

Appendix 22

Economic Assessment

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Northport Expansion (Berth 5)

Economic Assessment

September 2021*

m.e
consulting



Northport Expansion (Berth 5)

Economic Assessment

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Northport Limited

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Report author(s): Rodney Yeoman, Tilly Erasmus and Greg Akehurst.

Director approval: Greg Akehurst

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Executive Summary

The objective of this report is to assess the role of Northport in the regional and national economies, how that role can be expected to change in the future, mainly as a result of changing trade patterns and demand for container handling, and to assess the economic impacts associated with Northport's proposed Berth 5 expansion ("the proposal").

This report establishes four 'futures': Business-as-usual (BAU)¹, North Auckland Imports (NAI)², Upper North Island Ports Constrained (UNIPC)³ and North Auckland Growth (NAG)⁴ scenarios, which show the range of potential trade tasks that could be handled by Northport in the long term. The UNIPC and NAG scenarios show a range of outcomes around the NAI, with UNIPC representing a high trade task future and NAG representing a low trade task future. The review indicates that upgrades to the land transport networks and the potential shift of Ports of Auckland to South Auckland, will result in improvements in the attractiveness of Northport to exporters and importers in the North Auckland area.

Looking to the future, a greater proportion of trade is likely to be containerised. It is likely that Northport's trade tasks will shift towards higher value goods in containers. The rest of the regional bulk trade handled by Northport (imports and exports) is expected to grow slowly in the future.

Importantly for Northport, there are potential capacity issues associated with other key ports in the Upper North Island. In the coming three decades Northport's role is likely to extend beyond its regional trade tasks, to support trade from outside the region – i.e. it will take on a national role. The NAI, UNIPC and NAG scenarios provide an understanding of the potential trade tasks that Northport could handle if the Port's role is extended to service demands from outside of the region. Specifically, demands from the area north of the Auckland isthmus, the population of which is expected to reach 1 million people in the coming three decades. The NAI scenario assumes that a share of containerised trade arising from the area north of the Auckland isthmus, shifts to Northport over the coming three decades. The NAI scenario developed in this report suggests that the trade tasks handled by Northport may still decline over the coming decade, from 3 million tonnes in 2020 to 2.6 million tonnes by 2030, before growing strongly to reach 5.1 million tonnes by 2050 (a rate of 1.8% per annum).

All of the future scenarios indicate that Northport will need to invest in infrastructure upgrades, which include wharf extensions and port area reclamation. The existing consented expansion (Berth 4) is currently being implemented by Northport. Beyond that, and based on expected demand for container handling, in two out of the four scenarios Northport may need the proposed expansion as early as 2030, in

¹ A future which assumes that Northport's role continues to be focused on regional trade, and based on current trade task and growth trends.

² A future which aligns with Northport's masterplan "A Vision-for-Growth", with the Port expanding its role assuming that Northport is able to capture a proportion of the existing import container trade from the area north of the Auckland isthmus and the growth in demand.

³ A future which assumes that other ports in the Upper North Island become constrained, which results in a large proportion of trade in Auckland Region to be handled at Northport.

⁴ A future which assumes that Northport captures a share of the growth in container trade from the area north of the Auckland isthmus.



order to accommodate demands from outside of the region. In other forecast scenarios (and depending on trade demands), the proposed expansion could be required by 2035.

It is unlikely that the full potential of Northport can be achieved, and the resulting social and economic benefits to people and communities realised, unless the Port is given sufficient flexibility in its development to respond to changing scenarios.

The regional economic assessment shows that Northport's role in the Northland economy could range from,

- BAU scenario which reaches \$1,094 million GDP and 14,800 jobs by 2050, to
- NAI scenario which reaches \$1,201 million GDP and 16,200 jobs by 2050.

In total Northport's role could equate to \$5.6 billion GDP by 2050 in the New Zealand economy, which is equivalent to 60,900 jobs. The majority of the additional trade handled by Northport will flow to Auckland and the rest of the country, which means that most of the role of the port will relate to economic activity outside the region (i.e. national). Some business will choose to relocate to Northland to benefit from closer proximity to the port. In the longer term this effect will grow, however it is likely that most trade and economic activity will flow more or less directly out of the region, at least for the period assessed in this report.

It would be prudent (from an economic perspective) to progress the proposal and secure the ability to expand the port area. This would adequately provide development flexibility for the future footprint of Northport, which would ensure that the upper North Island ports, collectively, could efficiently meet the needs of this fast-growing region and therefore New Zealand.

It is acknowledged that some time has passed since the analysis was completed. The report was reviewed in July 2022 and additional available information incorporated. The authors are of the view that the economic assessment of the project is still valid and robust.



1 Introduction

Northport Ltd (NPL) has commissioned this economic research which is designed to establish an understanding of the future role of Northport and the associated economic activity. Northport is a key piece of infrastructure in the Northland regional economy as it handles a significant share of the region's export trade. Therefore, it is important to understand the role that the port currently plays in the economy and how this role may change over time. The goal of this research is to develop an understanding of the potential change in role that could be enabled if Northport is able to expand beyond the current port area, more specifically assessing the economic impacts associated with Northport's proposed Berth 5 expansion ("the project").

Typically, port infrastructure development requires many decades and significant investment to facilitate an increase in capacity. This means that Northport should prudently adopt a medium-long planning horizon.

It is generally agreed that the other ports, and transport networks, in the Upper North Island are likely to develop capacity constraints over the coming decades. These constraints could result in Northport's role increasing beyond the region – most likely to handle more containerised imports for the Auckland region. This means that it is valuable to understand potential uplifts that could be achieved if Northport's role expands beyond the regional export trade that it currently handles. For Northport to realise a wider role, it needs the ability to expand the number of berths and port area.

This report has been prepared as part of Northport's application for resource consents to develop an additional berth and associated port area, i.e., Berth 5 and the reclamation area east of the current port area. It is acknowledged that some time has passed since the analysis was completed. The report was reviewed in July 2022 and available information incorporated. The authors are of the view that the economic assessment of the project is still valid and robust.


This report presents a summary of the context in which Northport operates, anticipated future trade demands and the economic role that the Port plays through handling trade.

This section briefly provides an introduction to the report, objectives and scope, approach and report structure.

1.1 Objective and Scope

The project objective is to understand potential economic activity associated with Northport's role as a key piece of infrastructure that handles large volumes of trade including assessing the economic impacts associated with Northport's proposed expansion. Report scope covers the local, regional and NZ economies and growth futures. In summary, the economic impact assessment covers and incorporates:

- The change in operational activities (by the Port) as a result of the proposed expansion, and any subsequent change in supply chain effects (of the Port as a business) and

- 
- the facilitated effects due to changing trade patterns facilitated by the proposed expansion of the port, and the effects associated with creating a ‘new business location’ at the Port.

1.2 Approach

The approach applied was to undertake three key steps:

1. Review Northport within its existing context,
2. Establish an understanding of the future trade tasks of Northport, and
3. Estimate the associated role of Northport in the economy.

The first step included a review of information on the existing context in which Northport operates, including:

- **Northport:** financial and trade data from 2004 to 2020, budget forecasts for 2020-2025 and indicative capital budgets for Berths 4 and 5. Northport also provided planning documents and other information via meetings as well as feedback on this report.
- **Statistics New Zealand (SNZ):** trade data, economic data (GDP, employment) and population from 2000 to 2020.
- **Market Economics (M.E):** proprietary economic models and data on economic activity.
- **Ministry of Primary Industry (MPI):** primary sector production data.
- **Whangarei District Council (WDC):** planning documents on the business land zoning.
- **Other studies and media reports:** range of studies from other agencies that cover trade and port operations.

The results of this step are presented in *Section 2 – Northport in Context* and was utilised to help define the future role of Northport in each of the scenarios.

The second step was to develop an understanding of the trade role that Northport could play over the coming three decades. It is important to acknowledge that the future is subject to uncertainty, especially when assessing the long term. Accordingly, this assessment utilises four potential representative future scenarios (BAU, North Auckland Imports, Upper North Island Ports Constrained and North Auckland Growth) to understand how the economic role of Northport may change in future. The results of this step are presented in *Section 3 – Looking to the Future*, and are utilised as an input to the economic modelling.

The third step was to identify the economic role that Northport could play in the future, both within the region and nation. Two economic measures are established, the **net direct additional** and **facilitated** economic activity.



We have measured the net direct additional value that is generated by Northport operations for each of the future scenarios. This value is different from the wider role of the port, as it only measures economic activity that would not flow through the Whangarei and Northland economies if Northport did not exist.


We also measure the wider role of infrastructure in an economy. In the case of ports, it is important to understand the role of the port as a facilitator of economic activity that flows through the region in the form of imports and exports. Northport has a significant and wide role as a key piece of infrastructure that enables or facilitates economic activity. Therefore, we assess the imports, exports and other activity (such as cruise tourism) that transfer through the Port to establish a measurement of the value of economic activity that is reliant (at least in part) on the Port. This metric provides a total view of the proportion of the economy supported in some way by the Port.

Once identified, the net direct additional and facilitated activity was run through a bespoke Multi-Regional Input Output model (see Appendix A for details). This model allows the calculation of all flow-on effects associated with the net direct additional and facilitated activity. Note that the use of the Multi-Regional Input Output model is important in this context as it allows the cross-border flows to be traced and captured in the calculations. Most traditional impact assessment techniques treat these flows as either imports or exports and their effects are excluded. However, it is important that the effects of expenditure in Whangarei City that in turn, support business activity across the rest of the region - either through direct contracts or the purchase of additional intermediate goods and services, are captured.

1.3 Caveats and Limitations

The assessment is informed by, and based on, assumptions, different datasets, publicly available reports and information provided by Northport. Consequently, the work has limitations and is caveated, as outlined below:

- This research focuses on the economic impacts of Northport. It is beyond the scope to assess the New Zealand wide impacts of potential changes to the network of ports, or other activities that could occur at the Port.
- This report does not analyse the national well-being impacts of changing Northport's role and/or the alternative options that could be utilised to handle the trade tasks.
- This report does not establish the structure of port facilities in the upper North Island that would produce the optimal outcome for New Zealand. An assessment of this scope would require significant resourcing and time, and is not necessary or appropriate for this resource consent application.
- The results in the report does not represent the economic value of Northport – i.e. costs vs benefits. This report measures the economic activity that occurs in the economy which is related to Northport. If Northport did not exist some of this economic activity would still occur, being handled by other ports and/or consumed locally.

- 
- This report did not consider other alternative futures such as Ports of Auckland remaining where it is (with reduced capacity) or moving elsewhere (other than the Manukau Harbour). It is our view that it is unlikely the Ports of Auckland would move within the 30-year horizon assessed in this report, and as such the decision on the location of Ports of Auckland has no material impact on the assessment in this report. The focus remains on Northport's role in alleviating congestion at the Ports of Auckland, rather than the long-term effects of POAL shifting.
 - Achievement of the growth scenarios is likely to be determined by many factors that are outside of the control of Northport. Importantly these factors include government policy and investments in the transport network, port network, other regional investments, etc. There will also be other aspects in the international markets and local markets that will influence whether these scenarios can be achieved.

1.4 Report Structure

This report is structured into four subsequent sections, as follows:

- Section Two briefly provides context which covers Northport's history, Northport today, Northport's trade tasks, Northport's future, Upper North Island Trade, the economy in Whangarei and Northland and implications of changes to land transport infrastructure in the region.
- Section Three outlines the potential role of Northport in the future. This section analyses the trade tasks that Northport could be expected to handle in the coming three decades. Both in terms of 'Business-as-usual' scenario which focus on the key trade commodities that currently flow through the Port, and the three 'Imports' scenarios which is the potential trade that could be handled if Northport expands its infrastructure, and its role extends beyond the region.
- Section Four focusses on Northport's economic role, both the current role and potential future role (under the NAI scenario). The section covers the net direct additional and facilitated economic activity, which are presented in terms of value added, income and employment.
- Section Five provides a summary of the key points of the report and conclusions about the quantum of benefit that will accrue to Northland and further afield in the New Zealand economy as a result of the proposed expansion of operations at Northport.



2 Northport in Context

This section describes the key context in which Northport operates. This includes Northport's history, the Port's vision for the future and the Upper North Island Trade network. This context provides basic information about Northport, Northland's population and economy which is utilised when developing the forward-looking trade scenarios in section 3. It also provides a benchmark against which to view the scale of Northport's economic role, as shown in section 4.

Before we provide context, it is important to note that over the last decade there have been at least 20 economic studies⁵ conducted on the future of the Upper North Island Supply Chain (UNISC) and implications for Ports of Auckland, the Port of Tauranga and Northport. Most recently two extensive and well-resourced studies on the UNISC have been published by the NZ Government⁶. While these reports came to different conclusions on how trade should be handled in the UNISC, they both found that the development of port infrastructure requires many decades and requires significant investment. The implication being that port operators, governments and decision makers need to employ a long-term horizon when planning for new marine infrastructure.

Also, there have been many studies on the potential relocation of the Devonport Navy base and the development of drydock facilities. Recently there have been suggestions for some of Northport's proposed long term capacity to be utilised as a drydock⁷ and/or Navy base⁸. It is outside the scope of this report to comment on the ongoing research relating to these proposals.

We acknowledge that the decisions around the UNISC and other major marine infrastructure are likely to impact Northport's role. However, it is beyond the scope of this report to assess when or how these decisions will eventuate. Instead, we have assumed that Ports of Auckland is shifted in the later part of the century (beyond 2050) to Manukau Harbour as outlined in the latest research released by the NZ Government.⁹

2.1 Northport's History

For over a century the ports in Whangarei harbour have been key pieces of infrastructure for the Northland economy. The ports in Whangarei harbour enabled exports of primary sector resources, such as wood, gum and coal. For most of this time the majority of trade has been handled by facilities in the upper harbour areas, first the existing town basin and then Port Whangarei (developed in 1920s). Over the following four decades it became increasingly difficult to maintain the channel depth in the upper harbour, which is

⁵ Market Economics has also conducted economic studies of Northport (2018) and Ports of Auckland (2015).

⁶ Ministry of Transport (2018) Upper North Island Supply Chain Strategy – appointed Working Group, August 2018.

Sapere (2020) Analysis of the Upper North Island Supply Chain Strategy Working Group Options for moving freight from the Ports of Auckland.

⁷ Provincial Development Unit and Northport (2019) Northland Shipyard & Floating Drydock Project Development Phase.

⁸ Whangarei District Council (2019) Response to New Zealand Defence Force Questionnaire – Navy Base Whangarei.

⁹ <https://www.beehive.govt.nz/release/new-report-auckland-port-relocation>



required for cargo vessels, while the Marsden Point location has natural deep water, ideal for a commercial port facility.

The Northland Harbour Board first proposed to move the port facility to Marsden Point in the late 1960's, with technical studies being completed more than a decade later, in 1976. The Northland forestry port study released in February, 1980, recommended Northport be developed as a deep water port and utilised for the export of Northland forestry products.

Northland's forestry industry began to slowly increase production in the 1990s, which was the catalyst for the development of Northport. Following numerous expert reports on a potential move of the port, public consultation and hearings, resource consents were granted in 1999 for the new port.

In 2000 the planned move was eventually achieved by a joint venture¹⁰ which formed Northport Ltd. Northport began trading in July 2002 as the port operating company when it took over the port activities of Marsden Maritime Holdings at Port Whangarei. Over the following five years, one additional berth was constructed at Marsden Point¹¹, bringing the total to three berths. Subsequently, all cargo operations were progressively transferred from Port Whangarei to Northport.

This history is important as it illustrates that the development of port facilities takes many decades, both in terms of planning and implementation.

2.2 Northport Today

Currently¹², Northport has a port area of 49 hectares and three berths with a total length of 570 metres (see Figure 2-1 blue outline shows the existing port area). The port area is used for,

- log marshalling which is handled on approx. 46% of the port area (shown below in tan),
- other exports in containers which are handled on approx. 15% of the port area (shown below in purple),
- wood chip which is handled on approx. 5% of the port area (shown below in dark brown)
- LVL which is handled on approx. 3% of the port area (shown below in teal),
- coal which is handled on approx. 2% of the port area (shown below in lavender),
- other wood product exports (Triboard, Sawn, Veneer, etc) which is handled on approx. 1% of the port area (shown below in white),
- agricultural imports which are handled on approx. 1% of the port area (shown below in green),

¹⁰ Marsden Maritime Holdings and Port of Tauranga.

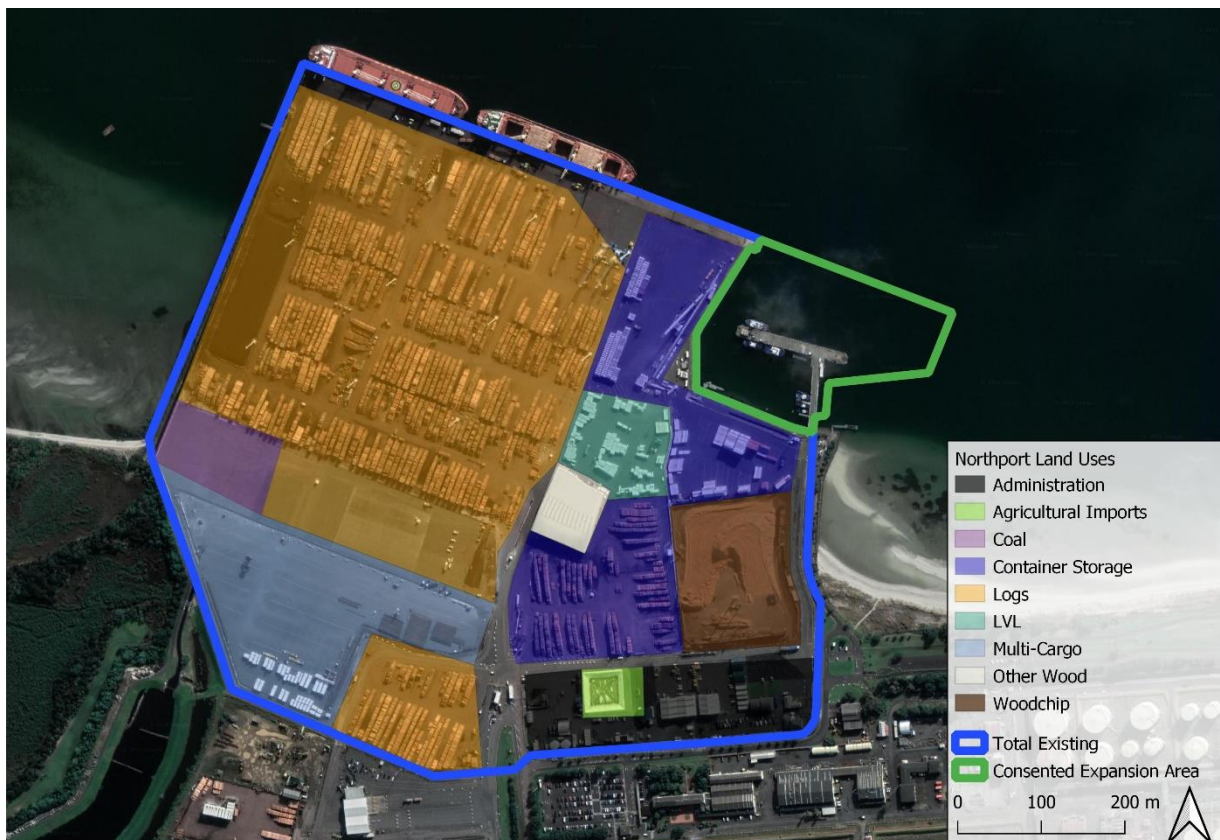
¹¹ In 2000 final consents for a two-berth port were granted and construction of the new port facility commenced. The first berth opened for business in June 2002. In late 2004 further consents were obtained for the construction of the third and fourth berths, with construction of the third berth completed in 2007.

¹² As at the time of writing this report (December 2020).

- operational areas which include administration, wharf aprons, main access roads and tug wharfs require approx. 10% of the port area, and
- approx. 12% of the port area (shown below in blue and labelled 'multi-cargo') has been chip sealed over the last two to three years and is used occasionally for project cargo, and more recently containers from shipping services diverted away from a congested Ports of Auckland. The surface sits below the rest of the port area, as it will be upgraded in the future with a high load pavement. This part of the port may be utilised for handling light vehicle imports in the long term.

Northport has an existing resource consent to construct a fourth berth and additional reclamation to the east of the existing berths (green outline shows the existing consented port area). The consented expansion would increase the port area by around 4.2 hectares and the berth length by 270 metres, which may be utilised to increase the container handling facilities at the port. When this expansion occurs, Northport would have 53.2 hectares of port area and 840 metres of berths. It is our understanding NPL is progressing plans to construct Berth 4 in the near future, in response to the increased demand for their services.

Figure 2-1: Northport Existing and Consented Port Area



The existing port area and the consented area that is available to Northport, provides sufficient flexibility to support immediate to near-term operational needs of Northport. It is likely that Northport will continue to improve and expand the facilities over the coming decade to meet new trade demands of the region.



2.3 Northport's Trade Tasks

Northport is well positioned to support economic growth in the region and the associated trade volumes. The Port has traditionally had a regional role in Northland, which focused on handling high volume, low value trade, which is mostly raw primary outputs for export (logs and woodchip) or raw primary inputs that are imported to support production (agriculture or cement). Cement is also trans-shipped through Auckland to the South Island via Lyttelton Port, i.e. domestic distribution rather than exports. The Port has increasingly been handling more high value goods such as engineered timber, horticulture products and marine products. There has also been one-off imports of specialist machinery/vehicles and construction products (e.g. steel for Auckland's convention centre). Other containerised freight includes liquid gases in ISO tanks heading South, processed timber heading to Nelson and Greymouth and small quantities of animal feeds heading North.

Since the early nineties wood exports have dominated the trade handled by Northport (and Port Whangarei before 2002) - see Figure 2-2.¹³ The official trade data shows that wood was the largest commodity handled in 2020, both in terms of weight (90%)¹⁴ and value (75%)¹⁵. The recent rapid growth in wood trade has been driven by the maturing of forests in Northland and associated harvest, which has become known as 'the wall of wood' that peaked in 2017 and is now declining as available forests are harvested. There have also been recent reductions in processed wood exports.¹⁶

Import of agricultural inputs (feed and fertilizer) has also been a significant trade task for the ports in Whangarei harbour. Broadly, the level of agricultural inputs handled by the ports has grown significantly over the last three decades, however this trade is still small compared to wood exports. The official trade data shows that imports of agricultural inputs accounted for 8% of weight and 10% of the value of trade, handled at Northport in 2020.

The other exports and imports represent a small proportion of the trade handled by Northport (approx. 1% of weight). However, this trade has much higher value than wood or agricultural inputs, with all other exports representing 2% of the value of goods and other imports 14%.

Since Northport operations commenced (2002) the trade tasks handled in Whangarei harbour (excluding Marsden Oil Refinery) has grown by 3.9% per annum and the value of trade has grown by 3.0% per annum. Northport trade tasks peaked at 3.7 million tonnes in the 2017 year and sits at 3.0 million tonnes in 2020. While total volumes have dropped over the last four years, the value of trade handled has remained relatively strong at around \$650 million in 2020 (YE June). This is in part because of the growth of containerised trade, which typically contains higher value goods. Container volumes flowing through Northport have grown from just under 3,000 TEU in 2015/16, to over 12,000 TEU in the 2019/20 period, and 18,600 TEU in 2021. This suggests growth of more than 500% over this period.

¹³ Statistics New Zealand (2020) Overseas Trade Imports and Exports (incl. re-export) Merchandise Trade Monthly 1989-2020 NZ Port by HS2.

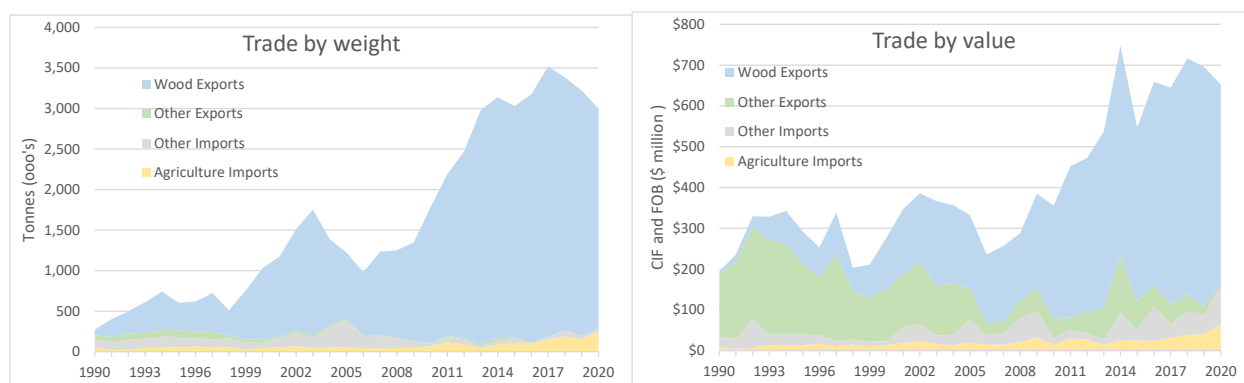
¹⁴ Gross Weight (KG).

¹⁵ Value measured in CIF (\$NZ) and FOB (\$NZ) dollars of the day.

¹⁶ Carter Holt Harvey LVL Plant has stopped exports in 2020 and will reduce activity at the Marsden Point plant by 68%.

It is also important to note that the Covid19 pandemic impacted global trade and local economic activity in 2020, which explains some of the change in trade handled by Northport. For example, the month of April 2020 was down by almost 60% compared to the previous April. However, trade handled by Northport has rebounded with most months since then having higher trade than the previous year.

Figure 2-2: Ports of Whangarei Harbour Trade 1989 – 2020 YE June (excl Marsden Oil Refinery)



There have been three recent developments at Northport which open new higher value products to the Port:

1. development of container handling facilities,
2. hosting cruise ship calls and
3. continued development of vacant port area for new uses.

First, the port has invested in two mobile container cranes which allows it to handle container trade (first crane commissioned in 2015 and a second in 2020). Coastal shipping of containers through Northport started in August 2017 and the first international container vessels arrived in May 2018. These services allow Northport to undertake additional roles in trade handling, both locally and serving the rest of the country.

Second, Northport has scope to host cruise ship calls. Pre-Covid19, Northport had taken bookings for cruise vessel visits in the 2020/21¹⁷ season, which was expected to coincide with the completion of the new tourism facilities in Whangarei. Covid19 has severely impacted the cruise industry. Nevertheless, Northport has taken 11 provisional bookings further into the future. One of the vessels that is booked¹⁸ is over 200 metres long¹⁹, which will require a third of the berth space. This has obvious implications for Northport in terms of capacity to handle cargo ships when cruise vessels are in port. Pre-pandemic, the

¹⁷ Norwegian Jewel was originally booked to visit in December 2020. This vessel is large, at 296 metres in length and carrying 2,400 passengers and 1,100 crew.

MS Regatta was originally booked to visit in January 2021, but this visit has now been postponed. This vessel is a small luxury cruise vessel with 700 passengers and 400 crew.

¹⁸ Provisional booking.

¹⁹ The Viking Sky is provisionally booked to visit once the cruise ships are allowed to visit New Zealand. The vessel is 230 metres in length, with a capacity of 930 passengers and 550 crew.



cruise industry was growing very fast, internationally (7% per annum²⁰), nationally (14% per annum²¹) and regionally (17% per annum²²). While it will take some time to get back to such strong growth rates, there is opportunity for Northport to tap into this market. The implications of Covid19 are that cruise activity is expected to diminish in the near term, but with the industry expected to rebound in the medium term it is important for Northport to plan for the eventual needs of the industry.

Third, Northport has recently sealed all the remaining vacant port area. This investment will allow the area to be utilised for handling light freight. At the time of this report, the new sealed area was being utilised for project cargo (i.e. rail for the northland rail upgrade and sheet piling for other construction projects) as well as a temporary container yard. This improvement opens up additional opportunities for different types of trade – including handling light vehicles.

Northport, unlike most ports in New Zealand, has scope²³ to modify its operations to meet the changing demands of the economy in the Region and Upper North Island. The Port has been proactive in its planning to provide a range of services that encourages businesses to use the facility to trade.

Supporting Northport, there is nearly 700 hectares of business zoned land located between Northport and SH1. While it is owned by third parties, and therefore its future use is unknown to Northport, some or all of this area has the potential to be developed for ancillary port-related uses. The potential of this land to support port-related growth is evident.

2.4 Northport's Future

Northport seeks to enable port expansion in order to provide the Port with sufficient flexibility to facilitate regional and national growth for the coming decades.

Northport is situated strategically in the high growth areas of the upper North Island (Northland, Auckland, Waikato and Bay of Plenty). It is the nearest multi-purpose port to Auckland (just over 75 nautical miles to Ports of Auckland), and the closest port to the majority of New Zealand's international markets. The Port has the ability to handle trade from the region and the upper North Island. Over the coming decades the Port could play a bigger role in import trade, which could extend to handling goods for the area north of the Auckland isthmus.

The other ports in the upper North Island, Ports of Auckland and Port of Tauranga, are likely to face capacity constraints over the long term. Most importantly for Northport is that Ports of Auckland is physically

²⁰ Internationally, cruise tourism has been growing consistently since the early 90s, at approximately 7% per annum from 4 million passengers in 1989 to 27 million passengers in 2018. Cruise Lines International Association (2017) 2018 Cruise Industry Outlook.

²¹ Nationally, cruise tourism has also been growing rapidly since the late 90s. The number of passengers undertaking a cruise in New Zealand, has grown by around 14% per annum, which is much faster than the global rate of growth. Market Economics (2002-2017) Cruise Tourism Studies for Cruise New Zealand and McDermott Fairgray (1997-2001) Cruise Tourism Studies for Tourism Board.

²² Statistics New Zealand (2018) Cruise Passenger Counts.

²³ This refers to the port's ability to expand onto relatively undeveloped land surrounding the port – which other ports in NZ don't have the luxury of. Access to additional land surrounding the wharves does not alter the need for the proposed expansion.

constrained and is under significant pressure to limit its footprint both on land and into the Waitemata Harbour. These forces are likely to constrain its ability to handle future growth.

Northport has the ability, and potentially the capacity, to meet the existing and growth needs of at least a portion of the Auckland market. It makes logical sense, given the constraints at Ports of Auckland, for some demands from the north Auckland region to be met by Northport.

In order for this change in role to occur, Northport would need to expand both the port area and number of berths. Northport's proposal will add approximately 13.7 hectares²⁴ to the port area and additional berth length of 250 metres. Figure 2-3 shows the concept plan for the port area and berths which includes potential expansion areas for the container terminal, Berth 4 and 5 (blue and yellow area). It is our understanding, to respond to increasing demand for NPL's services, it is currently progressing plans to construct Berth 4.

Figure 2-3: Proposed Northport berths and port area

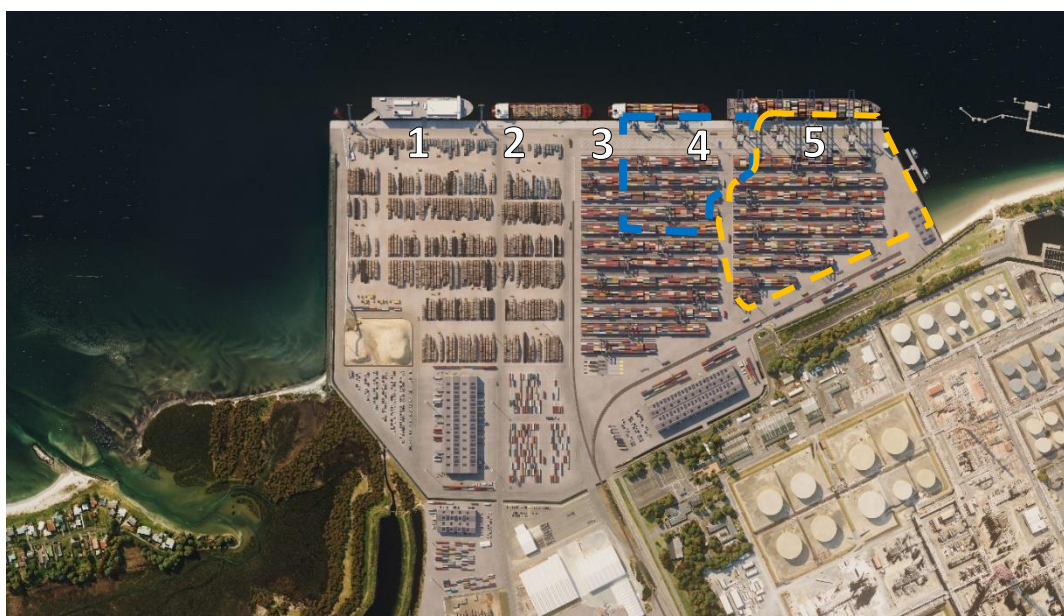


Image supplied

However, there is commonly an extended planning process associated with port expansions, as with most large infrastructure projects. This can result in long time lags between identified needs and eventual implementation (as seen in the approximately four decades of planning for the Northport development). It is therefore prudent for port authorities to undertake early planning to ensure that facilities can be developed to match the needs of the economy as they arise.

²⁴ Provided by Northport.



2.5 Upper North Island Trade

The Upper North Island (UNI) area, which includes Northland, Auckland, Waikato and Bay of Plenty regions, includes some of the strongest growing economies in New Zealand. This area also has over half of New Zealand's population and three of the five biggest cities in New Zealand.

The trade generated in the UNI area is significant, both in terms of exports and imports. The large volume of trade generated in this area relates to the fact that New Zealand is a small open economy, that must trade to acquire both consumption and capital goods that are not produced within the economy, and to sell excess output that cannot be consumed by the domestic population.

There are three main ports in the UNI that handle the majority of merchandise trade,

- Ports of Auckland – which is a nationally significant port for containerised imports, handles much of the imports for the UNI and the rest of New Zealand. The port also handles some exports from the Auckland region.
- Port of Tauranga – which is a nationally significant port for containerised exports, handles much of the exports for the UNI and other parts of the North Island. The port also handles some imports for central North Island area.
- Northport – as discussed above, has a significant regional role as part of the national port network and mainly handles exports from Northland.

Over the coming three decades the UNI is projected to grow rapidly, capturing 77% of population growth in New Zealand. As a result, it is generally agreed that there may be potential capacity constraints at Ports of Auckland and Port of Tauranga, as well as the transport networks in the UNI over the coming decades. These constraints on the two main ports in the UNI network could result in Northport's role increasing beyond regional – most likely to handle more imports. Also, it is likely that Ports of Auckland may shift in the long term, with a current preferred new port at Manukau Harbour.

2.6 Whangarei District and Northland Region

Historically, Northland Region has been relatively underdeveloped compared to most other areas in New Zealand. Most importantly, population and economic growth in the region has consistently underperformed over the last two decades with slower growth than other regions in the UNI.²⁵

The Whangarei District is relatively urbanised, with two thirds of the population based in the urban area of Whangarei, and small coastal settlements at Marsden Point, Ruakaka, Waipu, Parua Bay, Pataua, and Ngunguru, as well as a number of small rural settlements. The District population reached 98,300 people in 2020. Between 1996 and 2020 the district's population grew by 1.5%, which is marginally higher than the national population growth.²⁶ The growth in the District was much faster than most other areas in New

²⁵ It is acknowledged that the UNI includes some of the fastest growing areas, i.e. Auckland, Hamilton and Tauranga.

²⁶ Statistics New Zealand (2020) Subnational Population Estimates.



Zealand (ranked 13 out of 67 districts). This is reflected in the decision by the Ministry of Business Innovation and Employment to define Whangarei as a “High Growth” area.²⁷

However, the rest of the region is characterised by smaller rural settlements and coastal holiday areas, which have grown at a much slower rate than the Whangarei District. In total, the population in the region reached 194,500 people in 2020.

Approximately half of Northland businesses and employees are based in Whangarei District (10,060 businesses²⁸ and 41,840 employees²⁹ respectively).³⁰ Employment growth in Whangarei was 2.2% per annum for the 2010-2019 period, which was much higher than the growth in the number of businesses (0.7% per annum), and this has resulted in the average business size increasing during the last nine years.

Table 2.1 shows the number and proportion of businesses (GEOs) and employment (MECs) by industry (1D ANZSIC), for Whangarei district and rest of Northland region.

- **Whangarei District:** the highest concentration of employees was in Health Care and Social Assistance (17%), Construction (11%), Retail (10%), Manufacturing (10%) and Education and Training (8%) industries. These have remained quite stable over the past five years. With the exception of manufacturing and retail, these key industries do not generate significant trade activity.
- **Rest of Northland:** more concentration of employment in industries that rely on trade. Specifically, Agriculture, Forestry and Fishing (17%), Retail (10%), Construction (10%), and Manufacturing (8%). Nevertheless, there is still strong concentration of employment in service industries, Health Care and Social Assistance (9%), Accommodation (9%) and Education and Training (8%).

²⁷ MBIE (2018) National Policy Statement on Urban Development Capacity.

²⁸ Geographic Units (GEO), which is SNZ count of business operations by location.

²⁹ Modified Employment Count (MEC), which is a count of total employment – both working proprietors and employees. Based on SNZ Employment Count (EC) modified for SNZ Working proprietor data.

³⁰ Statistics New Zealand (2020) NZ Business Demography Statistics.

Table 2.1: Business and Employment by Industry 2019 - Whangarei District and Northland Region

Industry 2019	Businesses (GEO)			Employment (MEC)		
	Whangarei District	Rest of Northland	Total Northland	Whangarei District	Rest of Northland	Total Northland
Agriculture, Forestry and Fishing	1,620	3,030	4,650	2,570	5,650	8,220
Mining	20	20	40	70	130	200
Manufacturing	510	460	970	4,250	2,690	6,940
Electricity, Gas, Water and Waste Services	20	40	60	610	320	930
Construction	1,490	1,440	2,930	4,540	3,250	7,790
Wholesale Trade	260	250	510	1,330	980	2,310
Retail Trade	560	610	1,170	4,170	3,220	7,390
Accommodation and Food Services	350	540	890	2,090	2,940	5,030
Transport, Postal and Warehousing	330	290	620	1,790	1,080	2,870
Information Media and Telecommunications	50	70	120	230	120	350
Financial and Insurance Services	570	350	920	490	260	750
Rental, Hiring and Real Estate Services	1,660	1,780	3,440	890	940	1,830
Professional, Scientific and Technical Services	780	650	1,430	2,180	1,350	3,530
Administrative and Support Services	320	320	640	1,860	1,240	3,100
Public Administration and Safety	90	120	210	1,980	1,370	3,350
Education and Training	260	290	550	3,300	2,810	6,110
Health Care and Social Assistance	520	330	850	7,200	3,110	10,310
Arts and Recreation Services	180	200	380	650	600	1,250
Other Services	470	510	980	1,640	1,080	2,720
Total Economy	10,060	11,300	21,360	41,840	33,140	74,980

Over the same period, economic value generated in the District (Gross Domestic Product - GDP) has grown by 4.0% per annum.³¹ The District generated 52% of Northland's GDP and 1.3% of the national GDP in 2019.³² A significant proportion of the value being generated is associated with industries that rely on trade that flows through Northport, Manufacturing (11.8%), Agriculture (8.6%), Forestry/Fishing (4.5%) and Retail (5.4%). There is also a significant proportion of the value being generated by other industries that do not generate much trade: Health Care and Social Assistance (7.1%), Rental, Hiring and Real Estate Services (8.3%), Construction (6.8%), and Professional services (3.8%).

This context is important as it shows the scale and nature of the economy that Northport is operating within. The economic data shows that Whangarei has been growing strongly, with most growth being observed in industries that are either servicing the growing population (health, retail, construction, etc) or are exporting activities (manufacturing). The rest of the Northland region has grown slowly, however with more activity in industries that are associated with trade handled by Northport.

Finally, there have been some recent policy shifts by the government which indicate that future growth in Whangarei and Northland could increase in the coming decades and the structure of the economy could shift.

Northland was identified by the previous government as one of the priority (surge) regions needing early investment from the Provincial Growth Fund (PGF). To date, more than \$508.7 million of the PGF has been allocated to various projects and initiatives in the Northland Region, with the aim of growing the regional economy.³³ This sizable investment may generate additional or new trade tasks for Northport.

³¹ MBIE (2020) Modelled Territorial Authority Gross Domestic Product.

³² Statistics New Zealand (2020) Regional Gross Domestic Product: Year ended March 2019.

³³ Grow Region (2020) All Announced PGF Projects.



Of particular importance to Northport, is funding for,

- new forestry plantations which will generate additional wood harvests towards the end of the scenario period, most of which will be exported via Northport,
- developing a business case for Northland Rail Upgrade³⁴, which will investigate the potential for upgrading and expanding rail north of Auckland including a spur to Northport, and
- the recent investments in tourism facilities (Hundertwasser Art Centre and Wairau Māori Art Gallery). These investments have already attracted early bookings by cruise lines.

Local government has taken an enabling stance by providing significant amount of new business land in Whangarei District and across the Northland region.³⁵ Of importance is the large area of vacant industrial and commercial zoned land (700 hectares) in the Marsden Point area, which could accommodate new businesses and trades ancillary to or supporting port operations at Northport (both exports and imports). It is worth noting however, that this wider area is owned by third parties, and is not sufficiently proximate to the wharf frontage to be practicably a part of the operating port.

2.7 Land Transport Infrastructure

The land transport infrastructure in the UNI has a major influence on the flows of trade to and from the ports, and the attractiveness of Northport for exporters and importers. The costs of moving goods are directly related to the distance and time required to traverse the transport network.

The competitiveness and role of each port in the UNI is linked to the ease at which trade can be moved through the land transport network. Therefore, it is crucial to understand how trade is currently handled on the existing land transport network and the future investments in land transport infrastructure in the UNI. The focus of this section is on Northland's land transport infrastructure, as this will influence the competitive position of Northport, as compared to Ports of Auckland.

Figure 2-4 shows the rail and state highway network in Northland and the northern parts of Auckland. First, the road transport handles by far the largest share of freight movements in Northland, at over 95% (by tonne-km), compared to 70% nationally.³⁶ Northland's main internal freight connection is State Highway 1 (SH1). The region is also completely dependent on SH1 to move around 35% of its outbound freight to Auckland. Northport is connected to SH1 by a 9km stretch of road (part of SH15). Freight is transported by truck via this stretch of road to SH1, and then North or South from there. NZTA recorded an average of over 1,000 heavy vehicle³⁷ movements per day, on this stretch of road in 2019. It is acknowledged that Northport is not solely responsible for generating this traffic volume. However, most of nearby Refining NZ's fuel products are sent to Auckland by pipeline, or by coastal shipping to other ports around New

³⁴ The rail upgrade on the main line will be completed in early 2021. At this point containers could be trucked into Whangarei and transported by rail to Auckland.

³⁵ BERL (2015) Upper North Island Industrial Land Demand.

³⁶ AECOM (2019) Northland Rail North Auckland Line and Marsden Point Rail Link - Single Stage Business Case. Original source: *National Freight Demand Study*, 2014, p.2 (based on 2012 data) and excluding the Marsden to Wiri Pipeline.

³⁷ Vehicle greater than 3.5 tonnes.

Zealand. There is also other industrial activity in the area such as the Carter Holt Harvey plant.³⁸ Nevertheless, it is likely that the largest share of the heavy vehicle movements can be attributed to Northport.

Freight trucks heading South on SH1 from Northport travel mostly on a two-lane highway³⁹, to Wellsford. From there, trucks choose to go via SH16 towards West Auckland, or continue on SH1 towards North Auckland. At present, SH1 is a two-lane highway for most of the way between Whangarei and the Johnstones Hill tunnels, where it becomes a four-lane highway into Auckland. SH16 is a two-lane highway through small rural settlements and towns, up to Whenuapai, where it becomes a four lane motorway. Travel times between Northport and the northern urban parts of Auckland, via SH1 is just over two hours, and similar via SH16. Importantly, the new section of SH1 between Johnstones Hill and North Warkworth is currently expected to open later in 2022, which will improve the interconnection between Northland and Auckland.

Figure 2-4: North Auckland Rail Line and State Highway network

³⁸ Industrial activity (and associated truck movements) have decreased in recent times with output volumes reduced to meet only domestic LVL demand.

³⁹ One lane each way.



After road transport, coastal sea freight is currently Northland's second largest mode comprising 11% of volume for freight movements between Northland and Auckland and 31% for movements between Northland and the rest of New Zealand⁴⁰ (NAL Business Case, 2019).⁴¹ Most of this is bulk products, mainly fuel and cement, with dedicated ships moving this around the coast. Apart from these bulk commodities, most of the remaining freight moving to/from Northland has its origin/destination in Auckland or the wider upper North Island.

Finally, the lack of rail connection to Northport and the condition of the main rail lines⁴², means that only a small volume of Northland's freight is transported via train (approx. 1%). The rail network in Northland is around a hundred years old, and has been in a state of 'managed decline'. Kiwirail currently runs one weekday return service to Auckland on the Northland rail line, predominantly carrying dairy and wood freight, but this service is easily disrupted with two significant derailments in the last 18 months each closing the line for more than a week.

There are several planned improvements to the land transport networks that will reduce travel time, improve reliability and reduce transport costs in the future. These changes to the land transport networks are expected to improve the competitiveness of Northport relative to Ports of Auckland.

Most improvements are focused on the roading network, with significant extensions of the Northern Motorway between Pūhoi and Te Hana, along with improvements between Whangārei and Port Marsden. The following discussion outlines the significant improvements to the road network,

- **Pūhoi to Warkworth**, presently underway and to be completed 2023, will extend the four-lane Northern Motorway (SH1) 18.5km from the Johnstones Hill Tunnels to just north of Warkworth.⁴³ The Pūhoi to Warkworth project is the first stage of the Ara Tūhono - Pūhoi to Wellsford project, which is said to improve safety, provide more consistent travel times, create a more robust and reliable road between Auckland and Northland, and provide a better freight connection between Northland and the Upper North Island. It is uncertain what exact time saving benefit the Pūhoi to Warkworth project would deliver, but time savings are expected to be greater for trucks due to reductions in grades and a better road layout, which helps heavy vehicles maintain a higher average speed along the route. The official transport modelling suggests that this upgrade could reduce travel times by 4-6% or 5 to 8 minutes.
- **Warkworth to Wellsford**, is proposed to extend the four-lane Northern Motorway (SH1) a further 26km north to Te Hana, with a potential times savings of 7 minutes. NZTA had lodged the formal consent applications, which were granted by Auckland Council in March 2021. Several appeals have been filed with the Environment Court which will now progress via the usual process. It is

⁴⁰ Tonnes-kms, using 2006/07 data for freight movements originating or terminating in Northland.

⁴¹ Pūhoi to Warkworth – Transportation and Traffic Assessment Report dated 20 August 2013, p.45 (Adapted from National Freight Demand Study, 2008).

⁴² Some tunnels and bridges do not fit modern containers or support heavier loads. The line also has lower speeds than the rest of the rail network. As noted above, upgrades on the main line were completed in 2021. At this point containers could be trucked into Whangārei and transported by rail to Auckland.

⁴³ Waka Kotahi NZ Transport Agency Ara Tūhono - Pūhoi to Warkworth motorway opening next year - media release on 6 May 2022. Retrieved from <https://www.nzta.govt.nz/media-releases/ara-tuhono-puhoi-to-warkworth-motorway-opening-next-year/>



expected that construction remains at least 10 years away and, if delivered in a single stage, will take five to seven years to complete.⁴⁴ This suggests that the extension is likely to be completed after 2038.

- **Whangārei to Port Marsden Highway**, a short list of options for a four-lane Highway for SH1, from Whangārei (Tarewa Road) south to Port Marsden Highway (SH15).⁴⁵ However a recent government decision to refocus funding from this project to safety improvements and rail spur means that this upgrade to SH1 will no longer occur in the near term.⁴⁶ The extent of the travel time savings associated with the project will not be known until the design has progressed further. However, most of the trade that Northport currently handles is transported on this stretch of road, so this improvement in the network will be beneficial to Northport and many businesses in the region.
- **Te Hana and Port Marsden Highway**, there have been some initial investigations of a four-lane highway upgrade of SH1 between Te Hana and Port Marsden Highway, however there is no clear indication as to when this may occur. This work will be planned and delivered in stages, Port Marsden Highway to Waipu, Brynderwyn Hills bypass and Brynderwyn Hills to Te Hana.⁴⁷ Based on the delivery timeframes of the other works along SH1, it is expected that these projects would not begin construction for another two decades or more. In the long run the four-lane Northern Motorway will link Auckland to Whangārei (and Northport), with completion potentially around 2050.

While road transport will continue to be the dominant mode of transport because of its flexibility and efficiency, shifting away from road to rail means that some of the negative effects of transport, whether environmental, safety or congestion related, can be lessened. Transporting more freight onto rail helps reduce road congestion, road maintenance costs and lowers carbon emissions.

The freight volumes in Northland are expected to increase and rail is viewed as a crucial part of developing an efficient, integrated land transport system in the region. To this end, work is underway to rejuvenate and improve the rail network in Northland.

- **Marsden Point Spur**, because of its shift from the site in Whangārei to its current location Northport is one of the few ports in New Zealand that is not serviced by rail. The government is committed to building a 20km spur to Northport/Marsden Point that connects to the North Auckland Line. A rail corridor was identified and designated in 2009. In 2019 Kiwirail completed the first stage of investigation into what it would take to build a line to Northport⁴⁸ and government provided \$40 million to buy land along the designated corridor and has recently decided to refocus funding on the spur (from the roading improvements)⁴⁹.

⁴⁴ Waka Kotahi NZ Transport Agency Ara Tūhono – Warkworth to Wellsford July 2021 Update. 5 July 2021.


⁴⁵ Waka Kotahi NZ Transport Agency (2020) Two shortlisted route options for Whangārei to Port Marsden Highway – media release 2nd October.

⁴⁶ Waka Kotahi NZ Transport Agency (2021) Changes to Whangārei to Port Marsden Highway.

⁴⁷ Waka Kotahi NZ Transport Agency (2020) Port Marsden Highway (SH15) to Te Hana – poster.

⁴⁸ Geotechnical assessments along the route of a proposed line to Northport/Marsden Point.

⁴⁹ Waka Kotahi NZ Transport Agency (2021) Changes to Whangārei to Port Marsden Highway.

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- **North Auckland Rail Line upgrade**, the government has also committed funding to upgrade the rail line from Swanson, west of Auckland, all the way to Otiria, in Northland. This will improve the line to a standard similar to the rest of New Zealand's rail network. In September 2019, \$94.8 million was committed through PGF, for the upgrade and maintenance work. In January 2020, the Government announced a further \$69.7 million investment in Northland rail. The upgrades on the main line were completed in early 2021.

Finally, there is potential for export containers to be moved to Northport and trans-shipped by coast to Tauranga for export, but the North Auckland Line business case stated that this was not a preferred option at present.⁵⁰ This is likely due to the extra time and handling costs that would be involved in moving freight by ship. Transfers from coastal to international shipping can be expensive compared to moving freight by land. Nevertheless, Northport still expect a coastal shipping service to become a sustainable solution to connect Northland with Tauranga within the next few years, which could increase the level of trade handled at the Port.

While the scope of this report did not include quantification or modelling of the land transport implications of the trade tasks that are handled at Northport, the following review of available research and published literature provides a high-level commentary on the potential effects of changes in the land transport infrastructure across the region.

First, the development of the Marsden Point spur and upgrades to the regional rail lines are likely to result in some of the regional trade shifting away from road transport to rail. Currently almost all the bulk trade that is handled by Northport is trucked by road within the region. The North Auckland Line Business Case considers that approximately 10-14% of the regional trade tasks could be carried by the rail network.⁵¹ The business case also suggests that there is a 25% cost advantage to transporting via rail as compared to road.⁵² This means there could be considerable transport costs savings for the region's exporters and importers, which would improve the attractiveness of Northport and the productivity of the regional economy.

Second, upgrades to the North Auckland Line will allow inter-regional trade to be handled via rail. Also, the upgrades along SH1 will improve road transport links to Auckland markets. Both changes are expected to result in transport cost savings which will improve the attractiveness of Northport to exporters and importers within Auckland. The North Auckland Line Business Case has considered the implications of Northport handling 300,000 TEU to serve demands in Auckland. While the assessment finds that it is more efficient to handle this potential inter-regional trade via rail rather than road, it does not provide detail on any potential transport cost savings that would result from either mode.⁵³ Therefore it is not possible to establish the extent to which attractiveness of Northport may improve for exporters and importers within Auckland.

⁵⁰ AECOM (2019) Northland Rail North Auckland Line and Marsden Point Rail Link - Single Stage Business Case.

⁵¹ Ibid page 59.

⁵² Ibid page 61.

⁵³ Ibid page 82.



Finally, as noted above in section 2.5 it has been suggested that Manukau Harbour (Puhinui) would be the most preferred site for relocation of the Ports of Auckland (POAL).⁵⁴ The proximity of the Manukau location to existing industrial areas and distribution centres in South Auckland, as well as to road and rail networks were seen as the main factors making Manukau the preferred option. However, a move from the CBD to Manukau, would add challenges for the distribution of goods to those living North of the Harbour bridge. Firstly, urban congestion would mean goods being trucked from South Auckland to North Auckland (including Warkworth and Wellsford), could face long delays especially in peak times. Configuring Northport to serve these northern parts of Auckland could result in less variability in delivery times, which is important for wholesalers and retailers.

Therefore, it is considered likely that if Ports of Auckland is shifted south to Manukau Harbour, then Northport will become more attractive to some exporters and importers within Auckland.

Another advantage of configuring Northport to serve the growing population of North Auckland is the added resilience it would provide. This was highlighted by a recent truck crash on Auckland's Harbour Bridge, causing serious damage. The bridge was reduced from eight lanes to four. Several days of gridlocked traffic followed, with trucks advised to use SH16, causing long delays. A distribution centre North of the Bridge would have left supply chains to a large share of Auckland's population unaffected.

In the last quarter of 2020 and throughout 2021 there have also been processing issues at Ports of Auckland. At its worst, ships were not being able to unload for upwards of a week. Container services at Ports of Auckland were reported to have been "severely degraded with major delays"⁵⁵. The cause of disruptions has been attributed to global shipping disruption caused by Covid19 and a shortage of stevedore labour. Ports of Tauranga were handling the majority of the backlog. Northport is talking to shipping lines about how it could ease the delays, and/or improve resilience of the UNI ports.⁵⁶

Northport accommodated 34 container ship visits over this period⁵⁷, of which 18 were international visits. The containers flowing through Northport from these 18 visits alone, is the equivalent of the annual volume of containers that Northport handled in the previous season. While most of the containers were moved by road (and some by rail), options for coastal shipping deliveries were also being utilised.

Finally, we note that there are potential capacity constraints at other ports in the Upper North Island, which could impact on their competitiveness. As these other ports near capacity constraints the time and costs associated with using them to handle trade may increase. This could induce further trade to flow through Northport.

In conclusion, it is considered likely that the improvements in the land transport networks in Northland and the potential shift of Ports of Auckland to South Auckland, will result in improvements in the attractiveness of Northport to exporters and importers in the North Auckland area. While it is beyond the scope of this

⁵⁴ Sapere (2020) Analysis of the Upper North Island Supply Chain Strategy Working Group Options for moving freight from the Ports of Auckland.

⁵⁵ Ports of Auckland (2020) Operational Update – 20th November.

⁵⁶ Murray Jagger, Northport Chairman – [statements to media 2020, November](#).

⁵⁷ December 2020-December 2021; Eighteen international visits and sixteen coastal visits.



report to quantify the transport cost savings⁵⁸, it is considered that they may be in the order of 25% of current rates.

There is uncertainty about the timing and scale of trade diversion that could be achieved by Northport. It is clear that there are constraints on trade, and relative competitiveness of the different ports will change with time, which will add to the costs of shipping into and out of Auckland and the UNI. Given the extent of uncertainties it is informative to provide a range of alternative scenarios – in this report three trade diversion scenarios have been developed to provide an understanding of the range of future outcomes that could occur which is discussed in the following section.

⁵⁸ Such an exercise to determine the (unit) cost of the supply chain directly would be more than whole budget of this project.



3 Looking to the Future

It is important to acknowledge that the future is subject to uncertainty, especially when assessing the role of port infrastructure. Key uncertainties for a port relate to the fluctuations of international markets, domestic factors and the long operational life of port infrastructure.

The intrinsic nature of ports is that they mostly handle heavy or bulky merchandise trade. The scale and nature of the trade tasks of a port, both exports and imports, is interlinked with the fluctuations of international markets over which the port has no influence. This creates uncertainty as to the potential role that the port will play in the future.

Of importance is that port infrastructure, like most infrastructure, has an operational life that stretches well into the long term (in many instances hundreds of years). This means that the port operation needs to be assessed over long periods of time. The assessment of long term adds more uncertainty, with the range of potential outcomes becoming wider as the assessment period extends into the future. The ‘futures’ used in this report cover the coming three decades, finishing in 2050. This is an appropriate time frame to enable forward planning for infrastructure (i.e. to avoid ‘just in time’ planning), however it represents a relatively long forecast period for economic research.

Because the future cannot be predicted with precision, this research utilises four scenarios to understand the potential role of the port in the long term. This report presents results for,

- **Business-as-usual Scenario (BAU)** - presents a future which assumes that Northport’s role continues to be focused on regional trade,
- **North Auckland Imports Scenario (NAI)** - presents a future with the Port expanding its role to include both regional and national trade.
- **Upper North Island Ports Constrained (UNIPC)** - a high future which assumes that other ports in the Upper North Island become constrained, which results in a larger proportion of trade in Auckland Region being handled at Northport.
- **North Auckland Growth (NAG)** – a low future which assumes that Northport captures a share of the growth in container trade from the area north of the Auckland isthmus.

The comparison of trade handled in each of the scenarios above provides an understanding of the potential additional activity that could be unlocked through the proposed expansion of the container terminal, assuming that Northport’s role extends beyond Northland region. Scenarios are based on information from various sources (outlined above in the approach).

3.1 Bulk Trade

The forward-looking regional trade tasks of Northport has been established for the bulk trade by assessing each type of goods that Northport currently handles to develop projections for each specific product. The bulk trade projections are applied in all four scenarios, as it is considered unlikely that changes to port facilities will affect the bulk trade tasks. In summary, the projections have drawn on Northport’s own

budget forecasts (2020-25), primary production forecasts, discussions with Northport and long-term trends observed in trade data. The following discussion covers each of the main bulk trade tasks and key results are shown in Table 3.1.

- **Wood Exports:** the projections for export logs and forestry products were developed using the Northport forecasts, MPI forest harvest forecasts⁵⁹ and the PWC Upper North Island⁶⁰ study. In summary, the key driver of trade tasks will be the available forest in Northland, which are forecast to decline over the coming decade and half, then recovering slowly over the remainder of the period. The drop in wood harvest is expected to result in decreasing log and woodchip trade volumes until 2035. Other wood exports are also projected to decline; however this is a function of the recent reduction in the operations of some wood processors in the region⁶¹, with export activity projected to remain more or less stable at just over 100,000m³ over the long run.
- **Agricultural Inputs:** historically, the demand for agriculture inputs has been volatile making it complex to project into the future. Nevertheless, even if demand varies greatly from year to year, there is likely to be a moderate upward trend, as farmers in Northland are expected to continue facing adverse weather events, and consequently need to supplement feed their livestock and/or use fertiliser to encourage plant growth. BAU has an average growth of 0.1% per annum between 2030 and 2050, reaching 185,000 tonnes per annum in 2050.
- **Other Imported Inputs:** Northport also has a role importing inputs for the production of cement and other industrial processing in the region. The most important of these inputs are coal and gypsum which each account for 2% of the trade handled at the port (by weight). Most of these other inputs are used in the production of cement by the Portland facility. BAU has an average growth of 0.7% per annum between 2030 and 2050, reaching 78,000 tonnes per annum in 2050.

As noted above, the ability to expand capacity at Northport is unlikely to generate significant additional volumes of bulk trade from Northland region (i.e. wood exports, agricultural inputs, other inputs or other agricultural outputs). Therefore, it is unlikely that the level of bulk trade handled at Northport over the coming three decades will be sensitive to the ability to undertake the proposed expansion.

Table 3.1: Northport Bulk Trade Tasks – 2020 to 2050

	2020	2025	2030	2035	2040	2045	2050
Logs (JAS m3)	2,223,240	2,085,000	1,321,000	1,089,000	1,351,000	1,593,000	1,867,000
Woodchip (Tonnes)	195,700	150,000	95,000	78,000	97,000	115,000	134,000
Other Wood (m3)	136,850	105,000	104,000	104,000	103,000	103,000	102,000
Agricultural Inputs (Tonnes)	201,960	180,000	181,000	182,000	183,000	184,000	185,000
Other Inputs (Tonnes)	136,590	61,000	64,000	67,000	71,000	74,000	78,000

The natural geography of New Zealand means that most of the bulk trade in the other regions of the Upper North Island are unlikely to shift to Northport in the future. This means that Northport's handling of bulk goods is likely to continue as a regional role. Specifically, it is unlikely that it would be beneficial to exporters or importers of bulk goods to freight them through the constrained Auckland isthmus up to Northport.

⁵⁹ Ministry of Primary Industry (2016) Wood Availability Forecasts 2014-2050.

⁶⁰ PWC (2014) Upper North Island port and port-related infrastructure supply and demand study.

⁶¹ Carter Holt Harvey LVL Plant has stopped exports in 2020 and will reduce activity at the Marsden Point plant by 68%.



Therefore, most of the bulk trade from the other regions in the UNI are unlikely to be handled by Northport in the future, even if the capacity of Northport increases.

Finally, it is important to note that the government's One Billion Trees programme is likely to increase forest harvests in the region. However, this policy is unlikely to greatly impact activity at Northport within the assessment period, given the fact that the programme will be implemented over the coming decade and the average harvest age for radiata pine⁶² is 28 years. Also, some forests have carbon credits associated which may impact the viability of harvesting the trees.

Nevertheless, it is something to bear in mind when future proofing Northport operations past 2050. Northport believes they are well prepared and have the ability to increase their operations to cope with the anticipated increase in bulk trade from regional activity.

3.2 Container Trade

The key difference between the four scenarios is the level of containerised trade that could be handled at Northport. Broadly, if Northport is able to expand the container terminal to serve demands from outside of the region, then the level of containerised trade that is handled could be considerably larger than what would be anticipated according to its existing role. The following discussion outlines the level of containerised trade that could be handled by Northport under the four scenarios and the implications for port facilities, for the near term (2023-2030), medium term (2030-2045) and long term (2045 and beyond).

3.2.1 Near Term Container Trade

Northport established a seasonal, fortnightly container service in 2018. At present, the majority of containers handled by Northport are exports of kiwifruit and cement, with some specialised imports and coastal shipping. Since 2018 the amount of containerised trade has grown by almost a quarter each year, with just over 12,000 TEU handled in 2020 and over 18,000 TEU in 2021.

It is considered likely that the containerised trade in the near term will be roughly the same, as it would not be technically possible to complete the construction of the proposed container terminal expansion within this period. Therefore, it is assumed that all four scenarios have the same level of container trade between now and 2025. After 2025, it is assumed that growth in containerised trade would begin to diverge under the BAU and the other three scenarios. The near-term projections for containers were informed by Northport forecasts combined with trends observed in other ports within the New Zealand network and population growth.

Northport's budget forecasts show that the containerised trade is expected to continue growing at around 7,000 TEU on average per annum, reaching almost 50,000 TEU by 2025. It is understood that Northport

⁶² Northland predominantly grows Radiata pine (also known as NZ pine or Monterey pine), a very versatile wood that is used in a wide range of industries from construction to furniture, and so forth. However, it is acknowledged that this might not be the only trees planted in the programme.



currently has sufficient port area to handle up to 50,000 TEU per annum. However, it would mean additional investment in equipment such as forklifts, cranes, and so forth.

As noted above, we understand that Northport is currently developing Berth 4. Northport will utilise this area (Berth 4) to increase the container terminal, both in terms of port area and ship handling. This expansion could more than double Northport's capacity to handle containerised trade (more than 100,000 TEU per annum) using current container handling mode.

After 2025 the near-term container projections are as follow:

- **Business-as-usual (BAU)**, assumes an average growth of 3,000 TEU per annum, reaching nearly 62,000 TEU per annum by 2030, an implied growth rate of 5.7% between 2025 and 2030. This suggests, by 2030 the containers handled by Northport would be in the order of 9% of total container trade north of the Auckland isthmus.
- **North Auckland Imports (NAI)**, assumes that Northport is able to capture a proportion of the import container trade from the area north of the Auckland isthmus, both in growth demand and some existing demand. Northport's vision is to serve the needs of the fast-growing area north of the Auckland isthmus, which is projected to increase to over 1 million people by 2050.⁶³ Several data sets are combined to establish the potential trade demand that could be captured by Northport, including the projected population growth in the area and the existing ratio of containers handled per capita in the Upper North Island⁶⁴, along with assumed market capture rates⁶⁵. This scenario suggests that Northport's share of containerised trade north of the Auckland isthmus could increase from less than 2% today almost a fifth in 2030 – reaching 125,000 TEU per annum. The scenario has an average growth of 15,600 TEU per annum, which is equivalent to 22% per annum.
- **Upper North Island Ports Constrained (UNIPC)** – is a high scenario, which assumes that other ports in the Upper North Island become constrained, which results in a large proportion of trade from Auckland Region being handled at Northport. This scenario is similar to NAI, with half of the growth in containerised trade expected in Auckland Isthmus and Southern Auckland being handled by Northport. That is, Ports of Auckland capacity becomes constrained, so new trade is handled by Northport and Ports of Tauranga. This scenario suggests that Northport's containerised trade could reach 154,000 TEU per annum by 2030. The scenario has an average growth of 21,400 TEU per annum, which is equivalent to 26% per annum.
- **North Auckland Growth (NAG)** – is a low scenario, which assumes that Northport only handles the growth in container trade from the area north of the Auckland isthmus and does not capture any existing trade. This scenario suggests that Northport's containerised trade could reach 96,000 TEU per annum by 2030. The scenario has an average growth of 9,800 TEU per annum, which is equivalent to 15% per annum.

Under two of the four scenarios, container volumes would exceed 100,000 TEU enabled through Berth 4 (using the current container handling mode) by 2030. This suggests under these two scenarios, Northport

⁶³ Statistics New Zealand (2017) Subnational Population Projections (Medium) – Northland Region and Auckland Local Boards north of the Auckland isthmus.

⁶⁴ The upper North Island ports handled 0.8 TEU per capita in 2020.

⁶⁵ Assumes that all of the demand growth north of the Auckland isthmus is handled by Northport and that one third of the existing demand north of the Auckland isthmus shifts to Northport by 2050.



may need the Berth 5 expansion as early as 2030, in order to accommodate demands from outside of the region.

3.2.2 Medium Term Container Trade

Over the medium term (2030-2045) the amount of container trade that is handled by Northport will begin to change, since the Port's ability to handle larger volumes of containers and the potential for more frequent container services will allow more exporters and importers to consider the port as an alternative to other ports. The role of Northport may start to change, including handling some import trade for Auckland region (via rail and road) and other parts of the country (via coastal shipping services).

The medium term projections for containers were informed by trends observed in other ports within the New Zealand network and population growth.

- **Business-as-usual (BAU)**, assumes an average growth of 2,700 TEU per annum (i.e. 3.4% per annum), reaching nearly 102,000 TEU per annum by 2045. This trade volume is roughly equivalent in growth trajectory and scale as seen in Port Nelson. Under this scenario the containers handled by Northport would be in the order of 16% of total container trade north of the Auckland isthmus.
- **North Auckland Imports (NAI)**, Under this scenario Northport's share of containerised trade north of the Auckland isthmus, is estimated to be 42% by 2045 – reaching 341,000 TEU per annum. The scenario has an average growth of 14,400 TEU per annum, which is equivalent to 7% per annum.
- **Upper North Island Ports Constrained (UNIPC)** – this scenario suggests that Northport's containerised trade could reach 478,000 TEU per annum by 2045. The scenario has an average growth of 21,600 TEU per annum, which is equivalent to 8% per annum.
- **North Auckland Growth (NAG)** – under this scenario Northport's containerised trade could reach 226,000 TEU per annum by 2045. The scenario has an average growth of 8,700 TEU per annum, which is equivalent to 6% per annum.

With planning for the construction of Berth 4 underway, Northport's ability to expand capacity to handle containerised trade would be sufficient to enable the Port to maintain its existing role of handling regional trade in the medium term. Specifically, the containerised trade in the Business-as-usual scenario (92,000 TEU) is within the capacity of Northport consented container facilities (estimated at approximately 100,000 TEU).

However, if Northport's role expanded beyond the region, then there is potential for capacity constraints to be reached in the medium term (as is shown in the three other scenarios above). If those scenarios eventuate, Northport would need to utilise the proposed expansion area to increase container handling area and provide additional berth space. Without this additional area, and therefore increased capacity, there is a risk that Northport's potential role could be restrained, which would be a loss to the regional economy and affect the national port network.



3.2.3 Long Term Container Trade

Over the long term (2045 and beyond) the amount of container trade that is handled by Northport will be very different to the current operation. The port will have a sizable container terminal which is expected to reach capacity constraints.

Additionally, many of the improvements to the land transport network in Northland will be completed in the long term. Ports of Auckland may begin the process of shifting to a location south of Auckland in this forecast period/timeframe. Both these changes will improve the competitive position of Northport, with transport costs to Northport decreasing relative to other ports in the UNI.

After 2045, growth in containerised trade would begin to diverge significantly between the BAU and the three other scenarios. The following projections for containers have been adopted,

- **Business-as-usual (BAU)**, assumes an average growth of 2,000 TEU per annum (i.e. 2% per annum), reaching nearly 112,000 TEU per annum by 2050. Under this scenario the containers handled by Northport would be in the order of 13% of total container trade north of the Auckland isthmus.
- **North Auckland Imports (NAI)**, assumes an average growth of 14,000 TEU per annum (i.e. 4% per annum), reaching nearly 411,000 TEU per annum by 2050. Under this scenario the containers handled by Northport would be in the order of 49% of total container trade north of the Auckland isthmus. We note that this scenario is consistent with the 'Alternative demand scenario' which was suggested in North Auckland Line Business case, which had a long-term demand of 400,000 TEU being handled at Northport, of which 300,000 would relate to trade from Auckland.
- **Upper North Island Ports Constrained (UNIPC)** – assumes that containerised trade reaches nearly 586,000 TEU per annum by 2050, which is equivalent to approximately 21,600 TEU growth per annum. Under this scenario the containers handled by Northport would be in the order of 28% of total container trade in Northland and Auckland regions.
- **North Auckland Growth (NAG)** – assumes that containerised trade reaches nearly 268,000 TEU per annum by 2050, which is equivalent to approximately 8,400 TEU growth per annum. Under this scenario the containers handled by Northport would be in the order of 13% of total container trade in Northland and Auckland regions.

The following table shows the number of TEU that could be handled by Northport under the BAU and the three other scenarios. This includes all TEU handled, both full and empty.

Table 3.2: Northport Container (TEU) - 2020 to 2050

Containers (TEU)							
TEU	2020	2025	2030	2035	2040	2045	2050
BAU	12,310	47,000	62,000	77,000	92,000	102,000	112,000
NAI	12,310	47,000	125,000	199,000	271,000	341,000	411,000
UNIPC	12,310	47,000	154,000	262,000	370,000	478,000	586,000
NAG	12,310	47,000	96,000	142,000	185,000	226,000	268,000



Across all of the projected future scenarios, Northport will reach capacity constraints in the long term. The constraints on Northport's ability to expand capacity to handle containerised trade are likely to arise considerably earlier, should any of the three regional growth scenarios eventuate. In those scenarios, existing container capacity would not be sufficient to enable the Port to maintain its existing regional role or an expanded role beyond the region, over the medium term. Northport would need to utilise the proposed area to increase its container terminal capacity. Without these consents there is a risk that Northport's role could be restrained, which would be a loss to the regional economy, and would potentially compromise the national port network.

Given the long timeframes required to plan, obtain consents and funding, and construct new port facilities, it is prudent (from an economic perspective) to provide for (enable) the expansion of Northport's container terminal facility well before the demands are anticipated to eventuate. To do otherwise risks 'just in time' planning in order to avoid introducing constraints for trade in Northland and the wider, national port network.

3.3 Total Trade Tasks

In summary, the four scenarios suggest that Northport will need to expand its port area to accommodate growing trade tasks. Most importantly Northport's container terminal will need to expand to accommodate growing demands. In terms of bulk trade, the expected volume of goods does not reach the capacity constraints of the existing port area under either BAU or the other three scenarios.

BAU scenario suggests that if Northport maintains its regional role that total trade tasks may slowly decline over the medium term, from 3 million tonnes in 2020 to 2 million tonnes by 2035, before recovering to 3.1 million tonnes by 2050. These figures exclude container volumes – they are dealt with separately in more detail in Section 3.2.

If Northport achieves a wider role, then total trade tasks may still decline over the coming decade, from 3 million tonnes in 2020 to 2.6 million tonnes by 2030, before growing strongly to reach 5.1 million tonnes by 2050.

Based on handling efficiency rates observed in other New Zealand ports, the existing container terminal could be expected to have a capacity of less than 50,000 TEU. Figure 3-1 shows that demand is expected to exceed current capacity by 2026, i.e. demand scenarios exceed the orange line.

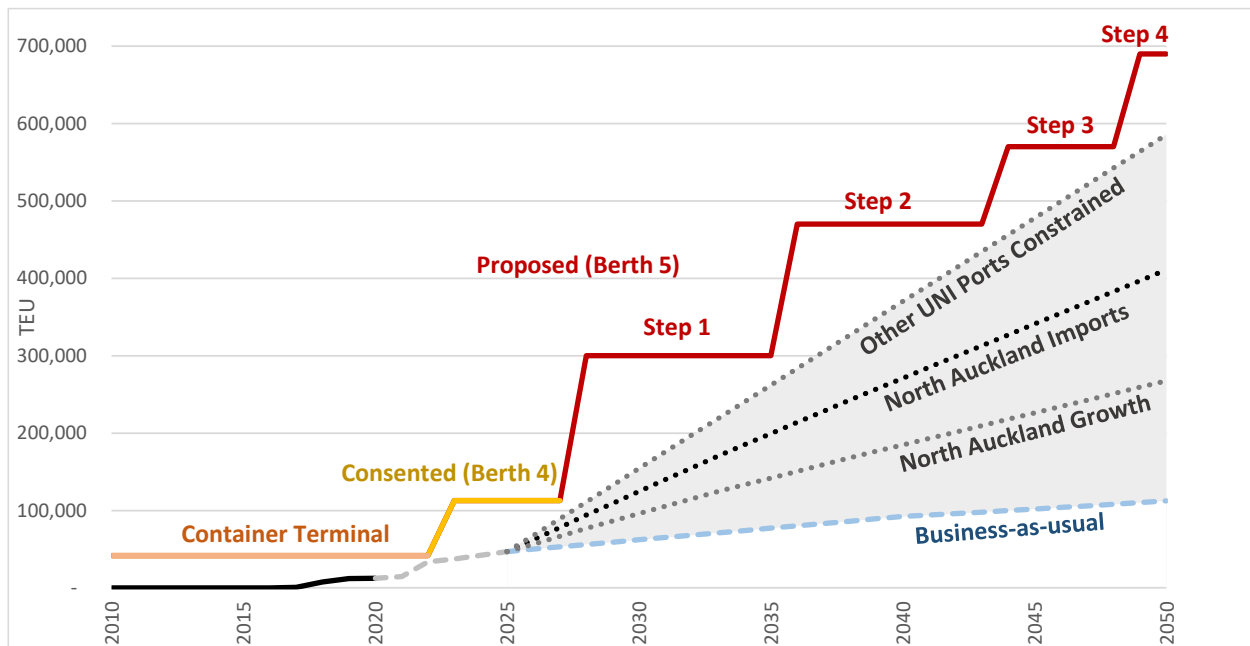
As noted earlier, Northport is developing the consented area (Berth 4) in order to accommodate the container demand in the near-medium term. The handling efficiency of the expanded container terminal could allow Northport to handle just over 100,000 TEU per annum (yellow line). Figure 3-1 shows that demand under two of the scenarios is expected to exceed the capacity of the expanded terminal by 2030 and under three of the scenarios by 2035. Over the long-term demand in all scenarios exceed the yellow line, i.e. capacity including Berth 4.

This shows that Northport may need the proposed expansion as early as 2030, in order to accommodate demands from outside of the region. However, under a BAU scenario, it may not be required until 2045.



Also, the container terminal may become more efficient, by using technology to improve storage and handling, over the coming three decades. The figure shows four indicative steps of capacity which could be achieved using different container handling methods, ranging from 300,000 to over 690,000 TEU.⁶⁶ The steps shown in the figure are indicative, with each one being applied in order that Northport can handle demands under all of the future scenarios.

Figure 3-1: Northport Container Terminal Capacity and Demand Scenarios, 2018-2050



Based on regional projections of activity, the total trade tasks handled by Northport may reach the capacity of current and consented port area or wharf facility. There will be need for investment in new plant to handle the changing structure of the trade tasks (specifically container handling equipment and or wharf upgrades) and investment associated with bringing vacant parts of the existing port area up to a level that can be used for storage. Detailed design and construction planning for the currently consented wharf extension (Berth 4) and reclamation is already underway, but additional capacity may also be required.

Importantly for the regional economy, all of the scenarios suggest a shift in trade mix which indicates the value of goods handled by Northport is likely to increase, which augments growth beyond that shown in the physical trade (i.e. in volume or weight). This is likely to be most apparent as volumes of trade handled via containers increases over the coming three decades. There may also be a gradual shift from low value log exports to higher value processed wood products. The scenarios presented in this report show that Northport's role in the regional economy is expected to grow.

In order for the three higher growth⁶⁷ scenarios (NAI, UNIPC, NAG) to be achieved in the coming decades, Northport would be required to expand, both the port area and berths. Given that this outcome cannot occur if there is no expansion it would be prudent (from an economic perspective) to secure the ability to

⁶⁶ TBA Group (2021) Northport Conceptual Design Study (Alternative 1 Steps – 4 day dwell times).

⁶⁷ Relative to the BAU scenario.



expand the container terminal. This option would protect the future potential of Northport and the role it could play for the region and as part of an integrated port network in New Zealand.



4 Role in the Economy

The economic impacts associated with Northport's operation mainly manifest as a result of the trade tasks that the Port handles and to a lesser extent the Port as a business itself. This section describes key components of the Port operation and the trade that is facilitated, including core assumptions used to generate an economic impact footprint. The economic impacts are presented in terms of Value Added (similar to GDP) and Employment for the coming three decades.

The economic impacts are classified in the following main categories:

- **Northport Direct Role:** Northport operational expenditure in the local, regional and national economies and any investment in infrastructure. This includes the flow on economic activity generated in other businesses that supply the Port or its staff.
- **Northport Facilitated Trade Role:** exporter and trade activity that is handled by the Port and the supporting flow on economic activity generated in other businesses that supply the trading businesses. This is the wider role of Northport, and covers the regional projections and NAI scenario.⁶⁸

First, the report identifies and estimates the direct value of economic activity for the coming three decades, which covers Northport as a business (Direct Role) and the value of trade handled by Northport (Facilitated Trade Role). These direct values are mapped to economic sectors (106 sectors) used in Market Economics' proprietary Multi-Regional Input Output model (MRIO) (with three regions). This allows the models to balance giving an accurate economic impact result. The MRIO model is described in Appendix A.

When undertaking an economic impact assessment, there are several important aspects to keep in mind, because they inform the overall scale of the economic impact. Without going into the technical details of each point, they are:

- **The baseline situation** (counterfactual) – generally a counterfactual could include a 'status quo' port i.e. a without any change scenario (no development). However, it is common to use a baseline scenario that factors in the status quo with the underlying growth included to reflect a business-as-usual future. In this case, it means that the baseline scenario is the Port's current level of activity together with an underlying growth outlook. This growth outlook is growth that would occur even if 'nothing is done' to develop the Port. In this economic assessment the Business-as-Usual (BAU) regional projection is applied as the baseline.
- **The alternative** – the purpose of this step is to describe the different development options and to estimate associated economic effects. That is, the North Auckland Imports scenario (NAI). Estimating the effects shows the activity that could be unlocked if Northport's role changes. The focus on the net additional is important as this is the change that is potentially enabled if there

⁶⁸ This report does not quantify the economic role under the low growth future (NAG) or high growth future (UNIPC), as both scenarios will also show a positive economic role which ranges around the NAI and will add little to the understanding of the proposed expansion.



is a change in Northport's future role as a result of the proposed expansion (shown in marginal terms in the tables in section 4.3). This report does not quantify the economic role under the low growth future (North Auckland Growth) or high growth future (Upper North Island Ports Constrained), as both of the scenarios will also show a positive economic role which ranges around the NAI and will add little to the understanding of the proposed expansion.

In this report, most of the impacts are associated with unlocking or capturing growth, across the region and more importantly market share and growth from the northern parts of Auckland.

4.1 Northport Direct Role

Northport's direct role in the economy is defined as the direct operation and capital investments of the Port. Northport's direct role, like most infrastructure, is relatively small compared to the wider economy or the importance of the wider role the Port plays in facilitating trade (which is discussed in the next section of this report).

Northport has provided a complete set of financial statements for the past twelve years and budget forecasts for the coming five years. This data includes information about Northport's regular operation (expenditure, revenues and profit) and investment decisions (capital expenditure).⁶⁹ This data cannot be presented because of commercial confidentiality; however the figures have been included in the total impact assessment below.

Northport's historic financial data and trade handled are combined to establish the relationship between trade tasks and operational activity. These relationships are then applied along with the future trade tasks under the two scenarios, Business-as-usual and North Auckland Imports, to estimate Northport's future financial situation over the coming three decades.

This method of estimating future operational activity makes the following assumptions about Northport's operations,

- **constant returns to scale:** the Port does not become more efficient with scale.⁷⁰
- **constant productivity:** the Port does not become more efficient in the future.⁷¹
- **constant port charges:** the Port charges are held constant in the future.⁷²

⁶⁹ Note, these figures do not include direct contribution by users of the port, such as stevedores, marshallers, NorthTugz, shipping agents, etc.

⁷⁰ It is common for large infrastructure to have economies of scale, where average costs of production (handling trade) decrease as the operation (trade tasks) increases in scale. In this report there has been no assessment of Northport's costs to establish which could decrease or remain fixed, the operation is assumed to have the same structure regardless of scale.

⁷¹ There may be existing or new technologies that could be incorporated into Northport's operations in the future which may increase the productivity and impact Northport's scale. In this report there has been no assessment of existing or new technology that could be utilised by Northport, the operation is assumed to have the same structure over the coming three decades.

⁷² The port charges for handling trade generally change over time. In this report there has been no assessment of how port charges may change in the future.

- **no resource constraints:** there would be sufficient capacity in the labour, capital and other resource markets to support any lift in economic activity, i.e. to fill the jobs supported by additional economic activity.

Northport's decisions to invest in capital works will be linked to the timing of the trade tasks growth. However, the exact timing of capital expenditure is inherently uncertain, as such it is not possible to estimate the structure of capital expenditure over the coming three decades. It is likely that Northport will undertake significant investments expanding the port area and other infrastructure (wharfs, container cranes, forklifts etc). Based on the trade tasks suggested in the previous section, Northport has elected to develop Berth 4, and the proposed expansion could be required as early as 2030 under the NAI scenario.

This report aggregates total capital spend from Northport's budget forecasts and initial costings of key investment (infrastructure expansion) and then assumes this expenditure occurs at a constant rate in the future. This assumption ensures that confidential data cannot be extracted – i.e. the estimated costs of the existing consented port expansion or the proposed expansion.

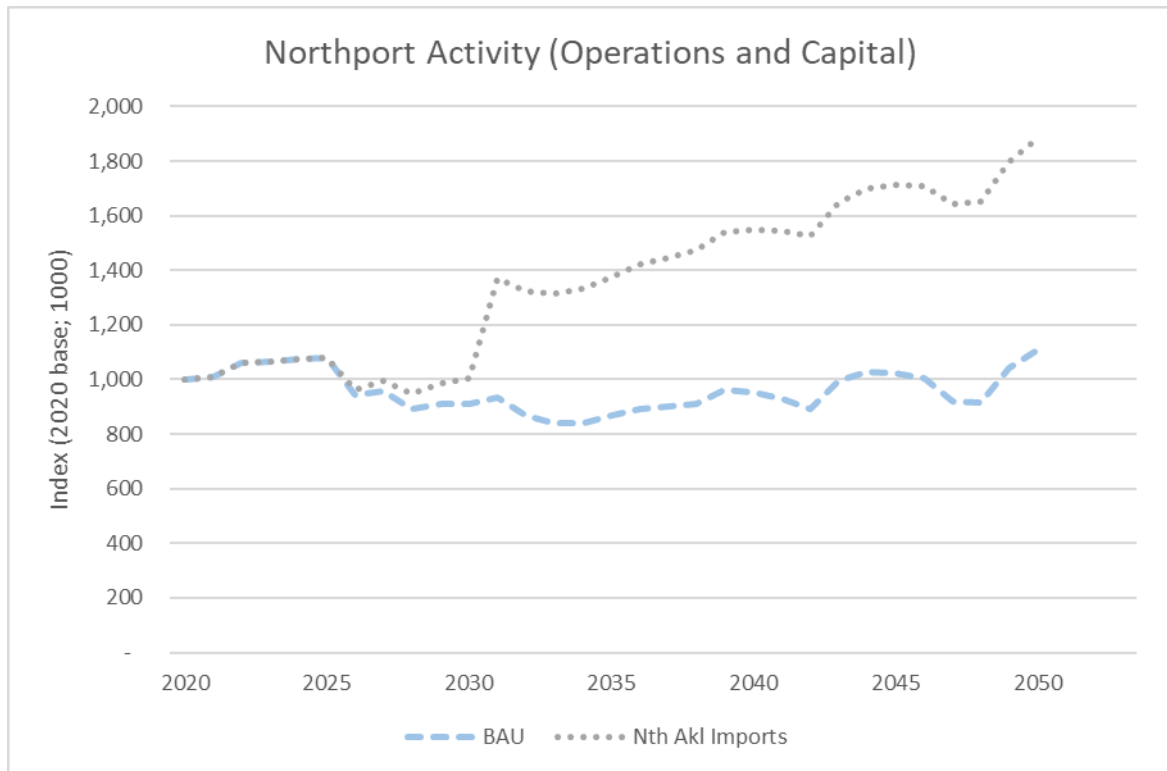
The following figure presents Northport's total activity as a business, i.e. both operational and capital expenditure, for the two scenarios. The results are presented in an index, based in 2020 activity. The index provides an understanding of the scale of Northport business activity, while not revealing commercially sensitive information. The interpretation of the figure is that if the index rises above 1000 then Northport's activity as a business, is larger than 2020. Conversely if the index drops below 1000 then Northport's activity is smaller than 2020.

The index shows the following,

- Northport's activity as a business increases between 2020 and 2025, by around 1% per annum and is roughly the same for both scenarios.
- the index is relatively stable between 2025 and 2030 under both scenarios, with the only difference between the scenarios being the initial inter-regional trade that is attracted under North Auckland Imports.
- the indexes diverge significantly after 2030, which is initially caused by the medium-term capital investment required to build the proposed expansion, in North Auckland Imports and then in the long term the growing level of inter-regional trade that is attracted under the North Auckland Imports scenario.
- Northport's activity as a business, would be expected to increase by 88% by 2050 if the NAI scenario eventuates, with the index growing to just over 1880. The Port business will also increase under the Business-as-usual, albeit by a modest amount (i.e. 10%, index of 1,100).



Figure 4-1: Northport Activity (indexed 2020, 1000) - Regional Projections & North Auckland Imports Scenario



4.2 Northport Facilitated Trade Role

Northport's facilitated role in the economy is defined as the import and export activity that is handled by the Port. Northport's facilitated role, like most infrastructure, is relatively large compared to the wider economy or Northport's direct role (which is discussed in the previous section).

The future facilitated role of the Port is estimated using Statistics New Zealand's Overseas Trade data⁷³, which provides data on trade handled (by commodity) in each port. This includes weight and value (CIF and FOB) of the commodities imported and exported.

First, the distribution and value of trade handled in Northport has been used to establish the average value of each traded commodity in the region. These average values have been combined with the regional trade (wood, agriculture and other inputs in the regional projections and NAI scenario) to estimate the future value of regional trade that could be handled by Northport.

Second, the distribution and value of trade handled by Ports of Auckland has been used to establish the average value of import container trade that could be handled by Northport. These average values have

⁷³ Statistics New Zealand (2020) Overseas Trade Imports and Exports (incl. re-export) Merchandise Trade Monthly 1989-2020 NZ Port by HS2.



been combined with the container trade (in the regional projections and NAI scenario) to estimate the future value of container trade that could be handled by Northport.

This method of estimating future trade activity makes the following assumptions about trade,

- **constant value of trade:** the value of trade is held constant in the future.⁷⁴
- **constant distribution of trade:** the distribution of trade handled is held constant in the future.⁷⁵
- **no capacity constraints in UNI Ports:** the other ports in the Upper North Island network can handle increasing trade tasks.⁷⁶
- **no capacity constraints in land transport network:** the land transport network (rail and road) is assumed to have sufficient capacity to handle the trade tasks.⁷⁷

The following figure presents total value of trade facilitated by Northport, both imports and exports, for the two scenarios. The trade results show,

- In the near term the value of trade handled by Northport may exceed \$1 billion.
- In the long term the value of trade handled by Northport increases by 3.8% per annum in the BAU scenario, reaching \$2.0 billion by 2050.
- Finally, under the NAI scenario, the value of trade handled by Northport would increase significantly, by 7.3% per annum over the coming three decades, reaching over \$6.0 billion. This is mainly driven by growth in imports handled for North Auckland.

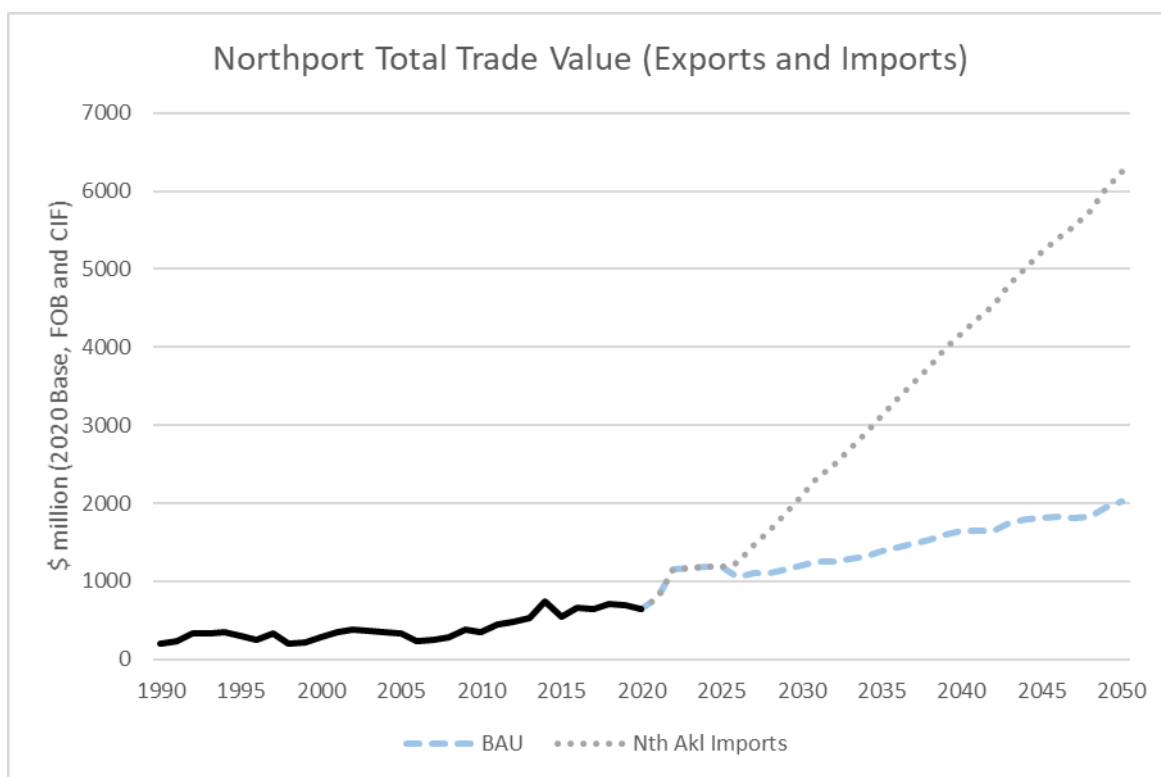
⁷⁴ The value of goods traded (imports and exports) is defined in international markets which cannot be easily predicted, it was beyond the scope of this report to assess the potential changes that could occur in these markets or the values. In addition the values have not been adjusted for inflation, so all values are presented in today's dollars (2020 \$'s).

⁷⁵ The types of goods traded (especially imports) is driven by demands of consumers and businesses in New Zealand. Again, it was beyond the scope of this report to assess the potential changes in demand preferences that could occur or how this could change the distribution of goods traded in the future.

⁷⁶ As noted earlier in this report, there is potential capacity constraints in the existing port network which could result in increasing amounts of trade being handled at Northport. It was beyond the scope of this report to assess the potential capacity of the other ports in the Upper North Island network, which would be a substantial research tasks.

⁷⁷ As noted earlier in this report, there is potential capacity constraints in the existing land transport network which could influence the amounts of trade that could be handled at Northport. It was beyond the scope of this report to assess the potential capacity of the land transport network in the Upper North Island.

Figure 4-2: Northport Total Trade Value (\$ million) – Business-as-usual & North Auckland Imports Scenario



4.3 Northport Total Economic Role

Northport's roles in the economy, both as a business and facilitator of trade, has flow on impacts on other businesses and households in the community. First, some businesses will need to change their activity to provide services to match the needs of Northport, which is referred to as an indirect impact. Second, the incomes received by households will change as Northport and other businesses expand. The changes in income will generate more demand for goods and services, which is referred to as an induced impact. The indirect and induced impacts are estimated by feeding Northport's activity as a business, into the MRIO, which outputs Value Added (similar to GDP) and employment equivalents (MEC).

The following section presents the total economic role for Northland Region and New Zealand over the coming three decades, which includes,

- Northport's direct role in the economy: which is defined in this report as the direct operation and capital investments of the Port (direct impacts) and the economic activity that occurs to support the Port (indirect and induced impacts).
- Northport's facilitated role in the economy is defined in this report as the import and export activity that is handled by the Port (direct impacts) and the economic activity that occurs to support that trade (indirect and induced impacts).



Table 4.1 shows Northport's role in the Northland regional economy, which includes the direct activity of the Port (operating and capital) and facilitated trade value, along with flow on indirect and induced impacts.

Northport's facilitated, and direct role is estimated as being the equivalent of \$438 million in Value Added (VA) sustaining the equivalent of 6,300 jobs in the Northland economy. The vast majority of the value and jobs is associated with the trade that is handled by Northport, less than 10% of the value is associated directly with Northport's operation as a business entity.⁷⁸

Northport's role will change over the coming three decades, the MRIO estimates show,

- BAU scenario reaches \$1,094 million and 14,800 jobs in the Northland economy by 2050.
- NAI scenario reaches \$1,201 million and 16,200 jobs in the Northland economy by 2050.

Table 4.1 also displays the marginal difference in Northport's role between the BAU and NAI scenario. Northport's role relative to the BAU, could be equivalent to \$107 million more GDP in 2050 if NAI scenario occurs. This equates to about 1.3% of Northland's current GDP.

Table 4.1: Northport Role in Northland - Value Added and Employment 2020 - 2050

Northland Region		2020	2025	2030	2035	2040	2045	2050
Value Added (\$ m)	BAU	\$ 438	\$ 659	\$ 654	\$ 747	\$ 888	\$ 985	\$ 1,094
	NAI			\$ 691	\$ 807	\$ 954	\$ 1,072	\$ 1,201
	Difference			\$ 37	\$ 60	\$ 66	\$ 87	\$ 107
Employment (MEC)	BAU	6,300	9,100	8,900	10,100	12,000	13,300	14,800
	NAI			9,400	10,900	12,900	14,500	16,200
	Difference			500	800	900	1,200	1,400

It is important to note that some businesses may choose to relocate to Northland to benefit from closer proximity to the Port. As noted earlier in this report there is a sizable amount of vacant industrial land immediately adjacent to the Port, which could be utilised by businesses that move to Northland region. Therefore, it is likely that the economic role of the Port under the NAI is conservative, and that the net difference between NAI and BAU may be larger than what is shown in Table 4.1.

However, we note that the majority of the additional trade handled by Northport will mostly flow to Auckland and the rest of the country, which means that most of the role of the Port will relate to economic activity outside the region (i.e. at the national level). It is considered likely that most trade and economic activity will flow more or less directly out of the region, at least for the period assessed in this report.

The following table presents results for the New Zealand economy. In summary, the points discussed above for Northland region are also revealed in the results in this table.

However, the key point from Table 4.2 is that Northport's role would be significantly larger under the NAI scenario than under the BAU scenario. This is to be expected as the role of the Port in NAI expands beyond

⁷⁸ Northport's direct role is not reported separately as this would potentially breach commercial confidentiality of Northport's financial information.



the region. In total, Northport's role could equate to \$5.6 billion Value Added by 2050 in the New Zealand economy, which is equivalent to 60,900 jobs. In marginal terms Northport's role in the North Auckland Imports scenario would be \$3.3 billion Value Added greater than the BAU in 2050.

Table 4.2: Northport National Role - Value Added and Employment 2020 - 2050

New Zealand		2020	2025	2030	2035	2040	2045	2050
Value Added (\$ m)	BAU	\$ 907	\$ 1,364	\$ 1,351	\$ 1,545	\$ 1,838	\$ 2,040	\$ 2,265
	NAI			\$ 2,043	\$ 2,908	\$ 3,827	\$ 4,700	\$ 5,584
	Difference			\$ 692	\$ 1,363	\$ 1,989	\$ 2,660	\$ 3,319
Employment (MEC)	BAU	10,700	15,900	15,700	17,900	21,300	23,700	26,300
	NAI			23,000	32,200	42,100	51,400	60,900
	Difference			7,300	14,300	20,800	27,700	34,600

A recently published report by Polis Consulting Group⁷⁹ was commissioned by Northland Inc. to estimate the socio-economic impact of the Port's expansion. The report estimated the additional GDP that could be unlocked through a dedicated container terminal, i.e. the consented area and proposed expansion combined. The Polis report estimated the expansion could bring an additional \$160m annual GDP to Northland by 2060, supporting an additional ~1,500 jobs (medium scenario). This assumes container annual volumes reaching 400,000 TEU by 2060. Based on the graphics in the report⁸⁰, the estimated additional annual GDP by 2050, is around \$117m, supporting ~1,100 jobs. This assumes container volumes of around 300,000 in 2050.

The results presented in the Polis report is broadly consistent with the results in this report, but it is acknowledged there are minor differences in the estimated economic impact and container volumes. It is not possible to identify all the differences in the methodology, but we have highlighted a few below:

- M.E reports Value Added, which is similar to Gross Domestic Product reported by Polis, but excludes some taxes.
- M.E's results are presented in 2020-dollar terms, while Polis estimates are reported in 2022-dollar terms.
- Different economic models are used to estimate the economic impact. M.E uses a bespoke multi-region input-output model, while Polis uses regional multipliers to estimate the indirect and induced effects.
- Somewhat different assumptions and inputs were used to construct container projections.⁸¹
- The metric used to report employment differs. Polis reports full-time equivalent employment, whereas M.E reports modified employment count, which represents a head count of workers, including working proprietors.

⁷⁹ Polis Consulting Group. Socioeconomic Impacts of Northport Expansion on Te Tai Tokerau/Northland. A report for Northland Inc. July 2022.

⁸⁰ GDP growth by decade average (p.34)

⁸¹ This was confirmed through email communication with Polis Consulting Group.



5 5151 Conclusion

This report has assessed the role of Northport in the regional and national economies. The results show that Northport has an important regional role as part of the national port network. In terms of its economic role, the Port currently facilitates \$438 million in value added and the equivalent of 6,300 jobs in the Northland economy.

Northport's role is likely to change significantly in the future, mainly as a result of changing trade patterns. Four scenarios are developed in this report, Business-as-Usual, North Auckland Imports, Upper North Island Ports Constrained and North Auckland Growth, which show the potential trade patterns that could eventuate over the coming three decades.

These futures indicate that Northport will need to invest in infrastructure upgrades, which includes wharf extensions and port area reclamation. To respond to increasing demand for the Port's services, it is currently progressing plans to construct Berth 4. However, based on the trade tasks outlined in the futures, demand under two of the scenarios is expected to exceed the capacity of the expanded terminal by 2030 and under three of the scenarios by 2035. Over the long-term demand under all scenarios exceeds capacity of the consented expansion. This suggests that Northport may need the proposed expansion as early as 2030, in order to accommodate demands from outside of the region.

The regional economic assessment shows that Northport's role in the Northland economy could range from,

- BAU scenario reaches \$1,094 million GDP and 14,800 jobs by 2050.
- NAI scenario reaches \$1,201 million GDP and 16,200 jobs by 2050.

As the role of the port expands beyond the region, Northport's role could equate to \$5.6 billion Value Added by 2050 in the New Zealand Economy, which is equivalent to 60,900 jobs. The benefits are regionally significant, accruing to the entire region and community.

The upgrades to the land transport networks and the potential shift of Ports of Auckland to South Auckland, will result in improvements in the attractiveness of Northport to exporters and importers in the North Auckland area. While it is beyond the scope of this report to quantify the transport cost savings⁸², it is considered that the savings may be in the order of 25% of current rates which would likely improve the competitiveness of Northport.

It would be prudent (from an economic perspective) to progress the applications for the proposal and secure the ability to expand the port area. This would protect the future potential footprint of Northport, and ensure that the upper North Island ports, collectively, could meet the needs of this fast-growing region and therefore New Zealand.

⁸² Such an exercise to determine the (unit) cost of the supply chain directly would be more than whole budget of this project.



Appendix A – Multi Regional Input Output

Prior to describing the specifics of the methodology, it is helpful to provide a brief introduction to the IO framework,⁸³ particularly for those not familiar with input-output analysis.

At the core of any IO analysis is a set of data that measures, for a given year, the flows of money or goods among various sectors or industrial groups within an economy. These flows are recorded in a matrix or 'IO table' by arrays that summarize the purchases made by each industry (its inputs) and the sales of each industry (its outputs) from and to all other industries. By using the information contained within such a matrix, IO practitioners are able to calculate mathematical relationships for the economy in question.

These relationships describe the interactions between industries, specifically, the way in which each industry's production requirements depend on the supply of goods and services from other industries. With this information it is then possible to calculate, given a proposed alteration to a selected industry (a scenario), all of the necessary changes in production that are likely to occur throughout supporting industries within the wider economy.

As with all modelling approaches, IO analysis relies on certain assumptions for its operation. Among the most important is the assumption that the input structures of industries (i.e. technical relationships) are fixed. In the real world, however, technical relationships will of course change over time as a result of new technologies, relative price shifts causing substitutions, and the introduction of new industries. For this reason IO analysis is generally regarded as most suitable for short-run analysis, where economic systems are unlikely to change greatly from the initial snapshot of data used to generate the base IO tables.

In addition to the 'fixed structure' assumption, other important assumptions (and limitations) of IO models are:

- **Constant return to scale:** This means that the same quantity of inputs is needed per unit of output, regardless of the level of production. In other words, if output increases by 10 per cent, input requirements will also increase by 10 per cent.
- **No supply constraints:** IO assumes there are no restrictions to inputs requirements and assumes there is enough to produce an unlimited product. There may be some transfer of inputs from other industries, which means that some economic activity associated with the impact may not be net additional. However, in regions that have high unemployment (such as Northland) the opportunity cost will be lower.
- **The model is static:** No price changes are built in meaning that dynamic feedbacks between price and quantity (e.g. substitution between labour and capital) are not captured.

The following indicators are used to measure economic impact:

⁸³ Those who wish to learn more about input-output analysis can refer to authors such as Miller, R. E., & Blair, P. D. (2009). *Input-output analysis: foundations and extensions*. Cambridge University Press.

- **Value added** measures all payments to factors of production (land, labour and capital), and excludes all purchases of intermediate inputs. It broadly equates with gross domestic product (GDP) as a measure of economic activity on the national level, and gross regional product on the regional level. Components of value added include compensation of employees (salary and wages), operating surplus (company profits), consumption of fixed capital (depreciation), and subsidies.
- **Employment** is measured in Modified Employee Count years (MECs). This is the number of full-time and part-time employees as well as working proprietors on an annual basis. This provides a measure of the labour demand associated with the estimate level of economic activity. Note that additional MEC-years do not necessarily require that additional persons be actually employed. It may mean existing employees or proprietors work longer hours to complete the additional work.

Key steps

Several steps were required to estimate Northport's economic impact. Firstly, the spending associated with Northport, as a business, and trade that is facilitated by Northport was mapped to specific economic sectors (106 industries) and geographies.

The economic impact was then included into the Northland Multi-Regional Input-Output model to estimate the flow-on effects associated with the spending. The flows are traced through the local (Northland) and national (Rest of NZ) economies.

Using MRIO modelling, we estimated:

- The economic impact caused by the spending, covering:
 - Direct impacts, which are generated by direct spending that occurs, sustaining a certain quantity of direct employment to meet these needs,
 - Indirect impacts occur when suppliers to the directly impacted businesses must increase their production to meet the increase in demand for goods and services. This requires the further purchase of other goods and services from their suppliers, along with additional labour.
 - Induced impacts, cover the additional wages, salaries and profits paid into the economy, thereby inducing additional expenditure, such as spend on retail or services. Businesses either directly or indirectly impacted, are assumed to be operating at maximum capacity and therefore additional demand causes them to either hire additional workers or pay overtime. This means more money is available to households in the economy. The induced effect covers how this money then flows through the system as households increase their spending.
- The size of the impacts in terms of:
 - GDP (\$) or VA (\$), and
 - Employment.
- The distribution of the impacts:



- Spatial (regional) breakdown of impacts, i.e. the results show what share of impacts are felt in Whangarei City, in the rest of Northland region, and what share is felt in the rest of NZ.
- Sectoral breakdown of impacts (e.g. professional services, health services, retailing).