

IS Kawerau – Infrastructure and Transport Background Study

1. Background

Kawerau was founded in 1953 specifically to cater to the Tasman Pulp and Paper mill. The location was chosen as the site for the Tasman mill complex due to the ready availability of geothermal energy and fresh water, and its close proximity to the large supply of radiata pine from the Kaingaroa forest. It is one of the youngest towns in New Zealand and was purpose built for heavy industry.

With a land area of only 22 km², Kawerau is the smallest territorial authority in New Zealand. Yet it is quite unique in the national landscape in that nearly 60 years after original development, Kawerau still caters to heavy industry. Although small, the pre-planning and execution in developing the town has had a profound effect on the suitability of Kawerau as a destination for further industrial development.

Crucial to Kawerau's ability to attract further industrial operations is the provision of necessary infrastructure to accommodate new businesses and their staff, and to offer an environment in which an operation's potential can be maximised. A research report written by Business and Economic Research Limited (BERL) in 2011 concluded that:

***'Kawerau is unique in that it possesses a surplus of infrastructure capacity. The town has infrastructure in place to cater for a population of 15,000 people. Current population is approximately 7,000. The Council is also financially secure, with no debt, and is putting aside the funding for asset replacement required in the future.'* [1]**

Important to future industrial growth, the Kawerau District Council (KDC) is in the process of rezoning a further 113 hectares of land for industrial use. This land is wholly owned by the Putauaki Trust, a Maori land owning entity related to the prominent local Ngati Awa Iwi.

In addition Norske Skog Tasman (NST) has 118 hectares of fully consented land with direct access to electricity, process heat and a rail head to the Port of Tauranga (PoT), which is less than 100km away.

The combination of Kawerau's purpose built nature, industrial infrastructure, access to natural resources, and direct rail link to PoT; make it the industrial powerhouse of New Zealand's central North Island.

2. Water Supply

Kawerau's water supply to the town's population comes from two springs and forms the 'town supply' as provided by KDC. A further three wells may also be used, particularly during summer when demand tends to peak. Typical consumption of town supply is approximately 3,000 m³ per day throughout the year, but can increase to around 12,000 m³ per day in summer. This is mainly due to increased sprinkler usage by domestic residents [2].

Town supply provides all necessary potable water to residential, commercial and industrial sites, but is provided to industrial businesses for their general amenities only, not as the source of water for manufacturing processes. This domestic side of industry is estimated at 15% of total water demand from the town supply [2]. The existing supply network has additional capacity and it is proposed that the Putauaki Trust 113 hectare industrial development (see the IS Kawerau Industrial Land Specification Study) will obtain water from the network for its amenities and also deliver wastewater back to KDC's waste water treatment facilities [3]. KDC also installed an ultraviolet water treatment plant in 2007 to ensure the ongoing security of the town supply, in terms of meeting drinking water standards in New Zealand [1].

NST, Carter Holt Harvey Tasman (CHH) and SCA Hygiene Australasia (SCA HA) are the major manufacturing companies located within the Tasman mill complex. These companies all use large quantities of water in their manufacturing operations and, through various consents, draw water from the Tarawera River which lies adjacent to the site. Assets operated by NST and CHH were initially one operation under the Tasman Pulp and Paper Company; as such NST and CHH have a range of combined consents for their current day operations [4].

3. Wastewater and Stormwater Treatment

Almost all households and businesses are connected to KDC's reticulated wastewater system, with wastewater collected from approximately 2,700 households and businesses. Less than 20 buildings in the urban area rely on their own disposal through septic tanks. Once again, with industrial businesses, wastewater collection relates only to amenities within the businesses, not from industrial processes. KDC has a trade waste bylaw which prohibits the use of the system as a disposal method for industrial waste [1].

Kawerau's wastewater treatment plant is state of the art for a community of its size, using clarifiers, centrifuges and ground treatment of final effluent. Facility ownership was transferred to KDC from CHH in June 2009 [1] and has sufficient capacity to handle additional throughput of around 30%, without the need to commit further capital for expansion [2]. A portion of this excess capacity is likely to be committed over time to new industrial operations within the Putauaki Trust industrial development, but if demand was to soak up all capacity KDC could accommodate up to twice the current throughput by connecting additional vessels to the existing plant [1].

The stormwater network within Kawerau directs flows from roading to the Tarawera River, while smaller industrial businesses utilise soakage devices located on individual properties. Stormwater from sources other than roads pose few issues as soils within the Kawerau District are very permeable, offering rapid soakage rates to ground. The use of Rapid Infiltration Basins (RIBs) facilitates the ground soakage process [3]. The stormwater network has sufficient capacity to cope with additional demand.

With regard to industrial wastewater, CHH and NST operate an unincorporated joint venture, Water and Waste Services. This entity operates waste operations from the Tasman mill complex relating to the taking of water from the Tarawera River for use in the companies' processes, then the disposal of treated wastewater, stormwater and landfill leachate back to it [5]. This joint venture also takes industrial process waste from SCA HA, taking care of industrial waste on behalf of heavy industry within the mill complex [2].

Consent to discharge industrial waste from the mill complex into the Tarawera River requires an ongoing effort from the joint venture to decrease the environmental impact of waste streams, with regard to colour and clarity of the river below the discharge injection points and river ecology relating to aquatic life [5].

4. Broadband & Telecommunications

There is currently a lot of activity within New Zealand around broadband internet and telecommunications services, with the expansion of broadband services and speeds a focal point of the New Zealand Government in improving productivity and efficiency in the economy. The township of Kawerau is currently serviced with ADSL2+ and VDSL2 connections, but will benefit further from government initiatives to improve broadband services.

4.1 The Ultra-Fast Broadband Initiative (UFB)

This initiative relates to providing fibre to main urban areas, with the government contributing NZ\$1.35 billion along with significant amounts of private co-investment from the government's UFB partners. The ultra-fast fibre network will be capable of download speeds of at least 100 Mbps (megabits per second), and upload speeds of at least 50 Mbps [6].

The government's mandate is that by 2020, 75% of New Zealanders will be connected to ultra-fast broadband, with schools, hospitals and 90% of businesses to be connected by 2015. Homes and the remaining 10% of businesses will be connected by 2019 [6]. Kawerau, due to its low urban population and rural location is not included under this initiative, although larger neighbouring towns and cities such as Whakatane and Rotorua are.

4.2 The Rural Broadband Initiative (RBI)

The Kawerau District as a whole comes under this government initiative, which is focused on supplying rural homes and businesses with broadband at prices and service levels comparable with urban areas. The government and initiative partners, Chorus and Vodafone, will spend \$285 million to roll out the RBI by 2017 [6].

Chorus will build the rural broadband infrastructure to deliver 100 Mbps fibre connections to approximately 730 rural schools and hospitals across New Zealand, while Vodafone will use this as a backbone to deliver fixed and wireless broadband at peak speeds of at least 5Mbps to 86% of rural homes and businesses. They will also extend cell phone coverage in rural areas and offer an upgrade path to 4G, enabling the potential of higher speed data access in the future [6]. Kawerau is scheduled to get the RBI rolled out to the first of its two cabinets at the start of the initiative's second year - around June 2013 [7].

4.3 Other Broadband Providers

Although the above initiatives are the government's planned roll out of high speed broadband throughout New Zealand, there are further private enterprises that either currently supply, or are planning to supply broadband services (fibre, wireless, satellite or other) to the Kawerau District.

The most advanced of these is FX Networks, a private company that owns and operates a fibre optic backbone network throughout the North Island. The company is currently advancing its network from the Transpower sub-station at Kawerau through to Taupo. Once the network ring has been completed, FX Networks intends to build a local Point of Presence in nearby Whakatane, allowing Kawerau based customers to connect directly to high-speed services.

In developing this service FX Networks has worked with KDC to provide the most cost effective method for roll out. It is expected interested parties will be able to access this network by June 2012, with speeds of 10Mbps, 100Mbps, 1Gbps and 10Gbps available, depending on customer budgets.

Further to improved productivity and efficiency in information transfer, is the suitability of these networks to provide Kawerau based businesses with the opportunity to properly adopt cloud based business systems without foregoing the speed experienced through on-premise counterparts.

5. Transport, Freight and Logistics

Extensive road, rail and port infrastructure exists in the Bay of Plenty region, allowing for cost effective and reliable transport from Kawerau to export markets across the globe. Large volumes of freight are moved by road and rail (approximately 50% share for each mode) from Kawerau to PoT [8]. The Bay of Plenty is an export hub and the 'Bay of Plenty Freight and Logistics Strategy' published in December 2011 sets an action plan to further improve both productivity and efficiency

throughout the region. It sets parameters to implement solutions that reflect world’s best practice, but tailored to the size and opportunity in the New Zealand market.

At the core of driving greater productivity and efficiency is physical infrastructure. Better, smarter use of current infrastructure along with further adoption of world-class logistics models, information technology and industry training will continue to drive improvements in the regions’ transport logistics. In addition to this, the provision of new infrastructure at the correct times will create further capacity while driving greater efficiencies [9].

The strategy points to a number of opportunities to improve the freight sector and supply chain productivity beyond where it sits today. These include: [9]

- Real-time management of traffic flows
- Real-time reporting on freight movement
- Time-specific charging for congestion, accident, noise and other externalities
- New funding sources and mechanisms, including tolling, public private partnerships (PPPs), a national motor fuel tax surcharge available to be allocated for regional roading
- Hub and spoke networks, super-sized container ships, and deeper ports
- Substantial investments in rail to boost transit speeds and reliability
- Increased truck payloads as a result of new provisions for HPMVs on roads.

The introduction of these and other innovations could see further benefits to manufacturing and exporting companies located in Kawerau and the wider Bay of Plenty.

5.1 Rail Network

The main rail line in the Bay of Plenty region is the East Coast Main Trunk Railway (ECMT), which extends from Hamilton in the Waikato region through Tauranga to Kawerau, and finally to Murupara through the Murupara Branch Railway. This is depicted in Figure 1. The rail network in the Bay of Plenty totals 229 km and is used exclusively for freight, carrying over a third of New Zealand’s rail traffic. It is the most densely utilised section of the national rail network [10].

PoT is 83km from Kawerau by direct rail, with several trains linking the two destinations each day. The majority of exports relate to forestry products, with rail playing a significant role in transporting logs, wood pulp, paper and other forestry products from Kawerau, and also Murupara.



Figure 1: The Bay of Plenty Rail Network [9]

On 1st October 2008 the rail industry in New Zealand became a single entity trading as KiwiRail, a Crown owned entity which moves 33% of the country's export goods, linking major export industries to major ports [10]. KiwiRail operates as a commercial entity, with the Crown having 'step-in' rights if volumes on particular lines slip significantly below specified usage. The following companies have the most significant freight requirements in Kawerau: [9]

- NST Pulp and Paper
- SCA Hygiene Australasia
- CHH Tasman Pulp
- CHH Woodproducts New Zealand
- Sequal Lumber

Companies in other industries, particularly engineering and maintenance, including large scale fabrication, rail engineering and metal recovery businesses require freight facilities to and from PoT, but in an inconsistent manner [9].

Rail freight from Kawerau to PoT is loaded nearly exclusively via privately owned rail sidings and loading infrastructure at the mill complex. KiwiRail has its own rail yard adjacent to CHH and NST and runs specialised rolling stock, relying on the mills' specialised transfer infrastructure. Empty wagons are returned to Kawerau as there is currently no demand for backhaul. Demand is also limited by the specialised nature of the wagons [9].

Further opportunity exists to connect rail services to the planned 113 hectare industrial development, which in itself provides further options for a freight and logistics hub to be located at Kawerau, servicing the eastern Bay of Plenty.

In order to utilise current rail infrastructure, Putauaki Trust will likely seek to establish further rail sidings in the new industrial site, with potential connections to existing industry based in the light industrial zone of Manukorihi Drive. This direct access would allow current and future industrial businesses to adopt rail as their preferred freight mode, and to enjoy the associated cost and time savings [9].

5.2 Port of Tauranga

PoT, a New Zealand publicly listed company, is both the largest and fastest growing port in the country. It is used extensively for the export of logs, sawn timber, pulp and paper, dairy products and manufactured goods. As the economic hub for the Bay of Plenty and near exclusive export gateway for forestry products from the Central North Island (CNI) forests, PoT handles 70% of New Zealand's forest product exports [10]. It is also being increasingly used as a gateway for the Auckland market, with shipping containers being railed to and from MetroPort, the PoT owned inland terminal at South Auckland.

Just 83 km from Kawerau by rail or 94km by road, PoT is the most productive port in Australasia. In terms of facilities, it has a total of 15 berths, two cold stores of 20,000 and 9,000 tonnes, 2.5 hectares of covered storage, 27 hectares of paved container yard, and more than 90 hectares of reserve land for future facilities and storage.

As demonstrated in Table 1, PoT's total trade for the 2011 financial year increased 12% to 15.4 million tonnes, with exports increasing 11% to just over 10 million tonnes and imports increasing 14% to over 5 million tonnes [12]. Forestry related products were large contributors to export growth, with log exports increasing to more than 4.4 million tonnes, up 14.5% on the previous year. Sawn timber exports increased by 11%, paper products increased nearly 6% and wood panels increased by 36% [13].

Products exported for year ended 30 June 2011	000 tonnes	% of Total	% +/- on 2010
Logs	4,421	43.3%	14.5%
Other forest products including wood pulp and lumber	2,318	22.7%	6.4%
Kiwifruit	757	7.4%	3.8%
Dairy products	588	5.8%	4.6%
Other exports	2,125	20.8%	14.4%
Total Exports	10,209	100.0%	11.1%
Products imported for year ended 30 June 2011			
000 tonnes	% of Total	% +/- on 2010	
Oil products	1,233	23.8%	4.3%
Fertiliser bases	530	10.2%	63.6%
Coal	55	1.1%	-86.9%
All other goods	3,363	64.9%	27.7%
Total Imports	5,181	100.0%	13.7%
Total Trade	15,390	-	11.9%

Table 1: Trade through the Port of Tauranga in 2011 [12]

Growth is further demonstrated by PoT's operating statistics between 2007 and 2011, as follows: [14]

- Cargo throughput (000 tonnes): 12,647 to 15,390 (up 21.7%)
- Containers (TEUs): 466,235 to 590,506 (up 26.7%)
- Net crane rate (container moves per hour): 33.3 to 35.0 (up 5.1%)
- Ship departures: 1,233 to 1,329 (up 7.8%)
- Cargo tonnes per ship: 10,308 to 11,606 (up 12.6%)
- Average cargo ship gross tonnage: 18,430 to 21,491 (up 16.6%)

Most exports from PoT are bound for Asia, others to Australia, the Pacific Islands and further afield to other major trading partners. PoT has superb infrastructure, road and direct rail access, a strategic land bank, the best productivity in Australasia, a strong balance sheet and is located at the heart of New Zealand's export and import belt. At current it has a low-water draught of 11.7 metres and can handle ships up to 290 metres long [10]. Planned expansion activities will increase the size of ships able to call at PoT and other productivity measures will further improve PoT as an economic hub.

Expansion activities include: [13]

- A planned \$30 million extension to the Tauranga Wharf terminal and crane facilities. PoT will become one of the few port calls for the larger container ships able to carry 7,000 TEU's.
- Working to secure resource consents to deepen and widen the harbour shipping channels to accommodate ships up to 14.5 metre draught at low water, with an overall length of 347 metres. This depth will enable PoT to accommodate container ships of up to 8,000 TEUs which will future proof the port for the next two decades.
- Significant expansion of the Sulphur Point Container Terminal. Land will be developed into additional storage to accommodate the increasing number of containers, including additional plugs for refrigerated units. This will increase the total wharf length by 28% to 770 metres as detailed in Figure 2. Construction is expected to be completed by December 2012.
- Ordering another new Liebherr container crane to take PoT's fleet to six. With some simple modifications to one of the existing cranes, PoT will have three twin-lift capable cranes by early 2013.

- Continued strategic land banking. Most recently, PoT purchased a coolstore on Totara Street, Mt Maunganui, on two hectares of land. This purchase increases PoT's total land holdings to 185 hectares.
- Allocation of more than 26 hectares of land to log storage. With volume growth, PoT is focused on creating further storage areas and also better utilisation of current areas.



Figure 2: Planned Northern Wharf extension at Port of Tauranga [13]

5.3 Road Network

Demonstrating its physical size, the Kawerau District contains only 41 kilometres of roading – 40 sealed and one unsealed [1]. This is only a fraction of the 4,460 kilometre road network in the Bay of Plenty region, which comprises state highways, local roads and special purpose roads. Most of the region's local urban roads, as well as about 64% of local rural roads, are sealed. All public roads in New Zealand are managed by the New Zealand Transport Agency (NZTA), a Crown entity responsible for transport planning, funding and delivery [10].

The normal maximum gross vehicle weight allowed on New Zealand roads is 44 tonnes. Effective from May 2010, regulations governing heavy vehicle weights were amended to allow changes to some of the lengths and dimensions for heavy vehicles. This created a new permit class for high productivity motor vehicles (HPMV's) at greater weights, increasing the gross weights allowable in 7 to 8 axle trucks from the current 44 tonnes, to between 50 and 55 tonnes on approved routes. This can translate to productivity increases of 20% or more in payload, with the increase in permitted length also allowing the opportunity to carry three 20ft (TEU) containers, or one TEU plus one 40-ft (FEU) [9]. The majority of the state highway network in the Bay of Plenty and Central North Island is approved for limited HPMV, including the road network between Kawerau and PoT, as detailed in black in Figure 3.

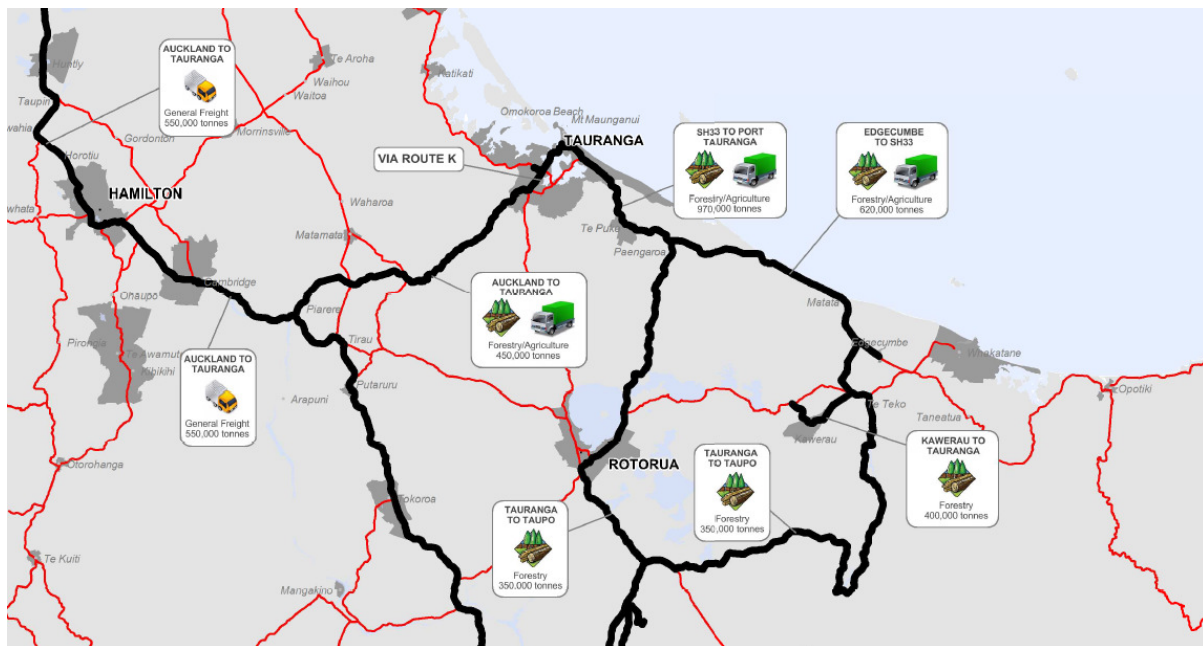


Figure 3: HPMV Route Investment for 2012 to 2015, Waikato / Bay of Plenty [15]

6. Policies to Enable Internationally Competitive Business

6.1 Resource Management Act

The Resource Management Act (RMA) is the main piece of planning legislation in New Zealand, passed by Parliament in August 1991. It sets out how we should manage our environment and is based on the concept of the sustainable management of resources. When enacted it provided a single piece of legislation for the management of land, water, soil and air throughout New Zealand [10].

The RMA is more concerned with managing the effects that our activities have on the environment, rather than regulating the activities themselves. Government decision-making has been decentralised to local and regional levels in most cases, under the belief that decision-making is best carried out at the level closest to the resources affected. The Kawerau District is quite unique in this regard, in that it was created for heavy industry and through KDC, continues to offer an enabling regulatory environment geared towards industrial activity. KDC is responsible for the approval of activities within the district.

Environmental impacts of activities are primarily controlled by the RMA through the application for and issuance of resource consents. Resource consents provide permission to carry out an activity so long as it complies with any conditions attached to the consent. The RMA classifies activities into six primary categories: permitted, controlled, restricted discretionary, discretionary, non-complying and prohibited. These categories determine aspects such as whether a resource consent is required before carrying out the activity, what will be considered when making a decision on a resource consent application and whether a resource consent must, may or may not be granted [10].

Due to issues around application and approval of resource consents, the National Government introduced the Resource Management (Simplifying and Streamlining) Amendment Bill 2009 (RMAA) to simplify and speed up the resource consent process under the RMA. This Bill formed an important part of the government's economic recovery programme following the 2008 global recession. The RMAA entered into law on October 1st 2009 with key changes including: [10]

- Removing frivolous, vexatious and anti-competitive objections that can add cost to consent applicants
- Streamlining processes for projects of national significance
- Creating an Environmental Protection Authority
- Improving plan development and plan change processes
- Improved resource consent processes
- Streamlined decision making
- Strengthening compliance by increasing penalties and providing for a wider range of enforcement
- Improvements to national instruments

As mentioned above, the RMA provides for an Environmental Protection Authority (the EPA) that deals with nationally significant proposals, rather than local councils. As such, central government can directly intervene in local decision making where consent for such a proposal is sought [10].

6.2 Free Trade Agreements

The Ministry of Foreign Affairs and Trade (MFAT) is the Government's principal adviser and negotiator on foreign and trade policy issues. The primary role of MFAT is to recognise and understand international trends, opportunities and risks that affect New Zealand, and offer the Government advice on how best to protect and advance the country's interests and well-being [16].

MFAT recognises that free trade agreements (FTA's) make international trade easier and more efficient and consequently New Zealand is committed to liberalising trade through a number of regional, bilateral and multilateral trade agreements. Numerous FTA's with important markets are either already in place or currently under negotiation. The following agreements offer excellent potential for New Zealand based businesses [16].

- **NZ / China FTA** – Came into force on 1st October 2008, with New Zealand being the first developed country to negotiate an FTA with China. Securing preferential access to China's economy has the potential to deliver significant gains to New Zealand. The NZ / China FTA provides for the removal of tariffs on 96% of New Zealand exports over time, providing New Zealand based exporters with remarkable access to the world's fastest growing major economy. At the end of 2008 China overtook the United States to become New Zealand's second largest trading partner. Exports were worth NZ\$5.635 billion in 2011, more than 300% greater than 2007 [17].
- **NZ / Malaysia FTA** - Signed in Kuala Lumpur on 26th October 2009. Malaysia is New Zealand's tenth largest export destination, accounting for NZ\$829 million of exports in 2011 [17]. Its growing population of more than 28 million people presents ample opportunity for additional trade, investment and other economic linkages.
- **NZ / Korea FTA** – Negotiations towards an FTA with the Republic of Korea were announced by Prime Minister Key and Korean President Lee Myung-bak in March 2009, and officials-level negotiations began in June that year. Since then, four rounds of officials-level negotiations have taken place. Good progress has been made in many areas, and three chapters are now substantively concluded (Competition and Consumer Policy, Labour and Environment). Korea is New Zealand's fifth largest export market, worth NZ\$1.6 billion in 2011 [17].
- **NZ / India FTA** – New Zealand Trade Minister, Tim Groser and Indian Commerce Minister, Anand Sharma announced on 31st January 2010 that all approvals had been secured for Free Trade Agreement negotiations to commence between the two countries. India is currently

New Zealand's eighth largest export market, worth NZ\$885 million in 2011, a 245% increase on 2007's exports of NZ\$361 million. Bilateral trade between India and New Zealand more than doubled to NZ\$1.26 billion over the same time [17]. With a population of 1.2 billion and GDP growth of 8.5% for 2011, India holds great potential for New Zealand based exporters.

Further to these, New Zealand is currently negotiating Free Trade Agreements with the Gulf Cooperation Council of Arab States and Russia, along with its Customs Union partners Belarus and Kazakhstan. New Zealand also has a range of historical Closer Economic Partnerships / Relationships with Thailand, Singapore and Australia, New Zealand's largest trading partner [16].

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Disclaimer: This study was undertaken to provide interested parties with background information on infrastructure and transport as they relate to Kawerau and the Industrial Symbiosis Kawerau initiative. Such information is not intended to provide parties with all necessary details on which to base potential commercial decisions.

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