – Sections of rail line where a landslide has occurred leaving the line unsupported. Also known as dropouts.

13 References

Activate Tairāwhiti (2017). *Tairāwhiti Economic Action Plan. Te Huarahi Hei Whai Oranga.* Available at https://www.activatetairawhiti.co.nz/assets/Uploads/He-huarahi-hei-whai-oranga-tairawhiti-economic-action-plan-.pdf (Accessed September 2019).

Activate Tairāwhiti (2018). New era for Prime site as sawmill reopens. Available at http://www.activatetairawhiti.co.nz/news-and-events/new-era-for-prime-site-as-sawmill-reopens/ (Accessed September 2019).

BERL (2019). *BERL Local Authority Database.* (unpublished)

BERL (2019). *Estimates of economic impact of RAL* (unpublished)

Deloitte Access Economics (2019). *Shaping our slice of heaven. Regions of opportunity.* Available at https://www2.deloitte.com/content/dam/Deloitte/nz/Documents/Economics/nz-en-DAE-Slice-of-Heaven-2019-Report.pdf (Accessed September 2019).

Eastland Community Trust (2018). *New operator, new jobs, new era for Prime Sawmill.* Availabe at http://www.scoop.co.nz/stories/PO1802/S00052/new-operator-new-jobs-new-era-for-prime-sawmill.htm (Accessed September 2019).

Gisborne District Council (2018). *Gisborne District Council Infrastructure Strategy 2018*. Available from https://www.gdc.govt.nz/strategies/ (Accessed September 2019).

Gisborne District Council (2018). *Our Future Plan. 2018–2028 Long Term Plan.* Available at https://www.gdc.govt.nz/2018-2028-long-term-plan/ (Accessed September 2019).

Hawke's Bay Regional Council (2016). Matariki Hawke's Bay Regional Economic Development Strategy and Action Plan 2016. Available at https://www.sporty.co.nz/asset/downloadasset?id=627903f5-568e-4c32-b12d-b3fe994752f8 (Accessed August 2019).

Jones, S (2019). *$5.5m for Gisborne airport redevelopment*. Available at https://www.beehive.govt.nz/release/55m-gisborne-airport-redevelopment (Accessed September 2019).

Ministry for Primary Industries (2015). *Wood Availability Forecasts –East Coast 2014*.

Ministry for the Environment (2019). *Measuring Emissions. A guide for organisations.*

Ministry for the Environment (2018). *Climate change projections for the Gisborne and Hawke's Bay region*. Available at https://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region/gisborne (Accessed September 2019).

Ministry of Business, Innovation and Employment (2019). *June 2019 Monthly Regional Tourism Estimates.* Available at https://www.mbie.govt.nz/immigration-and-tourism/tourism-research-and-data/tourism-data-releases/monthly-regional-tourism-estimates/ (Accessed September 2019)

Napier Port (2019). *Product Disclosure Statement. Initial Public Offering Of Ordinary Shares In Napier Port Holdings Limited.* Available at https://www.napierport.co.nz/wp-content/uploads/2019/08/Napier-Port-Holdings-Product-Disclosure-Statement_compressed.pdf (Accessed September 2019).

New Zealand Transport Agency (2018). New Zealand Transport Agency Amended Statement Of Intent 2018–22. Available at https://www.nzta.govt.nz/resources/nz-transport-agency-statement-of-intent-main-index/soi-2018-2022-amended (Accessed September 2019).

New Zealand Transport Agency (2018). *2015–18 National Land Transport Programme Gisborne Regional Summary.* Available at https://www.nzta.govt.nz/assets/planning-and-investment/docs/nltp-2015-18-gisborne-factsheet.pdf (Accessed September 2019).

New Zealand Transport Agency (2019). *RUC rates and transaction fees*. *Road user charges from 1 July 2019*. Available at https://www.nzta.govt.nz/vehicles/licensing-rego/road-user-charges/ruc-rates-and-transaction-fees/ (Accessed October 2019).

Savage, L (2006). *An overview of Climate Change and possible consequences for Gisborne District*. Available at https://www.gdc.govt.nz/climate-change-reports/ (Accessed September 2019).

Statistics New Zealand (2017). *Subnational ethnic population projections, by age and sex, 2013(base)-2038 update.* Available at https://www.stats.govt.nz/information-releases/subnational-ethnic-population-projections-2013base2038-update (Accessed August 2019).

UFB NZ (2019). *National Broadband Map*. Available at https://ufb.org.nz/maps/ (Accessed August 2019).

University of Waikato Institute for Business Research. (Unknown date) *Economic Impact Assessment of the Forestry Industry in the Tairāwhiti-Gisborne Region*

Wairoa District Council (2018). *2018-2028 Long-term Plan*. Available at https://www.wairoadc.govt.nz/assets/Document-Library/Plans/Annual-Plans-and-Ten-Year-Plans/2018-28-LTP/2018-28-Long-Term-Plan-Part-5.pdf(Accessed September 2019).

14 Appendices

This report draws on a substantial amount of work, not all of which could be presented in full. There are several documents which cover in more detail the work and research which has been completed as part of this feasibility study. These supplementary documents are:

14.1 Terms of reference and project plan

As agreed with the Provincial Growth Unit, this document sets out the scope and plan for this feasibility study.

14.2 Tai Rāwhiti community perspective inclusive of hapū and iwi

Prepared by Nikki Searancke, this report summarises findings from engagement with local hapū and iwi.

14.3 Engineering reports

Prepared by Fraser Geologics, this five part report details the required track formation repair works and civil construction work packages including design and costings

14.4 Track condition review

Prepared by Armstrong Track Consultants based on an inspection conducted in July of 2019, this report identifies the issues of the track condition which need to be addressed to enable rail services.

14.5 Structure assets including bridge inspection

A desktop review conducted by KiwiRail which describes the condition of the bridges and tunnels between Gisborne and Wairoa, and the work required to enable rail services.

14.6 Tai Rāwhiti community, people, and economy

An overview of the current status of the Gisborne and Wairoa districts from community and economic viewpoints. Covers demographics, the size and nature of the local economy, and the challenges facing the region.

14.7 Freight assessment

Prepared by Graeme Carroll and Stephen Underwood, this report is based on extensive engagement with producers from the Gisborne and Wairoa Districts. The types of products which could move to rail freight are detailed, and estimates of future freight requirements are based on the planning of local producers.

14.8 Tourism opportunities

Prepared by TRC Tourism, this report gives information on the Gisborne regional tourism current situation, current licence holders on the Gisborne to Wairoa rail line, and the future potential for tourism opportunities on the rail line.