KiwiRail

Interislander Ferries and Terminals

Detailed Business Case – Commercial in Confidence

3 June 2021

EXECUTIVE SUMMARY

The Cook Strait crossing is a strategic national asset, extending State Highway One and the Main Trunk Railway between the North and South islands and providing a vital part of New Zealand's transport and tourism infrastructure.

On average each year, the Interislander operates around 3,800 services, transports about 850,000 passengers, 250,000 cars and up to $14 billion worth of freight, and these numbers are forecast to increase. It also provides a unique Aotearoa tourism experience bringing in money, visitors and supporting jobs in Wellington and Waitohi Picton.

The InterIslander link is, however, at risk. The current Interislander ferries are nearing the end of their 30-year working lives and this replacement programme is now time critical. As the fleet ages, the ferries struggle to meet modern safety requirements, there are rising maintenance costs, high carbon emissions, sub-standard crew conditions and no capacity for growth or increased profitability.

Terminal infrastructure in Wellington and Waitohi Picton is also in need of substantial upgrades to bring it up to modern safety standards and to be ready for the new ferries.

This project is about moving away from a state of managed decline to future planning and investment so that New Zealand has a reliable, safe and resilient Interislander service by the mid-2020s. It will also cater for future freight and passenger growth projections, reduce carbon emissions and ensure a more profitable business model into the future.

This business case confirms that the best investment is:

- Two new large rail-enabled ferries capable of accommodating 40 x 60-foot wagon train consists forming a key part of New Zealand's rail freight network.
- Port infrastructure in Wellington and Waitohi Picton that is developed in cost-effective stages, meets seismic and national resilience requirements and is capable of handling a one-hour turnaround for the ferries at peak.

In the period between the indicative business case (IBC, of November 2018) and this detailed business case (DBC) KiwiRail has undertaken a full review of all elements of the project to ensure that it can be delivered on time, within budget and realise the required benefits that have underpinned the business case from the outset.

The commercial and management cases have also been considerably developed since the IBC while being consistent with the November 2018 IBC, and the financial case has improved. The financial case now shows a positive NPV (net present value) of $207m (discount rate at 5%) and improved cash flows for the Interislander business that, as part of the KiwiRail Group, support external financing for a portion of the ships.

The financial return is reinforced by the significant contribution the project will deliver against critical Government goals:

- Climate Change – the new ferries and their operation are designed to give a 40% reduction in the Interislander carbon footprint (16% reduction of KiwiRail's total emissions).
- Improving Freight Connections – the new ferries and terminals will greatly increase the resilience of State Highway One and the Main Trunk Rail Line across Cook Strait and accommodate the desired increase in rail use which will also drive better climate outcomes.
- Safety – investment in the rail infrastructure will allow KiwiRail to support the Government's Road to Zero road safety vision by removing more trucks from the roads.

The investment in the terminal developments also supports the Government's COVID-19 recovery aims, both directly through generating some 1,200 - 1,800 FTE years of employment during the design and construction period, and indirectly through the multiplier effect and enhancing the attraction of the Cook Strait services to international tourists when borders fully re-open (before the new ferries arrive and the new terminals are built).

Overall, since the IBC there has been some movement in the forecast cost of ships, but the most material change in cost has been in port infrastructure, particularly higher costs driven by the seismic risks in Wellington – at the now agreed terminal location, Kaiwharawhara.

An intensive period of design and planning for the new terminal infrastructure at both Waitohi Picton and Wellington has now been completed. This built on the concept design already developed for Waitohi Picton and costs for Wellington that were indicative only due to the decision on location at Kaiwharawhara only having been made in December 2020. The key focus areas of this design phase were to ensure:

- An affordable and buildable design for Waitohi Picton that meets the needs of all parties with a particular focus on the operational requirements for the arrival of the new ships.
- An affordable, consentable and buildable design for Wellington that meets the needs of all parties with a particular focus on the operational requirements for the arrival of the new ships.
- The Wellington design mitigates the seismic risks of the site.
- The Wellington design is compatible with a Multi-User Ferry Precinct that the Future Ports Forum is investigating for the Kaiwharawhara site.
- The terminal facilities can be constructed in time for the new ships and that the current operations of the Interislander and the Ports are not unduly disrupted throughout the construction period.

The decision on the Wellington location was a slow process because of the number of parties involved and differing views on the preferred location for the Interislander's operation. As KiwiRail gained more information about the Kaiwharawhara site, it expressed concerns about the risk of the terminal's resilience in a major seismic event given the nature of the Wellington fault rupture in that area. KiwiRail has, however, accepted that CentrePort and Wellingtonians do not want the new ferry terminal at the alternative Wellington location at Kings Wharf.

Negotiations with the port companies are continuing. [38]

KiwiRail has re-visited and retested its preliminary decision on fleet size and configuration. It has confirmed that two large, rail-enabled ships is the correct choice. Two medium ships would not provide the required growth capacity, while three medium ships would be more expensive both in capital terms and to operate.

The NPV is clearly superior with the choice of two large ships. This selection is now reinforced by the global increase in steel prices. Sharply increasing steel prices mean today's price for two medium ships would in fact be higher than that of the two larger ships which has been locked-in with KiwiRail's preferred shipyard, Hyundai Mipo Dockyard (HMD) through the Letter of Intent (LOI) exchanged in December 2020. KiwiRail has now finalised a price with HMD which is close to the LOI price representing a significant achievement in today's very volatile steel and ship building markets.

The price advantage commitment in the LOI will expire at 30 June 2021, making it imperative that a decision is made by that date and a contract executed with the shipyard.

The latest cost and financing assumptions are given in the table below.

Item	NZD
KiwiRail Investment	
Purchase of new ships	[37]
Picton Terminal - KiwiRail assets	
Wellington Terminal - KiwiRail assets	
Programme management and initiation costs	
Total KiwiRail Investment	**$1,140m**
Funding identified	
Ship financing	$350m
Crown funding committed	$435m
Sale of existing fleet	[37]
Enterprise stretch	
Remaining funding required	**$257m**
Other party investments	
Port Marlborough for assets for KiwiRail benefit	[37]
CentrePort for assets for KiwiRail benefit	
Other parties	
Total other party investments	**$310m**
Total programme cost	**$1,450m**
Total contingencies and escalation included	[37]

Table 1: Cost summary.

This Detailed Business Case underpins a Crown Funding Bid for $257m, $132m of which we wish to source from the proceeds of a retained insurance settlement from the Kaikōura earthquake claim already held by KiwiRail.

The recent focus on the cost of the terminals has materially reduced [37] capital costs. However, that reduction has been more to the benefit of Port Company(wet/marine) assets. This means that while we have reduced the overall project costs by [37] and [38]

The ship programme costs are largely certain (provided the contract is executed before the expiry of the LOI). The terminals value engineering and scope reduction opportunities have resulted in the reduction to costs, however, we believe a combination of further cost reductions and alternative funding sources (such as funding rail elements from RNIP sources and/or BAU capital) can be achieved and this is represented by the [37] "enterprise stretch".

Commercial in confidence – Any disclosure of the funding amounts and expected unit prices for ships in this Business Case would adversely impact KiwiRail's ability to conduct effective contract negotiations, consistent with s9(2)(b)(ii) of the Official Information Act (1982): to protect information where the making available of the information would be likely unreasonably to prejudice the commercial position of the person who supplied or who is the subject of the information.

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OVERVIEW

Introduction

This Detailed Business Case (DBC) builds on and confirms the decision in the preceding Indicative Business Case: *KiwiRail Interislander Cook Strait Ferry Fleet Decision* of November 2018[1] – to procure two large rail-enabled ships. It provides an update to the strategic case, reaffirming the importance of replacing the current ships to meet Government and KiwiRail aims. It revisits and confirms the fleet size decision and provides new and enhanced information on the cost and affordability of the ships. The DBC covers in detail the associated terminal renewals, the related costs and the location of the Wellington terminal. The DBC demonstrates how the ships and terminal infrastructure will be efficiently procured and provides confidence that KiwiRail (and its partners) can successfully deliver the investment.

KiwiRail's Interislander Cook Strait ferries play an integral role in KiwiRail's freight, tourism, and passenger businesses. They are a critical component of New Zealand's integrated transport system connecting freight and people between the North and South Islands. The age of the ferries and condition of the terminal infrastructure mean the risk of this link being disrupted, with major economic and social consequences, is higher now than is acceptable and will get worse without intervention.

To use the language of the *Future of Rail*, the Interislander service is not "Resilient and Reliable", it is currently in "Managed Decline". This state is incompatible with the *New Zealand Rail Plan* released by the Government in April 2021.

This iteration of the DBC confirms the case for the future Interislander fleet composition and explains the associated infrastructure requirements to provide a sustainable economic and social link for New Zealand with future-proofed capacity and resilience. The question of the make-up of the future fleet was carefully re-visited in 2020 with a conclusion that two large rail-enabled ships should be procured and a contract signed with the shipyard chosen after a three-stage procurement process, Korean Hyundai Mipo Dockyard (HMD), by 30 June 2021.

The business case supports a request for further Government funding which has become necessary as a result of the greater level of cost information now available about the terminals (and to a lesser extent the ships) and capacity of KiwiRail to service debt for the programme.

The Interislander Renewal Programme

This renewal programme is a vital part of KiwiRail's purpose of *Stronger Connections. Better New Zealand.* KiwiRail's Cook Strait service provides a crucial economic link for New Zealand as it is effectively the Main Trunk Rail Line and state highway between the two islands. Ensuring ongoing capacity for rail, road vehicles and passengers to meet growing customer demand and providing a secure connection for New Zealand is at the heart of the proposed investment.

The *Future of Rail Review* and the *New Zealand Rail Plan* confirm the importance to New Zealand of enhancing the capability and resilience of the Cook Strait ferries, particularly rail freight services between the North and South Islands. The recent update to Ernst and Young's *Value of Rail* report has reinforced the importance of an efficient rail network for New Zealand, including the significant benefit of carbon reduction, helping to achieve Government's climate change objectives.

The iReX programme provides critical infrastructure which will help achieve the four strategic priorities of the *Government Policy Statement on Land Transport 2021* (GPS 2021) – safety, better travel options, improving freight connections and addressing climate change.

Further, the programme strongly supports the Government's Wellbeing priorities including those for productive businesses, regions, iwi and others to transition to a sustainable and low-emissions economy. The new fleet of larger ships and enhanced terminals will allow the efficient movement of more people (especially tourists), and freight across the Cook Strait, which supports sustainability and productivity initiatives for businesses and regions in both the North and South Islands.

[1] Inter-Island Resilient Connection (iReX): Fleet Decision, iReX Project Team, November 2018, Indicative Business Case

Replacing ships and obsolete port infrastructure in Wellington and Waitohi Picton will significantly reduce carbon emissions, assist New Zealand in the event of a natural disaster and ensure regional New Zealand is benefitting from the expected growth in international tourists (post COVID-19).

Investment in modern purpose-built ferries and associated terminal infrastructure is a once-in-a-multi-generation opportunity to provide a resilient, sustainable Cook Strait transport connection with capacity for growth. The opportunity has not been taken earlier, with a resultant compromised fleet and unsustainable supporting infrastructure. Importantly, a New Zealand Government-owned ferry service will ensure ongoing security of a critical nationally important transport link.

Ship Selection

This business case reconfirms that two new large rail-enabled ships (also capable of operating in road vehicle only mode in the event of civil defence or other emergency) is the preferred option. This fleet configuration will provide capacity for normal demand that cannot presently be carried, as well as for the projected growth over the 30-year life of the assets. Once borders are fully open, growth is expected across the three markets that the KiwiRail Interislander fleet serves: passengers (walk-on passengers plus private cars/passengers including significant numbers of overseas tourists); commercial vehicles; and rail freight.

Rail-enabled ships maintain the integrity of the national rail network and ensure that KiwiRail can maintain and grow its contribution to the national freight task, particularly the key domestic link between Auckland and Christchurch. This reduces the number of trucks on the roads, improving road safety, reducing carbon emissions and lowering road maintenance costs.

Freight operators are aware of the ageing of their fleets of road vehicles[2] and are signalling a wish to use rail services more to avoid the major costs confronting them – provided rail can offer the required service and capacity.

KiwiRail currently has three Interislander ships of different sizes, ages and configurations reflecting the legacy of under investment in the fleet over the past 20 years. This has resulted in operational inefficiencies and insufficient capacity to meet current customer demand, particularly in the peak periods.

In addition, the existing ferries will reach the end of their serviceable and economic lives by the mid-2020s and will become increasingly unreliable and costly to maintain. Ships' lives cannot be extended in perpetuity. Rust and obsolescence of systems means the ships will ultimately lose their maritime 'warrant of fitness' and have to stop operating. KiwiRail is budgeting [37] to maintain the fleet in 2021/22 and estimates the annual maintenance costs across 2025-2030 to be $65 million per year if the existing fleet were required to continue.

Keeping the existing ferries compliant with updated and more stringent international marine safety and environmental standards (MARPOL) through to 2025 will be challenging both from an engineering perspective and in terms of maintaining reasonable operating costs.

In turn, serving the new ships requires new terminal infrastructure.

Port Infrastructure

Port infrastructure used by the ferries at both the Wellington and Waitohi Picton terminals is obsolete, difficult to maintain, not resilient to damage from either operational or natural events and is unable to accommodate modern larger ships. Even if the new ships were the same capacity as the current fleet, they would have to be bigger, requiring a greater beam, or width, to comply with international maritime rules, meaning the current port assets would still be unable to handle them.

To accommodate the new infrastructure in Waitohi Picton, only one site is possible, the current location. In Wellington, however, multiple sites for the redeveloped terminal were possible. After substantial assessment and negotiation, the consensus decision has been taken to re-develop at Kaiwharawhara, initially for Interislander alone, with a longer-term potential move to a Multi-user Ferry Precinct co-locating all Wellington interisland ferry operations to that site. The Wellington terminal needs to be upgraded owing to its lack of resilience, irrespective of the ferry decision.

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[2] At The Crossroads: The New Zealand Transport and Logistics Sector, Prepared by ANZ Client Insights October 2019, page 10

Good progress on procuring the ships has been made and KiwiRail is in the final stages of contract negotiations with its preferred shipyard ready to execute a contract by the end of June 2021, with the delivery of the new ships scheduled for mid-2025 and early 2026. The associated terminal infrastructure will be ready for the arrival of the first new ship. Funding will enable the ageing Interislander fleet and obsolete port infrastructure to be replaced with new ships and terminals that will provide a fit-for-purpose Cook Strait service which is safe, reliable, resilient and meet New Zealand's transport needs.

Cost and Financing

There is a clear strategic mandate and a preferred option to take forward. The estimated capital commitments, including contingencies directly related to the programme, are $1,450m [37] for ship procurement, [37] for the Waitohi Picton terminal, [37] for the Wellington terminal and [37] for the programme management costs. A contingency of [37] has been establishes across the programme. Some additional funding, principally related to roads, has been committed by the councils and Waka Kotahi.

The funding mix is likely to be a combination of Crown equity, commercial debt and capital charges paid as port fees for the use of the terminals. The likely mix and make-up of the funding, including options for third party participation, has been finalised, but requires Crown support for additional equity support the programme.

Raising finance against the ships is achievable and loan facility documentation is being finalised with a mandated banking syndicate for an amount of $350m, to be in place at the time KiwiRail signs a build contract with the selected yard.

Raising additional finance for the land side infrastructure would be difficult without some form of Crown support or through a Crown-related entity and therefore has not been included at this stage.

Construction Delivery

KiwiRail has the expertise and experience in successfully delivering large civil infrastructure projects (and associated commercial transactions). [38]

For the design, procurement and delivery of the ships, KiwiRail has obtained the services of a range of experienced international experts in design/fitout, financing, market intelligence and legal (ship building contracts).

Transport Network Improvements

There are related roading infrastructure investments required to provide adequate transport connections to the terminals in Wellington and Waitohi Picton (by Waka Kotahi and others). These investments are being integrated and the timing aligned with the commitment to new ships and terminal infrastructure. Detailed work is underway with these agencies.

The Regional Land Transport Plans for both Wellington and Te Tahuihu (Top of the South) allocate funding to council and Waka Kotahi investments.

Commitment Pre-Requisites

The commitment to purchase ships can be made, subject to Shareholder approval, once the terms of the shipbuilding contract have been finalised with our preferred shipyard and directors have sufficient confidence that:

- The total cost of the project will be within or below $1,450m.
- The upfront investment from the port companies will be sufficient to cover the gap between $1,450m and funding from Crown equity, debt, and sale of the current ships.
- The resource consents and other required consents will be in place for the development and in time to build the terminals.

- The development agreements and terms of long-term occupancy will be affordable and agreed in time to meet the programme for consenting and construction.
- The port assets will be in place in time to allow the new ferries to enter service.
- The current Interislander operation will be able to continue without material disruption during the build and post new ferry introduction to protect the current revenue base and provide a strong basis for growth from day one of the new operation.

These conditions are expected to be met by 30 June 2021.

Seismic Issues and National Resilience

KiwiRail has been vocal in its concerns around the seismic profile of Kaiwharawhara but has now committed to redevelopment of operations on that site. The concerns were driven by a GNS Science assessment in 2019 that found there were similarities in the nature of the Wellington fault where it passes through the Kaiwharawhara site to those seen in Kaikōura. The behaviour of Kaikōura in the 2016 earthquake led GNS to conclude that Kaiwharawhara would likely behave the same way in the event of a Wellington Fault Line Rupture.

In KiwiRail's opinion a move to an alternative site would have been more in line with government, local government and KiwiRail's resilience goals with the core project objective which is to increase the resilience of SH1 and the Main Trunk Line. It has concluded, however, that based on the latest design development and consenting advice, that the seismic risk can be mitigated to the required level and the necessary approvals obtained.

KiwiRail's acceptance that Kaiwharawhara will be the site of its Wellington operations was on the basis that the site will be ultimately extended to accommodate all Cook Strait ferries (not just Interislander's ferries) and this is the focus of the Future Ports Forum, of which KiwiRail is a member.

Funding Required

In February, KiwiRail stated that the total cost of iReX would be held within $1,450m and we have achieved that and holding a [37] contingency within that sum.

We have obtained market pricing and capacity for external debt and directors have confirmed that $350m is an appropriate level that KiwiRail can service.

In our negotiations with HMD we have agreed a ship price and technical specification at USD 184.6m per ship and are confident that this will be the price used in the shipbuilding contracts.

There is a requirement for additional Crown equity investment of $257m above that already confirmed in Budgets 2019 and 2020. There are four main drivers for that:

1. Higher costs for terminals, particularly Wellington because of its seismic profile and associated risk.
2. Higher cost of the ships, which was a deliberate decision as the preferred shipyard provides a better whole of life value and provides a more certain final build cost than alternative shipyards.
3. [37]
4. A cap on the amount of external borrowing KiwiRail believes it can service and repay.

Principal Risks and Uncertainty

The business case identifies risks to the project noting that this is a civil construction project with inherent cost and delivery risks.

In the table below we identify three key risks/uncertainties that KiwiRail directors consider specific to this funding request which KiwiRail has highlighted directly to three key ministers accordingly.

Risk statement	KiwiRail position and mitigation
As we do not currently have Resource Consent for the Wellington Terminal there is a risk that: • Consent cannot be obtained • Consent cannot be obtained in time to be ready for the ships • Consent conditions impose punitive costs	KiwiRail has received independent legal, RMA and engineering advice on the level of consent risk. On the basis of this advice, KiwiRail's position is: **Consentability & conditions** • The project is able to be consented under the RMA and Building Act. • For the 10 items identified as needing supporting evidence and suggested consent conditions all either already have, or are capable having sufficient evidence developed. • The three most critical items are – Location in the Wellington Fault rupture zone – This requires evidence to support choice of location, which was developed by the Future Port Forum, and engineering detail on how we will protect life safety, from our design consultants coupled with an independent peer review. – Kaiwharawhara reclamation for the KiwiRail development – This requires evidence on the necessity, mitigation during construction and improvements to the local ecosystem including the stream mouth which will come from the RMA, ecological and design teams KiwiRail has engaged. – Larger scale reclamation for the multi-user ferry precinct – per above. **Gaining Consent in time** • The project clearly fits the criteria to proceed through the Fast Track consenting process. • Our experience with the Picton Fast Track process coupled with the Waka Kotahi experience for Ngauranga to Petone pathway (which had a much greater amount of reclamation) will position us well for the Wellington application. • Principal organisations (being GWRC, WCC, CentrePort and KiwiRail) are aligned and all support using the Fast Track process. • There will be collective representation to the Minister for the Environment which we hope will be supported by Transport and Shareholding Ministers. **Being ready for the ships** • The construction sequence in Wellington is straight-forward with 240 days float available from gaining consent mid-2022 to construction completion and ship arrival.
As we do not yet have a commercial agreement with Port Marlborough (PMNZ) there are risks that we cannot settle on: • Acceptable return • Security requirements • Development accountabilities • Capital Contributions	KiwiRail and PMNZ have been negotiating extensively for well over 12 months. Negotiations were hampered somewhat as the cost of the overall development became unaffordable. Now the cost has been brought to an acceptable level, we can progress on key aspects of contention. **Acceptable return** • [38] • •

Risk statement	KiwiRail position and mitigation
	Security requirements • [38] • **Development accountabilities** • [38] • **Capital contributions** • [38] KiwiRail is confident it can negotiate satisfactory outcomes on the above items with PMNZ and conclude agreements in the required timeframe as it is in both parties' interests.
As we do not yet have a commercial agreement with CentrePort (CPL) there are risks that we cannot settle on: • Acceptable return • Development accountabilities • Capital contributions	KiwiRail and CPL commenced negotiations early 2021 following Kaiwharawhara being confirmed as the site for the terminal location. Good progress has been made in a short amount of time. With a good level of confidence on design and cost, we are able to progress the following key aspects: **Acceptable return** • [38] **Development accountabilities** • [38] **Capital contributions** • [38] As with PMNZ, KiwiRail is confident it can negotiate satisfactory outcomes on the above items with CPL and conclude agreements in the required timeframe as it is in both parties' interests.

Strategic Programme

The planned strategic programme for Financial Years 2021/22 is shown below, illustrating the intensity of the work KiwiRail is now planning for this vital project.

	Initiative	Owner	Initiative Description	FY21 Focus	FY21 Status (complete/in progress/not started)	FY22 Focus (e.g. in progress/not started from FY21 or new initiative)	Q1	Q2	Q3	Q4
	4.2 iRex	DG Stephen O'Keefe	Procure two rail enabled sister ships. Upgrade terminal infrastructure in Picton & Wellington.	• Ships - Contract award.	• Letter of Intent signed • Contract negotiations commenced, on target for June signing	Ships • Progressing the shipyard basic design, which will be completed in first quarter FY23 (12 - 14 months) • Confirming key components, such as propulsion and main engines Wellington Terminal • Development and lease agreements with CentrePort • Obtaining consents • Construction contracts procurement • Early works and commencing construction Picton Terminal • Development and lease agreements with Port Marlborough • Construction contracts procurement • Early works and commencing construction	Ships • Ship contract effective (July) • Ship basic design commenced Wellington Terminal • Develop design • Confirm construction procurement model strategy Wellington Terminal • Develop design • Confirm construction procurement model strategy	Ships • Key components decisions made Wellington Terminal • Development and lease agreements executed • Detailed design complete • Construction contracts awarded Picton Terminal • Development and lease agreements executed • Detailed design complete • Construction contracts awarded	Wellington Terminal • Consents granted • Enabling works commenced Picton Terminal • Enabling works commenced	Ships • Site supervision contract awarded Wellington Terminal • Construction commenced Picton Terminal • Construction commenced
				• Picton – Consented, contract with PMNZ, construction start.	• Consent lodged under Fast Track Legislation, decision expected early April • Key terms with PMNZ April/May 2021 • Design sprint for an affordable terminal commenced and to be completed May 2021 • Construction will not commence in FY21					
				• Wellington – Site selected & consented, contract with Cport.	• Site confirmed (Dec 2021) • Design sprint to develop a concept and reliable cost estimate for the terminal commenced and to be completed May 2021 • Key terms with CPL May 2021					

1. INTRODUCTION

1.1 CONTEXT

This detailed business case (DBC) builds on the adopted indicative business case (IBC) from November 2018[3]. As with the IBC, it has been prepared in accordance with the NZ Treasury Better Business Cases (BBC) methodology. A previous version of this business case assisted in the preliminary decision to procure two large rail-enabled twin ships and to support the request for funding for the ships in Budget 2020.

This version of the business case is to confirm the choice of vessels to replace the Interislander ferry fleet and for associated terminal and rail infrastructure at Wellington and Picton. Both the current fleet of ships and terminal infrastructure are effectively life expired. The ships do not have the capacity or reliability to support Government strategy for the New Zealand rail network and cannot accommodate expected rising demand.

The land-side infrastructure is also not capable of servicing the capacity required and does not meet modern customer expectations at either port. Through detailed studies carried out in 2019, the land at Kaiwharawhara (and therefore the infrastructure that currently sits on that land) has been revealed to be at even greater risk of damage in a Wellington Fault event than had previously been thought, making major investment in Wellington necessary, independently from any decision to replace the ferries.

The decision on the ships is driven mainly by KiwiRail commercial factors (affecting the wider rail network), growing demand, the opportunity to decrease carbon emissions (again relating to the national rail network as well as carbon emissions from the ships themselves), operational efficiency and the need for greater resilience. The decision on the ships lies with KiwiRail and shareholding Ministers and was supported when funding was allocated in Budget 2020. The question of what ships should be procured to replace the current fleet has been re-visited in this version of the business case to ensure the preliminary decision on two large rail-enabled ships remains robust. It is confirmed that in NPV terms, two large ships is optimal – without even taking account of the fact that the price of those ships is locked-in (providing a contract is agreed by 30 June 2021), whilst the price of two medium ships would now be *greater* than for two large ships, owing to very significant movement in the price of inputs, notably steel, since the Letter of Intent (LOI) was signed in December 2020.

The need for investment in the terminal infrastructure is driven by the existing port infrastructure being life-expired and the need to service the larger size and capacity of the new ships. On the Wellington side of the Cook Strait, the decision as to where that investment occurs involves many more parties (the port company, both ferry operators, Waka Kotahi and the local authorities).

At the margin, the decision on the ships to be procured also affects the terminal decision, though the location in Wellington is principally related to resilience, civic and transport impact issues.

For these reasons, this DBC reviews then reconfirms the core ship decision with its need to support the NZ Rail Plan and the Future of Rail strategy and considers the terminal decisions in some detail. There is a critical requirement to align the timing of the investments.

In accordance with the BBC guidelines and good practice, the DBC builds on the IBC and the decisions made based on it. The DBC therefore provides appreciably more information in the Financial, Commercial and Management cases than was contained in the IBC. The Strategic Case and Economic Case from the IBC are also revisited and refreshed to reflect changes to the policy context over the last 30 months and to show that the optioneering in the Economic Case remains robust.

The KiwiRail programme is titled iReX – Inter-Island Resilient Connection.

[3] Inter-Island Resilient Connection (iReX): Fleet Decision, iReX Project Team, November 2018, Indicative Business Case

2. REVISITING THE IBC STRATEGIC CASE

2.1 PURPOSE

This section revisits the strategic case from the IBC. For this business case, the factors that have changed in the 30 months since the IBC was adopted relate to the strategic context (flowing into the investment objectives) and some of the benefits, costs and risks.

Further assessments have been carried out of the existing ship conditions, their ability to meet more stringent maritime law and their economic lives. The shortcomings in the passenger experience have also been fully researched and documented.

Critically for the Wellington terminal location, more information has also been obtained from expert sources that have further demonstrated the level of the challenge in providing resilient infrastructure, given the risk at Kaiwharawhara from earthquakes.

The change to the strategic context is recorded in this section, with the implications for the investment objectives and therefore the option assessment, in the economic case, along with the changes to costs, benefits and risks.

The majority of the IBC strategic case – dealing with the role and operating environment for the Interislander Cook Strait Ferries – remains unchanged and is not repeated here in the DBC. The compelling case for investment in new ferries and terminals is unchanged.

Key factors in the ***case for change*** which remain strong and valid include:

- In normal times the fleet operates at full capacity during peak periods (passenger and tourism led)[4].
- Flat revenue, due to no more capacity and rising costs, provides an urgent imperative to replace the assets.
- The ageing fleet is of mixed configuration adding to operational complexity.
- The cost of maintaining the current fleet is becoming prohibitive – $33 million to maintain the fleet in 2021/22. KiwiRail estimates the annual maintenance costs across 2025-2030 to be $65 million per year if the existing fleet is required to continue.
- There is no second-hand market for rail-enabled ships.
- There is no viable alternative to CentrePort and Port Marlborough terminals for operating a ferry service between the North and South Islands.
- Existing terminal assets are life-expired and sub-optimally configured, due to a history of incremental short-term changes with no redundancy in the event of a link span or berth failure.
- The Ministry of Transport Freight Forecasting model is predicting a 1.4% per annum growth in domestic freight.
- [37]
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In addition, there are expected to be significant benefits to post-COVID-19 economic recovery through the terminal reconstruction activities.

2.2 GOVERNMENT POLICY CONTEXT

2.2.1 Government Policy Statement 2021

The iReX programme provides critical infrastructure which will help the four strategic priorities of the Government Policy Statement on Land Transport 2021 (GPS 2021) to be met. These priorities are:

Safety: *Developing a transport system where no-one is killed or seriously injured.*

[4] KiwiRail assume international tourism will resume in line with pre-COVID levels before the first new ships are in service in four to five years.

Better Travel Options: *Providing people with better transport options to access social and economic opportunities.*

Improving Freight Connections: *Improving freight connections for economic development.*

Climate Change: *Developing a low carbon transport system that supports emissions reductions, while improving safety and inclusive access.*

The development of the Cook Strait link to have better rail capabilities allows for an economical transfer of freight from road to rail which directly meets priorities one, three and four. Priority two is met by the increased capacity for passenger transport ensuring that all those who wish to travel between the North and South islands via ferry are able to do so.

2.2.2 Rail specific policy

Since the IBC was adopted in November 2018, Government policy in relation to the KiwiRail network, including the link across Cook Strait, has consolidated. In particular, the *Future of Rail* review has progressed, with the Government's vision for rail as a key enabler of economic, social, and environmental benefits to all New Zealanders and the *New Zealand Rail Plan* has been published.

The Government has set out how rail contributes to prosperity and wellbeing in New Zealand[5]:

- As a major contributor to national and regional economic growth. It reduces emissions and congestion, reduces road deaths and injuries, facilitates wider social benefits, and provides resilience and connection between communities.
- Rail is part of place-making in cities and regions. It is needed to support mass transit and effective freight movement in urban areas, and provides a portal from the regions to cities and ports. Rail achieves this at a low environmental cost - moving freight off trucks and on to diesel trains typically achieves an emissions reduction of 70 percent.
- 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.

2.2.3 The New Zealand Rail Plan

The Plan[6] released in 2021 is Government's most recent policy statement on rail. It states that 'Our long-term vision is for New Zealand's rail network to provide modern transit systems in our largest cities, and to enable increasing volumes of freight to be moved by rail.

"Enabling alternative transport options for people and freight is a key part of providing a multi-modal transport system. Increasing the use of lower-emission transport options, including rail, is an important step in the Government's response to the climate emergency. Supporting increased use of rail will be a part of the changes needed for transport to meet the draft emissions budgets proposed by the Climate Change Commission. This will help to achieve the Government's objective of net zero emissions by 2050. By moving more people and freight onto rail, our roads will also be less congested and safer.

"The effects of the COVID-19 pandemic have been felt by all parts of society, including the transport system. COVID-19 has shown the essential role our transport system plays in supporting people, businesses, and our economy. Our transport system will play an important role in our economic recovery, providing jobs, industry development and economic stimulus. With this in mind, we have confirmed that the investment priorities outlined in the Rail Plan remain appropriate in the current context.

"By 2052, freight tonnage in New Zealand is expected to increase by more than 40 percent and we would like to see the rail network play a role in supporting this growth.

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[5] The Future of Rail, NZ Government, 2019
[6] The New Zealand Rail Plan, New Zealand Government, April 2021

"We remain committed to regional economic development and the role that rail can play in our regions. This is more important than ever as our regions feel the effects of COVID-19. The "Government's regional investments have contributed funding to rail projects that provide lead investments to support growth and jobs in New Zealand's regions." (Foreword pp. 4, 5)

Investment priorities for rail

"Our Strategic Investment Priorities for restoring a resilient and reliable network are:

- Investing in the national rail network to restore rail freight and provide a platform for future investments for growth.

"This will drive a balanced programme to:

- restore resilience and reliability to core rail freight assets as a foundation for future investment to support growth in the level of freight being carried on the national network, and to enable KiwiRail's commercial growth." p. 24.

Investment pipeline

"The key priorities for investment over the next decade include:

- design and procurement of two ferries to replace the ageing Interislander fleet and associated landside assets, enabling greater reliability, efficiency and resilience for this vital link in the freight supply chain between the North and South Islands." p. 27.

Investment Priorities 2021-31

- Intergenerational replacement of Interislander ferries and landside facilities." p. 30.

The Government's view of rail in the light of COVID-19 and the Government's strong emphasis on addressing climate change were further set out in the March 2021 Letter of Expectations:

The 2021/22 letter giving the Owner Expectation for KiwiRail7 included the expectation that "Companies and entities that are owned by the Crown will play a role in supporting the response to COVID-19 and social and economic recovery."

Minister Clark noted the importance of investing in critical infrastructure and public services as important to economic recovery and, inter alia, "pursuing carbon neutrality in light of the challenges caused by climate change."

The letter further contained specific requirements on KiwiRail in regard to advancing iReX.

2.2.4 Wellbeing

The Government has developed its Wellbeing domains. These include safety and environment. The safety benefits of rail as estimated in the 2021 Ernst and Young (EY) Value of Rail update (EY report8), are that rail eliminates at least 277 safety incidents per year by reducing the volume of heavy transport from the road as well as savings in road maintenance costs.

The environmental benefits of rail from the EY report, are that rail helps the environment by reducing CO2 emissions by 2.5m tonnes of CO2-e per year.

Every tonne of freight moved by rail delivers a 70 percent reduction in carbon emissions compared with heavy road freight.

2.2.5 Alignment of the business case with Government aims

The case to replace the ferries aligns fully with Government expectations that the new ferries will help with the following:

- Provide reliable capacity across the Cook Strait that attracts additional freight off the roads on to the wider KiwiRail network.
- Support a growing rail-related tourism sector.
- Reduce emissions both directly through having modern ferries and through attracting freight off the roads, including, for example, between Auckland and Christchurch which is a premium

[7] Hon David Clark, March 2021
[8] The Value of Rail in New Zealand, Report for the Ministry of Transport February 2021

domestic freight route served by the Interislander ferries. The importance to the Government of addressing climate change has been repeatedly emphasised by Ministers.
- Increasing the resilience of 'SH1' and the Main Trunk Rail Line across Cook Strait – including to the regions.
- Providing direct and indirect safety benefits.
- Maintaining and growing KiwiRail's profitability.

2.3 KIWIRAIL'S RESPONSE TO GOVERNMENT STRATEGY

2.3.1 Support for Wellbeing[9]

KiwiRail has identified where it can most effectively support Government's wellbeing objectives as expressed through the Living Standards Framework[10]. It has used the 'four capitals' lens to help explain its role.

Human Capital

Zero Harm: KiwiRail has an ambition to be the leading health and safety organisation in New Zealand. Each year it delivers targeted initiatives to improve the safety of its employees and those using its trains and ferries.

Natural Capital

Rail has a natural advantage as an energy efficient and low emissions mode of transport, with 70% fewer emissions than heavy road freight transport.

KiwiRail is committed to reducing carbon emissions over the short and long term, meeting reduction targets of reduced carbon intensity of its activities and supporting emission reductions across the New Zealand transport sector. KiwiRail's targets align with the 2015 Paris Agreement of a 30% reduction by 2030 and net carbon zero by 2050.

KiwiRail is developing a carbon strategy with initiatives underway through the procurement programmes for the ferries and rolling stock to take advantage of newer environmental technology and future fuels and meet these targets.

Note that the Climate Change Commission has stated: "Reducing transport emissions is crucial to meeting our climate targets. Action here will have an immediate and lasting impact. Aotearoa can cut almost all transport emissions by 2050. The technology already exists and is improving fast.

"In Aotearoa we need to change the way we build and plan our towns and cities and the way people and products move around. This includes making walking and cycling easier with good cycleways and footpaths. It means moving freight off the road and onto rail and shipping. It means reliable and affordable public and shared transport systems. And it means an electric or low emissions transport fleet[11]." P.14

Financial/Physical Capital

KiwiRail recognises that growing its operational capacity is key to New Zealand's future success.

[9] SCI 2020 - 2022
[10] https://lsfdashboard.treasury.govt.nz/wellbeing/ accessed 15/10/2019
[11] 19 May 2020 Letter to Minister David Parker from Dr Rod Carr, Climate Change Commission-COVID-19 Recovery Bill-1.pdf

Social Capital

Individuals working on building terminals and port infrastructure will directly benefit from the investment.

Delivering Regional Growth: KiwiRail has a unique role to play in growing regional economies through improving productivity and supply chain efficiency, creating jobs, delivering tourists to towns and cities and taking trucks off vulnerable roads improving road safety.

Tourism: KiwiRail is one of New Zealand's largest tourism operators, carrying more than a million passengers each year on its Great Journeys of New Zealand rail and ferry services. KiwiRail has a strategy to continue its market share growth through expanding its offering into packages and experiences, extending the current nine-month Coastal Pacific service to a year-round experience, increasing capacity and delivering its new premium service offering on the TranzAlpine and Coastal Pacific services in 2022. KiwiRail is increasing its international marketing to attract more high-value tourists.

2.3.2 Fiscal stimulus and COVID-19 economic recovery

The Government is focused on infrastructure projects that aid economic recovery from the effects of COVID-19. In this context, the designers of the Picton terminal estimate that 200-300 personnel will be required for at least three years through the detailed design and construction periods. A similar labour input is expected at Wellington.

"Best endeavours" will be committed to source inputs to the terminal construction locally. Similarly, any opportunity for local inputs to the ship fit outs will be identified.

New ferries and terminals will provide the high-quality experiences expected by international and domestic tourists and help to stimulate these important markets in the medium term.

In its SCI 2021-2023[12], KiwiRail anticipates that there should be increased demand from the domestic market looking for alternative locally-based holidays.

2.3.3 Alignment of the business case with KiwiRail Strategy

KiwiRail has refreshed its Strategy with a flow from Strategic Themes, through Key Initiative Programmes and Annual Goals to achievement of its 2030 goals.

The Strategic Themes are: Customer Centricity & Growth, Commercial Delivery, People & Safety, Capital Projects Delivery, Sustainability, Innovation and Collaboration. While the iReX ferries and terminals are noted as a Key Initiative Programme under the Capital Projects theme, they are also important for each theme, for example freight and tourism for Customer Centricity and Growth, revised tarin and ship plans for Commercial Delivery and moving towards Net Carbon Zero under Sustainability, Innovation and Collaboration.

2.4 IMPORTANCE OF THE FERRIES FOR WELLINGTON AND MARLBOROUGH

2.4.1 Wellington

In 2019, the Wellington Ferry Terminus Programme Business Case was prepared for Greater Wellington Regional Council (GWRC), Wellington City Council (WCC), Waka Kotahi, CentrePort, KiwiRail and Strait NZ (Bluebridge) – acting as partners in the Future Ports Forum (see Section 3.4 below). Whilst focused on geographical considerations for the ferry terminal(s), the business case highlighted the significance of the Cook Strait ferries for the capital city and region.

Working Paper No. 1: Strategic Case[13] states:

"Conclusions of this paper are that a compelling case for investment into Cook Strait ferry services infrastructure in Wellington exists.

[12] Statement of Corporate Intent 2021 – 2023, Playing Our Part in New Zealand' Recovery
[13] Wellington Ferry Terminus Programme Business Case Working Paper No. 1: Strategic Case, Beca Limited, 8 July 2019

The Wellington ferry terminus is identified as a matter of local, regional and national importance:

- Over $15b to $20b of freight is moved across the Cook Strait on the ferries each year. As such, the ferries are a key component of the New Zealand freight logistics network.
- Normally 1.2 million passengers travel on the Cook Strait ferries each year, with this projected to grow to 1.7 million within 20 years. Over 400,000 of these trips are by international visitors.
- The ferry services serve as a water-bridge for State Highway 1 and provide essential connectivity between the North and South Islands for business, recreational, visitor and freight users.
- The ferry services contribute to the local, regional and national economy, providing over 3600 jobs in the Wellington region.
- The ferry terminals are identified as a critical city access mode in local and regional resilience plans, particularly after a seismic event. After an earthquake, it is expected to take 15 days to access Wellington via land, and only 4-5 days via sea which ferries can be a key part of. Resilient marine and land infrastructure providing for roll on/roll off ferry and ship access will be pivotal to providing access. The recovery of ferry services is also important for reducing the economic impact to Wellington."

The Cook Strait ferries (and port) feature in multiple statutory and non-statutory documents produced by the local authorities and related bodies, illustrating their importance for the city and region. As well as the general support for the (economic) importance of the ferries, port and rail freight, there is a strong emphasis in the Wellington documents on resilience and recovery from a major event – where a new fleet can make a significant contribution.

2.4.2 Let's Get Wellington Moving: Vision Document – May 2019

Let's Get Wellington Moving (LGWM) includes two statements in its Vision that are relevant to iReX:

p.11 What opportunities can our vision bring: Safer and more reliable access to the port and ferries.

p.12 What's our strategic approach: 4. Improve journeys through and around the central city increase the resilience and reliability of our transport corridors, especially to the hospital, port, and airport.

2.4.3 Wellington Region RLTP

The (Draft) Wellington RLTP 21[14] includes specific policies relating to resilient and reliable access: *Ensure key economic growth and productivity areas (such as the Wellington City CBD, CentrePort, airports and regional centres), together with primary and manufacturing industries, are well connected across the region to support efficient access for people and freight.*

Under "Our transport investment priorities for the next 10 years" the RLTP includes:

Strategic access

Improve access to key regional destinations, such as ports, airports and hospitals for people and freight.

Localised congestion and traffic conflicts in the near vicinity of key destinations is also becoming problematic. For example, CentrePort and the inter-island ferry services are vital to New Zealand's supply chain, providing road and rail links between the North and South Islands. However, ongoing congestion and operational conflicts between road and rail access to and around the port means that further investment is now required to enable the port to grow.

Port access improvement is therefore a priority investment area. The RLTP further states that:

Port access

The Wellington port is a key regional freight destination, provides inter-regional access to the South Island and is a key lifeline following any major natural hazard event. Examining the issues affecting access to, and resilience of, Wellington's port has been an important focus of transport, land-use and

[14] (Draft) Wellington Regional Land Transport Plan, Greater Wellington, 2021

commercial planning exercises over recent years. A regeneration plan for the port area is underway and planning for future facilities for new inter-island ferries with greater capacity is being considered.

Specific funding provision is included as (page 60): Resilient port and multi-user access Waka Kotahi ferry terminal access, with funding for pre-implementation, property, implementation of: $6m, 2021/22, $6m 2022/23, $28m 2023/24 within a total of $160m for 2021/22 – 2026/27. Funding is NLTF and partners.

2.4.4 WCC Long Term Plan 2021-31

Priority area 3: The city's core transport infrastructure is a safe, resilient, reliable network – that supports active and public transport choices, and an efficient, productive and an environmentally sustainable economy.

2.4.5 Marlborough

The ferries are also significant economically for the Marlborough region and Upper South Island more generally. For example, the New Zealand Trade and Enterprise regional assessment for Marlborough highlights the large number of international visitors, and the important linkages to Marlborough's core strengths in the wine and hospitality sectors.

2.4.6 Te Tahuihu RLTP 2021-2031

The Te Tahuihu (Top of the South) RLTP 2021-2031[15] notes that: *KiwiRail is committed to replacing the three current InterIslander ferries that are reaching the end of their life with two new ferries that will cater for current and future volumes. Using two ferries with greater capacity will mean that freight will pass through the network in bigger volumes but less often. It is likely that freight and other vehicles will dissipate and disperse by the time they reach Blenheim, but the traffic will cause significant severance to Picton for longer periods of time. MDC, Waka Kotahi and KiwiRail are working together to ensure the local road and state highway will continue to function by accommodating the larger trains.*

The RLTP contains specific funding provision (as priority 1 (page 54)):

- Local roads improvement: Construction of an Overbridge to support the upgrade of the InterIslander ferries: 2021/22 $2m, 2022/23 $5m, 2023/24 $10m. The RLTP states that funding is 49% MDC and 51% Waka Kotahi
- Road improvements: Upgrade two roundabouts to cope with traffic flows: 2022/23 $2m, 2023/24 $3m. The total cost is given as $12.7m to be funded 100% by Waka Kotahi.

2.5 CONDITION OF THE CURRENT FLEET

Further assessment of the current ferries has provided updated information on the ships' condition, ability to meet maritime laws and economic lives. It was particularly important for KiwiRail to have a deep understanding of these factors given the challenges in relation to meeting the timeline, with the probability that achieving satisfactory long-term arrangements for a Wellington terminal will not be possible in the time previously anticipated.

The industry-expected commercial life of ships in an operation such as that which Interislander provides is about 25 to 30 years. The age profile of KiwiRail's current ships is:

[15] Draft Connecting Te Tauihu Regional Land Transport Plan 2021-31, February 2021

Ship	Age	
	As at 2021	At planned service withdrawal date
Aratere	23	27
Kaitaki	26	29
Kaiarahi	23	27

Table 2: Age of current Interislander ship fleet.

The actual end of commercial life of the ship is not generally a fixed date but rather a function of: physical condition; obsolescence of key systems; ability of the vessels to meet regulatory requirements; appetite to spend increasing amounts on maintenance; whether customers and the business are happy to accept lower levels of reliability and outages (some of them unexpected); and acceptance of poor fuel efficiency/sustainability outcomes due to changes in global fuel regulations standards plus emission target reductions.

Given that the age at withdrawal is between 27-29 years KiwiRail is pushing right up against an unacceptable risk profile. The other factor is that growth in the various market sectors cannot be accommodated on the current vessels. At peak and shoulder periods the current fleet is already at capacity. This issue will become more acute given the year-on-year growth being observed. Ultimately this capacity limit will become a constraint on productivity and economic activity.

In summary, the exact point of end-of-life of the ships is not precise. Options and situations where the ships need to remain in service for longer will have the effect of increasing risks, reducing operating performance and increasing costs.

Details of some of the key factors are outlined below:

Physical Condition

As the ships increase in age, accumulated wear and tear becomes an increasing issue. Specific issues relate to:

- Regulatory requirements – the fleet are quickly approaching the 25 and 30-year milestones where inspections become much more detailed and stringent. The impact of this is that the ships will be out of service for longer periods to enable the inspection and to undertake work to address issues found. On top of being very expensive and uneconomical, at worst the regulator may prevent the ships being used for operations.
- Corrosion of steel components – the harsh marine environment results in loss of steel thickness from rust. This is especially an issue in pipes, deck plates and tanks. Pipework is critical providing propulsion, power, air conditioning and cooling to the engine. Recently $300k was spent on repairing just a small section of pipe. Steel work on vehicle and rail decks are becoming exponentially worse due to worn coatings and rust. Large sections have been replaced and these repairs are becoming more frequent and of greater size. Steel replacement is very expensive, can be hard to access and the ships will need to be taken out of service for extended periods.
- The cost of maintaining the ferry fleet is becoming prohibitive. For example, KiwiRail is budgeting [37] to maintain the fleet in 2021/22. KiwiRail estimates the annual maintenance costs across 2025-2030 to be [37] per year if the existing fleet is required to continue. However, this level of investment may still result in a maritime safety compliance issues, which may require unplanned decommissioning of a ferry or operating freight-only services if SOLAS (“safety of life at sea”) is compromised. Decommissioning would impact supply chains with a significant economic impact, while freight only services would reduce KiwiRail’s return on its passenger service worth [37] per annum. In order to maintain services and market share, KiwiRail would consider leasing a ship at an estimated [37] per annum.
- A major issue faced with the fleet is corrosion in pipework and exposed decks which Interislander is dealing with at dry dock but will be an ongoing battle up until the ships retire from service. Kaitaki poses the biggest concern of the three ships with its cargo loading equipment – bow door and internal tilt ramps that are in poor condition. Interislander intends to spend significant time

and cost over the next nine months (from May 2021) ensuring this aspect of the ship will be at a standard that will last for the next five years.

- Metal fatigue – ships experience high amounts of vibration caused by the mechanical equipment and pounding/flexing caused by heavy seas. The repeated stress cycles eventually cause metal in key areas of the ships to become weak and crack. Sometimes this can be very sudden and unexpected. This occurred recently on the Kaitaki when a shaft generator which supplies onboard power failed. The cause was fatigue of the frame inside the generator which supports the moving parts.
- Electrical systems and obsolescence – the electronic systems that control the critical systems on the ships become unsupported by their manufacturers and it is impossible to get replacement parts. Many systems now also lack internal knowledge as staff will have retired which is just as important as the parts themselves. Given many of these systems are critical for the operation of the ship, when they fail and can't, or are difficult to be fixed, it has a significant impact on the Interisland operation. Critical electrical systems also fail due to hardening of the wiring and switchboard damage.
- Fuel – the ships all run on heavy marine fuel oil. It is expected that New Zealand will adopt international standards to use more environmentally-friendly fuels. This will require modifications to the engine systems, and they will run less efficiently than they were designed to. It should also be noted that the current fleet engines are relatively old technology and are not as efficient as new equivalents. The longer the ships are in service there is a missed opportunity to save costs on fuel and reduce emissions. Further, the International Maritime Organisation (IMO) has set requirements that there should be a 30% reduction in emissions by 2030. It will be very difficult or impossible to get this level of efficiency improvements from the current ships. If there are delays in sourcing new ships KiwiRail may fail to comply with the IMO requirements.

In recent years millions of dollars have been poured into the ships to renew obsolete systems and manage the increased risk of age-related failures. Although there have been upgrades to the Kaitaki, pushing past 2024/25 there are major replacements needed, including electronic propulsion and navigation systems. Aratere also has an electronic propulsion which is becoming obsolete. A multi-million-dollar upgrade is required if the running of the ship is extended past this period.

In total, $12m was spent on the Kaitaki's last dry dock. Much of this was spent on age-related work including crew facilities, pipe work, underwater stabilisers, leaks. This age-related work is ongoing and continued spend is required on the same areas to keep the ships in service with more expected during the next dry dock.

This vulnerability of the ferries to faults was illustrated by events on 11 December 2019 when 528 passengers who were due to leave on the Kaitaki just after 8am could not depart after minor damage occurred to the door at the bow of the ship and to the linkspan. The passengers were delayed for 12 hours, causing distress to many. Further, the Kaiarahi, from Picton, was supposed to dock in Wellington at 11.30am but was unable to because of the Kaitaki blocking the way.

A sailing on the previous night was also cancelled owing to an issue with one of the ship's propellers.

2.6 FAILINGS IN PASSENGER EXPERIENCE

A substantial issue for the current terminals and ships is the poor experience provided for passengers. This issue acts as a brake on the ability of Interislander to market and grow patronage. The provision of new ferries and terminals is a crucial opportunity to address the issue.
In order to fully understand the degree to which the travel experience falls short of modern expectations, Interislander commissioned research from Designworks as part of the iReX programme[16].

Designworks used a mix of research techniques, including direct interviews, to help establish the shortcomings of the current offering. Their report noted failings at all stages of the journey and affecting all passenger categories. Some of the main issues included:

[16] Project iReX Discovery Session, Designworks, 23.10.2019

- The check-in process for foot passengers includes many moments of uncertainty, leaving customers wondering if they're in the right place and unsure about what comes next.
- Waiting 40-80 minutes to board the ship in the terminal, foot passengers waiting to board are left feeling unenthused and uninformed in a rundown terminal, hoping this isn't an indication of the ferry.
- Vehicle passengers waiting to board are left feeling like cargo on a production line and uncertain about what comes next.
- Commercial vehicle drivers have to make do with less-than-ideal sleeping arrangements whilst waiting to board. As frequent customers, they are overlooked and unaccommodated.
- The boarding process for foot passengers lacks personality and a warm, genuine welcome. This is a functional, unemotional aspect of the journey.
- The boarding process for private vehicle drivers reinforces the cargo feeling.
- The interiors are dated, rundown and in serious need of an overarching concept to tie it all together. The ambiance feels static and low energy, people are zoning out instead of engaging with what should be an incredible experience.
- The seating options are unsatisfying, leaving passengers feeling like they are choosing the best of a bad bunch.
- The Plus Lounge should have an undeniably premium feel; however, it fails to meet the mark. This is an opportunity to showcase the best of the best.
- There is a huge disconnect between the ship interior and the breath-taking NZ scenery. The scenery must be amplified and maximised, to create a seamless, rich experience.
- The bathrooms are purely utilitarian in function and are an area you want to get in and out of as soon as possible.
- The current entertainment is a missed opportunity. With such a captive audience, this is the perfect chance to leverage 'edutainment' to create a rich, memorable experience.
- The children's entertainment and facilities could be far more tactile, interactive, educational and engaging to leave a lasting impression on our young passengers.
- The disembarking process for foot passengers should include an end of journey buzz, but instead is a functional and unemotional aspect of the experience.
- The disembarking process for private vehicle passengers is an overly utilitarian and unemotional aspect of the experience. Customers return to a state of uncertainty, where they feel like cargo.

2.7 SEISMIC INFORMATION RELATING TO KAIWHARAWHARA

Since the IBC was adopted in 2018, analysis of the effects of the 2016 Kaikōura earthquake has allowed GNS Science to better understand the behaviour of offset fault rupture zones, which exist across the current Wellington site in Kaiwharawhara. GNS' view is that the current seismic risk is much greater than previously understood, which supports a move to an alternative site for reasons of national resilience, irrespective of the ship replacement programme drivers.

The following figure illustrates the possible extent of faulting in a Wellington Fault event. The Wellington Fault is expected to generate fault movements of circa 5m horizontally and 1m vertically. There is an 11% likelihood of the Wellington Fault rupturing in the next 100 years.

Figure 1: Possible faulting extent at Kaiwharawhara.

KiwiRail has engaged GNS to carry out a *Probabilistic Site Hazard Assessment* (PSHA) for Kaiwharawhara.

The PSHA will:

- Will provide better clarity around seismic inputs to design
- Form a best practice approach to inform design, and provide best value for money, by designing to site specific conditions
- Be a best practice approach to demonstrate compliance with building act
- Provide a future opportunity to utilise this information for master planning.

Carrying out PSHA now (May/June 2021) will provide better information through all design phases and allow the team to quantify seismic risk more accurately and ultimately understand cost implications.

3. ECONOMIC CASE

3.1 ECONOMIC ASSUMPTIONS

In developing the financial forecasts and economic assessment six scenarios were explored which considered a wide range of business outcomes. To date, the "Business Case 2020" scenario has been used for decision making and financing discussions. However, the detailed financial forecast review has shown that this case was developed on the basis of a conservative assumption set.

The "Worst Case" and "High" Scenarios are the extreme ends of the spectrum and will only occur with significant external factors occurring and therefore our likely revenue projections for the New Interislander business will fall in the range between "Likely" and "Optimistic".

The scenarios considered are summarised below.

Worst Case	Pessimistic BUSINESS CASE 2020 [37]	High (unlikely)
Recession environment - Market growth doesn't eventuate. - Manufacturing shrinks - Domestic consumption reduces **Competitor merger/acquisition** - merger of domestic freight network provider with BB - Head to head challenge for rail freight - CV market share reduction	Market/industry growth has remains steady at predicted rates. International tourism market recovered to pre-COVID Loss of some Freight and Passenger market share from duopoly position.	100% market share in freight and passenger.

The growth and market share assumptions for the scenarios being focused on are as follows.

Scenario	Freight Growth (Annual)	CV Market Share[4]	Rail Market Share[5]	Mode shift to Rail[6] (One-Off)	Total Share of the 'available market'	Passenger Growth	PV Market Share	FPax Market Share
[37]								

Notes to this table:

1. Passenger growth is variable over seasons and reduces over time. Growth assumption varies between [37]
2. "Pessimistic" was the scenario modelled for the 2020 business case
3. "Likely" roughly represents today's market share, with some addition mode shift to rail
4. Market share of commercial vehicle (CV) is between Interislander (IIL) and Bluebridge (BB), values in brackets are a percentage of the 'available market'
5. Rail market share is of the current rail market (we have 100%), values in brackets are a percentage of the 'available market'
6. The mode shift to rail is captured from BB, Coastal and IIL and has been accounted for in the ILL CV market share with a slight reduction.

To achieve the range of scenarios outlined above, we will need to undertake some of our activities differently and provide new offerings, products and services to our customers. Outlined below are

some of the types of drivers that will help to achieve the projected revenue targets in the “Likely” and “Optimistic” scenarios:

Modal shift to rail

- Investment in KiwiRail to enable more of NZ freight task to be undertaken by rail
- KiwiRail increasingly providing the heavy lifting linehaul conveyor belt between multimodal transport nodes (with offshoots to the wider transport network)
- Rail providing an exclusive supply chain solution to a transport system under pressure
- Policies to reduce climate change emissions driving modal shift to rail
- Likely increase in RUCs making rail more cost competitive and difficulty in recruiting and retaining truck drivers making rail more attractive
- Coastal Shipping MARPOL fuel costs increased eroding this mode’s current low-cost advantage
- [37]
- Through the new Interislander disrupting the transport system enabling new opportunities not currently possible or envisaged [37]

Retaining and growing CV market share

- New ships and terminals designed to cater for commercial driver requirements (in particular driver rest necessities)
- New integrated digital booking systems with customers to partner and streamline booking processes
- [37]
-
- CV customers (including their end customers) attracted to using Interislander's lower carbon ships compared to other options.

Retaining and growing passenger market

- [37]
- Increased and targeted marketing – drive digital marketing and tactics
- Increased data and analytics to inform product development and meet changing consumer needs
- Curated customer experiences
- [37]
- Increased tactical promotions and brand/sponsorship activity.

The KiwiRail Board approved the ‘likely’ scenario for the financial case.

3.2 SHIP OPTION CHOICE

The IBC had selected a preferred option to progress, using the normal Better Business Case (BBC) processes. Whilst work continued on this option (two new large rail-enabled ferries to be available from the mid-2020s) in accordance with good practice, the short-list was revisited and the option selection repeated prior to Budget 2020.

This process included reviewing the short-list and adding a limited number of options that had not originally been considered. These options arose through the additional expertise available to the iReX programme team and were seen as possibilities to contain upfront capital costs.

The selection criteria, based on investment objectives (IOs), were refreshed as the original IOs did not fully reflect Government and KiwiRail strategies and policies that have become clearer and better established since the IBC was drafted.

The option refresh process was carried out at a workshop including KiwiRail expertise in ship design, terminals, project management, legal and financial considerations. The outcome was reviewed and confirmed by senior KiwiRail managers.

Section 3.5 provides the results of a re-check of the ship option choice carried out in April/May 2021 – taking account also of impacts on the terminals.

3.2.1 The options considered

The IBC short-list (in addition to the 'do minimum' of keeping going a mixed fleet of smaller second-hand ships) comprised:

- Two medium-sized RoPax ships
- Two medium-sized rail-enabled ships
- Two large RoPax ships
- Two large rail-enabled ships.

In this context a 'medium' ship would provide some 2000-2500 linear metres (lm) of cargo space and a large ship 2800-3500 lm. A 'large' rail-enabled ship would have a 40 x 60-foot wagon capacity compared to 32 x 60 foot wagon capacity for a medium ship (for comparison Aratere has capacity for 32 x 50 foot wagons). Further details are provided in Section 3.2.2 of the IBC.

The iReX evaluation team generated three further options to consider:

- Two medium rail-enabled ships capable of being lengthened at some future date
- Two medium rail-enabled ships, plus one rail-enabled freight only vessel
- Two medium rail-enabled ships from mid-2020s with a further medium rail-enabled ship to be added, approximately late 2030s, as demand increases.

In developing these supplementary options, it was noted that the first and third were possible responses to servicing demand as it grows and that KiwiRail has previous experience of lengthening a ship mid-life. In 2011, Aratere underwent a $52 million refit increasing her rail and passenger capacity (from 360 to 600 passengers). The refit included a new bow and stern. The ship was lengthened by cutting it in half to insert a new 30-metre midsection. The re-evaluation of medium-sized ships was thought to have potentially yielded savings in terminal infrastructure costs.

The second additional option was aimed at resolving the need for additional freight capacity with a ship that could be fully employed including crossing times that suit freight and happen to be less passenger friendly. A freight-only vessel has benefits of substantially lower upfront capital costs as well as being cheaper to operate, requiring fewer crew.

The 'do minimum' would be the fall-back if the programme is further deferred. That is to continue to operate a mixed fleet of second-hand vessels. The state of the current vessels is noted in Section 2.5 above.

KiwiRail's international shipping advisers have re-confirmed that there is a global shortage of second-hand ferries. Further, the second-hand market does not include rail-enabled ships, so once Aratere is withdrawn from service all rail freight will have to be 'road-bridged', which is operationally costly and more hazardous than direct loading of wagon consists and is unlikely to offer the level of service required to maintain or grow the rail mode share. This could ultimately result in withdrawal of service if the ships or landside assets are no longer fit for purpose. Failure to replace the ships with adequate replacements will seriously undermine the achievement of objectives outlined in the recent *Future of Rail Review* and draft *NZ Rail Plan*.

There is increased risk associated with the age of existing ships, including increased failure rates and unplanned disruption which limits KiwiRail's commercial proposition.

This option would mean there will be no opportunity to reduce carbon emissions from the ships themselves, or from the transport system more generally, as additional freight will not be attracted off the roads.

3.2.2 Refresh of the investment objectives

In considering the investment objectives against which to assess the options, the iReX programme team was mindful of the set of strategies and policies for rail adopted by Government as further developed by KiwiRail (see strategic case sections 2.2 and 2.3).

KiwiRail strategy, policy or goal	Investment objective	Weighting
Protect the core business; revenue recovery; deliver revenue; customer satisfaction, and operating performance; reduce congestion and make roads safer; offer world class tourism experiences; provide resilience to national transport system; grow the prosperity of the New Zealand economy	Meeting demand profitably across the three markets (passenger, commercial vehicle, rail freight)	35%
	Improve reputation and customer satisfaction across all three markets	15%
	Improve business resilience and reliability	10%
Zero harm of our KiwiRail whānau, reduce congestion and make roads safer	Reduce risk of harm	10%
Build emerging adjacent businesses	Responsiveness to market conditions	5%
Lead in low emissions transport – practising kaitiakitanga; provide low carbon transport mode for supply chain/logistics sector	Reduce carbon intensity	15%
Integrate technology with new assets, facilities and workforce skills	Operational efficiency	10%
Providing stronger connections for a better New Zealand		**100%**

Table 3: iReX programme investment objectives.

The table below has the height of the rows in proportion to the weightings and therefore gives a strong pictorial impression of the relative advantage of each option. The two large rail-enabled ships option is clearly preferred with a dominant position overall and relative strengths over the two large RoPax ships option in terms of supporting rail freight and operational efficiency. Owing to this option's ability to cater for any early ramping-up in demand, it scores more favourably than the three medium ships, staggered, option and has a better performance for passengers than the new option with three ships of which one is dedicated to freight.

Importantly, there is not a substantial difference in the capital required between a large and medium ship of the same kind - typically of the order of 15% to 18%. A freight only ship, as in the sixth option, could be around 40% cheaper than a comparable vessel that accommodates passengers. In total, the two large ship option is appreciably less costly than one with three medium ships.

A two ships option has significantly lower operating costs to KiwiRail as only two ship crews are required, and these crews are similar in size between the medium and large ships (the differences relate to passenger service). Ship dynamics are more efficient for a large ship in comparison to the medium options and there are economic efficiencies from operating a larger ship through a reduced number of required sailings. The two large ship fleet option will use less fuel and produce fewer carbon emissions in comparison to the two medium ship option.

				Options							
				Do Minimum	2 Medium RoPax	2 Medium Rail	2 Large RoPax	2 Large Rail	2 Medium Rail to be lengthened	2 Medium Rail, 1 Freight	3 Medium Rail staggered
IOs	Weighting	Score	Sub IOs/KPIs								
Meeting Demand Profitably across the three markets	35%	35	Passenger								
			CV								
			Rail								
Improve reputation and customer satisfaction across all three markets	15%	15	Passenger								
			CV								
			Rail								
Improve business resilience and reliability	10%	10	Ability to achieve								
			Resilience to day-day								
			Responsiveness in								
Reduce risk of harm	10%	10	KiwiRail								
			Transport Network								
Responsiveness to market conditions	5%	5									
Reduce carbon intensity	15%	15	Ships								
			Transport Network								
Operational efficiency	10%	10									
Total check	100%	100			68.3	118.3	206.7	263.3	175.0	206.7	203.3
Ranking					7	6	2	1	5	2	4

Note scale:

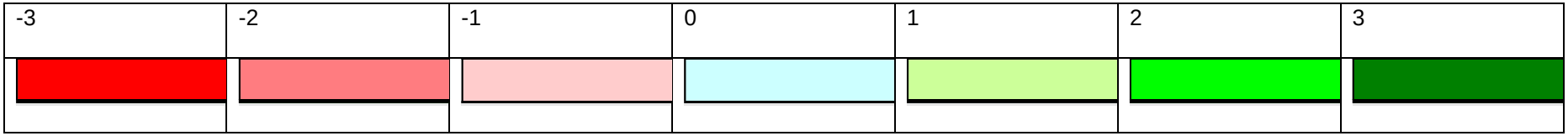


Figure 2: iReX fleet optioneering analysis.

In assessing the options against the criteria, the following matters were considered (in addition to those noted above):

- RoPax operations effectively creates two separate rail networks in NZ, which will drive the need to double-up on assets such as heavy maintenance depots and rail weld equipment.
- RoPax operations are inherently more complex for rail freight, posing a greater risk of harm to staff than directly loading rail wagons on to a rail-enabled ship.
- Immediate purchase of two larger ships will provide the capacity required for peak demands.
- Larger rail-enabled ships will have greater potential to attract more users from roads and reduce carbon emissions as they will provide capacity plus provide greater reliability (for example in heavy seas). Two larger ships will have substantially lower carbon emissions than three medium ships.
- Large RoPax ships will be somewhat more advantageous in the event of a natural emergency owing to size and flexibility. (Rail-enabled ships however, will be designed for installation of stern ramps).
- The option of allowing for a ship to be lengthened may provide some flexibility to respond to changing demand, but is more expensive than building a larger ship initially, and will halve the fleet size for around six months while each ship is taken from service for the refit.
- For rail, a large ship will be able to accommodate a 40 wagon consist, which is KiwiRail's preferred standardisation nationally.
- KiwiRail's core rail market is a premium domestic freight service from Auckland – Christchurch, which demands capacity over very specific time gates and ship fleet configurations vary these time gates.
- Having sister ships provides crewing flexibility, simpler operations and reduced cost through not needing multiple infrastructure interfaces.
- Road bridging with RoPax ships has higher costs and greater operational complexity which will inhibit growing the core Auckland – Christchurch premium service.
- Medium ships are easier to perform a one-hour turnaround time than large ships (although such fast turnarounds may not be needed with a three-ship operation).
- Purchasing two ships initially and a third ship later would make the third ship more expensive as the benefits of scale would be lost compared with ordering three ships at the same time.
- Two medium ships would require KiwiRail to road-bridge any rail freight above a 32-wagon consist length increasing costs overall, being more complex and needing additional workforce.
- Practicability of ship fleet capacity in catering for the market during dry dock in the off-peak season.

3.3 NPV

- The NPV using the published Treasury rate of 5% is positive $207m
- Internal rate of return is 6.6%.

The table below shows how the NPV is made up. Comparison is made to earlier versions of the NPV analyse for reference.

NPV Breakdown (NZD)	Note	May DBC	2021 Budget Bid	Change	2020 Draft DBC
Revenue					
Rail freight	[37]				
Commercial vehicle					
Passenger (incl. private vehicles)					
On board services					
Other					
Total revenue					
Operating expenses					
Vessels					
On board cost of goods sold					
Terminals					
On shore operations					
Head office and corporate costs					
Total operating expenses					
EBITDA					
Programme capital expenditure					
Future BAU capital expenditure					
Ship sales					
Total Capital Expenditure					
Net Present Value		**$207m**	**$62m**	**$145m**	**$154m**
Discount rate		5%	5%	-	6%
IRR		6.6%	5.3%	1.3%	7.8%

Table 4: iReX programme Net Present Value.

Key drivers of the change between this final business case and the January, Budget 2021 Bid, business case are:

1. Higher expected market growth and greater mode shift to rail [37]
2. Higher first year volume (ie starting point) due to improved current performance and forecast to FY26.
3. Higher first year passenger numbers (ie starting point) due to improved current performance and forecast to FY26.
4. Result of major review of on-board services offerings, raising average spend from [37] per passenger average to [37] . Also reflected in higher on-board services cost of goods sold (in operating expenses).
5. Higher crew numbers to support greater on-board services and ensure appropriate leave cover.
6. [37]
7. Updated assumptions for vehicle tugs and operators required for moving commercial vehicle trailers on and off the ships.
8. Change in allocation methodology for KiwiRail corporate overhead (neutral at group financial level).
9. [37]
10. Provision for a new terminal building in Picton during the five years after arrival of the new ships.
11. [37]

3.3.1 COVID-19 impacts on demand

The patronage information in regard to both passengers and passenger vehicles has been adjusted in the years to FY26 due to COVID-19 impacts (CAGR of 1.1% v 2.1%).

3.4 THE RECOMMENDED OPTION

The recommended ships option is for two large rail-enabled ships (served by new infrastructure at Wellington and Picton).

This section provides further detail on the ferries proposal and assesses how they are likely to deliver against the programme objectives.

The recommended option also includes terminal and associated rail infrastructure upgrades at Wellington and Picton. The majority of the investment required at both ports relates to meeting the requirements of the new ships in addition to the obsolescence of the current buildings and infrastructure and their lack of resilience.

3.4.1 Meeting the desired outcomes

A systems approach has enabled the required outcomes to be identified against which the ships (and terminals and all ancillary rail infrastructure) will be designed. The strategic outcomes identified are outlined in the below table.

Strategic Outcome	Description
Customer Focus	Provide a valued transport experience that delights our customers and exceeds our competitors in our three principal markets; rail freight, vehicle freight, and private domestic or international passengers.
Environmental Sustainability and Emissions Reduction	Deliver an environmentally sustainable solution that reduces carbon emissions in operations, and across the supply chain, and can exploit future developments in sustainable technologies.
Health and Safety	Keep our employees, contractors and customers safe throughout the design, delivery and operation of the system.
Resilience	Deliver an Interislander capability that is resilient against major disruptive events and can deliver continuity of the KiwiRail business, commensurate with the remainder of the network, and a lifeline capability for New Zealand.
Commercial	Establish a new Interislander operation that delivers positive commercial outcomes for KiwiRail.
Efficient Operations	Balance an efficient operating model for KiwiRail's Cook Strait connected journeys with delivering a high-value customer experience.
Reliability	Provide a reliable service that can respond to minor disruptive events without significant schedule interruption.
Operational Transformation	Deliver a renewed Interislander operational capability, including assets, personnel and support systems, that can compete and succeed in the New Zealand freight and transport sector.
Meeting Future Demand	Deliver an Interislander capability that can adapt to changes in customer needs, freight demand profiles and mode share.

Table 5: iReX strategic outcomes.

3.4.2 Capacity and Performance

The following diagrams show a representation of the new ship size in relation to the existing fleet and the new ship key metrics as against the Aratere.

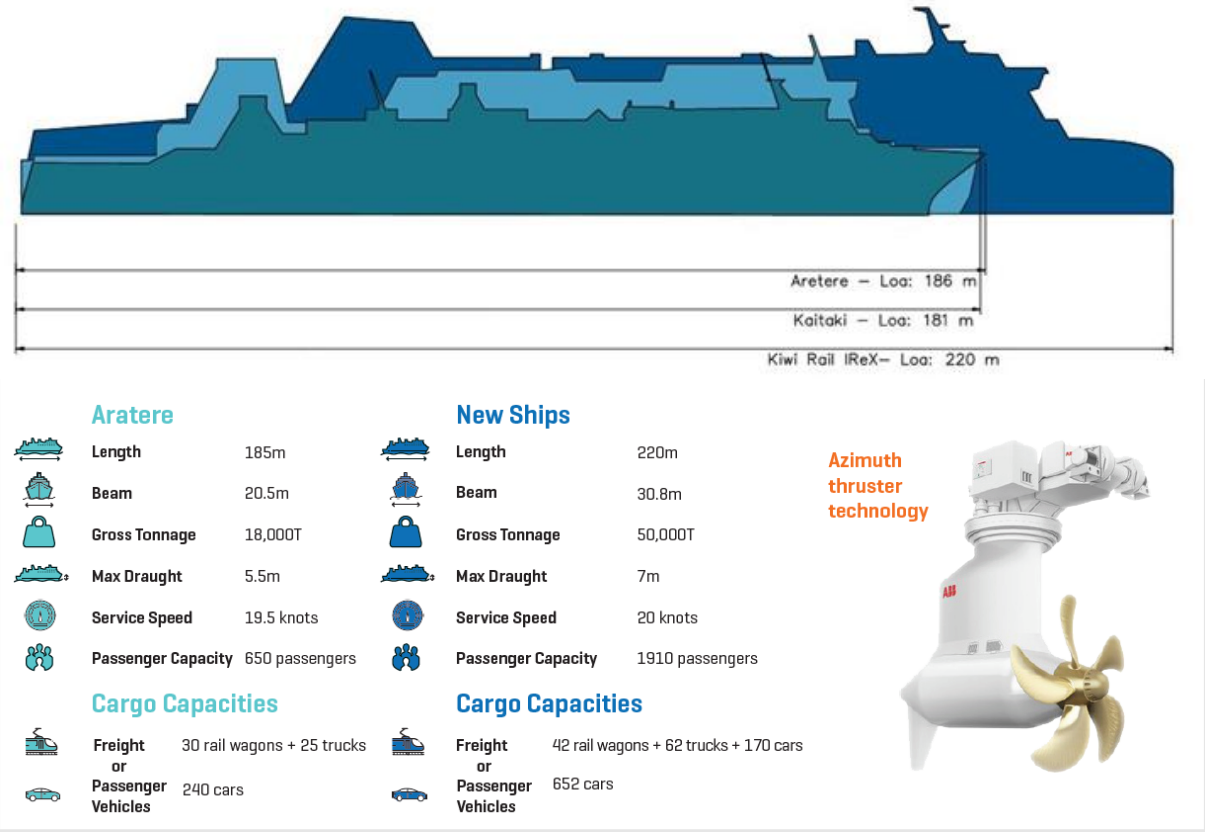


Figure 3: Key facts about the new ships

The following table outlines key design considerations for the ships.

Hull Efficiency	• Speed and power • Wake energy and seakeeping
Power and Propulsion	• Operational efficiency • Reliability • Low carbon and future proofing for alternative energy source
Customer Experience	• A ‘curated’ customer experiences that can be updated through the life of the vessels

Safety in Design	• Opportunity to address current safety challenges through incorporating safety in the design of the ships. For example, lifeboats, provisioning, lashings, accessibility of equipment for maintenance • Safe Return to Port
Resilience and Redundancy	• Emergency internal ramps • RoPax stern door • Can generate power back to the grid • Battery power to the propulsion system • Emergency towing arrangements • Helicopter arrangements

Table 6: Key design considerations.

3.4.3 Carbon

One of the key design requirements for the new ships is energy efficiency and reduction of carbon emissions. This is aimed at achieving:

- Compliance with international regulations
- Support of KiwiRail's efforts to achieve the carbon emission targets as outlined in its Sustainability Strategy
- Meeting Government objectives.

The design strategy to achieve these objectives includes:

- Highly optimised hull form
- Optimal power & propulsion configuration
- Fuel efficient engines
- Diesel electric/hybrid solutions to allow for flexibility and progressive increase in the use of clean power sources such as batteries
- Shore to ship power supply
- Larger capacity ships - voyage and speed optimisation
- Option of using cleaner alternative fuel.

KiwiRail carbon emission reduction targets are:

- 7% by 2020 (2016 baseline)
- 30% by 2030 (2012 baseline – refer to table below)
- Net zero carbon emission by 2050.

Carbon emissions reductions with the new fleet

Base year (FY12 - July 2011 – June 2012):

- KiwiRail total emissions = 278,967 TCO2-e
- Interislander emissions = 110,713 TCO2-e.

Carbon emission reduction

The carbon emissions reduction is a 44,792 TCO2-e reduction against base year FY12 (110,713 TCO2-e – 65,921 TCO2-e) – **this is a 40% reduction on FY12 for Interislander's portion of KiwiRail's FY12 carbon footprint, and a 16% reduction on KiwiRail's total footprint**.

The preliminary ship's concept design is based on a diesel electric/hybrid solution including diesel generators for main propulsion power and batteries for peak shaving. The ship's performance including hull efficiency and manoeuvrability is enhanced by the use of azipod thrusters instead of the more conventional shaft propeller.

The table below compares the operating profile, average fuel consumption per voyage and total fuel consumption for the current fleet for FY19 and the new ships based on the preliminary concept design briefly described above.

It shows that a 36% reduction in fuel use would be expected.

Business Area	Current Fleet 2019	New Ships
Number of ships	3	2
Number of voyages	3,780	3,152
Avg fuel consumption per voyage (MT)	8T	6.5T
Total Fuel Consumption (MT)	30,500T	19,500
Reduction (%)	-	36%

Table 7: Preliminary carbon savings.

3.4.4 Terminals – Sustainability opportunities

Redevelopment of the terminals is an opportunity to deliver market-leading infrastructure and demonstrate KiwiRail's commitment to sustainability. This includes the supply of onshore charging for the new ships, reducing the carbon intensity of the construction and operations of the terminals, and achieving measurable social and environmental outcomes.

To ensure rigor and transparency are applied to the measurement and reporting of these outcomes, KiwiRail is seeking independent verification under the Green Star and Infrastructure Sustainability (IS) rating schemes. Both schemes will assist in showing sustainability initiatives under the following categories: management systems, procurement, climate change adaptation, energy and carbon, water, materials, discharges, waste, ecology, community health and wellbeing, cultural heritage, stakeholder participation, urban design and innovation.

Examples of specific opportunities identified in early planning include:

- Operational energy efficiency: Parametric modelling of terminal design will ensure architectural elements (eg the location of glazing or type of roofing systems) reduce heating and cooling requirements whilst maintaining internal thermal comfort
- Reduced embodied carbon of materials: For example, seek 30% Supplementary Cementitious Material (SCM) content in concrete mixes and explore opportunities to reuse second-hand materials
- Improved ecological value: Through a restorative approach to planting and improved receiving water quality.

3.4.5 Terminals – Resilience opportunities

The redevelopment of the terminals also provides the opportunity to embed greater resilience into the design. Considerations include:

- Designing for sea level rise
- Providing back up power supplies to operate during power cuts
- Provision of back up berths to provide lifelines support (excludes Wellington Fault earthquake for the Wellington terminal)
- Robust infrastructure that can withstand earthquakes small to medium relatively undamaged and be able to be quickly and economically repaired after medium to large earthquakes (excludes Wellington Fault earthquakes for the Wellington terminal).

3.5 WELLINGTON TERMINAL LOCATION EVALUATION

The choice of the location for the terminal in Wellington has been led by the Future Ports Forum (the Forum).

The Forum, a six partner organisations (GWRC, WCC, CentrePort, KiwiRail, StraitNZ (Bluebridge), Waka Kotahi, was established in 2017 with all parties signing an MoU to progress a Multi-User Ferry Precinct (MUFP) concept. The partners agree that the MUFP concept is not just ferry terminals but an integrated multi-model transport solution, including road, passenger rail, bus, and pedestrian.

Led by GWRC, on behalf of the Forum, a Programme Business Case (PBC) was developed detailing the site selection process confirming Kaiwharawhara site as the preferred site. While KiwiRail had some concerns with this decision owing to the seismic issues at Kaiwharawhara and would have preferred a King's Wharf location, it has accepted the consensus and is actively moving to ensure that the need for early re-development for Interislander is not compromised by the agreed move towards a Multi-user Ferry Precinct Master Planning (MUFP).

The Forum confirmed the decision for Interislander to stay at Kaiwharawhara and for Bluebridge to move there at a later date. The Forum is looking ahead to what would be needed to create a vision for the site.

The Forum has agreed the following approach as the basis for developing its long-term vision:

1. Co-location of Wellington's ferry operations at Kaiwharawhara, while allowing for both ferry companies to operate independently within the precinct
2. The development of a Masterplan to create a unified vision for Kaiwharawhara which will deliver phased development over time
3. Acceptance of the Interislander's immediate need to redevelop 'end of life' infrastructure to be ready for the new ferries which are scheduled to arrive in mid-2020s - Phase 1 development. Development for Bluebridge's requirements will be in Phase 2
4. Joint consideration of the roading, public transport an active transport improvements required to access the co-located ferry precinct
5. Development of any business case required to support roading, public transport and active transport funding bids from local level to Waka Kotahi national level
6. A streamlined joint consenting strategy and approach which would deliver the masterplan over time to a single vision
7. Consideration to be given to seeking Fast Track consenting process approval.

KiwiRail is encouraging the Forum to progress rapidly, noting that at its meeting in April 2021 the partners agreed a MUFP Workstream Project Brief to advance the MUFP master plan. This workstream is expected to be a 20-week process. The result will be a number of scenarios of how the MUFP area could look including transport and multi-modal connections.

The meeting agreed the scope and the lead commissioning agency for joint workstreams as follows:

- Masterplan – CentrePort
- Sequencing and Staging Plan – CentrePort
- Consenting Strategy - KiwiRail
- Preparing consents and other regulatory requirements – KiwiRail
- Transport Business Case – Waka Kotahi
- Resilience Standards - CentrePort
- Iwi Partnership – Programme Director
- Stakeholder engagement – Programme Director.

It further agreed that a Programme Management Office to be established to provide for integration of the various workstreams, overall programme management and commissioning of the agreed joint work tasks. This would comprise a Programme Director and a Programme Manager.

Funding contributions would be provided by all six partner organisations towards the shared costs of the Programme Management Office. Contributions would be on an equal basis.

The Master Plan will detail scenarios of the ‘final state’ including the multi modal transport connections and the co-location of both Bluebridge and Interislander in a ferry terminal Precinct. This will include allowing for growth. The Master Plan will describe the staging of the development and associated time ranges for development and will link to the other workstreams being undertaken (eg consenting).

It will be the enabler for the Future Ports Forum to develop and assess the future works based on the preferred scenario through the development of detailed business and commercial cases.

3.6 TERMINAL LAYOUTS

The figures on the following pages show the current design for the terminals as they will be at the end of construction.

Construction sequence and staging plans have been developed to ensure minimal disruption to the Interislander’s operations and those of other port users during construction.

3.6.1 Terminal Layout – Wellington

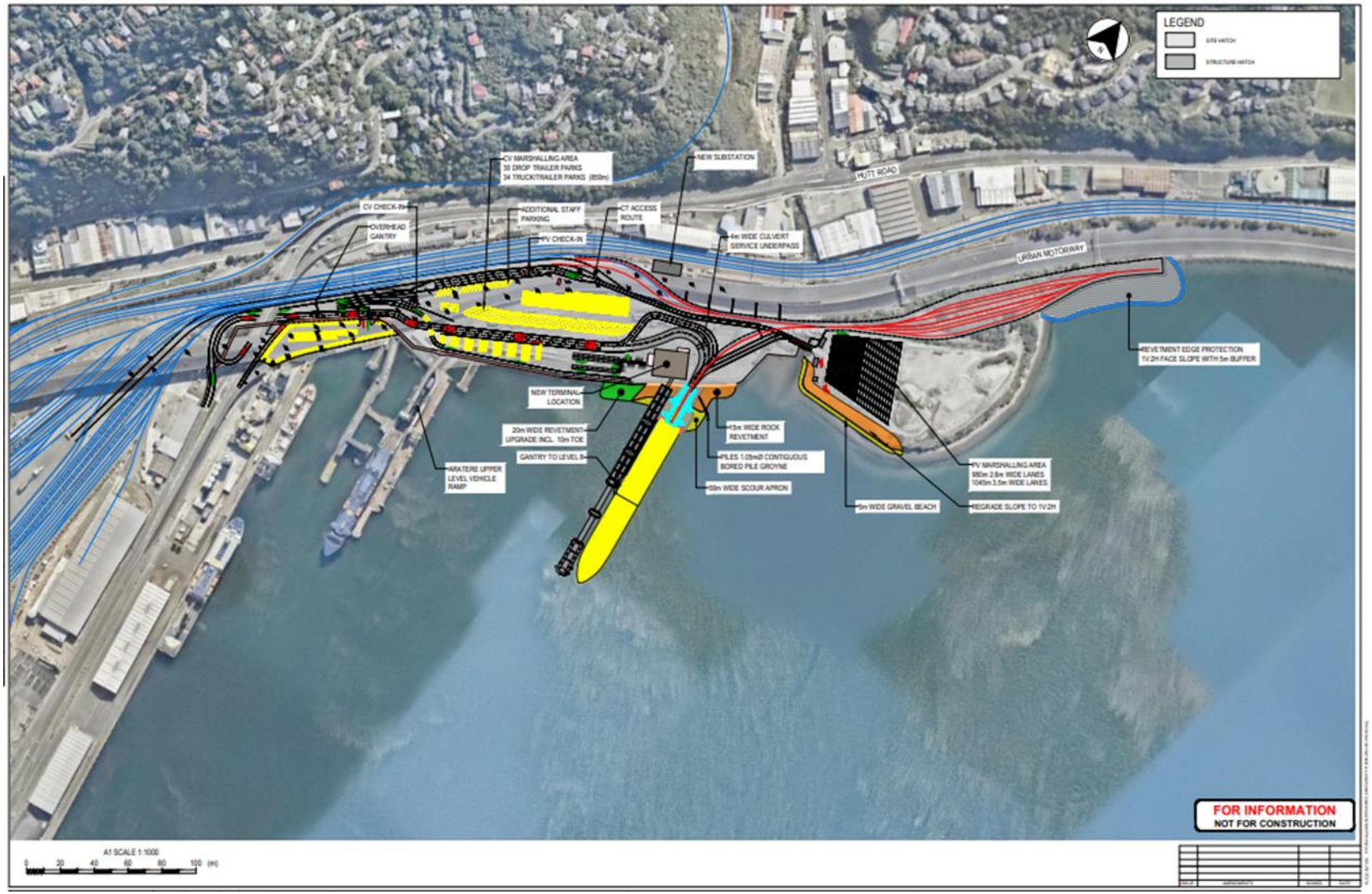


Figure 4: Indicative Wellington Terminal layout.

3.6.2 Terminal Layout – Picton

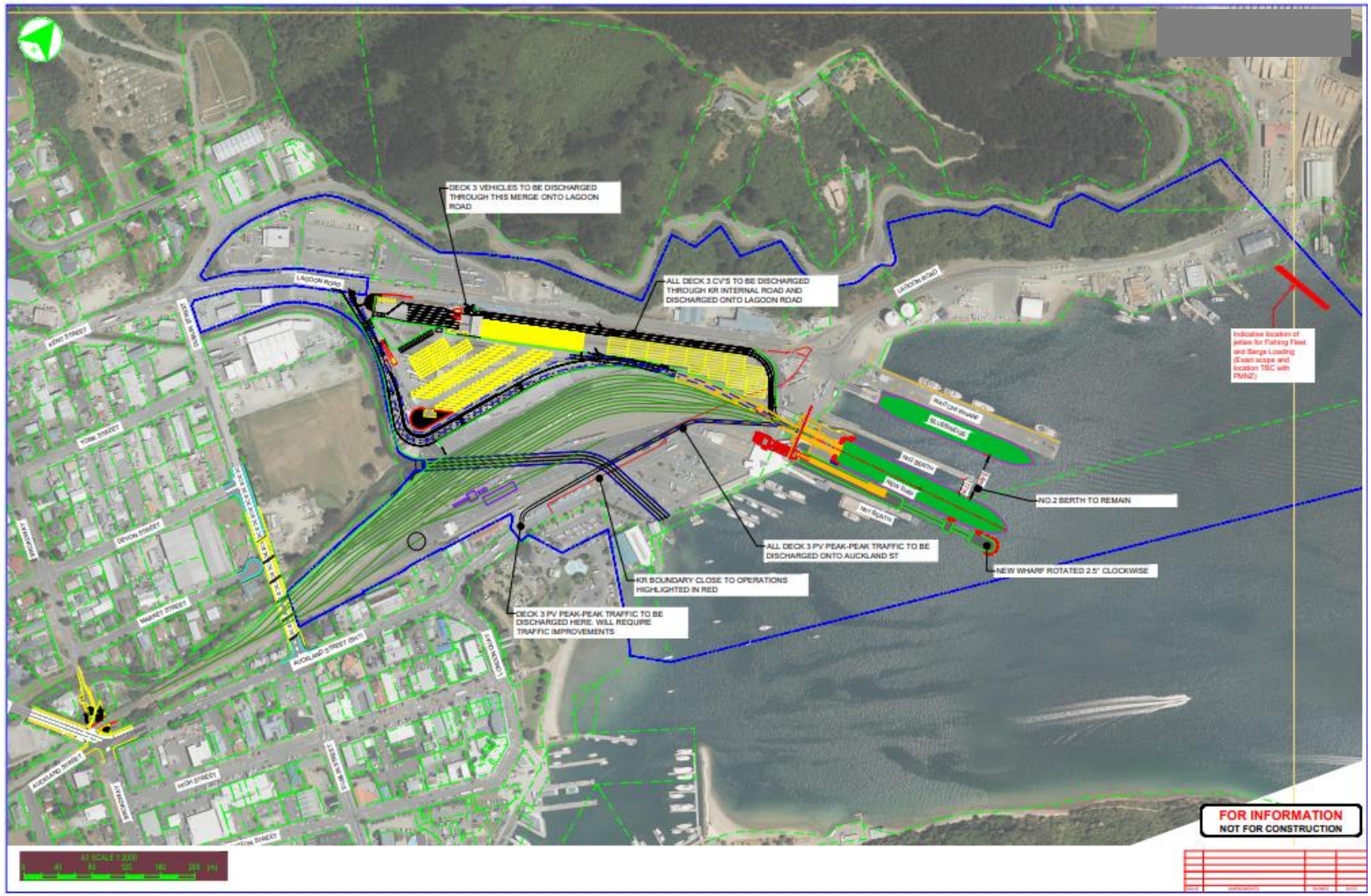


Figure 5: Picton Terminal concept layout.

3.7 RE-CHECK OF SHIP CHOICE

In May 2021, KiwiRail re-checked that the decision on the choice of fleet options was robust. It was confirmed that:

- Two large ships would be cheaper than three medium – cheaper to buy and cheaper to run
- Two medium ships would not meet demand. KiwiRail needs to meet existing demand and accommodate for known growth
- Infrastructure costs are similar regardless of ship size, but demand is not met (nor revenue targets)
- Rail-enabled ships mean more rail freight and more efficiency, improving commercial performance and reducing transport emissions.

3.7.1 Ship comparisons

The statistics relating to the current fleet and options are shown in the Table below.

	Current Fleet				2 Large Ships		2 Meduim Ships	
	Aratere	Kaitaki	Kaiarahi	Total	Each	Total	Each	Total
Rail deck								
- lane meters (if CV)	550	-	-	**550**	1,290	**2,580**	1,100	**2,200**
- wagons (60' eq.)	27	-	-	**27**	40	**80**	32	**64**
Vehicle lane meters								
- commercial	650	1,780	1,950	**4,380**	1,290	**2,580**	1,100	**2,200**
- passenger	included above, 'mixed use'				879	**1,758**	included above	
- total	**650**	**1,780**	**1,950**	**4,380**	**2,169**	**4,338**	**1,100**	**2,200**
Passengers	690	1,350	550	**2,590**	1,910	**3,820**	1,500	**3,000**
Ship length (m)	184	182	180		220		209	
Ship beam (m)	20.3	23.4	24.3		30.8		25.4	

Figure 6: Fleet statistics

3.7.2 The critical factors in the analysis

Revenue

- Two medium ships cannot capture the level of available demand the large ships can (owing to insufficient capacity)
- Three medium ships can capture the same level of demand as the large ships through having adequate capacity and sailing slots.

Operating Expenses

- On a per ship basis, medium ship operating costs would be lower than large ships:
  - Fuel 15%
  - Crew 25%
- All other ships costs 10% lower (R&M, materials, insurance).

These values are conservative, ie the reduction would likely be lower.

Capital Expenditure – Ships

If priced in the same market, KiwiRail's ship brokers have advised that a medium ship would be approximately USD 20m less than a large ship. In the current market, however, they have advised a medium ship would be USD 20m ***greater*** than the LOI price for the ship KiwiRail are negotiating for owing to the sharp increase in steel prices[17] and opportunity for the shipyard to restart the price negotiations[18].

For the purposes of this analysis, however, it was assumed the difference is based on prices in the same market conditions (ie USD 20m ***lower*** medium ship price).

Ongoing capital expenditure (eg dry docks) would be lower for a medium than a large ship.

Capital Expenditure – terminal facilities

- A medium ship would reduce the cost of terminal infrastructure facilities compared to serving a large ship
- The reduced length and tonnage of a medium ship could result in a lower cost of the wharves (shorter length of wharf and reduced strength) estimated at $10m
- Other terminal infrastructure elements (land and marine) could also be reduced, estimated at 5% ($30m).

[17] The price of steel plate commodities has increased 20% since March 2021, and 50% since December 2021

[37]

3.7.3 NPV Impacts

The NPV breakdown of each option is outlined in the following table.

NPV Breakdown (NZD)	2 Large Rail Ships	2 Medium Rail Ships	3 Medium Rail Ships
Revenue	[37]		
Operating expenses			
EBITDA			
Programme capital expenditure			
Future BAU capital expenditure			
Ship sales			
Total Capital Expenditure			
Net Present Value (5% discount rate)	**$207m**	**$84m**	**-$136m**
Difference from 2 Large Rail Ships	**$0m**	**-$123m**	**-$343m**

Table 8: Fleet option NPV comparison.

While two medium ships will reduce up-front capital expenditure (including terminals) and operating costs over the life to the ships, this is more than offset by the reduction in revenue.

Three medium ships can capture the same revenue as two large ships. However, the higher ship cost (three -v- two) and operating costs to run three ships is materially greater than for two large ships.

Overall, two large ships represent the best economic option – even ignoring the reality of the large ship price being 'locked-in' at lower rates than now apply. The price to KiwiRail of the large ships is lower than for a medium ship being priced now, given the way that critical inputs have risen sharply in the last six months.

4. COMMERCIAL CASE

This section of the DBC demonstrates that KiwiRail has put in place a substantial, well-considered plan for the procurement of the various components of the iReX programme and that it is systematically following the plan.

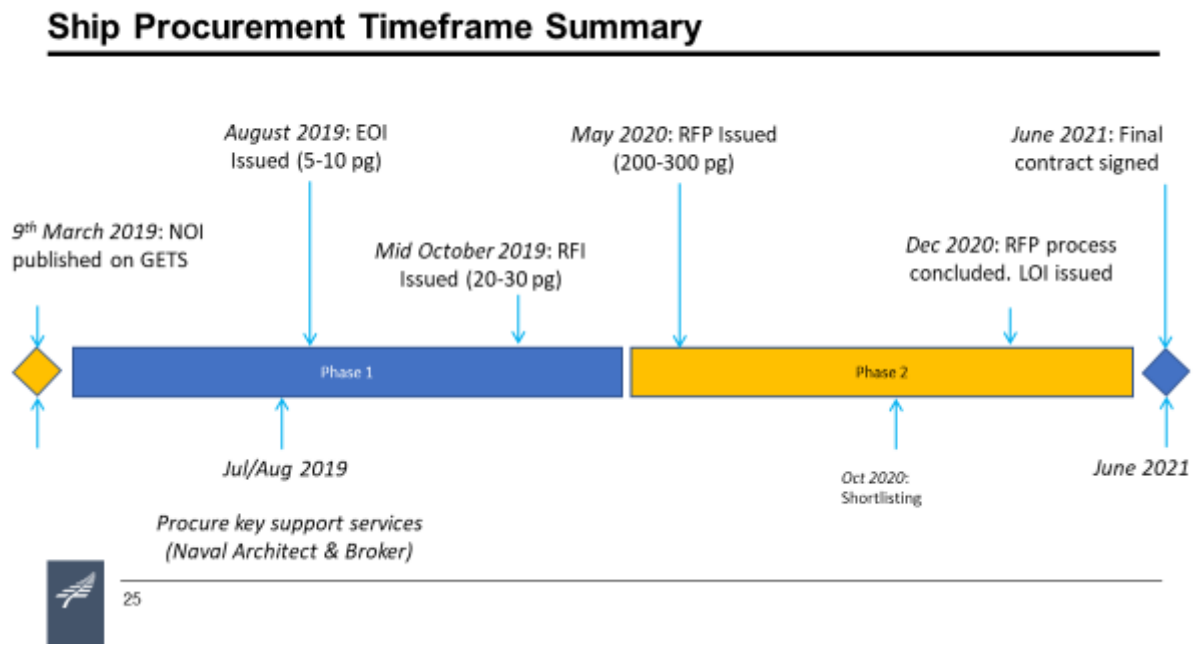
4.1 PROCUREMENT PLAN SHIPS

4.1.1 Overview

KiwiRail developed a strategic procurement plan (SPP), covering all procurement activities relating to the iReX programme. This SPP set out and aligned procurement objectives to high level iReX objectives. These were expressed in a way that allowed for later evaluation of the programme against achievement of the objectives. The three major procurement activities are ships and the Picton and Wellington terminals, considered below.

Following a robust programming process for all iReX procurement activities, the need to procure new ships before the current ships reached the end of their useful economic lives determined the overall timeline.

In a programme with the scale of value and public interest as iReX, it is critical to its success that the programme can demonstrate adherence to probity principles. Therefore, the preparation of the SPPs and advice on probity has been led by the iReX Legal and Governance Manager with assistance from Russell McVeagh and support from the iReX team. KiwiRail has implemented a probity process for any individuals with involvement in the programme. KiwiRail is engaging a probity auditor to provide a report on the RFI and RFP stages of the Picton terminal procurement.



4.1.2 Ship market analysis

As KiwiRail did not have fully up-to-date market intelligence on the ship supply market it engaged a ship broker with that knowledge and expertise.

That adviser concluded that there were no suitable second-hand vessels on the international market. They confirmed that New Zealand does not have the capability to undertake large, specialised vessel design or construction and that both Europe and Asia were suitable markets for ship construction.

4.1.3 Ship procurement

The ship procurement workstream has followed a multi-phase, open competitive process, to give suppliers an opportunity to demonstrate to KiwiRail their ships and capabilities, as well as capacity to deliver within required timeframes.

This procurement process was designed to:

- Give suppliers as early as possible notice of the procurement, accommodating the industry's long lead times for building of ships. This allowed KiwiRail to engage with suppliers on delivery timeframes and high-level specifications in parallel to developing detailed requirements, necessary for the RFP.
- Meet the tight target timeframes for delivery of the ships, while ensuring KiwiRail has sufficient flexibility to respond to market requirements and ensuring appropriate interfacing with the terminals workstream and dependencies.
- Achieve the best value for money outcome for KiwiRail, from a whole-of-life cost perspective for the ships, and within funding constraints.
- Ensure input is obtained from all parts of the KiwiRail business that are likely to be impacted by the procurement of the ships, including Interislander, freight, tourism, network services and property.

Phase 1 began with a 'Market Engagement' (NOI)', where KiwiRail provided prospective suppliers of ships and supporting services early notice of the procurement process. This was to enable interested parties to plan resourcing to engage with the iReX ship procurement process as well as considering the building of the ships in their forward manufacturing programmes.

This was followed by the issuing of an 'EOI' for the supply of the ships, in August 2019. The EOI was the first formal stage of the procurement process where the programme team sought registrations from prospective parties. The EOI document included high level details of ship requirements and the procurement process. KiwiRail used the registrations to test market interest and inform the process to be adopted for the further procurement phases. KiwiRail received significant interest from the EOI with a total of 28 responses received.

Phase 1 concluded with the issuing of an RFI in October 2019. The RFI included an outline of specifications of the ships (including the interior design requirements) and the required timeline for delivery, place of delivery and any other operational and financial outcomes sought by KiwiRail. The responses to the RFI were used to create a shortlist which was then confirmed by the KiwiRail Board.

4.1.4 RFP Stage 2 – final selection

The final stage of the RFP commenced on 15 October 2020 when shortlisted shipyards were notified of their inclusion on the shortlist and asked to provide a final offer. They were also advised of KiwiRail's requirements, revised evaluation criteria weightings and the process for the final selection stage.

The RFP documents were released via the data room administered by iReX. The RFP Stage 2 programme included a requirement for shipyards to attend a briefing session after being shortlisted.

The aim of the briefings was to provide an opportunity to provide shipyards with:

- Update on the iReX project
- Feedback on their RFP submission
- Q&A session.

William MacLachlan, partner of specialist shipping lawyers HFW, attended the briefings to ensure that procedural fairness was consistently maintained across the briefings.

The briefings were attended by shipyard representatives, RFP evaluation team, iReX representatives and iReX subject matter experts.

Shipyards were asked to confirm in their final offer the following:

- Signing of Letter of Intent - December 2020
- Final technical and commercial negotiations with successful respondent March to May 2021
- Entry into contract by end of June 2021
- Delivery date ship 1 - August 2025
- Delivery date ship 2 - May 2026

- Project delivery plan based on revised timeline
- Price offer and payment milestones based on revised timeline.

Their final offer to remain open until the end of June 2021.

Due Diligence

Following the notification to shortlisted shipyards, HFW and BDO Global commenced the corporate and financial due diligence process.

Preparation for technical negotiations with successful shipyard

Preparation has started for the design and technical negotiations with the successful shipyard planned to commence in March 2021.

It is expected that suppliers will use 'best endeavours' to source any inputs from New Zealand, whilst delivering value for money.

While COVID-19 has made logistics more challenging, there may be advantages to KiwiRail to be in the market at this time when other potential ship purchases have been put on hold.

See section 6.3.1 for the timeline showing key procurement activities.

4.1.5 Special services – naval architects

Following an open international procurement process KiwiRail formed a contract with Naval Architects OSK-ShipTech (OSK). OSK undertook the concept design in parallel with the start of Phase 1 and provided assistance through the Ship's Procurement stages, including assistance as Subject Matter Experts with the technical evaluation of proposals for a fixed cost. There are also options available to utilise OSK for further work including overseeing the construction of the ships which have been provided with upper limit cost caps.

4.1.6 Special services – ship broker

KiwiRail determined that the involvement of a specialist new-build ship broker would help ensure KiwiRail obtains the best overall ship procurement outcome. KiwiRail has contracted the broker on a fixed-price model, with payment only made on successful contract of a ship supplier. (Other methods include percentage of build, but KiwiRail determined there is then a risk of incentivising higher priced build.) Having a specialist broker has and will:

- Allow KiwiRail to access current market intelligence and help explore all feasible options in setting up a ship supplier deal (see section 2.1.3)
- Enable KiwiRail to make use of the brokers relationship brokers have with ship suppliers to prioritise the iReX programme, ensuring the tight timeframes are met
- Bring experience of commercial terms on which KiwiRail should be able to procure new ships
- Provide resources with capabilities of working in all markets
- Provide assistance through the Ships procurement stages, including assistance as Subject Matter Experts (SMEs) with the evaluation of proposals
- Allow the broker to act in a mediatory role, resolving any issues that arise.

KiwiRail has appointed Barry Rogliano Salles from Switzerland for ship broker services as of August 2019.

4.1.7 Special services – interior designers

Steen Friis Design A/S have been engaged to complete the interior design of the ships and are working collaboratively with NZ company Designworks who are creating the New Zealand look and feel for the ships.

Similarly to OSK, Steen Friis Design undertook the concept design and provided assistance through the Ship's Procurement stages, including assistance as Subject Matter Experts with the technical evaluation of proposals for a fixed cost. There are also options available to utilise Steen Friis Design to further develop the interior design package including providing support to KiwiRail during the construction of the ships which have been provided with upper limit cost caps.

4.1.8 Special services – ship financing advice

Financial advisers Ernst Young (EY) have been engaged and a RFI for financing options for the ships was released to the financial market in 2019. The RFI was to gauge the capacity, appetite and key loan terms to provide funding for the ships purchase. A ships financing RFP was issued to ECAs and

commercial banks in January 2021 and responses received 25 February 2021. From this process a preferred banking syndicate has been selected and KiwiRail is progressing to finalise a committed loan facility in June 2021. EY have also provided advice to assist KiwiRail determine appropriate hedging strategies to manage its risk from foreign exchange and interest rate volatility.

4.1.9 Special services – system engineering

Following an international procurement process, KiwiRail signed a contract with the Shoal Group for the development of a Requirements and Interface Management System, Process and Controls for both project and operational requirements and the related interfaces for the full iReX programme.

To date, Shoal Group has completed the setup and the user training for the requirements management system and the baseline for the high level and detailed requirements for the Terminals subsystems and Interfaces with the Ships workstreams. Following some smaller handover work by Shoal in the first quarter of 2021, the Configuration and Requirements management responsibilities and processes will be integrated in the overall iReX Quality, Health and Safety Assurance Framework and practices.

4.2 CURRENT (MAY 2021) HIGHLY CRITICAL POSITION

KiwiRail has been able to progress the ship procurement to the stage where a preferred shipyard (Korean Hyundai Mipo Dockyard (HMD)) has been selected and a Letter of Intent (LOI) signed following a Request for Proposal). To maintain the price a contract is required to be signed by 30 June 2021 (subject to finalisation of terms and conditions of contract and funding confirmation).

[37]

For clarity, the other key components of the ship build cost are labour (Korean based) and supply of components from other manufactures including engines and propulsion systems. These costs are not steel based and are unlikely to shift as significantly in a renegotiation scenario.

Ship build slots: heightened supply chain, life safety, and revenue risk

The ship build slots are also confirmed through the LOI. This enables a replacement ferry fleet to arrive in 2025 and 2026, in time to decommission the ageing existing fleet. It is difficult to quantify the cost of retaining these slots, as it is more likely that they would be provided to another customer given the high demand. This could mean delays in the ships arriving, presenting risk to New Zealand's freight supply chain certainty and to safety. The cost is therefore in maintenance and operating risk, rather than in paying a premium to maintain a slot given this may not be possible.

4.3 PROCUREMENT PLAN TERMINALS

4.3.1 Overview

The terminals' workstream of the iReX programme comprises of the design and construction of the terminal facilities suitable for the new ships.

The required terminal facilities encompass infrastructure and land owned by KiwiRail as well as by the respective ports. Commercial negotiations are needed:

- To agree the terms and conditions under which one, or both, of KiwiRail and the relevant ports will enter into contracts with third parties for the detailed design and construction of the new facilities and, once completed.
- Under which Interislander will have rights to use those that are port owned, are required.

[38]

[38]

4.3.2 Picton

[38]

Procurement

KiwiRail is pursuing two options:

[38]

4.3.3 Wellington

The approach to be taken in Wellington is being negotiated with CentrePort (CPL).

KiwiRail have now signed a Memorandum of Understanding (MoU) with CPL. This commits the parties to negotiating and agreeing a Development Agreement. The MoU addresses how KiwiRail and CPL will work together to achieve the MUFP agreed by the Future Ports Forum but also the new KiwiRail facilities which must precede the MUFP in time for the arrival of the new ships.

In parallel CPL and KiwiRail have converged on a wharf design concept and have started doing Value Engineering on their seawall concepts.

Procurement

[38]

RMA Risks

At the time a decision is made to enter into a contract for the procurement of the ships, KiwiRail will **not** have consent but will have a consent strategy which is highly likely to suggest an application to the Minister for the Environment to proceed under Fast Track legislation as the most practical means of expediently obtaining consents.

[34]

4.3.4 Programme Governance

KiwiRail has set up a structure across the programme team in order to manage all procurement activities for the ship, terminal and supporting workstreams that allows for both compliance with KiwiRail (CPAD) expectations and the specific nature of iReX procurement needs.

As above, the ship procurement is being carried out under a Strategic Procurement Plan and has now reached the final stage of that plan.

At the governance level, the Programme Director is responsible for the day-to-day governance of the programme activities. The Programme Director reports to the COO of CPAD who has overall responsibility at the Executive level. Due to the scale and complexity of the terminals' components of the programme, direct accountability for these was moved to the newly established role of COO: Construction Delivery, executed through the role of iReX Terminal Programme Director in early 2021.

The iReX Programme Governance Board (which includes a KiwiRail Holdings Board director representative) provides oversight. It:

- monitors progress of key programme activities
- endorses recommendations to the Chief Executive and (where required) KiwiRail Holdings Board on programme decisions
- provides guidance and direction to the programme office.

Refer to section 6.1.3 for additional detail on the Programme Governance Framework.

4.3.5 Interdependencies

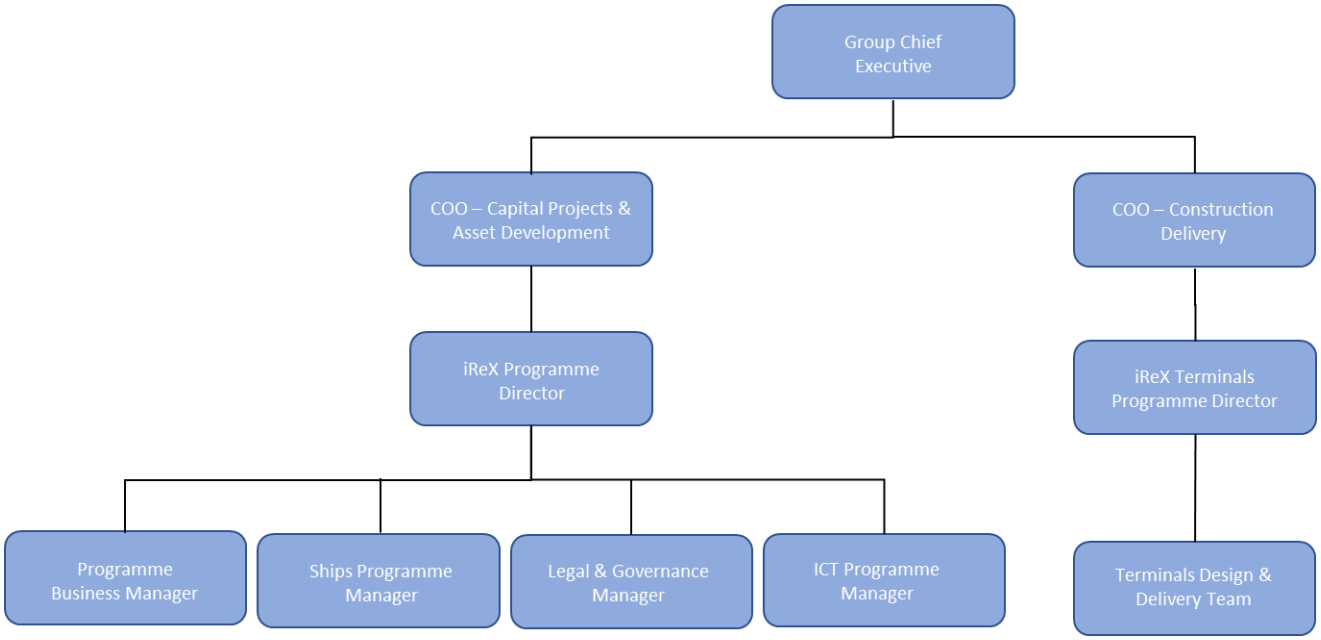
There are some essential interdependencies affecting procurement which need to be managed to ensure the successful delivery of the programme and the wider iReX business case. These interdependencies are:

- Terminals: the programme is dependent on the timely redevelopment of terminal infrastructure to ensure compatibility with ships. This, in turn, is dependent on agreement on acceptable arrangements with port companies.
- Funding: completion of the programme is dependent on sufficient funding being available for KiwiRail. In addition, the availability and sources of funding may impact the commercial and contractual structure of the ship and terminal workstreams. KiwiRail has designed a procurement process which is sufficiently flexible to be able to respond to the market.
- Business integration: the programme is dependent on integration and engagement with the wider KiwiRail business and has created a separate workstream for this.
- Road infrastructure: investment in road infrastructure is required to provide adequate transport connections to terminals in Wellington and Picton. To manage this interface KiwiRail is engaging with Waka Kotahi on a regular basis at senior executive level.

4.3.6 Contract Management Delivery

The Programme Director, in conjunction with the Programme Director-Terminals, has overall responsibility for managing the delivery of the ship and terminals workstreams, under the supply contracts with relevant suppliers. KiwiRail will develop a contract management plan to further develop the responsibilities that sit with the respective iReX management team members for their workstreams for this critical role.

iReX Management Structure



5. FINANCIAL CASE

This section of the DBC provides the detail of the financial model, programme costs, the planned revenue and expenditure for the Interislander business.

The Financial Case further confirms the likely funding mechanisms. KiwiRail commissioned an independent (EY) Capital Structure Review to provide guidance on the level of borrowing that KiwiRail's balance sheet and future forecast cash flows can sustain. In line with this guidance, the appropriate level of debt has been determined at $350m.

5.1 FINANCIAL MODEL OVERVIEW

A detailed 30-year projection covering revenue, operating costs and capital expenditure was prepared to support options assessment in the earlier iReX IBC.

The model was created and is supported by an independent consulting firm (Deloitte) with assumptions and drivers provided by KiwiRail co-ordinated through the iReX programme team and the Interislander business teams.

The structure and integrity of the model was internally peer reviewed by the consulting firm in November 2019, and also independently reviewed by another consulting firm (EY) in January 2020.

5.2 MODEL INPUTS

Key model inputs and assumptions have been derived from various sources. The most significant are as follows:

Input	Source
Revenue	
Volume assumptions[19]	[37]
Price assumptions	
Operating Costs – Vessels	
Labour costs	
Fuel	
Repairs and maintenance	
Insurance premiums	
Operating Costs – Terminals	
Labour	
Port fees	
Rail yard operations (mainly labour)	

Input	Source
Operating Costs – other	
Overheads (direct Interislander and share of KiwiRail shared services)	• Based on updated current direct cost levels and corporate overhead allocation methodology.
Programme Capital Investment	
Ships (base build cost plus other programme costs)	• Based on confirmed price as per the signed Letter of Intent with the preferred shipyard from the RFP evaluation, as approved by the KiwiRail Board [37]
Picton terminal infrastructure	
Wellington terminal infrastructure	
Inflation	• Financial projections in real dollars • Terminal escalation estimates included for the period to contract signing • No allowance required for ships as the price basis is fixed from Letter of Intent to contract and the contract will not have escalation provisions.
Other iReX Assumptions	• The model includes proceeds from sale of current ships, less the costs of maintaining them while they await disposal.
Debt Financing	
Funding level	• Assumes $350m of the vessels cost is financed in line with the outcome of the financing RFP and the debt level approved by the KiwiRail Board [37]

Table 9. Financial modelling assumptions.

5.3 FINANCIAL OUTCOMES

5.3.1 Comparison to historic performance

To provide a reasonableness check, the forecast operating statement in the first year of full operation (FY27) of the new ships, a comparison against historic actuals was made. Due to the impacts of the Kaikōura earthquake on the financial performance of the business, the comparative period was the 12 months to end August 2019. The following table also includes the actual performance for the FY16 financial year, which is the most recent full financial year not impacted by the earthquake.

[37]

Table 10: Profit & loss pre and post iReX.

Notes on key variances between forecast FY27 and the 12-month period to end August 2019:

- [37]

-
- Vessel labour cost reduction due to 2 -v- 3 ships
- Fuel reduction due to 2 -v- 3 ships and estimated 20% improved efficiency
- Change to the basis for allocating corporate overhead (nil impact at a consolidated KiwiRail level)
- Port fees reflect new infrastructure investment by port companies.

5.3.2 30-year forecast performance

The forecast for the first five years and then each 5th year is as follows.

[37]

Table 11: iReX 30-year profit & loss forecast

Key points:

- Revenue increases over time, initially with mode share shift to rail and continues with anticipated market growth
- Vessel expenses increase over time largely due to increasing repairs and maintenance as the vessels age and increases onboard cost of goods sold as onboard sales increase with growing passenger numbers.

5.3.3 Net Present Value

A summary of the net present value (NPV) of the investment and future Interisland cashflows is as follows:

NPV Breakdown	NZD
[37]	
Net Present Value (5% discount rate)	**$207m**

Note the programme capital expenditure value is lower than that shown in the major expenditure breakdown below as it is on a discounted basis.

5.4 MAJOR EXPENDITURE BREAKDOWN

5.4.1 Overview

Key components of the programme investment and funding sources are:

KiwiRail Investment	
Ship Programme	[38]
Picton Terminal - KiwiRail assets	
Wellington Terminal - KiwiRail assets	
Programme management and initiation costs	
sub total direct costs (excluding contingencies)	
Ship Contingency	
Terminals Contingency and Escalation	
sub total contingency and escalation	
Total KiwiRail Investment	**$1,140m**
Funded by	
Ship financing	$350m
Crown funding committed	$435m
Sale of existing fleet	[38]
Enterprise stretch	
Remaining funding required	**$257m**
Other party investments contingencies	[38]
Total other party investments (excluding contingency)	**$310m**
Total programme cost	**$1,450m**
Total contingencies included	[38]

[38]

Table 12: iReX investment breakdown.

5.4.2 Ship Programme

The ship programme cost is separated into a number of key components from the base build cost (ie the shipyard build cost in USD) through to costs associated with delivery, commissioning and contingency.

Ship Programme Cost	Ships	USD	NZD/USD	NZD
Ship LOI price- preferred shipyard	2	180m	0.6694	537m
Concept design				[38]
Owner supplied equipment				
Ship delivery				
Other (project management, broker fees, KiwiRail team)				
sub total				
Contingency (LOI to final cost)				
Exchange rate headroom - hold for contingency				
Total ship programme				

Table 13: Ship cost breakdown.

5.4.3 Terminals

The following table summarises the terminals investment by major asset group and port:

Asset / Asset Group	Picton	Wellington	Total
Wharf and gangway	[38]		
Linkspan including nesting			
Marine Works			
Civil Works			
Buildings			
Rail Works			
Demolition			
Wharf sequence enabling works			
Other			
Base Build Cost			
Professional Services			
Constuction overheads			
Other below the line costs			
Total, before contingency and escalation			
Escalation			
Contingency			
Total project			
Split of Ownership/Funding			
KiwiRail			
Port			
Other			
Total project			

Table 14: Picton & Wellington terminals cost breakdown.

5.5 FUNDING

5.5.1 Funding Overview

Key assumptions on funding the programme investment are:

- Costs associated with infrastructure to be owned by the ports are funded by them with KiwiRail paying port fees established under a comprehensive redevelopment and lease agreement for the construction and use for the assets. The aim is to establish the port fees using the Commerce Commission building block methodology.
- A portion of the ships to be funded from external debt. An RFP for financing has been completed and we are negotiating a committed facility with a mandated financing syndicate. We expect to conclude negotiations and finalise loan documentation before the end of June 2021. The level of debt being documented in the loan documents aligns to the funding indicated below (ie $350m) and we are confident in confirming the facility at that level. This is covered in more detail in the next section.
- The additional funding required is assumed to be funded by Crown Equity. This may include repurposing of the insurance proceeds from the Kaikōura earthquake claim, currently retained by KiwiRail, totalling $132m.

Estimated funding levels under those assumptions are:

Investment Overview	**NZD**
Total Programme investment (excluding contingency) [38]	
Contingency and Escalation	
Total	**$1,450m**
Less amount (assets) funded by others	$310m
Total KiwiRail Investment	**$1,140m**
Funded by	
Ship financing	$350m
Crown funding committed	$435m
Sale of existing fleet [38]	
Enterprise stretch	
Remaining funding required	**$257m**

Table 15: Estimated funding required.

5.5.2 Establishing the level of debt

Overview

Since formation as a State-Owned Enterprise, KiwiRail has raised funding from two sources: 1) debt secured against its vessels; and 2) debt sourced from the NZ Debt Management Office.

Historically, cashflow generated from operations has not been sufficient to fund capital expenditure requiring regular access to various forms of Crown funding. This was incompatible with large levels of external debt.

Recent legislative changes (access to the National Land Transport Fund) and expectations of increased earnings allow for more confidence in the ability of the business to service external debt.

KiwiRail has undertaken a capital structure review (completed by EY) and long-term financial forecasting combined with different debt scenarios to determine an optimum debt level to assist in the funding of the iReX project.

Methodology

KiwiRail has prepared 10-year financial forecasts and adjusted these forecasts for a range of economic outcomes, [37]

KiwiRail has structured a banking facility to assist in funding of the iReX project. [37]

The key consideration for KiwiRail is the level of debt that is appropriate for the Company to borrow. In determining this KiwiRail considered a wide range of factors including:

- Appetite from the banking community
- Provision of financial covenants
- Funding costs (principal and interest repayments)
- KiwiRail's ability to operate within market standard views of appropriate debt size.

Debt Sizing Considerations

KiwiRail believes its financing needs are best met with a [37]

The exposure of the business to one-off shocks implies a degree of conservatism to setting debt levels and financial covenants.

Peak debt will not occur for another five years, upon the scheduled vessel delivery dates in FY2026. There are a variety of operational matters that will need to be managed to ensure forecast earnings at that time are delivered.

Debt sizing work by EY has focussed on appropriate market benchmarks and in particular Debt Service Coverage Ratios (cashflow available for debt service/debt service).

Various assumptions have been made in forecasting KiwiRail's cashflow available for debt service, most important is the required material increase to KiwiRail's forecast earnings compared to actual historic earnings. [37]

Regard has also been had to what debt Interislander could service if it was considered a stand-alone operation (eg to what level does the consolidated KiwiRail cash flows support the debt servicing obligations of a single business unit).

Scenarios Analysed

The business assessed the following debt levels:

- $400m, $380m, $350m and $320m.

Each debt level was modelled based on the terms offered from the preferred lending syndicate against the financial forecasts to generate forward looking debt sizing measures. KiwiRail considered Debt Service Cover Ratio (DSCR) as the most relevant debt sizing measure when considering the final debt quantum.

The following charts demonstrate the forecast debt sizing measures, noting the following:

- EBITDA headroom under the $350m scenario to a DSCR of 1.00x (ie free cash flow = debt service obligations) is approximately [37] in the first two years (where annual debt servicing is at its highest)
- On a standalone Interislander basis, Debt/EBITDA is approximately 3.50x, which is at the upper end of the suggested range in EYs capital structure work.

[38]

Conclusion and Decision

When considering: the consolidated and stand-alone debt sizing metrics and the reliance on increased earnings and allowance for adequate headroom during the periods when debt is at its highest, it was decided that NZD350 million was the appropriate level of debt to borrow from banks for the purpose of funding the iReX project.

This position was recommended to, and approved by, the KiwiRail Board in June 2021.

A debt facility of this amount will be documented and drawdowns against the facility will commence in alignment with the first payment dates for the ships. It is proposed that the milestone payments will be funded via a combination of debt and Crown equity.

5.6 CONTINGENCIES

Based on the level of design for the Terminals and the LOI price for the ships, the following contingencies have been established:

- Ship Build contingency [37]
- Picton and Wellington Terminals contingency of [37]

[37]

6. MANAGEMENT CASE

This section of the DBC sets out the arrangements put in place by KiwiRail to ensure successful delivery of the preferred option (the “programme”) and to manage programme benefits and risks.

6.1 PROGRAMME STRUCTURE AND GOVERNANCE

6.1.1 Overview

KiwiRail has set up the iReX Programme Office to manage the procurement activities for the ship and terminal workstreams. Although procurement of ships is not a regular occurrence, KiwiRail has experience in many large-scale infrastructure projects, including the recent award-winning Kaikōura rebuild. The disciplines involved are transferable, provided the differences are understood and suitable specialist advice is obtained. As noted in the commercial case, KiwiRail has obtained such specialist services particularly around ship procurement.

6.1.2 Programme Structure

The Programme Office as shown below, has scaled-up resources including direct employees as well as a series of advisers.

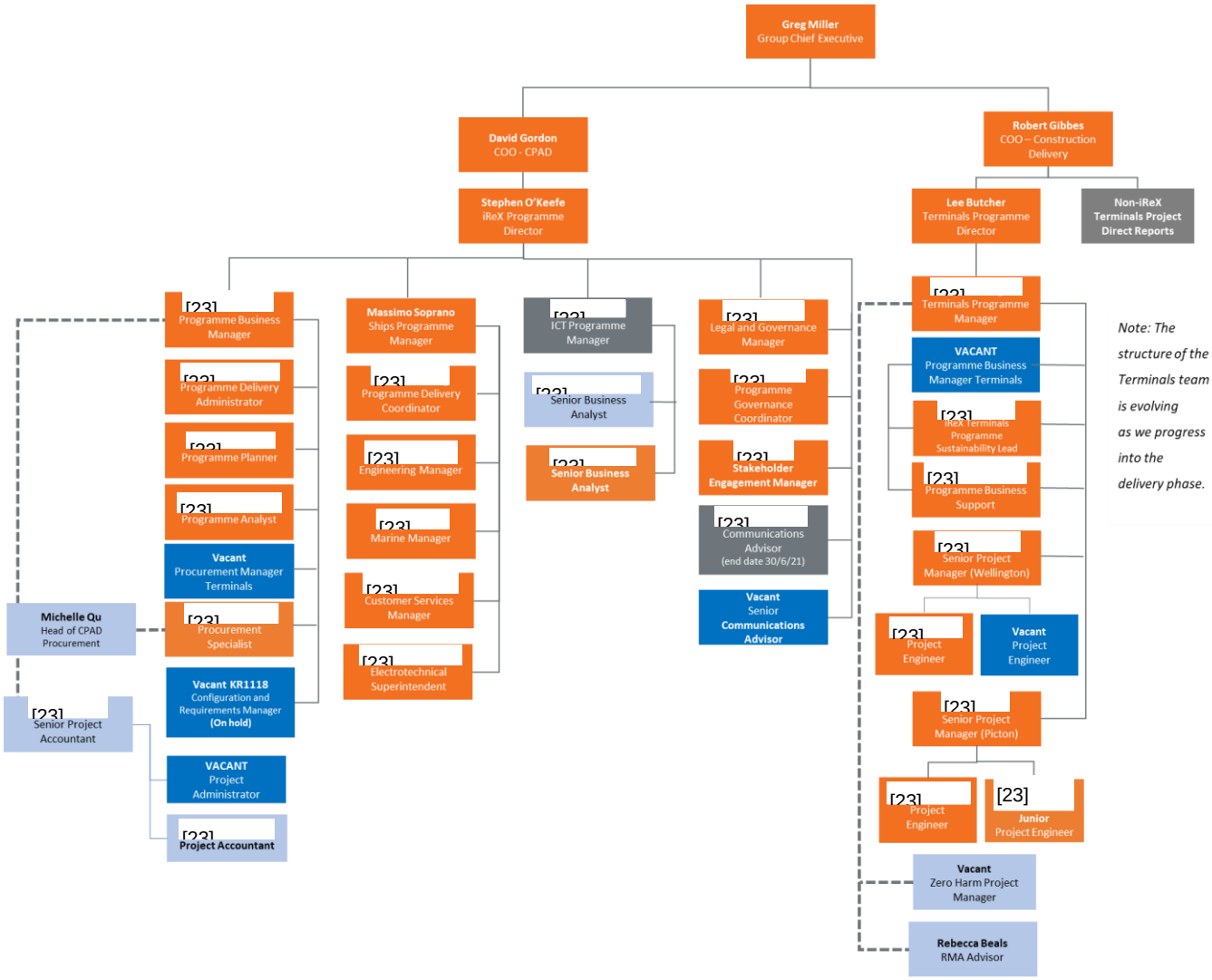


Figure 7: iReX Programme Structure as at 31 May 2021.

6.1.3 Governance and Reporting Framework

KiwiRail has a standard governance and reporting framework across the capital programme and has a proven track record of delivering these types of work. Due to the substantial scale of the programme a specific programme team has been established covering the delivery of multiple workstreams. The iReX programme will be delivered through KiwiRail's capital programme with support from the iReX team.

The project is governed per the normal hierarchy within KiwiRail.

Governance Level	Role
KiwiRail Board	Receive monthly update from Group Chief Executive on overall Programme Performance Approval of all transactions beyond the DFA of the Group Chief Executive Approval of the iReX Strategic Procurement Plans and any changes required Approval of the DBC, and programme financing Approving final business case for the programme If the final business case is approved, approve or reject the proposed terms of the supply contract(s).
Board Capital Committee	Receive bi-monthly update from Chief Operating Officer: Capital Projects and Asset Development on overall Programme Performance Recommends to the Board whether to accept/reject and capital investment proposals being referred to it General powers of inquiry into any aspect of Programme delivery including commissioning audit and assurance reports.
Board Risk Assurance and Audit Committee (RAAC)	Also has general powers of inquiry into any aspect of Programme delivery including commissioning audit and assurance reports with particular focus on compliance with internal policies.
iReX Programme Governance Board	Receive monthly update pack from Programme Director: iReX on overall Programme and provide strategic direction and monitoring of the iReX programme, including key achievements against plan, key future deliverables, programme schedule, major risks, programme actual financial spend and forecast Endorses any decision paper that is going to the Board via the Capital Committee, and gives direction on decisions to be made by management that are within managements DFA Reviews the status of procurement activities and contracts in place, including recommending the KiwiRail Board issue NOI, EOI, RFI and RFP at the relevant times. **Note** – This Governance Board does not hold any DFA for capital expenditure, these are all held by the management and Board of KiwiRail.
Terminals Governance Group	Implemented during the period March to June to oversee the design and costs development for the terminals Planned to continue through the next phase of design development, procurement and construction.

Governance Level	Role
Joint iReX and IIL Programme Control Group (JIIG)	Receive monthly update pack from project managers. Addressing delivery issues at project manager level within the portfolio of projects within iReX. Additionally, meets as required on matters requiring decision or escalation that have a combined future business and project impact.

Table 16:KiwiRail governance and reporting framework.

The purpose of the Joint iReX and Interislander Group is to ensure the delivery of correct outcomes that are in line with the approved detailed business case, the new Target Operating Model and KiwiRail's commercial objectives and financial constraints.

This group:

- endorses programme plans and exception plans prior to presenting them to the iReX Programme Governance Board
- will seek sign-off from a technical, business and user perspective
- ensures that interdependencies are managed across the programme.

6.2 RISK MANAGEMENT

KiwiRail recognises that risk is an integral part of doing business and that the business carried out by KiwiRail operations is in a complex environment. KiwiRail is committed to actively managing its risks in a consistent manner to:

- Create and protect the value of its business
- Ensure a safe environment for its staff, contractors and customers
- Ensure continuous improvements in decision making and performance
- Increase the certainty of achieving its objectives.

To achieve this, KiwiRail's Risk Management Framework outlines core components and responsibilities. This framework is further explained in the respective Policies and Risk Framework and is in accordance with ISO31000:2018.

The Programme Office has created a programme risk register for the programme which is assessed against the KiwiRail Risk Matrix – see section 6.2.4 for the latest extract of the programme level register. The management scope includes an overarching iReX programme risk register which contains those threats and opportunities that pose a risk to the overall programme's objectives. This will be supported by individual registers such as the:

- Terminals Programme Risk Register
- ICT Risk Register
- Ships Risk Register
- Change and Transition Risk Register.

By the end of the first quarter of 2021 all iReX risks will be documented and managed via the Active Risk Manager (ARM) tool, what will allow for the full integration of these risks into KiwiRail-CPAD risks registers and management reporting. This new risk management tool will also enable for clearer insights on the actual and evolving costs related to the management of iReX threats and opportunities and their required contingency budgets.

Operational risks that are being identified within the iReX delivery work are documented in the iReX registers prior to be handed over for ownership and management to the respective (Interislander or KiwiRail) business risk owners.

6.2.1 Individual Monthly Risk Reviews

Individual monthly risk review meetings are held with each risk owner to first develop, and then review the risks they are responsible for. This process creates greater ownership, engagement and accountability and minimises lengthy risk meetings for the whole team.

The process will seek to:

- Confirm the risk definition is still relevant
- Confirm the effectiveness of existing controls
- Confirm progress made by the risk owner on the implementation of additional risk controls
- Confirm the consequence criteria the risk will be assessed against
- Confirm the current and residual risk ranking using the KiwiRail risk scoring system and matrix for each risk
- Identify new controls
- Identify any new or emerging risks.

6.2.2 Monthly Risk Moderation Meeting

A monthly risk moderation meeting follows with the Programme Director and all iReX Programme managers. This brings the experience and views of a wider audience within the programme team (as opposed to the individual risk owner). The aim of this meeting is to seek agreement on:

- Changes made to the risks included in the risk registers by the risk owners since the review.
- Agreement on the inclusion of any new risks identified by risk owners along with the risk definition, consequence criteria, current and residual risk scores, existing and proposed controls and risk owner
- Agree on those risks to be elevated to the iReX Programme Governance Board.

6.2.3 Elevation to the iReX Programme Governance Board

Risks that are currently identified as very high and above (or any others deemed relevant from the risk moderation meeting) are escalated to the iReX Governance Board.

These risks are presented in an individual report to be included in the Governance Board papers following the risk moderation meeting.

6.2.4 Highest level risks

The programme's highest level risks as at May 2021 are shown in the table, this is prior to the June KiwiRail Board meeting where this business case was approved for release and a full review of confidence levels over the programme presented.

Risk ID	Risk Description	Cause	Current Rating	Established Controls	Proposed Controls	Updates
2320	Threat of ship cost increase if an extension of the Letter of Intent with HMD is required.	• KiwiRail not being ready to sign the shipbuilding contract by the date stipulated in the Letter of Intent.	Extreme	• Ship contract negotiating plan. • Full iReX update to KR Board and briefing to Ministry Officials in April. • Robust plan of activities to meet critical path deadline of June 2021. • Prioritise tasks and resources to maintain plan. • Briefing to Treasury on impact of not delayed contract signing.	• Develop an interim operating plan for ships to operate in RoPax mode instead of rail mode.	• Risk linked to 2140 below.
2260	Threat that we cannot put in place required commercial agreements with CentrePort in time and that have acceptable terms for both parties.	[38]				
2139	Threat that KiwiRail cannot access sufficient third-party finance on acceptable terms.	• Crown Funding insufficient. • KiwiRail financial position does not support the level of financing required. • KiwiRail Board level of confidence in Group Financial Forecast limits appetite to a low level of debt. • Ports unable to access asset funding.	Very High	• RFP for ships finance complete, negotiation with preferred party on key terms commenced. • External advisors (EY and Mafic) are reviewing land side assets financing opportunities. • Ongoing engagement with Treasury and Ministers on funding the gap.	• Seek another/additional Finance Partner(s). • [38] • Seek DMO debt if external finance is not possible for all or part of what is required. • Consider bareboat charter options.	• Positive progress on ship financing. • Risk now mainly related to Port ability/willingness to fund their assets.

Risk ID	Risk Description	Cause	Current Rating	Established Controls	Proposed Controls	Updates
2367	Threat that we cannot put in place required commercial agreements with Port Marlborough in time and that have acceptable terms for both parties.	[38]				
2140	Threat of KiwiRail Board not having the confidence to approve the Ship Contract sign-off.	• Multiple elements requiring completion to support the decision. • Dependent on agreements with third parties such as CentrePort and Port Marlborough NZ. • Uncertainty around funding.	Very High	• A plan and tracking tool detailing all of the requirements, deliverables, decisions, due dates and dependencies has been developed. • Progress updates and workshops with Board, RAAC and PGB. • Board update on 9 April on the level of certainty that will be available to the Board in June and what will still be 'uncertain'. • Design sprint team in place and resourced and proceeding to plan.	• Continue use of the CPAD Cost Estimator resource to improve quality of current estimates. • Ensure all required resources across the programme and wider KiwiRail are understanding and correctly allocated to realising this tight plan. • Ensure the inputs that will provide the level of assurance for KR Board and iReX PGB are at the right level through engaging with the Board.	• This risk is linked to 2320. • Design sprint proceeding to plan.

Risk ID	Risk Description	Cause	Current Rating	Established Controls	Proposed Controls	Updates
2591	Threat of material movements (increase) in costs for Wellington Terminal post June.	• Concept design for Wellington Terminal will not commence before end of June 2021.	High	• Design sprint. • Engage expert consultants appropriate for the site and challenges. • Independent review of cost estimations. • Design focused on areas with most risk of uncertainty. • Challenge sessions with KiwiRail teams. • Set contingency appropriate to the level of certainty/design.	• Establish change management process over design. • Complete concept design.	
2141	Threat that KiwiRail is unable to provide sufficient life safety protection at the Kaiwharawhara Terminal Site.	• Terminal site is in the Wellington Fault zone. • Engineering solutions to protect life safety over the Wellington Fault have not been confirmed. • Engineering solutions to protect life safety over the Wellington Fault may be prohibitively expensive. • Impacts cannot be mitigated by design.	Very High	• Life safety is a key factor in the terminal design sprint process. • Confirmation of engineering solutions to ensure life safety at Kaiwharawhara similar to other locations in Wellington. • Geotechnical and seismic pre concept risk assessment utilising CentrePort information.	• Complete a full risk assessment of the Kaiwharawhara site in the context of the HSW Act. • Reassessment of the Health & Safety Risk following concept design. • Complete an assessment during the design sprint. • Escalation with GWRC, CPL and Future Port Forum if life safety cannot not be assured.	
2510	Threat that reduction of scope means business objectives are undermined.	• Descoping and re-phasing.	High	• Review through the design sprint exercise. • Terminals Governance Group established with business leader representatives which reviews scope/staging proposals.	• Review changes with Interislander for business impacts when scope/staging options are clearer.	

Risk ID	Risk Description	Cause	Current Rating	Established Controls	Proposed Controls	Updates
2511	Threat that Shareholders do not approve buying of the ships.	• Shareholders not kept well enough informed. • Value proposal does not work. • Lack of confidence in the solution.	Very High	• Regular briefings with Ministers. • Full briefing in April to Treasury and MoT on project, including plan/requirement for shareholder approval. Agreed requirement and nature of further updates during May. • KR Board updated on the approval plans at April Board. • Updates to Treasury, MoT and Ministers as information is available.	• Request LOI extension from the shipyard if necessary.	• Regular engagement with Treasury and Ministers continuing.
2646	Thread that Design Sprint requires changes to Picton consents.	• Design sprint changes for Picton may be outside the boundaries of the consent granted by the EPA.	High	• Reviewing current design against the parameters of the consents. • The consents did provide for flexibility of the design.	• Establish process for consent amendments if required.	• New risk added.

6.2.5 Programme and Asset Ownership

As well as procurement and commissioning of the ships, successful completion of the iReX programme relies upon port and transport network owners upgrading their assets to support and align with terminal developments. These owner participants have differing drivers for development and the works necessary for completion of iReX may only form a part of their larger asset improvement programme. To manage these crucial interfaces, KiwiRail is entering a series of Memoranda of Understanding and formal agreements, as set out below.

The iReX Programme owner participants are summarised as follows:

Project	Asset	Owner
Ships	Ships	KiwiRail
Wellington terminal	Marine and terminal infrastructure	[38]
	Marshalling yards	
	Fuelling Infrastructure	
	Ship power	
	Wellington local transport authorities	Greater Wellington Regional Council/ Wellington City Council
	State Highway Network	Waka Kotahi
Picton terminal	Marine and terminal infrastructure	[38]
	Marshalling yards	
	Ship power	
	Picton local roading authorities	Marlborough District Council
	State Highway Network	Waka Kotahi

Table 18: iReX infrastructure ownership base assumptions.

Many stakeholders and various levels of engagement are required to give the programme the best chance of success. KiwiRail's external stakeholders for the programme and their interests are summarised below:

External Stakeholder	Interest
Shareholding Ministers The Minister of Transport The Minister of Finance	As owners Broader transport considerations Funding and Budget
The Minister of Infrastructure Minister for Regional Development	Infrastructure (noting that this portfolio is held by the Minister of Finance) Regional development
Treasury	Funding
Ministry of Transport	Funding
CentrePort	Land and infrastructure co-owner and co-partner
Greater Wellington Regional Council	Resource consenting authority for Wellington terminal infrastructure and majority owner for the port in Wellington

External Stakeholder	Interest
Wellington City Council	Building consenting authority for the Wellington terminal infrastructure Wellington and local roading authority
Port Marlborough	Land and infrastructure co-owner and co-partner
Marlborough District Council	Consenting authority (building consents and outline plans) for the Picton terminal and local roading authority
Maritime New Zealand	New Zealand Shipping Regulator

Table 19: iReX stakeholders.

6.2.6 Iwi partners, stakeholders, and community

As a high-profile programme, iReX has many interested parties whose input and support are required to ensure positive environmental, sustainability, economic and commercial outcomes. Interested parties include staff, unions, iwi partners, local authorities, regulators, special interest groups and Waitohi Picton and Wellington communities.

KiwiRail understands the need to engage and involve all interested parties for various purposes, to gain 'social licence' for the iReX Programme and build positive long-term relationships. The engagement approach is set out in an iReX Programme Communication and Engagement Strategy, supported by specific communication and engagement plans for each of the terminal developments.

Waitohi Picton

The Waitohi Picton Ferry Precinct Redevelopment is expected to have a significant impact on the local and wider area communities, including mana whenua, businesses, residents, property owners, and interest groups.

The consultation process was structured in two parts, commencing in December 2019 with a general engagement to introduce the broad outlines of the project and receive high level feedback.

The engagement was via web-based and hard-copy channels, over an extended feedback period between March and May 2020 (owing to COVID-19 limitations). In this second consultation stage, the team shared concept designs that provided greater detail of the proposed changes to the transport network, and preliminary information about the new ships.

There was much interest in, and broad support for, the plans to redevelop the ferry precinct. The consultation feedback also provided significant insight into the wider community's main concerns, priorities, and values. These were used to inform the plans prepared for the resource consent applications. The principal consultation feedback themes were:

- Traffic and transport, encompassing access, modal choice, parking, road safety, rail impacts, impacts on the wider road network, and cumulative effects
- Servicing, including sewage and electrical servicing
- Health impacts, including air quality
- Effects on the coastal marine environment
- Noise, both construction and operational
- Impacts resulting from the proposed built form, including the ferry terminal, the proposed over-bridge, cruise ships, operational impacts (including on the port operation), land availability and amenity
- Cultural effects, including the importance of the project and wider site, Waitohi Awa and the Marlborough Sounds for Tangata Whenua
- Opportunities within the project to enhance iwi values through improvements to Waitohi Awa and cultural recognition of mana whenua and kaitiakitanga through project design
- Effects on Waitohi Awa
- Construction impacts on people, businesses, wildlife and the environment
- Other issues, including whether the Marlborough Sounds should be classified as a reserve, partnership approach, cost of the project and consultation requirements.

Typical comments received included:

"This is a very exciting development for Waitohi/Picton with potential to showcase the Marlborough Sounds"

"All vessels should be able to sit at the berth and have electrical power to maintain their services without running their diesel engines. The noise coming from the berthed vessels is very polluting at present."

"Will be great to see this corner of the waterfront developed."

"The Ministry of Transport will need to look closely at upgrading the state highway to receive increased numbers of cars trucks and camper vans in a short time."

Comments received by the Expert Consenting Panel as part of the fast-track consenting process reflected the feedback received via the pre-lodgement consultation and engagement.

Mana whenua relations were further cemented in March when KiwiRail signed a kawenata, or relationship agreement, with Te Ātiawa o Te Waka-a-Māui Trust, which will continue beyond the life of the project.

Public communication and engagement are continuing, through regular project newsletters, a project website, meetings, and community events. KiwiRail will continue to engage with directly affected parties to finalise property related agreements. Mana whenua and key stakeholder input into the project's detailed design will be facilitated via a Design Forum, to be established as a condition of the resource consents.

Wellington

The decision that the Interislander would continue to operate from its existing Kaiwharawhara base has enabled engagement with affected parties, communities and iwi to get underway to discuss with more certainty specific areas of interest and concern. This sets the scene for broader communication and engagement in 2021.

KiwiRail has been engaging with iwi in the Wellington area on the iReX project since mid-2020.

Wellington has multiple iwi and hapū with interests in the region and Kaiwharawhara area, with some complexity and overlay of interests. Meetings with Ngāti Toa took place in September 2020 and April 2021; Wellington Tenths Trust and Palmerston North Māori Reserve Trust in February 2021; and Taranaki Whānui ki Te Upoko o Te Ika (Port Nicholson Block Settlement) Trust in March 2021; and are continuing.

KiwiRail is working with Taranaki Whānui and Ngāti Toa to establish an iwi advisory group with KiwiRail and other iwi and hapū. Areas of particular interest expressed so far cover: expression of cultural representation and story-telling, input into design, naming of the new ferries, the commissioning of a Cultural Impact Assessment, interest in how the project will deal with ecological issues and reclamation. There is also a keen interest in establishing an ongoing relationship between iwi and KiwiRail and identifying longer-term opportunities for Mana Whenua.

The Future Port Forum (FPF) is planning to invite a representative from Taranaki Whānui ki Te Upoko o Te Ika (Port Nicholson Block Settlement) and Ngāti Toa to sit on its governance board, affording iwi oversight and involvement in governance of the redevelopment project at a high level.

KiwiRail has made early contact with ecological groups with a particular interest in the Kaiwharawhara harbour area and the estuary mouth and residents associations in the area. A full consultation and engagement plan has been developed, and will be implemented during 2021 through the early design and consenting phase of the project in Wellington. Areas of interest are around the Kaiwharawhara estuary mouth, wildlife and habitat protection and reclamation.

Work also includes the establishment a 'New Interislander' website and online engagement platform to facilitate public communication and engagement over the life of the programme.

6.2.7 Terminals - Wellington and Picton Ports

To address the need for governance across owner participant projects the following arrangement is being established:

The actual structure and membership of both the Picton and Wellington governance and decision-making groups will be worked through as this will need to reflect the required decisions mandates, expert knowledge to process discussions and negotiations.

The ports are traditionally responsible for delivering most of the terminal infrastructure. KiwiRail will be looking to enter a commercial deal for these works. Depending on the terms of the commercial deal, KiwiRail may be a party to engaging and managing the design and construction work.

6.2.8 Programme Management Framework

The Programme Management Framework below shows the documents which help in the programme management and are approved by the KiwiRail Board and Programme Governance Board or by other, lower levels of decision making. All required documents have been documented and are in line with best programme management practices and KiwiRail - CPAD policies and procedures.

iReX Programme Management Framework

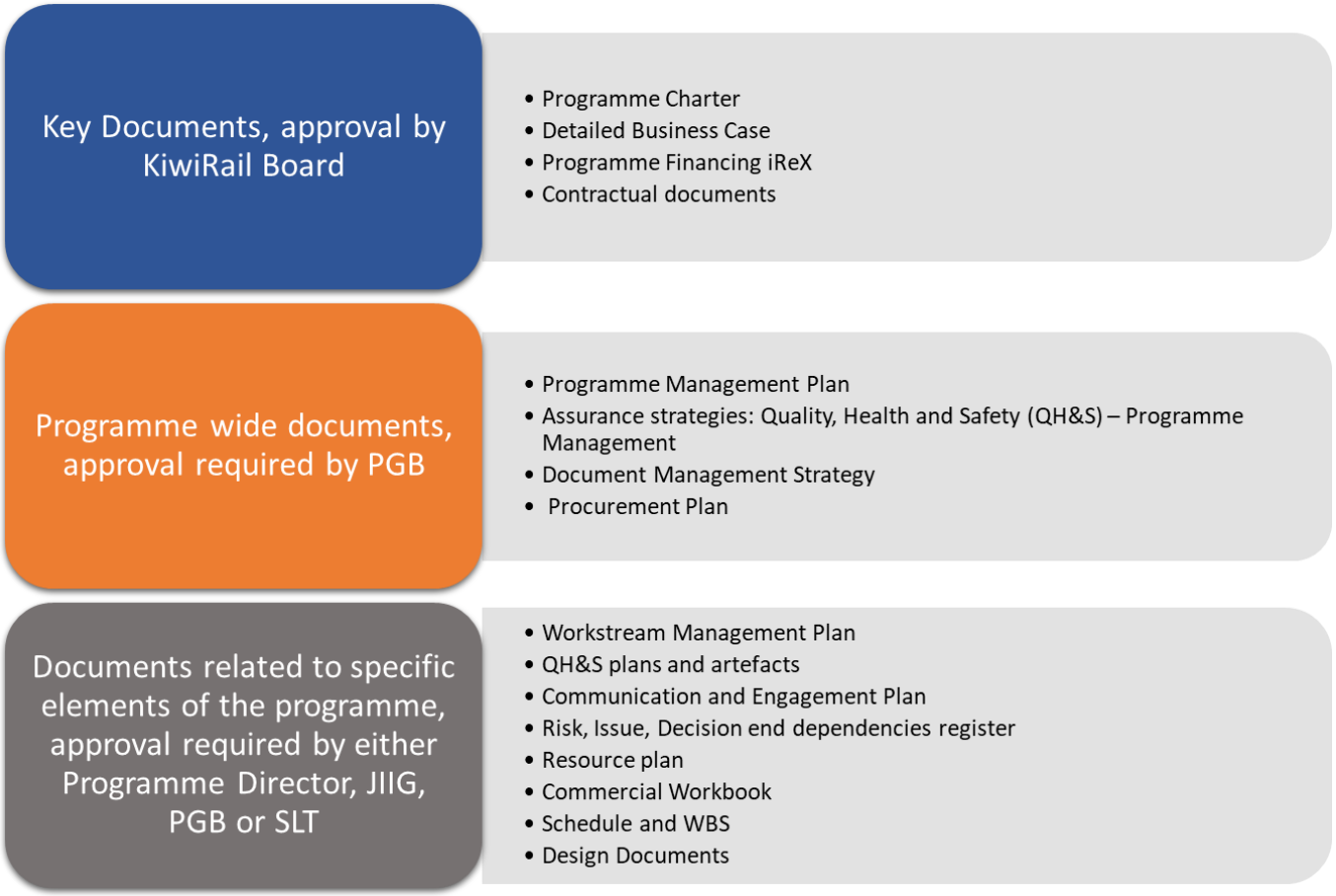


Figure 8: iReX programme management framework.

A Systems Engineering approach has been used to capture requirements, interfaces/dependencies and change management. The industry standard "V-Model" will be used for verification and validation through the stages of the programme. The V model is repeated below for ease of reference.

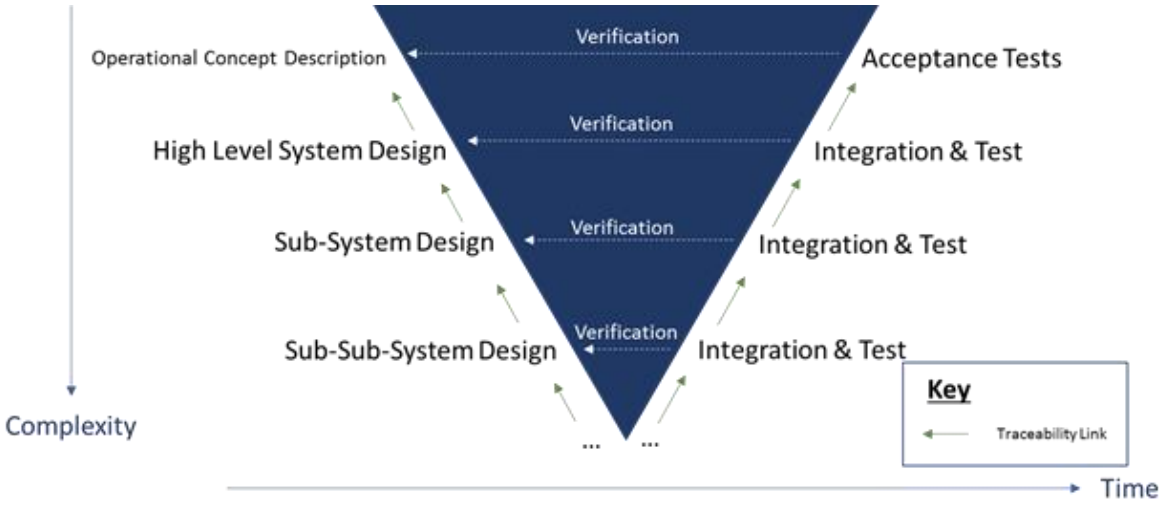


Figure 9: V model diagram. (Source: SHOAL Group).

The hierarchy levels of the V Model specifically for the iReX Programme are as follows:

V Model Level	Description	Responsible
Concept of Operation	A high level plain English description of the programme requirements/outcomes. It is intended that this will be a readily accessible document and may be presented using a combination of words and infographics. Subject to feedback from KiwiRail's communications team it may be presented in a brochure type format.	KiwiRail
High Level Requirements	40-50 requirements. This will be the level of requirements the Governance Board and Executive leadership will be most frequently engaged on.	KiwiRail
System Level Requirements	1000-2000 requirements. The programme team and specialist advisors will predominantly work at this level.	KiwiRail
Detailed Requirements	For example, detailed requirements of the specifications for the wharf structure.	Suppliers
Detailed Specifications and Designs	For example, the detailed designs and specifications for the wharf structure.	Suppliers

Table 20: V Model levels.

For the top three levels for which KiwiRail is responsible, there are a significant number of requirements already identified from the business case development and staff engagement work undertaken. Work has commenced to enable incorporation of this information into the systems engineering task; selected information is being used for procurement processes.

As part of the assurance process, KiwiRail will also review and approve the detailed requirements, specifications and designs.

The wider KiwiRail business will have visibility of, and influence on, the requirements through their involvement in the programme. Specifically, through:

- The Customer Working Group
- KiwiRail staff seconded into the programme
- Special workshops
- Worker High Performance High Engagement (HPHE) involvement.

6.3 PROGRAMME SCHEDULE

6.3.1 Timeframe

The planned timeframe is to introduce the first new ship in 2025. The programme as per the following page illustrates the high-level programme targets required to be achieved throughout the intervening years.

The schedule has been linked to Capital Projects and Asset Development gateways and Programme Governance Board approval points. The Programme Team will ensure the Programme Governance Board is briefed and prepared as the programme approaches key gateways to avoid approval hold-ups at these points causing delays.

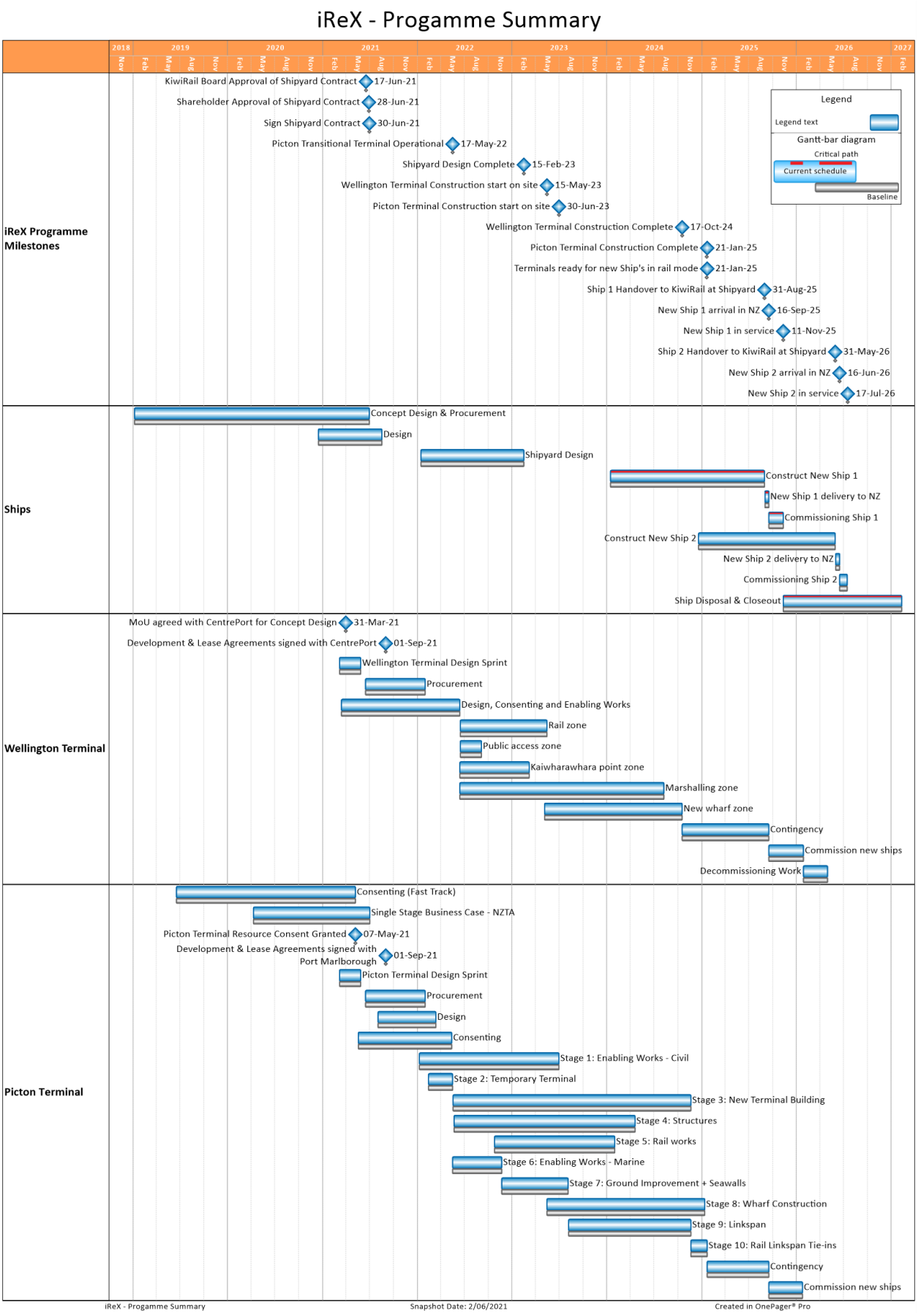


Figure 10: iReX programme schedule

6.3.2 Stage Gate Approvals

The projects within the programme will follow the gated execution pathway set out by KiwiRail's Capital Projects and Asset Development manual. The defined gates are aligned with major decisions requiring endorsement to proceed in accordance with KiwiRail Delegated Financial Authorities (DFAs).

Delegated authorities, including commitment of funding and execution of contracts within the programme, are defined by KiwiRail DFAs. At this stage, the current KiwiRail DFAs will apply. However, for the effective and timely management of the programme, the DFAs may need to be aligned with programme requirements. Activities required at each Stage Gate are set out as follows:

All of the iReX projects will follow a process of stage-gating as determined by the CPAD Manual.

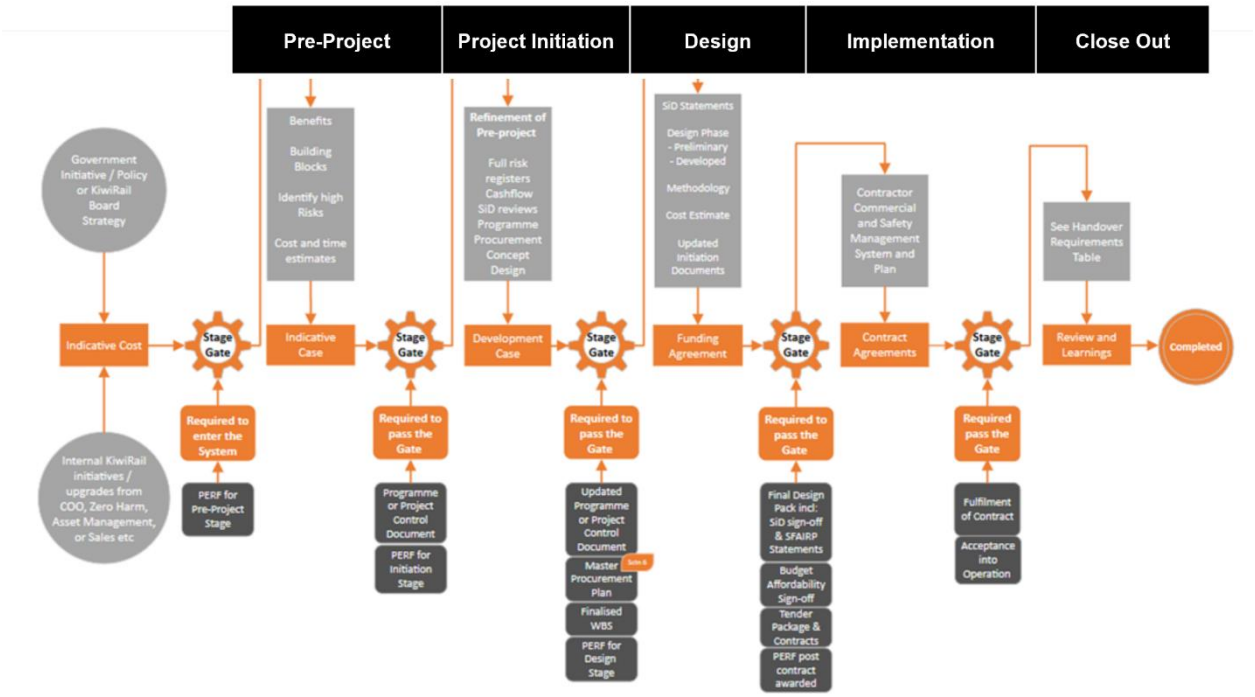


Figure 11: Stage gates required for all iReX projects.

Stage Hurdle	Purpose	Gatekeeper	Deliverables
Pre-Project Gate COMPLETED	Approval to proceed with development of a business case and associated funding	KiwiRail Board	• Option study • Concept level cost estimates • Budget estimates to deliver initiation • Indicative Business Case
Initiation/Procurement Gate **CURRENT STAGE**	• Engage with ship supply market and ports • Develop design to point where there is scope, timing and cost certainty • Commercial terms negotiated • DBC finalised	KiwiRail Board	At end of stage: • Scope, timing, costs, commercial terms, risks known and articulated • Updated DBC submitted for approval • Approval given to proceed to next stage

Stage Hurdle	Purpose	Gatekeeper	Deliverables
Design and Implementation Gate	• Detailed design and delivery of new assets • Transition KiwiRail operations to accept new assets	KiwiRail Board	• Detailed designs • Construction • Transition stage • Commissioning
Implementation Milestone	Acknowledgement of completion	KiwiRail Operations	Assets in operation
Close Out Milestone	Acknowledgement of programme completion	KiwiRail Finance	• Capitalisation • Handover Documentation accepted into BAU asset management systems

Table 21: Stage gate approvals.

6.3.3 Monitoring

Monitoring will be consistent with the Capital Projects and Asset Development manual. It is noted that this is a significant capital programme and KiwiRail management and governance monitoring will include:

- Monthly Governance Board meetings
- Briefings and approvals of the full KiwiRail Board (especially at key approval gateway milestones)
- Government reporting
- Executive reporting
- Intermittent updates – for example when there are information maturity step changes.

6.3.4 Specialist Advisors

As explained earlier in the Commercial Case, due to the complexity and specialist knowledge required to deliver a programme of this scope and scale, KiwiRail have contracted the following parties:

- Naval Architects (OSK-ShipTech)
- Naval Interior Architects (Steen Friis Design)
- Ship Brokers (Barry Rogliano Salles)
- Systems Engineers (Shoal Group)
- Maritime Lawyers (HFW)
- Debt finance specialist (EY)
- Economic advice for Port fee calculations (Peter Seed Limited)
- Quality, Health and Safety Assurance framework (JustAddLime).

6.4 BUSINES CASE ASSURANCE

The iReX programme is a significant investment. As such, key components of the business case have been supported by external advisors and independent experts.

The following table outlines assurance that have been provided to support the business case.

Consultant	Scope	Current State	Next Steps
Gaia Engineers	**Geotechnical Design** Assessment and understanding of geotechnical conditions, geotechnical Design, and challenge review of work to date (on Picton)	**10% Design** Late revision due to positive results from borehole investigation, 15% Design complete (incl. Design Statement and Philosophy Report) by end of June	• Progress design for consenting and clarify assumptions in site-specific seismic hazard assessment (PSHA) for Wellington • Procurement of designers, then detailed design
Tonkin + Taylor	**Design Lead Management** Coordination and leadership of the design process	Ongoing support to complete design documentation	• To be led by KiwiRail for consenting • Procurement of designers, then detailed design
Tonkin + Taylor	**Marine / Coastal Design** Analysis of coastal effects and marine environment and challenge of CPL design for wharves, reclamation elements, etc	**15% Design Complete** Design Statement and Philosophy Report underway, to be completed by end of June	• Progress design for consenting and develop better understanding of effects on Kaiwharawhara stream and refine design of groyne structure • Procurement of designers, then detailed design
Tonkin + Taylor	**Landside Infrastructure Design** Design of three waters assets, utilities, cycleways, etc	**15% Design Complete** Design Statement and Philosophy Report underway, to be completed by end of June	• Progress design for consenting and model finished surface levels to help with drainage and pavements • Procurement of designers, then detailed design
Tonkin + Taylor	**Planning Support** Advice on consentability of options being considered	**Input completed**	• Support and advice during the consenting process
Tonkin + Taylor	**Environmental / Ecological Support** Advice on environmental / ecological impacts of options being considered	**Input completed**	• Support and advice during the consenting process
Holmes Consulting LP	**Civil Structures Design** Structural design of civil structures	**15% Design Complete** Design Statement and Philosophy Report underway, to be completed by end of June	• Progress design for consenting, finalise co-ordinated model between MSE walls / Spans / Marshalling requirements • Procurement of designers, then detailed design
Holmes Consulting LP	**Terminal Structural Design** Structural design of terminal buildings and Elevated Passenger Walkway (EPW)	**15% Design Complete** Design Statement and Philosophy Report underway, to be completed by end of June	• Progress design for consenting, refine footprint of terminal • Procurement of designers, then detailed design
Vitruvius	**Rail Geometry and Track Design** Designing the rail geometry / alignment and rail yard drainage, and challenging parameters of existing design to date (Picton)	**15% Design Complete** Design Statement and Philosophy Report underway, to be completed by end of June	• Progress design for consenting, KiwiRail internal resources to progress signalling design at both sites • Procurement of designers, then detailed design

Consultant	Scope	Current State	Next Steps
Studio of Pacific Architecture	**Terminal Architectural Design** Architectural design services for terminal buildings	**15% Design Complete** Design Statement and Philosophy Report underway, to be completed by end of June	• Progress design for consenting, including look, feel, and cultural input • Procurement of designers, then detailed design
Studio of Pacific Architecture	**Landscape Architecture Design** Landscape architecture design services	**15% Design Complete** Design Statement and Philosophy Report underway, to be completed by end of June	• Progress design for consenting, including look, feel, and cultural input • Procurement of designers, then detailed design
Construction Cost Consultants	**Cost Estimation Services** Pricing of terminal buildings, Elevated Passenger Walkway (EPW), utilities, demolition	**100% Pricing Complete** for Bronze Review, continuing to prepare for Silver and Gold Reviews	• Finalise price through to Gold review • Further pricing scope to be procured
9H Construction Services	**Cost Estimation Services** Pricing of marine works, wharves, structures, ground improvements, pavement, and drainage	**100% Pricing Complete** for Bronze Review, continuing to prepare for Silver and Gold Reviews	• Finalise price through to Gold review • Further pricing scope to be procured
HoffCon	**Temporary Works design** Design of temporary works with a focus on relocating existing linkspan to utilise as temporary option	**50% temporary works design completed**, feasibility and viability confirmed, detailing to be completed with detailed design	• Confirm and rationalise plant requirements for temporary works options, assess cost versus benefits
Preco	**Constructability and value engineering** Working with the design consultants and estimators to review and provide feedback on constructability of design options, and confirm productivity rates	**100% input completed** for design, continuing to support the price review process until the Gold review	• Continue to support the price review process until the Gold review • Continued construction advice for Design up until 50% Design stage
Cawthron Institute Limited	**Marine Ecology Support** Specialist input into Fatal Flaws Analysis	**Input completed**	• Support and advice during the consenting process
Chiles Limited	**Noise Assessment Support** Specialist input into Fatal Flaws Analysis	**Input completed**	• Support and advice during the consenting process
Raukura Consultants Limited	**Cultural Effects Support** Specialist input into Fatal Flaws Analysis	**Input completed**	• Support and advice during the consenting process
Isthmus Group Limited	**Landscape and Visual Effects Support** Specialist input into Fatal Flaws Analysis	**Input completed**	• Support and advice during the consenting process

Consultant	Scope	Current State	Next Steps
Stantec New Zealand Limited	**Passenger and Traffic Movement Analysis** Modelling of traffic and passenger movements, coordination and integration of traffic flows with external stakeholders (GWRC, WCC, LGWM, Waka Kotahi, CentrePort, Future Ports forum)	**Input completed**	• Continued traffic analysis and modelling up until 50% Design stage
KSP Consulting Limited	**Train Operational Modelling** Create OpenTrack model of track design and model train movements, loading / unloading operations, etc. to ensure viability of the design	**Input completed**	• Signal modelling and ongoing support during detailed design process
Leuchars Holding Limited	**Concept Design Review** Review of design to ensure feasibility and viability across all disciplines	**Involved throughout the process, final review underway**	• Governance and ongoing support through role on Programme Governance Board
Construction Logic Limited	**Independent Review – Cost Estimation and Construction Methodology** Review (during price reviews) of construction sequencing and methodology, production rates and unit rates for labour / plant materials. Validation of first principles pricing approach and verification of estimate completeness	**Bronze review completed,** continuing involvement through Silver and Gold reviews	• Continue to support the price review process until the Gold review • Continued construction advice for Design up until 50% Design stage
Peter Seed Limited	**Economic advice** Advice and creation of financial models to support Port negotiations in respect of the application of the Commerce Commission input methodology in monopoly situations	Ongoing support and advice Creation of models for calculation of Ports fees using the Commerce Commission methodology, including WACC calculations	• Ongoing advice throughout negotiations with both Port companies
Deloitte	**Financial and On-Board Services Margin Models** development and support	Models developed with enhancements over time and ongoing support Model internal peer review completed	• Ongoing support and model enhancement as required
EY – Financial Model	**Financial Model** independent review	Independent review of model structure and calculation integrity completed	• No further involvement envisaged

Consultant	Scope	Current State	Next Steps
EY – debt financing support	**RFI (2019)** Assisted with running market sounding with financial institutions to gauge appetite for vessel financing - **completed** **Capital Structure** Reviewed KiwiRail's capital structure and financial forecast model to assess and advise management and Board and to support determination on borrowing level for KiwiRail - **completed** **RFP (2020/2021)** Assisted with management of the RFP process for vessel financing, including assessment of preferred financial supplier and structure - **completed** **Risk Management – Hedging** Provided an independent advice on the Foreign Exchange (FX) and Interest Rate hedging strategies for the vessels. – **FX strategy executed; Interest rate strategy approved by Board (June)** **ESG (Environmental Social and Governance) Framework** Assisted management in developing a ESG framework for application of "green loan" certification for the debt facility - **completed** **Loan Documentation** Assisted with review and negotiation of loan facility documentation with preferred banking syndicate - **ongoing**	Latest (final) version on the terms sheet being reviewed currently. Working towards Director approval at 17 June Board meeting.	• Assisting with finalisation of loan facility documentation to be provided to the Board for approval on 17 June. • Assisting with execution of Bord approved interest rate hedging strategy. • Assisting with documentation and verification for KiwiRail financing to be certified and aligned with the Climate Bond Initiative Standards, to enable KiwiRail's loan facilities to be designated as "Green Loans". • Review and finalisation of financial workstream post signing yard contract with HMD.
Mafic Partners – debt financing support	**Peer Review** Peer review of management RFP process including review of terms provided through to KiwiRail from the financial markets	Completed	• No further envisaged

Consultant	Scope	Current State	Next Steps
Russell McVeagh – debt financing support	**Legal Advisor** Lead legal advisor to KiwiRail throughout the finance RFP and documentation and negotiation process of the financial transaction. Have also provided advice on the tax implications of the ship purchase and financing.	Latest (final) version on the terms sheet for the loan facility being reviewed currently. Working towards final sign off at 17 June Board meeting. Assisting HFW with financial aspects of the shipyard contract. Leading preparation on loan facility documentation, drawdown certificates, ISDA documentation, KYC compliance and related documentation to support Board and Shareholder Approval, "finance documents". Tax opinion completed.	• Leading documentation to be provided to the Board for sign off at the special meeting on 17 June. • Review and finalisation of financial workstream post signing yard contract with HMD.
Holman Fenwick Willan (HFW) – London & Singapore	**Specialist Maritime Legal Advisor** Providing specialist international maritime legal advice to Russell McVeagh and KiwiRail management on the financial documentation and shipyard contract	Latest (final) version on the terms sheet being reviewed currently. Working towards final sign off at 17 June Board meeting. Leading shipyard contract legal review.	• Assist with final negotiation of shipyard contract and assist with finalisation of finance documentation

Table 22: iReX business case assurance.

Note, in the table above, three levels of review are referred to: bronze, silver, gold. These represent increasing levels of assurance over the design and cost estimates. The terminals cost estimates are currently based on a bronze level review.

6.5 QUALITY HEALTH AND SAFETY (QHS) ASSURANCE

The design, construction and operating of new port infrastructure and two new rail-enabled ferries are not standard activities for KiwiRail and clearly require a tailored Quality, Health and Safety framework that can function in co-existence with the default Health and Safety and Quality plans and expectations and is compliant with international standards[20]. The iReX team have drafted an initial version of this framework and will be further documenting the required process and artefacts in the next months. The Programme Governance Board Group is to review and approve the QHS Assurance Framework for the delivery of the programme.

[20] The iReX approach to safety assurance is embodied within international system safety standards (eg IEC 61508, EN 50126, EN 50128, EN 50129, ISO 26262, SAE ARP4754A, DEF STAN 00-56). It is also observed in international management system standards (eg ISO 9001, 45001, 55000, etc.) which recognise that quality of technical delivery is enabled and controlled by policy, leadership, planning, support, evaluation and improvement, i.e. Plan – Do – Check – Act.

QHS Assurance covers all aspects of the programme and evaluates output achievement and delivery capability maturity to inform Governance due diligence objectives with regards to:

- Verifying that appropriate systems and processes are in place and adequately resourced
- Verifying conformance
- Verifying outputs and outcomes.

QHS Assurance looks at processes contributing to and controlling quality and health and safety outcomes. The processes, roles and responsibilities and required artefacts for the iReX delivery function have been documented at both programme individual workstream levels and will allow to provide evidence to the overall Assurance Management function -that sits withing the Interislander team - that both capability and output expectations are fulfilled.

Confidence in capability will be derived from:

- Appropriate management systems (processes), adequately resourced
- Competent people
- Relevant standards tailored appropriately
- Planned assurance tailored appropriately
- Appropriate independent review.

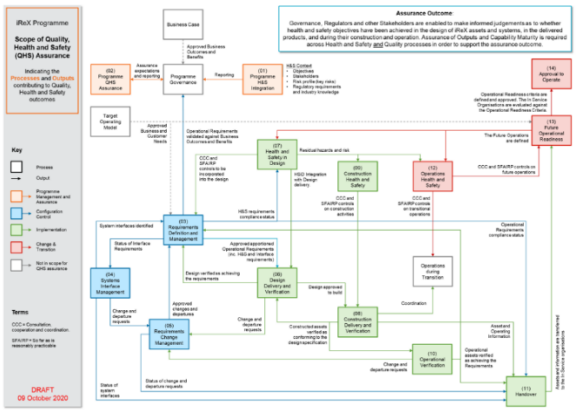
Whereas confidence in outputs is derived from:

- Competent people undertaking work in accordance with good systems and processes
- Appropriate independent review
- Verification of outcome achievement.

6.5.1 Programme QHS Processes

The iReX programme is comprised of several projects and each of these projects will incorporate QHS processes with named process owners and artefacts.

01 Programme H&S Integration
02 Programme QHS Assurance
03 Requirements Definition and Management
04 Systems Interface Management
05 Requirements Change Management
06 Design Delivery and Verification
07 Health and Safety in Design
08 Construction Delivery and Verification
09 Construction Health and Safety
10 Operational Verification
11 Handover
12 Operations Health and Safety (Transition + Future)
13 Future Operations Readiness
14 Approval to Operate



Where tangible requirements emerge, these are to be captured and documented as part of the systems engineering process – see section 6.1.9.

6.5.2 Ships Programme Quality

6.5.2.1 Planning

The standards that are relevant to the ships programme and specify how to satisfy them are covered under the following:

- The requirements, applicable standards and rules for classification of ships are developed during the design process from concept to contract design
- The quality planning involves subject matter experts from within programme iReX, KiwiRail and Interislander
- The development of the ships' design is undertaken with the appointed naval architecture firm.
- In the quality planning stage, a *Classification Society*[21] is nominated to undertake ships plan approval and provide shipbuilding supervision
- The contract design development and the technical negotiation with the shipyard involves the subject matter experts of the naval architects and iReX to ensure that all ships design requirements are specified and adequately detailed
- Prior to signing the shipbuilding contract the shipyard undertakes a preliminary review of the key requirements, applicable standards, and Class rules with the nominated Classification Society to ensure that these requirements can be met in the proposed ships design
- The requirements, applicable standards and rules for classification of ships including the shipbuilding specifications are to be consulted on, reviewed and updated by the current iReX team prior to being prepared for endorsement
- The shipbuilding contract specification requirements are included in the system engineering.

6.5.2.2 Assurance

Evaluating the delivery of the programme on a regular basis against the plans:

- The delivery of the ships programme and the verification of the design and building of the ships are monitored and reported on by the Ship Programme Team including a site supervision team and the expert resources of the naval architecture firm
- Ships plans and drawings are reviewed against the shipbuilding specifications and approved by KiwiRail with the assistance of the subject matter experts of the naval architecture firm before the shipyard submit them to the Classification Society for approval
- The Classification Society on behalf of the Flag State Administration is tasked to review and approve ships plans against the applicable standard, ships construction class rule and safety & environmental international and national maritime rules
- If changes to the shipbuilding specification are required these are proposed by the shipyard in terms of design and costs. These changes are checked against the requirements set in the system engineering to understand impact on other ships' systems and to manage any dependencies.

6.5.2.3 Control

Verification of output conformance to desired quality levels defined as part of the requirements:

- Factory Acceptance Tests, inspection and commissioning of material, equipment and systems are carried out by the shipyard, class surveyors and representatives from the Site Supervision Team on an agreed programme
- Sea trials are carried out by the shipyard, class surveyors and representatives from the Site Supervision Team on an agreed programme
- Deficiencies which are not rectified prior to ships delivery are included in the warranty list to be dealt by the shipyard within the post-delivery warranty period.

[21] A classification society is a non-governmental organisation that establishes and maintains technical standards for the construction and operation of ships and offshore structures.

6.6 TRANSITION AND CHANGE MANAGEMENT

Transition to the New Interislander

Interislander is already an iconic service in New Zealand and internationally. The proposed new ferries, terminals and operating model presents the opportunity to transform to an higher levels of freight, passenger and tourism numbers to secure the future revenue generation.

Large business transitions and transformations require careful planning. To support the transition strategies have been prepared and robust planning has been undertaken to map out how the Interislander will move from its current state, to the 'New Interislander'.

At a high level, KiwiRail is embarking on the largest transformation of rail and ship operations seen in over three generations. Focused network investment and a culture shift to commercial and operational accountability is delivering improvements in time performance and service reliability with resulting uplifts in customer satisfaction and revenue.

The new ferry and terminal assets provide an opportunity to transform the way the Interislander operates, meets future growing demand for rail and the Interislander capacity, provides a seamless user experience for our freight customers and a unique customer experience for our domestic and international passengers.

The new assets and operating model mean the Interislander business can meet customer demand resulting in improved revenue and capacity utilisation through:

- **Continuous improvement in rail and Interislander reliability:** The transformation of rail (asset investment, network upgrades and digital transformation) is driving demand which can be seen by the significant increase in domestic revenue during FY21. A third Auckland/Christchurch train is being planned for peak FY22, which will grow Interislander rail utilisation between now and the arrival of the new ships.

- **Rail deck capacity increase to 960TEU/day:** When the new ships are introduced which is up from **272TEU/day** currently (assuming a two-trip rotation timetable). It is expected that the new assets and operating model - which provides increased capacity, plus various external drivers (public policy, achieving sustainability objectives, etc - will see an uplift of rail use in NZ.

- **A step change in service performance and customer-service:** The introduction of the new ships and terminals, coupled with a new way of operating and more aggressive promotion and selling of products and services, will drive higher yield per passenger.

6.6.1 A New Way of Operating: Service Performance and Customer Service

To enable the revenue and customer growth identified, a new target operating model – the New Interislander – has been developed and provides the blueprint where processes, data, technology, people, organisation structure, assets and performance outcomes are interconnected to provide new a new business operation.

Embedding and delivering to this blueprint will streamline and transform many parts of our business operations and improve customer offerings and service.

The major shifts that will transform our business are centred around:

- **Digitisation to improve efficiencies and customer experience:** Improved digital systems to enable self-managed bookings; automated processes.
- [37]

- **Workforce planning for the right competencies and culture:** Working with our unions, ensuring we are building and developing a sustainable maritime workforce for the future.
- [37]

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The following diagram shows the customer shifts identified as part of the operating model to become a customer-centric operation:

[37]

Figure 12: Shifts in service delivery and operations.

6.6.2 Delivering the new operating model

To deliver the new operating model and blueprint, provide the uplift in operational revenue and streamline our operational processes and delivery, a transformational programme of work - *"the New Interislander"* - has been developed and encompasses over 70 initiatives to be delivered over the next 4-5 years.

This suite of initiatives focus on six key areas including: Utilisation and Optimisation; People and Organisation; Technology; Revenue generation and opportunities; Business and Performance uplift; Process Development/Optimisation and Safety.

A programme team is now established and running a detailed, four-year business transformation programme.

6.6.2.1 Transition and change management

A core component of the new operating model is transitioning the current operation from the current three ferry operation to two new ships with modern, fit-for-purpose terminal facilities.

A transition plan has been developed to ensure the activities required to operate successfully on Day 1 of the new assets are identified, planned for and delivered ahead of the new assets arriving. This forward planning will help reduce the amount of business and systems change occurring while our crews are training to operate the new fleet. Ensuring there is minimal disruption to the current operation, including maintaining on-time performance and reliability, while construction is occurring at our Wellington and Waitohi Picton terminal sites is a core focus of our transition planning.

A high-level change management plan has been developed covering industrial relations, workforce planning, rostering, zero harm, training, communications, and workstream project integration. The level of change required to the Interislander business, and to the wider KiwiRail operation, to prepare for the new assets is substantial and will be managed in conjunction with maintaining our service and operating standards.

6.6.2.2 A move to digitalisation

Successfully delivering the new ships and terminals and making the shifts to provide a customer-centric service, is underpinned by digitalisation. Our current fleet and operation rely heavily on manual processes, which non-standardised and largely assumption driven, rather than data- driven. Digitalisation will enable:

- Improved data collection to provide insights and enable continuous improvement of the fleet and operation over its 30+ year lifespan.
- More efficient resource management of a shift-roster workforce and non-permanent staffing.
- Data-driven customer insights to continuously cater to the changing needs of our customers.
- An improved customer experience through self-management, automated notifications and communications, journey planning and access to packages.
- Improved productivity and agility by streamlining and automating activity enabling scarce resources to be better utilised in areas which add value to our customers.
- Decreased operational costs through more efficient processes and enabling improved revenue generation.

6.6.2.3 Workforce planning and industrial relations

Over 90% of our workforce is unionised. Change programmes and delivering a new way of working will require a comprehensive workforce plan to ensure we can deliver on the strategic objectives of the New Interislander and our shift to a more flexible, resilient and customer-focused organisation.

Any changes to our current workforce structures, roles and responsibilities will need to be undertaken in collaboration with our union partners.

[38]

- [38]

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6.6.2.4 Moving to a standardised, process driven organisation

New assets provide an opportunity to standardise and streamline the Interislander operation. Our current operation is largely people driven and highly variable as a result of having three differently configured ships. Moving to a standardised asset base and a more process-driven operation will enable Interislander to work more efficiently while maintaining value.

Our transformational initiatives will focus on developing the enterprise-wide processes to deliver the outcomes we require to focus our teams' efforts, encourage a learning and change organisational culture, enable us to quickly adapt to a changing environment, introduce new products, services and standardised processes and continually evolve to meet our customer's needs.

6.7 BENEFITS REALISATION

As noted earlier, a systems approach is being taken to the design and procurement. This approach will allow a direct assessment of the achievement of the benefits to be assessed, in accordance with the table below. This table should be assessed and reported to the KiwiRail Board one year after all new assets are in operation and five and ten years thereafter.

This assessment and reporting will allow KiwiRail to take any necessary corrective action so that the desired strategic outcomes can be achieved.

This table represents the current (January 2021) understanding of strategic outcomes and will be refined in a more detailed exercise of benefits identification, quantification, planning and realisation that will be completed by June 2021. This exercise will also allow iReX to trial a new KiwiRail corporate benefits management process.

Desired Strategic Outcome	Description	Measurement and Outcome Achieved
Customer Focus	Provide a valued transport experience that delights our customers and exceeds our competitors in our three principal markets; rail freight, vehicle freight, and private domestic or international passengers.	Customer surveys to be carried out and reported on.
Environmental Sustainability and Emissions Reduction	Deliver an environmentally sustainable solution that reduces carbon emissions in operations, and across the supply chain, and can exploit future developments in sustainable technologies.	Actual ship fuel use and therefore carbon emissions to be reported. Supply chain achievements to be included in standard KiwiRail reporting on freight transported.
Health and Safety	Keep our employees, contractors and customers safe throughout the design, delivery and operation of the system.	Safety record as part of standard KiwiRail monitoring and reporting.
Resilience	Deliver an Interislander capability that is resilient against major disruptive events and can deliver continuity of the KiwiRail business, commensurate with the remainder of the network, and a lifeline capability for New Zealand.	Report any outages of Interisland service. Check commissioning of ships and terminals against specification for lifeline roles. Test any special capabilities in accordance with emergency management plans (eg changing from rail to RoPax mode).
Commercial	Establish a new Interislander operation that delivers positive commercial outcomes for KiwiRail.	Regular financial reporting of Interislander business unit.
Efficient Operations	Balance an efficient operating model for KiwiRail's Cook Strait connected journeys with delivering a high-value customer experience.	Customer surveys to be carried out and reported on.
Reliability	Provide a reliable service that can respond to minor disruptive events without significant schedule interruption.	Report any outages of Interisland service.
Operational Transformation	Deliver a renewed Interislander operational capability, including assets, personnel and support systems, that can compete and succeed in the New Zealand freight and transport sector.	Regular financial reporting of Interislander business unit.
Meeting Future Demand	Deliver an Interislander capability that can adapt to changes in customer needs, freight demand profiles and mode share.	Achievements in meeting demand to be included in standard KiwiRail reporting on passengers and freight transported.

Table 23: Benefits realisation.


Interislander