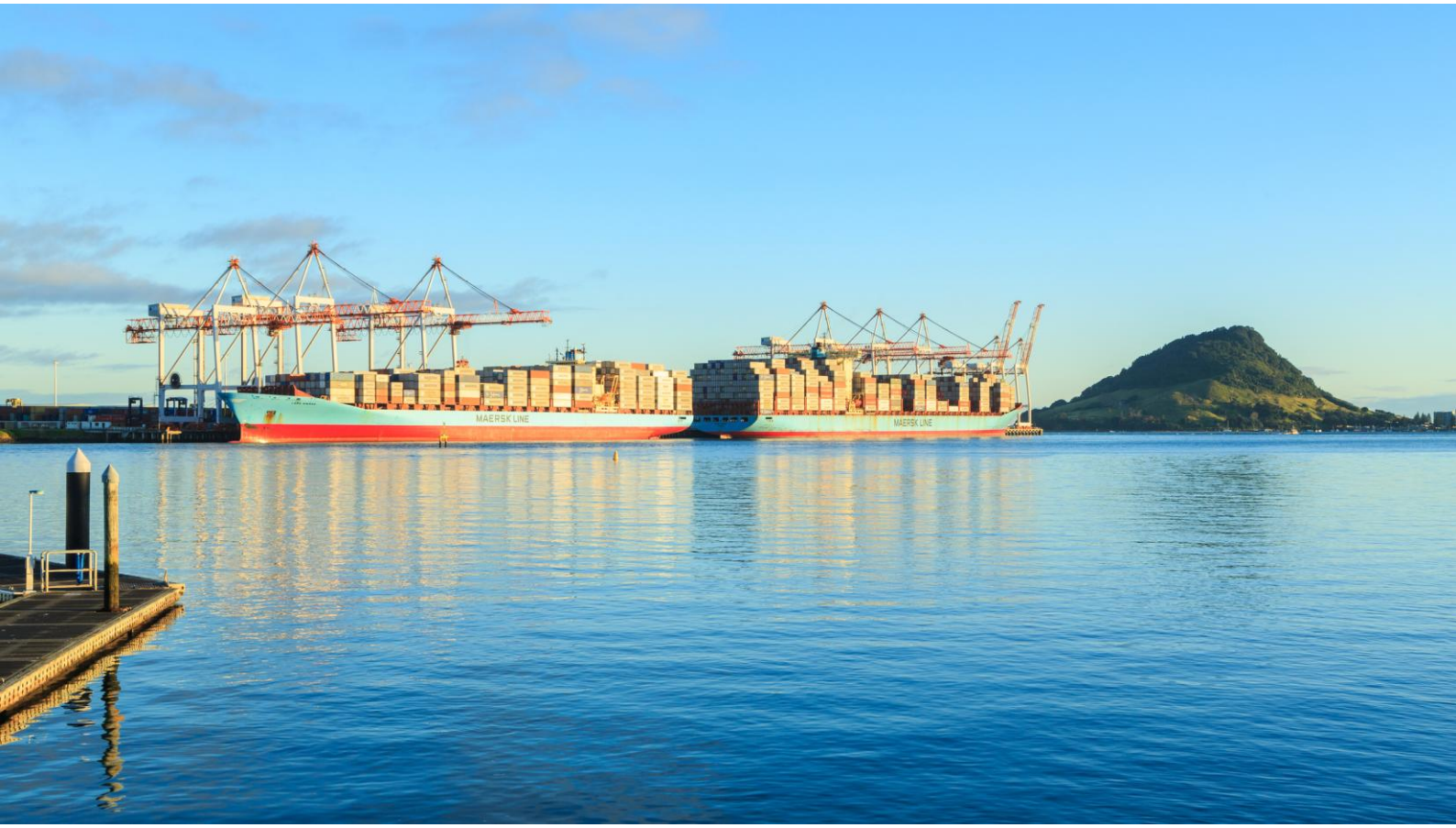
NZIER
NEW ZEALAND INSTITUTE OF ECONOMIC RESEARCH



Maintaining channels for growth

Economic effects of dredging at Tauranga Harbour

NZIER report to Port of Tauranga Limited – Final

August 2026

About NZIER

NZIER is a specialist consulting firm that uses applied economic research and analysis to help our clients and members make better business and policy decisions and provide valuable insights and thought leadership on important public issues affecting our future. We operate across all sectors of the New Zealand economy and provide a full range of economic and policy consulting services.

As a not-for-profit organisation established in 1958, we reinvest our returns into our Public Good research programme, which informs and educates on the important economic and policy issues confronting New Zealand.

Our membership is open to all organisations and provides a range of benefits, including access to our long-established Quarterly Survey of Business Opinion and Quarterly Predictions documents.

We pride ourselves on our reputation for independence and our expertise and experience that ensures we deliver high quality, insightful analysis and pragmatic advice that we publicly stand behind, in the right form and at the right time.

Authorship

This paper was prepared at NZIER by Peter Clough.

It was quality approved by Mike Hensen.

This report has been prepared for statutory proceedings that may progress to a hearing. "We have read and agree to comply with the Code of Conduct for Expert Witnesses as set out in the Environment Court Consolidated Practice Note 2023."

The assistance of Rowan Johnstone of the Port of Tauranga Limited is gratefully acknowledged.

How to cite this document:

NZIER. 2026. Maintaining channels for growth. A report for Port of Tauranga Limited. Final for consultation.

Registered office: Level 13, Public Trust Tower, 22–28 Willeston St | PO Box 3479, Wellington 6140
Auckland office: Level 4, 70 Shortland St, Auckland
Tel 0800 220 090 or +64 4 472 1880 | econ@nzier.org.nz | www.nzier.org.nz

© NZ Institute of Economic Research (Inc). Cover image ID 128438482 © Michael Williams | Dreamstime.com
NZIER's standard terms of engagement for contract research can be found at www.nzier.org.nz.

Key points

This report assesses the economic effects of granting consents for POTL's channel dredging (or alternatively of not granting them) with reference to application for consent under the Fast-track Approvals Act 2024 (FTAA). The purpose of the FTAA is to facilitate rapid delivery of infrastructure and development projects with significant regional and national benefits. The FTAA does not define regional and national benefits, but it still requires consent applications to be assessed under the Resource Management Act 1991 (RMA)'s sections 5, 6 and 7.[1] In its consideration of benefits this report demonstrates the significance and scale of Port of Tauranga for regional and national economic activity, drawing on the RMA's 'economic' provisions, such as section 5 references to "*enabling people and communities to provide for their economic, social and cultural wellbeing*" and section 7 (b)'s "*efficient use and development of resources*".[2]

POTL is seeking consent for dredging to improve and maintain access to its wharves of large vessels that are expected to predominate in future shipping to New Zealand. While ships of that size can currently access the port at Tauranga, when fully laden they are restricted to using the channel around high tide for navigational safety. POTL is investing in capital dredging under existing consents to reduce those restrictions, and seeks consents for maintenance dredging and a small amount of capital dredging to sustain ship access through the channel.

The focus of the economic case is that there is a significant opportunity cost of dredging consents not being granted. Without dredging, large ships initially and subsequently smaller ones will be constrained in accessing the port and both current operations and future future extension to the container wharf at Sulphur Point may not be used to full capacity, which would be wasteful and inefficient for the port and forgo benefits in the wider regional and national economies.

POTL is New Zealand's largest port by volume throughput, giving it both regional and national significance. It has grown significantly over the past decade, and its location close to the fast growing Waikato and Bay of Plenty and Auckland regions makes it better placed than alternative ports to meet trade requirements for the northern North Island.

Continued accessibility of Tauranga's port is consistent with the FTAA's purpose of providing infrastructure of regional and national significance. Generating incomes for New Zealanders is an important component of enabling people and communities to provide for their wellbeing, as also is minimising adverse effects on the natural environment they inhabit and use. Efficiency is achieved by maximising the value obtained from available resources and minimising waste.

The effects of not granting consents

The approval being sought in this application (as described in more detail elsewhere) is primarily for maintenance dredging, a small amount of capital dredging confined to the

[1] Fast-track Approvals Act 2024, Scheduel 5, Section 17 2(a) directs the panel to consider sections 5, 6, and 7 of the RMA after giving the greatest weight to the purpose of the FTAA

[2] In December 2025 Government released for public consultation a discussion document outlining proposals to replace the RMA, *"Better planning for New Zealand" (2025)*. Any legislation change will require time to implement the new system, so we assume assessment requirements under the RMA will be unchanged for the foreseeable future.

existing channel and disposal of dredged material in areas of seabed already used for that purpose. The economic consequences of these activities lie not in the dredging itself but in its contribution to the efficient functioning of the port and its impact on the economy.

Efficiency is served by being able to attract the shipping lines with the most cost effective vessels, which are typically larger newer ships which are also more environmentally benign per tonne kilometre carried. The physical effects of not granting consent for continuation of current activities are:

- Without the continuation of maintenance dredging the Port will be unable:
  - to maintain ease of access for all ships which, if arriving or departing well laden, may be limited to periods on either side of high tide, reducing speed of ship turnaround, throughput and capacity utilisation of port facilities
  - to achieve the improvements in vessel throughput and port productivity anticipated from the extension of the Sulphur Point container wharf
  - to improve compliance with regulatory imperatives around reducing environmental impacts of emissions per tonne-km, both greenhouse gas emissions that affect global atmosphere and climate, and emissions of pollutants that affect local air quality and water quality.

The economic effects of not consenting for continuation of current planned dredging are:

- Reduction in the positive direct economic impacts of dredging activity (incomes for local businesses, employees and contractors supplying dredging services) – these impacts are relatively minor in the scheme of things
- Reduction in the consequential benefits of easy access to the Port, which are both more pervasive and significant in scale and significance for the regional and national economies and have direct consequences for port efficiency, and indirectly for business profitability and community wellbeing, including:
  - Port operational efficiencies derived from being able to deal with incoming and outgoing ships at all states of tide – and in the long term, without maintenance dredging, excluding access to large ships at all states of the tide
  - Operational efficiencies for shipping companies who face less likelihood with a dredged channel of access being limited to around high tide, and who are also able to increase the loads carried in their ships – both of which reduce the costs of shipping from point to point on a tonne-km basis
  - Operational efficiencies for the customers of the Port who face less likelihood with a dredged channel of:
    - Delays in access for ships being transmitted to delays in moving produce in or out of the Port, restricting the timeliness and value of goods moved
    - Increased costs for shipping companies being translated into higher freight fees for customers transporting goods through the Port
    - Restricted access to shipping services if some ships or companies reduce their services to the Port to avoid operational costs they might incur

- Loss of value of goods transported (e.g. perishable goods like chilled produce which face a shortened shelf life in the destination markets) if there is a reduction in shipping service frequency or speed of turnaround in Port
- Reduction in revenues, productivity, profitability and ability to invest in future business expansion for affected businesses.

This report cites modelling of inter-industry impacts of POTL's wharf constraints and need for extension to handle trade growth, which shows how opportunity costs of restricting expected gains spread far across many sectors in the New Zealand economy. That opportunity cost is also the gain to be made by relieving constraints on the existing and proposed Sulphur Point wharves.

Not consenting dredging would constrain the use of the Sulphur Point Wharves, lowering the volume of traffic that can be handled to the detriment of resource use efficiency and incomes injected into the economy that provide for community wellbeing. That applies to maintenance dredging as it does to capital dredging, which in this application is small and aimed at improving access to wharves.

The economic case in support of consenting demonstrates the size and significance of the Port of Tauranga's continued operation, both regionally and nationally, and the economic consequences that could arise from restrictions on consents that constrain its ability to continue current operations and accommodate growth. These restrictions are the opportunity cost of curtailing consents, which need to be weighed against any environmental gain sought from curtailment of consented activity.

Contents

1 Introduction 1
1.1 Economics in the Fast-track Approvals Act and Resource Management Act 2
1.2 Outline of report 5

2 The existing economic environment of the Port of Tauranga 6
2.1 Local economic environment 6
2.2 Wider economic environment 8

3 The proposed channel dredging and changes to the economic environment 11
3.1 The situation with and without dredging 12
3.2 Illustrating the effect of not consenting dredging 12
3.3 Other economic effects not included in the modelling 17

4 Assessment of economic effects 19
4.1 Caveats on the estimates 20

5 Conclusions 21

Figures

Figure 1 Areas involving deposition of dredged material 2
Figure 2 Proportionate reductions in the benefits of extended wharf in the absence of dredging 16

Tables

Table 1 The economic environment of the Port of Tauranga 7
Table 2 New Zealand ports capacity and throughput 8
Table 3 Wharf constraint impact on labour income by affected industry 14

1 Introduction

This report provides an economic assessment of the effects of channel dredging at the Port of Tauranga. The Port of Tauranga Limited ('**POTL**') has asked NZIER to assess the economic effects of channel maintenance dredging and a small amount of capital dredging within the existing channel taking place, compared to the situation if it does not.

Dredging is crucial to maintain depth in the shipping channel to allow access at all states of the tide by the largest ships currently visiting the port and expected to predominate in future trade: 347 metres length, 48 metres beam and 14.5 metres draught. Without maintenance dredging, in the long term such ships will not be able to access the wharves at all states of the tide. Over time the lack of maintenance dredging will also create access constraints for smaller vessels, further constraining port throughput and efficiency.

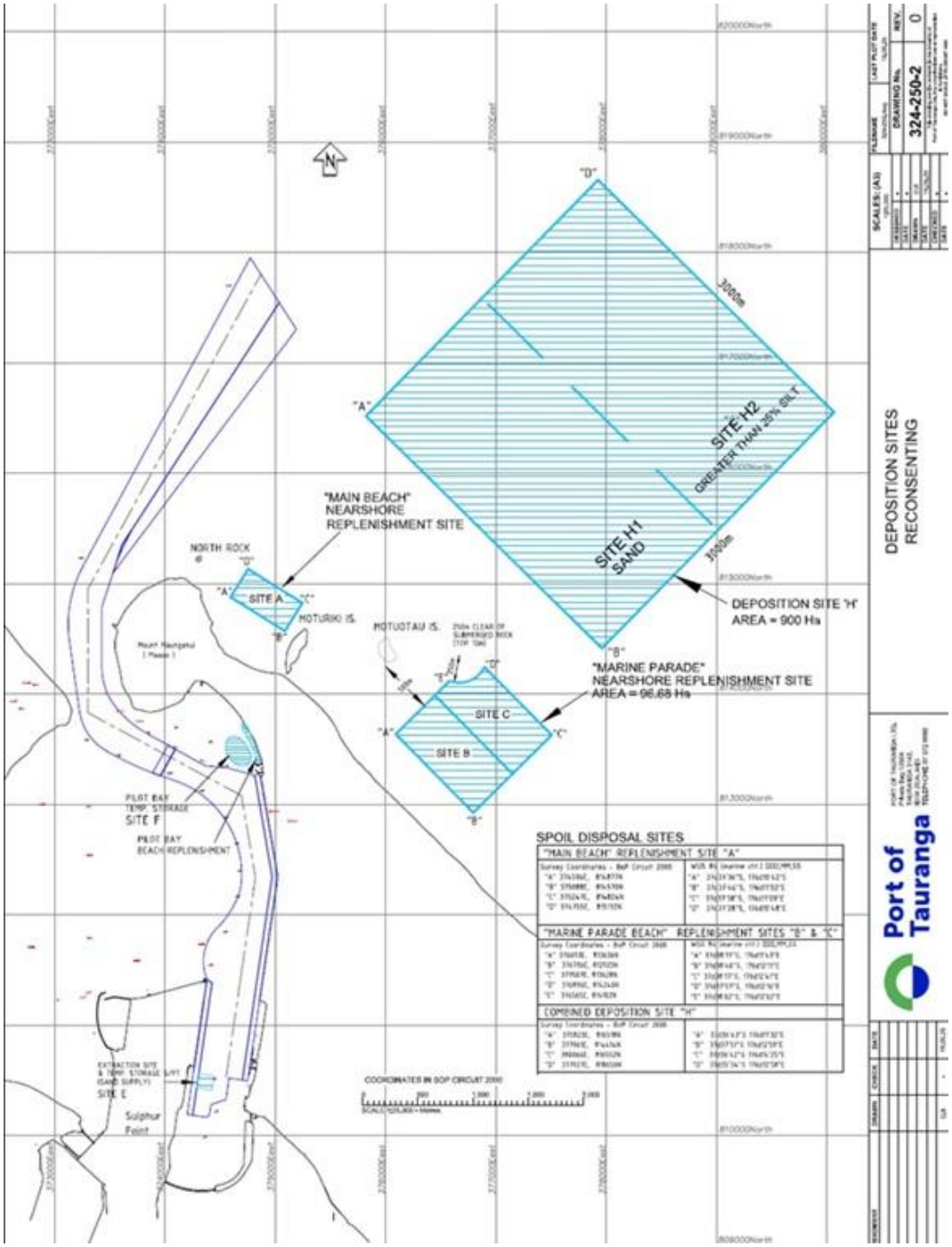
This application is also seeking consent for a small amount of capital dredging. The maintenance dredging is an essential complement to that and other capital dredging, ensuring the benefits of dredging for ship access endure into the future.

POTL is undertaking capital dredging under the existing consent at the northern end of the Sulphur Point Wharf to widen the channel and create space in which large ships can turn without restricting the length of wharf at which ships can be moored. Being able to access the port at all states of the tide is important for its effective capacity, removing the delay for ships having to wait for high tide and enabling faster turnaround and more ships visiting the wharf. That will increase the potential utilisation of the wharf space and enable greater freight volumes moved through the port.

Maintenance dredging is an essential complement to that development, as ships need to be able to access the port to make use of the additional wharf space.

Figure 1 outlines the areas involved in proposed dredging and the spoil disposal sites outside of the channel. Spoil will continue to be deposited in areas that have been used for that purpose under previous consents, with no new areas of sea bed needing to be used.

Figure 1 Areas involving deposition of dredged material



Source: Port of Tauranga Draft AEE Design section

1.1 Economics in the Fast-track Approvals Act and Resource Management Act

The consents for this dredging are being sought under the Fast-track Approvals Act (FTAA) 2024. The approach of this assessment is to estimate the economic consequences of the proposed dredging against a situation in which it does not proceed. There are various layers

that can be applied to such assessment and tailored to fit the requirements of the legislation under which the assessment is being conducted.

Section 3 of the FTAA sets out the purpose of the FTAA, namely to facilitate the delivery of infrastructure and development projects with significant regional or national benefits. The FTAA's Schedule 5 sections 17(1)(a) require that the panel gives greatest weight to the purpose of the FTAA and 17 (1)(b) and 17 (2)(a) requires that the panel considers Resource Management Act 1991 sections 5, 6 and 7 .

In economic terms, facilitating delivery of infrastructure and development projects is largely about reducing the transaction costs that protracted approval processes can create, so that worthwhile projects can not only be approved but implemented sooner than would be the case without the FTAA, thus avoiding the opportunity costs of delay in realisation of the projects. The economic test of a "worthwhile" project is that it delivers benefits in excess of costs over time, where both benefits and costs are measured in commensurate dollar values and are not confined to those incurred by the project developers but also include, to the extent that it is feasible to quantify and value them, "external" effects borne by third parties not covered by the developers' investment return calculations.

The purpose of the RMA is to promote the sustainable management of natural and physical resources (section 5(1)). Section 5(2) of the Act defines sustainable management as using resources in a way that enables people and communities to provide for their well-being and their health and safety, while sustaining the potential of those resources to meet reasonably foreseeable future needs and avoiding, remedying or mitigating any adverse effects of activities on the environment. Section 7(b) requires assessments to have regard for the efficient use and development of natural and physical resources.

The RMA defines environment broadly to include social, economic and cultural conditions. It also gives explicit recognition of economic considerations in section 5's references to enabling communities to provide for their economic well-being, and section 7(b)'s requirement to have regard to efficient use and development of natural and physical resources.

The RMA does not define efficiency as referred to in section 7(b) and elsewhere in the Act. But the Environment Court has previously noted[3] that all aspects of efficiency are "*economic*" by definition because economics is about the use of resources generally. Efficiency is a condition achieved by maximising the value of outputs from a given quantum of inputs, or minimising the cost of inputs to obtain a given quantum of outputs. Economics draws further distinction between technical (or productive) efficiency within a given productive process, allocative efficiency in resource use across a range of contemporary activities and processes, and dynamic (or innovative) efficiency about maximising the value of outputs obtained from resource inputs over a period of time.

In the context of a port, the jobs and incomes it supports in the region and the free flow and availability of imports to and exports from the region provide markers of economic well-being. That POTL is seeking consent to invest in new wharves and the dredging that will support them indicates it is pursuing its own private efficiency improvements, and the RMA processes in place are primarily about identifying and assessing potential adverse effects external to private considerations and finding ways to avoid, mitigate or compensate for those that might significantly detract from wellbeing and efficiency.

[3] In *Marlborough Ridge Ltd v Marlborough District Council* [1998] NZRMA 73,

1.1.1 Implications for economic assessment

Amendments to the RMA in 2012 required section 32 assessments to give explicit consideration to opportunities for economic growth and employment that may be created or reduced by a project. From this it can be inferred that the legislators who passed the amendment had in mind a project's effect on the measured economy, as captured by the system of national accounts and measures derived from it, such as GDP, incomes and employment. That implies there is a role in RMA assessments for economic impact analysis which focuses on the impact of a project on the measured economy. Given the current government's focus on economic growth, such impact analysis is also useful for assessments of regional and national economic benefits under the FTAA.

In consent applications it is common to see an *economic impact analysis* of a proposed new project that shows how the expenditures on the project impact on such economic variables as production, value added and employment. Such impacts may include both the direct effect of spending in the locality by the project, and the indirect effect of expenditure that flows out to stimulate other sectors in the local economy.

The impact of changes in port operations may be expressed as changes in the host region's economic value added (GDP), and on the number of jobs or annual equivalents created or incomes generated, covering both direct and flow-on impacts. More specifically:

- Direct impacts are those emanating from the port activities, and they arise from the spending and job creation on its construction and operation.
- Indirect impacts are those emanating from the stimulation of other businesses either supplying the project or benefiting from its consequences.
- Induced impacts are those emanating from additional demands for consumption goods from people with increased incomes arising from direct or indirect impacts.

In the case of channel dredging to maintain the depth required to enable ships to access the port at all tides (high and low), however, the incremental investment costs in dredging will be small and have modest flow on effect compared to other large scale infrastructure and construction projects.

Infrastructure's contribution to the economy in supporting other productive activity is usually much larger and longer-lasting than the direct impact of its construction and operation. Although less tangible than the spending on construction and equipment in building new infrastructure, once built infrastructure provides a benefit which continues year after year for all whose activity is affected by it, be they residential households, commercial or industrial enterprises.

This implies that the economic benefit of port improvements comes more from its facilitation of trade and industries that depend on it than from its operation and maintenance activities. Over the lifetime of the improvements this facilitation value is likely to far exceed the cost of making the improvements – if it did not the improvements would not be worth making in the first place. The economic assessment of activities seeking consent under both FTAA and RMA therefore needs to consider long term consequences of the proposed change in activities and in maintaining them over time. Assessment of such inter-temporal consequences can be done through a cost benefit analysis (CBA) that compares the flow of benefits over time against the costs incurred in achieving them.

Such CBA is not confined to the measured economy and can also take into account external effects of a project on such issues as impacts on the natural environment or on public health and safety, if it is feasible to do so. As many of those impacts are not managed through markets and it is challenging to attach monetary values to them consistent with market valuations, in RMA settings such impacts are often not given monetary values and decision processes rely on other subject-matter experts to inform on the scale and significance of the effects. This limitation on monetary valuation also applies to FTAA as well as RMA considerations. The economic benefits of the FTAA are principally about impacts on the measured economy, but include economic consequences for activities into the future for both the project and other activities that benefit from the infrastructure it provides.

1.2 Outline of report

In this report, we outline the existing economic environment in which POTL operates, the proposed channel dredging and changes in the economic environment, the economic effects likely from those changes, the economic benefits at risk if dredging consent is declined, and conclude with an assessment of POTL's significance as regional and national infrastructure.

2 The existing economic environment of the Port of Tauranga

Economic assessment of the existing environment for channel dredging rests on assessment of the scale and significance of Port of Tauranga for the regional and national economies. This provides a baseline against which to compare changes brought about by the proposed channel dredging and its consequences for the economy.

2.1 Local economic environment

Tauranga is the largest port by volume throughput in New Zealand, so it has both national and regional significance. This is attested by the New Zealand Ports and Freight Yearbook (Deloitte 2024) and other trade statistics.

The POTL plays an important role in facilitating trade, handling 51% of total value and 40% of gross weight of New Zealand merchandise exports each year. In the year ending June 2025, Tauranga was the largest port by container throughput (40% of New Zealands total) and the largest port by bulk trade (with 26% of New Zealand's total). It had the largest number of ship visits of any port in the country for these two categories of freight (18% of New Zealand's bulk ship visits and 27% of container ship visits and also has the largest area of port operating land and largest container terminal area of any port in New Zealand. POTL and Northport are the only ports that currently accommodate ships of 14.5 metre draught.

Those trade and geographic characteristics give POTL a significant role in being able to accommodate future growth in merchandise trade. But it has shorter wharf length and container wharf length than Port of Auckland, increasing the importance of efficient use of wharf space, including the access and egress of ships berthing at the wharves.

The Port occupies a central location in the City of Tauranga, the largest city in the Bay of Plenty region. Statistics New Zealand's regional gross domestic product series shows that the Bay of Plenty achieved a Compound Annual Growth Rate (CAGR) of 4.8% over the years 2019-2024, down from 6.8% over the years 2015-2024, the highest rate of any North Island region. The region, particularly towards its western side around Tauranga, has experienced sustained growth as part of the Upper North Island's 'Golden Triangle' along with Hamilton and Auckland.

Tauranga City has also experienced sustained growth greater than the national average on many key metrics. Table 1 shows it has achieved higher than national rates of growth in population, per capita income, and total job numbers. But despite long-established and higher annual growth, it trails behind the comparable national averages in dollar terms, for instance average income per household.

Compared to New Zealand at large, Tauranga's industrial structure has a smaller share of primary industries (2.9% compared to 5.8%) and of high value services (24.2% compared to 31.1%), a slightly higher share of goods producing industries (17.7% compared to 17.0%) and larger share attributed to 'Other services' (38% compared to 31%).[4] The city has relatively low proportions of the workforce in the highest paid occupations, and relatively high proportions in lower paid occupations, and a relatively high ratio of dependants (people outside of working age 15-64 years) to working age population.

[4] The balance of these percentages to make them add to 100% are attributed to the accounting categories of "Owner occupied property" and "Unallocated" activities.

Table 1 The economic environment of the Port of Tauranga

Annual figures for year ending March 2025 unless otherwise stated

	Tauranga			New Zealand		
	Number	*% share*	*% Δ*	*Number*	*% share*	*% Δ*
Population at end of June 2025	161,000	3.02%	1.00%	5,324,700	100%	0.7%
Total GDP $m	11,582	2.70%	-1.20%	431,677	100%	-0.9%
Past 10 years CAGR			5.00%			3.0%
Transport/Postal/Warehousing $m	881.9	4.91%	6.90%	17,957	100%	4.0%
Average per capita income $/cap	51,027		5.2%	52,043		3.4%
Mean annual earnings $/job	78,568		4.6%	81,958		4.2%
Average household income $/hhd	129,720		3.50%	132,812		5.7%
Transport/Postal/Warehousing #	4,754	5.6%	5.70%	114,002	4.1%	4.0%
Unemployment	3,735	4.2%		151,660	5.3%	
Total all sectors jobs #	85,335	3.06%	-1.10%	2,772,368	100%	-1.1%

Source: NZIER, drawing on Infometrics (2025)[5]

The Port of Tauranga sits within the statistical sector of Transport, Postal and Warehousing which comes under the Other services category. Transport, Postal and Warehousing in the City employed 4,858 people in year ending March 2024, among which would be the 279 employees recorded in POTL's annual report of that year. In terms of direct employment, therefore, POTL accounted for about 7% of the City's total employment, or 0.3% of national employment as reported in Table 1 above. But in the same year Infometrics reports 677 jobs described under Stevedoring services in Tauranga which will be connected to the Port as contractors if not employees, so POTL's direct labour generation in the local economy could be more than double that recorded in POTL's annual report.

By way of illustration and comparison with city activity, in its 2024 annual report POTL records operating revenues of $417 million and operating expenses of $219 million. These are rough comparisons as revenue is a gross figure, whereas GDP or economic value added is the net of inputs used up, and operating expenses are not all spent within Tauranga. POTL's declared profit of $117 million and its employee expenses of $54 million equate to 1.5% of Tauranga's GDP, and these may be taken as more indicative of the operating surplus and employee compensation that form the bulk of GDP.

POTL is a substantial presence in the context of Tauranga's economy, but its significance goes far beyond the value of its own operations. The value of infrastructure is in supporting other industries to create their own value. The value of the goods crossing the wharf at Tauranga, and the value added they generate with further transformation and use in New Zealand, would be a more complete measure of the value of the Port to New Zealand, compared to which POTL's revenues are only a small contribution.[6]

[5] Infometrics (2025) Tauranga Regional Economic Profile 2024 https://rep.infometrics.co.nz/tauranga-city

[6] value of exports from Tauranga in year ending June 2024 was $29,205 million; and of imports was $10,361 million. These figures were below those for the year ending June 2023, partly due to Cyclone Gabrielle reducing output of key exports such as horticultural and viticultural products.



2.2 Wider economic environment

2.2.1 New Zealand Port Infrastructure

Port of Tauranga is one of 13 ports around New Zealand handling freight and passenger shipping. As previously noted, it has the highest number of visits by both container ships and bulk cargo ships, and it handles the largest volumes of both containers and bulk freight. Tauranga handles about 50% more containers and bulk freight tonnage than Auckland, the second largest port (see Table 2).

Table 2 New Zealand ports capacity and throughput

'Bulk' refers to non-TEU cargo. Figures refer to ports' 2024 financial years; some data for Nelson is not available.

Ports in order of freight volumes	Draught m	Total wharf km	Bulk wharf km	Container wharf km	Bulk mega tonnes	TEU mega tonnes	Bulk ship calls	Container ship calls
Tauranga	14.5	2.8	2.1	0.8	11.6	12	617	701
Auckland	12.5	3.6	2.6	1.0	5.5	6.7	309	624
Lyttelton	13.3	2.3	1.8	0.6	3.4	4.5	453	389
New Plymouth	12.5	1.7	1.3	0.4	3.9	-	254	-
Napier	12.4	2	1.2	0.8	3.5	1.5	236	246
Wellington	11.3	2.9	2.7	0.3	2.7	0.9	196	160
Bluff	7.0	1.9	1.5	0.4	2.6	0.5	259	47
Nelson	10.3	1.2	0.6	0.5	1.9	1.4	561	144
Otago	14.0	2.1	1.4	0.7	1.7	1.5	338	209
Northport	13.0	0.6	0.3	0.3	2.4	0	174	46
Eastport	10.2	0.4			2.4	0	14	18
Timaru	11.6	1.7	1.2	0.5	1.6	-	-	-
Marlborough	13.5	0.6	0.2		0.8	0	44	-

Source: NZIER, drawing from Deloitte's Ports and Freight Handbook 2025

Tauranga has risen to pre-eminence and overtaken Auckland in the past 15 years, with a focus on exporting produce from the central and upper North Island which has the country's most productive primary production from farming, forestry and horticulture and their processed products. Closer to these productive areas and less congested in its inland transport connections, Tauranga is well placed to handle exports and imports to the upper North Island which has some of the fastest growing regions in New Zealand. Tauranga also scores well compared to other ports on a number of measures of port efficiency and utilisation.[7] One area where it does not score so well in comparative terms is in container wharf length, which before the extensions is similar to the container wharf at Napier and shorter than that in Auckland. Its total wharf length is shorter than that in Auckland and in

[7] Deloitte's (2025) Ports and Freight Yearbook https://www.deloitte.com/nz/en/Industries/infrastructure/research/new-zealand-ports-and-freight-yearbook.html

Wellington. This leaves the port that is geographically best positioned to handle trade from highly productive North Island regions somewhat constrained by wharf space. This is being addressed by a separate application to consent wharf extension.

The Port industry in New Zealand faces a number of other challenges, with uncertainty in prospects for international trade and geopolitical stability, with potential trade wars in some quarters and shooting wars in others. Supply chains were strained and disrupted by the Global Financial Crisis in 2008 and again since the COVID-19 lockdowns in 2020. Ports are also exposed to climate change risks, necessitating both a need to adapt and build resilience against rising sea levels and increased frequency of extreme weather events, and also to demonstrate to their markets effective measures to reduce their emissions and decarbonise their activities. For New Zealand at large, a wide range of climate change solutions involve goods that need to be imported, and ports will provide part of the supply chain to enable that to occur.

The solution to these challenges lies in not so much attempting to predict what changes will occur, as in building flexibility and adaptability to what eventuates, to enable effective timely responses. Widening the range of ships that can access its ports is one way to ensure flexibility in meeting future conditions.

Table 2 shows that most other ports in New Zealand are smaller or with less likelihood of accommodating future growth than Tauranga. The Port of Auckland is long established and well positioned for importing to the country's largest city, but there is debate over the suitability of its current port location and what might replace it if it were to be relocated. Northport has expansion plans for its business now that closure of the Marsden Point Refinery has reduced the traffic of tankers in and out of the harbour, and it has natural deepwater berths that could handle larger ships. But located in Northland it has a restricted hinterland and tenuous land transport links that have proven susceptible to closure in extreme weather events.

Given its geographical location, size and ability to serve market demands as evidenced by its recent growth to be the largest port in New Zealand, and the likelihood of increasing demand for its services from around the North Island, the Port at Tauranga is a significant component of port infrastructure of national importance.

2.2.2 International shipping trends

As outlined in the New Zealand Shipper's Council's Big Ships reports (2010, 2012) the trend in international shipping towards use of larger freight ships has been well signalled over many years, and featured prominently in earlier consent applications for Port of Tauranga dredging in 2011 (granted 2013). That trend has implications for ports and land transport connections, although primarily originating with international shipping companies.

The increase in size of merchant ships is long established, driven partly by economic factors and partly in response to regulatory changes. Ship-building has provided larger ships as it has gained the technical capability to do so, and to include more fuel efficient engines. As vessels became bigger, capable of carrying larger loads, more fuel efficient and also faster, the cost per unit freight carried came down compared to older, smaller ships. Larger vessels also make requirements of port infrastructure to accommodate them, such as sufficient depth in navigation channels, bigger cranes, larger berths, robust systems and automation, and adequate storage space for loading and unloading freight. This has favoured a hub and

spoke pattern of shipping, with the largest vessels serving the main shipping hubs and smaller vessels serving ports in more outlying destinations.

For shipping companies, the significant economies in fuel and operational costs for running larger modern ships have been reinforced by recent events. One was the introduction of the United Nations' International Marine Organisation's MARPOL VI, a set of regulations covering emissions to air, which since the 1990s has required ships to lower their sulphur emissions when operating in designated Emission Control Areas along the coasts of Eastern North America, Europe's North Sea and Baltic, and Asia's East China Sea. Ship operators can comply by using low sulphur fuel which is more expensive than heavy fuel oil which favours newer, larger and more fuel efficient vessels; or by fitting sulphur scrubbers to their exhaust stacks, which also favours newer, larger ships with longer expected economic life ahead of them to recover their cost of retrofitting. Since January 2020 the low sulphur rule has been extended to all open ocean shipping, creating incentive to retire older or smaller ships that for which compliance is less economically viable.

In 2020, COVID-19 disruptions to production and trade volumes gave ship owners further incentive to rationalise their fleets and retain only the most cost effective vessels. As facilities available at ports differ by region and country, the type of vessel suited to trade lanes is determined by the constraints of infrastructure and equipment at each destination, as well as by the volume of merchandise trade to be shifted between them. Ordering of new larger container ships may result in oversupply on some routes and dampen the profitability of larger ships, and rising costs for infrastructure upgrading may check some of impetus to larger ships.

Ships accessible to Tauranga are not in the mega-size range but include those up to the 347 metre length ship identified by the Big Ships Reports by the New Zealand Shipping Council as likely to be common on the routes used by shippers to New Zealand. Tauranga has the only North Island port currently capable of accommodating these vessels, although Auckland holds a dredging consent that could provide the necessary depth in future. The hearing into consenting POTL capital dredging in 2011 had already identified a number of risks in not providing capacity to accommodate such ships: New Zealand could be by-passed and served by smaller ships with transhipment to larger vessels in deeper water hubs in Australia, lengthening the time in transit to overseas destinations and shortening the shelf life of New Zealand produce in those distant markets.

POTL has a commercial interest in improving its ability to handle ships of a size operating on the trade lanes to New Zealand, but there are also benefits that spill over to the wider community in the hinterland of the port. These include:

- Maintaining access for ships at all states of the tide reduces the time ships spend waiting at sea outside port for a berth to become available also reduces the cost of carriers servicing New Zealand, which will be recognised by ship owners and be passed on to customers as lower freight rates, given a competitive market for shipping.
- The economic consequences of better freight rates and better timing of shipping include increased profitability of exporters from New Zealand, increasing their operating surplus and ability to invest in further economic activity; and also likely improvement in wages for employees, especially at a time when labour supply is constrained and many industries are having to find incentives to attract and retain staff.

3 The proposed channel dredging and changes to the economic environment

The Stella Passage already has the depth and width to enable access by ships of the larger size expected to predominate in future trade: 347 metres length, 48 metres beam and 14.5 metres draught. But without capital dredging, tides restrict that access to around high tide, and no vessel can be present on the northern end of Sulphur Point, causing potential for delay and costs for port operations, shippers and their customers within New Zealand.

Capital dredging is in the process of being undertaken under existing consents. Even with capital dredging, maintenance dredging will be required in the main channel to provide sufficient depth to allow safe access to the port for ships at all states of the tide. The maintenance dredging is required to secure the economic benefits of improved access provided by the capital dredging. In other words, the realisation of benefits from capital dredging depend on sufficient maintenance dredging being done in the future. If future maintenance dredging is insufficient and ship access is constrained, there will be an opportunity cost in forgoing some of the economic benefit of the capital dredging.

To illustrate the nature of that opportunity cost, the section below examines the sources of benefit expected from the capital dredging. When completed the capital dredging will have two principal consequences:

- Providing sufficient depth and width to allow safe berthing by the larger ships at all states of the tide
- Providing sufficient width in the Otumoetai Channel at the northern end of the Sulphur Point Wharf to enable ships to be safely berthed at the container wharf, even when a ship is already berthed at the northern end of the Sulphur Point Wharf.

Without those two capabilities, economic consequences arise because of:

- Time loss, in waiting for tides to rise sufficiently to enable safe passage by deeper draughted large ships
- Delayed access to and egress from the wharf which reduces the capacity of the wharf to turnaround as many ships at the wharf
- Reduced capacity if only two large ships or smaller ships can be berthed at the container wharf to leave free space to enable vessels to maneouvre
- Reduced value of services deliverable by POTL over the course of a year, which also reduces the spending and incomes circulating in the local community because of POTL's operational expenditures which vary with throughput
- Reduced throughput also lowers the availability of timely shipping services, either for exporting New Zealand produce (some of which, such as chilled food products, are sensitive to delays that reduce their useable shelf life in distant overseas markets); also for timely delivery of imports to be used as inputs to value adding processes in New Zealand, or for final consumption.

3.1 The situation with and without dredging

According to Deloitte's Ports and Freight Handbook (2025), in year ending March 2024 there were around 624 ship visits to POTL's container terminal, and 617 bulk cargo ship visits. This is equivalent to roughly two ships a day on average at the container terminal, which coincides with the constraint posed by the current container wharf: at 770 metres long it can only accommodate two average-sized ships at a time. POTL is pursuing under different consent applications a wharf extension to enable three ships of up to 347 metres to be berthed concurrently, which will increase the port's container handing capacity.

If channel depth is not maintained by dredging, ship access to the wharf is constrained, so that delayed ship movements and lower freight throughput would lower the efficiency of use of the wharf, as well as lowering the return on investment at the Port. Lower and slower freight throughput also imposes costs external to the Port, as exporters and importers would face delays in dispatching or receiving their cargoes. Those delays also affect the wider community across New Zealand, with delays in obtaining their imported goods and also potentially lower returns from exports.

The economic choice over channel dredging is one between dredging that would allow the container wharf to be used to its fullest capacity, with minimal time loss or tide constraint on when ships can be berthed at the wharf; or alternatively restricting dredging that would allow gradual accretion of material in the channel that would limit how and when to access the wharf, with a reduction in big ship utilisation of the wharf. Without maintenance dredging, the current capacity of the wharf will diminish over time, creating an opportunity cost for port operation and flow on effects across the economy. The benefits of new wharf extension and its capacity increase will also be diminished if maintenance dredging of the channel is not consented, restricting access in the long term for larger ships and the efficiencies they enable.

3.2 Illustrating the effect of not consenting dredging

In an earlier NZIER report on Economic impact of wharf expansion (2023), NZIER used computable general equilibrium ('**CGE**') modelling to estimate the inter-industry effects of constraints on the capacity of Tauranga to handle expected growth in freight flows.[8] Although restriction on the current application's mainly maintenance dredging will have different effects, this earlier modelling can be referred to as indicative of the economic impact of constraints on port access and operations which detract from the planned benefits of wharf expansion.

Deloitte's Ports and Freight Handbook (2024) indicates that the Port of Tauranga currently handles about 1.18 million TEUs per year. NZIER (2023) is based on POTL estimates that current capacity constraints range between 1.3 and 1.4 million TEU. POTL's planned wharf extensions and associated land-side infrastructure is intended to enable the Tauranga Container Terminal to increase its capacity to around 2.6 million TEUs per year.

In their 2023 report, NZIER estimated that POTL would reach full capacity by 2027 under a capacity constraint of 1.3 million TEU, and by 2029 under a capacity constraint of 1.4 million TEU. It used its CGE model of the regional and national economies to estimate the impact in ten years if there were no wharf expansion. This modelling allows the flow on effects of the investment, or the opportunity costs of non-investment, to be captured across the regions

[8] NZIER (2023). Economic impact of the wharf capacity constraint on the regional economies. A report for Port of Tauranga Ltd.

and sectors of the New Zealand economy. Estimates of changes in economic activity derived from this CGE modelling account for offsetting effects caused by an increase in one activity having adverse effects on another (e.g. increased demand for inputs by the new industry increasing the input's price and hence costs to other industries that use it, to the detriment of their profitability, production and future investment capability). Any values cited are therefore estimates of net (not gross) scale of economic impact.

3.2.1 Wharf restriction markedly reduces regional and national economic activity

The absence of dredging would be a different level of restraint on port activity from the previous modelling of wharf extension, but the modelling results are still indicative of the scope of effects of restrictions on the wider economy. Without the wharf expansion, the CGE modelling indicated that under a capacity constraint of 1.3 million TEU, annual GDP across New Zealand would be lower by $749 million in 2032. Of this decrease, Tauranga would account for $50 million. If the current capacity constraint was 1.4 million TEU, the annual GDP across New Zealand would be lower by $485 million, a difference in impact of $264 million. The smaller the current capacity of the wharf, the greater the difference the wharf expansion would make to economic activity.

While absence of wharf expansion has impacts on both exports and imports, the impact on the export side is relatively greater because the trade through POTL is predominantly in exports. With a capacity constraint of 1.3 million TEU, export revenue would be lower by $2.78 billion, while annual imports would be lower by $2.51 billion. This result reflects both the effect on trade flows of wharf expansion not taking place, and the reduced demand for imports in New Zealand as a result of lower production.

The modelling also identifies particular sectors most affected by the absence of the proposed wharf extensions. Among the 18 industries in the model, demand for labour drops the most in the fruit and vegetable industries (i.e. -$0.9 million under 1.4m TEU, and -$1.3 million under 1.3m TEU) in Tauranga and dairy products suffer the most reduction in labour income for New Zealand (-$60.2 million under the capacity constraint of 1.4m TEU, and -$89.2 million under the capacity constraint of 1.3m TEU).

The sectors most affected by failure of expansion limiting annual volumes to 1.4 million TEU would be dairy products, fruit and vegetables, meat products, wine and oil products, with a loss of labour income of $60 million for the dairy industry nationwide. If limited to 1.3 million TEU, loss of labour income by sector would be higher at $89.2 million.

Table 3 presents modelling results for impacts on labour incomes by affected industry.

The table shows some large differences between the size of impacts on labour in the Tauranga economy and in the New Zealand-wide economy: for instance, dairy production is a significant industry at national level but does not even exist within Tauranga city. The table ranks industries in Tauranga in descending order of impact size, but the rank ordering at national level would be quite different, with dairy production impacts having the largest impact, meat products moving to third highest impact behind fruit and vegetables, and other industries like wine and oil products having much higher impacts nationwide than they do within Tauranga city.



Table 3 Wharf constraint impact on labour income by affected industry

$ million impacts compared to unconstrained wharf

Industry impacted	Tauranga impacts		New Zealand-wide impacts	
	1.4m TEU	*1.3m TEU*	*1.4m TEU*	*1.3m TEU*
Fruit and vegetables	-0.9	-1.3	-36.8	-55.5
Liquid	-0.8	-1.2	-1.7	-2.4
Oil products	-0.7	-0.7	-13.3	-13.3
Logs	-0.5	-0.7	-9.9	-15.1
Wood panels	-0.3	-0.4	-6.6	-10.1
Fertilisers	-0.2	-0.3	-1.4	-2.1
Wine	-0.2	-0.3	-13.4	-20.4
Beverage and water	-0.1	-0.2	-7.6	-11.5
Grain	-0.1	-0.2	-1.6	-2.5
Meat products	-0.1	-0.07	-29.5	-44.4
Steel	-0.05	-0.07	-6.6	-9.9
Paper products	-0.02	-0.03	-8.2	-12.5
Cement	0	-0.01	-1.7	-2.6
Dairy product	0	0	-60.2	-89.2

Source: NZIER (2023) Economic impact of wharf expansion given current capacity constraints

These results indicate a high opportunity cost for the New Zealand economy from POTL not getting full use out of its expansion of the wharf. But the same issue of inability to make full use of infrastructure also applies to the existing wharf, regardless of whether or when wharf extensions occur. The absence of maintenance dredging over the long term creates a constraint on access to the wharf, limiting access to only some states of the tide, especially for larger ships. That is a constraint to a substantial part of New Zealand's port infrastructure, the avoidance of which would be consistent with the purpose of the FTAA.

3.2.2 Implications of the wharf extension results for dredging

The economy-wide opportunity costs of wharf expansion not occurring are the benefits that would be realised if expansion did occur. Those benefits are predicated on there being access to the extended wharf at all states of the tide irrespective of the configuration of ships berthed at the wharf, which is provided by capital dredging and retained with maintenance dredging. So failure to consent maintenance dredging would restrict access and detract from some of the proposed wharf extension benefits being realised.

The discussion of wharf extension here is provided as an illustration of the scale of opportunity cost and benefits forgone if restrictions on dredging constrain the access to the port and lower the use of its infrastructure. As New Zealand's largest port, any undue restriction on its operations or ability to accommodate expected growth in future trade has significant impact on regional and national economic activity. Such loss of regional and national economic benefit is what the FTAA has been enacted to avoid, and the modelling of impacts of such a constraint, and how its impact spreads through the economy, is

informative of the potential scale and significance of restrictions arising from not consenting maintenance dredging to ensure continued access to the port.

The current 770 metre container wharf accommodates about 700 ship calls a year, around two ships a day on average (Deloitte 2023). It is long enough to berth two ships at a time, even large ships up to 347 metres length. Two such ships berthed at the current wharf would leave around 70 metres free space which, if at the end of the wharf, ships can use for turning when berthing. This current arrangement allows an annual capacity of 1.3 million to 1.4 million TEUs across the wharf each year.

POTL's wharf extensions would add 385 metres of wharf to bring its total length to 1,155 metres. This would enable 3 ships to be berthed at a time, although in practice, one or more would need to be smaller than 347 metres to allow gaps for effective mooring of three ships. A mix of vessels of different sizes is the norm most of the time, but larger ships are expected to become more frequent in future.

Lengthening the wharf will enable three ships of mixed sizes to berth concurrently and help raise the annual throughput to 2.6 million TEUs. But larger ships with deeper draught will be the first to face constraints on wharf access in the absence of maintenance dredging.

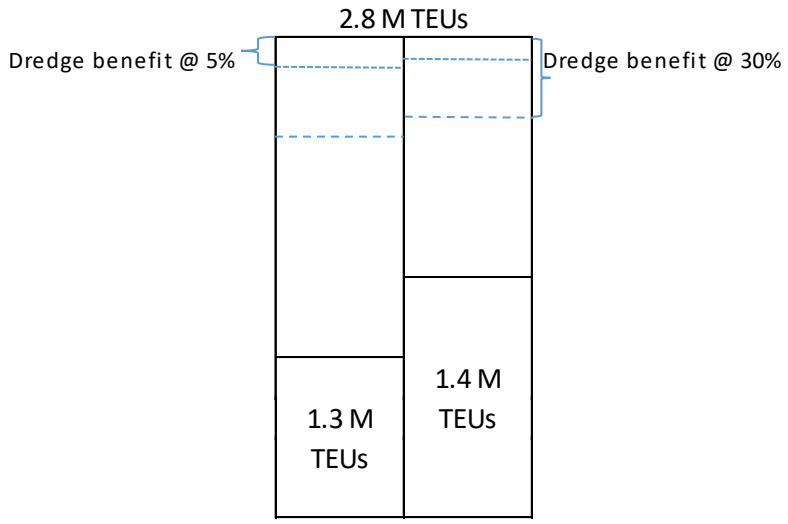
Without dredging, the utilisation and efficiency of the wharf space would be lower than with it, because:

- Berthing would be limited to fewer ships or smaller ships, resulting in lower annual throughput of TEUs across the wharf
- Shipping costs may also go up with smaller ships and or delays in access to the wharf, waiting for berths to become vacant or for high tides to enable access, and these will be passed to customers in New Zealand
- International shipping companies may switch to sending smaller vessels to New Zealand that are less constrained by draught requirements, which will increase not only the costs per tonne carried but also environmental impacts of those ships such as greenhouse gas emissions and discharges affecting local air quality and water.

This implies that the expected benefit of future wharf extension could be curtailed to some degree by the lack of maintenance dredging that constraints access to the wharf. That would be roughly in proportion to the annual tonnage handled across the wharf, so the proportional reductions could be applied to the estimated economy-wide benefits of the wharf to obtain an opportunity cost of dredging not being consented.

Figure 2 illustrates that proportional reductions in wharf benefits due to dredging not being consented will be larger against a base throughput of 1.3 million TEUs than they will be against a base throughput of 1.4 million, assuming the maximum achievable throughput is the same for each initial baseline. Whether the reduction will be 5%, 30%, 50% or more is uncertain as it depends on physical characteristics of the channel and factors such as international shipping schedules and the extent to which constraints can be alleviated by logistical juggling of the arrival of ships of different sizes at the wharf. But given the large benefits of wharf extension estimated in the nationwide modelling above, proportionate reductions due to dredging restrictions could also be significant and have potentially far-reaching effects on the characteristics of shipping services available in New Zealand.

Figure 2 Proportionate reductions in the benefits of extended wharf in the absence of dredging



Full wharf extension benefit in 2032

	$m	*$m*
	749	485

Proportional dredging benefit in 2032

	$m	*$m*
5%	37	24
30%	225	146

Source: NZIER

3.2.3 Economic effect of constraint depends on physical characteristics

How much smaller a partial constraint from lack of dredging would be depends on a range of variable factors. The principal questions needing corroboration with other experts are:

- With cessation of maintenance dredging consents, the rate at which accretion of material compromises the channel's capacity for shipping access and operations i.e. the length of time before the channel changes shape and depth sufficiently to prompt use of mitigation measures by shipping, such as:
  - waiting outside the channel for an entry interval around high tide
  - approaching the channel with less than full load, to reduce the draft of ships navigating the channel
  - companies sending smaller vessels on the routes to Tauranga;
- the feasibility of characterising expected future effects in numeric terms, e.g. the percentage loss of channel capacity or annual ship arrivals by specific future dates

The size of the constraint imposed on the Port of Tauranga by decline of all or part of the dredging consents depend on the geophysical characteristics of the channel and on the expectations of shipping company executives in other countries. Expected changes to annual volume and value of goods shipped through the port are crucial inputs to detailed

assessments. So too are significant changes to port operations arising from what may be a constraint on the tonnage arriving and departing from the port.

However, despite uncertainty around the numerical scale of effects of constrained access on throughput volumes of trade at the Port, the direction of impact of not consenting dredging is clear: at some point in future deposition in the channel will degrade access to the port of ships of the most economic size to carry exports and imports, and reduce volumes and value of activity through the Port. This applies to maintenance dredging as well as to capital dredging.

The economic consequences of restriction of dredging include not just reduced value, profitability and capital utilisation at POTL, but also similar restrictions on the timeliness of access to shipping for all of the port's customers, forgoing economic benefits at both regional and national level. The benefits of wharf expansion to meet the demands for port services in New Zealand's fastest growing region in the upper North Island would be forgone, not just for POTL but for all New Zealand, as there are no alternative ports with sufficient depth and proximity to the region to provide port services without incurring additional costs of longer inland transport and associated environmental effects.

3.3 Other economic effects not included in the modelling

If there are significant impacts on POTL's freight throughput there may be some diversion of trade to other New Zealand ports. Increased throughput may provide those ports with a gain in capacity utilisation and efficiency to offset other negative costs. But the critical metric is the impact on cost across the total supply chain of shipping, port handling and transport in and out of port. Most trade that would otherwise have used Tauranga but is diverted to other ports is likely to face increased cost of inland transport and/or warehousing. A detailed modelling of trade diversion is beyond the scope of this current assessment and likely to be challenged as speculation.

Previous modelling of wharf extensions indicates there would be significant opportunity costs from the extension not proceeding, and even a partial constraint caused by lack of dredging – such as reducing the gain from the extended wharf by a third – would have a roughly proportional increase in opportunity cost, a significant loss of potential value gain.

Economic costs of trade diversion include not just the additional resource costs of carriage to more distant ports, but also associated environmental costs, some of which can be valued (such as greenhouse gas emissions per additional tonne-kilometre travelled) and some of which can only be approximated (such impacts on local air quality and run-off into waterways, the adverse effects of which depend on the condition of the local receiving environments they pass through).

While economic methods have been devised to infer dollar values for such non-market considerations, the more reliable ones are context specific and can be expensive to implement. They have been rarely done in New Zealand and there is only limited ability to infer values at one location from analogous values estimated elsewhere. Because of the scarcity of such valuations and difficulty of corroborating results from other studies, non-market valuation methods have rarely been relied upon in RMA proceedings, in which it is more usual to rely on subject matter experts to assess the significance of effects.



This report does not delve further into these matters other than to note that non- market value estimates of adverse environmental effects often appear low compared to the opportunity costs of not proceeding with an investment with positive return.[9]

[9] That may be because the non-market valuation methods used are incompletely scoped and do not cover the most difficult to quantify intangible effects; or it may be due to adverse effects that deeply affect a minority of the population are overwhelmed by small beneficial effects experienced by a large majority that are only slightly touched by and indifferent to the adverse effects.



4 Assessment of economic effects

Sections 2 and 3 above have outlined the current situation of Port of Tauranga and its significance for the city and national economies. POTL is a substantial presence in the economic activity of Tauranga city whose significance is far greater than is suggested by the size of the port company's accounts: as a piece of infrastructure its full value is in supporting other industries in producing their value, so its efficient operation contributes to the value added of all industries whose goods are exported or imported through POTL.

As the port shifting the largest volumes of containers and bulk goods within New Zealand, POTL has national as well as local significance. That is reinforced by its geographic characteristics in terms of proximity to highly productive upper North Island regions and by having deepwater access capable of accommodating larger ships of the size that is expected to predominate in New Zealand's future trade. With the exception of Auckland that has dredging consents to enable access for these ships, other North Island ports are currently smaller and unable to accommodate them, or less well positioned and face greater hurdles in efficiently dealing with future growth in the upper North Island. And as POTL's most accessible hinterland in Waikato, Bay of Plenty and Auckland accounts for around 52% of GDP in 2024,[10] POTL is a nationally significant infrastructure.

That significance is attested in the provisions of the Regional Coastal Environment Plan, in which the Port area is zoned for Port activities and has two directly relevant objectives:

- 52: "The current operational needs of the Port of Tauranga are provided for as a matter of priority while avoiding, remedying or mitigating the effects of those activities on cultural values and the environment"; and
- 53: "The future expansion and operational needs of the Port of Tauranga and its shipping channels are provided for in appropriate locations, having regard to the potential adverse effects on the environment".

However, POTL faces challenges of its own in terms of constraints on its container wharf and container terminal and ability to meet expected growth in demand in container trade. Hence its planned extension to its Sulphur Point container wharf to enable it to berth three ships at a time, improving the utilisation and efficiency of its physical port facilities.

Realising those efficiencies depends on being able to move ships safely into and out of the container berths, at both high and low tide and regardless of where ships are berthed. That requires some capital dredging in the existing channel to to enable safe navigation of ships and to improve accessibility to the wharves at all states of the tide for the largest ships currently accessing the Port, and recurring maintenance dredging to secure the accessibility over time. . And the dredged material needs to be deposited safely in the coastal marine area with minimal environmental impact in areas currently used for that purpose.

If maintenance dredging is not consented, there is increased likelihood of channel deposition over time, causing delays in bringing larger ships into and out of berths and reducing capacity for cargo handled across the wharf each year. This would place a constraint on POTL's operation that negates some of the benefits expected from both the proposed container wharf extension and the existing wharf.

[10] Statistics New Zealand https://www.stats.govt.nz/information-releases/regional-gross-domestic-product-year-ended-march-2024/



Modelling conducted by NZIER (2023) of inter-industry impacts of different levels of capacity constraint on POTL's container handling found significant opportunity costs associated with such constraints, compared to easing constraints with wharf extensions. Similar effects can be affected if wharf extensions are constrained by limits on dredging.

The modelling indicated high opportunity cost for the New Zealand economy if the wharf expansion did not occur: annual GDP in 2032 would be $749 million lower than with wharf extension if the current wharf constraint is 1.3 TEU million per year. It would be $485 million lower than with wharf extension if the current constraint is 1.4 million TEU per year. The effects are spread widely through the economy, with many industries in Tauranga city and in New Zealand at large facing reduced production as a result of port capacity constraints.

Absence of consent for dredging may not have precisely the same result as that modelled for wharf extension. But absence of maintenance dredging will restrict access to berths in the long term, restricting the port's cargo throughput, its efficiency and the return on investment in wharf extension and improvement.

Beyond the impacts within New Zealand there is an international dimension to dredging. International shipping companies are moving to using newer, larger ships that are more fuel efficient and often more environmentally friendly than older, smaller ships previously used. But the advantages of larger ships are negated if constraints on port infrastructure force delays on their schedules. There is a risk for New Zealand if its ports cannot provide the timely berthing and turnaround expected by the larger shipping lines. There is a risk of shipping lines not sending their larger ships to New Zealand, substituting them for smaller ships with higher costs per tonne kilometre carried which will detract from the economic surplus earned by New Zealanders from their traded goods.

Channel dredging is consistent with efficient use of the physical resources of the port. In achieving higher throughput it will also produce higher incomes for New Zealanders, both in the port operation and in industries that use the port. Conversely, failure to consent channel dredging would have opportunity costs, and while this report does not claim to predict them precisely, it has demonstrated that they could be significant loss of incomes and contrary to provision of community wellbeing.

4.1 Caveats on the estimates

The CGE modelling reported above is not a forecast of what will happen. Rather, it estimates impacts of given restrictions in new wharf space applied to an economy with the industrial composition and characteristics of the inter-industry model, which is based on Statistics New Zealand's latest inter-industry transaction tables. The modelling estimates effects in 2032 with and without the productivity gains that the wharf extension would bring. By 2032, new industries may have emerged, and economic conditions may change, but attempting to forecast such changes would obscure the effect of consenting or not consenting wharf extension and the dredging implicit in fully utilising that infrastructure. The modelling is based on current industry structure and interactions to focus on the with/without comparison undistorted by other exogenous changes in the economy.

This assessment focuses on effects on aggregate incomes, not those on particular occupation categories or subsets of the population. This is because disaggregating of labour and income impacts is difficult to do without creating a misleading sense of precision in results which are not intended to be forecasts.



5 Conclusions

POTL is the largest port in the country in terms of volumes traded, and it occupies a geographical location that can serve the fastest growing parts of the country. It is both a regionally and nationally significant set of infrastructure facing constraints on its capacity, which the new container wharf extension can alleviate with high potential economic gain.

Maintenance dredging of the channel is necessary to enable ships to continue to safely access the port area. Such dredging alleviates a constraint on port activity caused by ships, especially larger ones, which without dredging would limit their movements to periods around high tide. Dredging reduces inefficiency in use of infrastructure, both on the existing wharves and the proposed wharf extensions.

To the extent that failure to consent dredging reduces the attainable benefit it would create an opportunity cost (or benefit forgone) detrimental to both the efficiency of the port and the economic hinterland that depends on it, and to income earning within the economy as a component of community wellbeing.

Such opportunity costs are directly in conflict with the purpose of the FTAA which is about enabling the delivery of significant economic benefits at regional and national levels. The scale of POTL activity in Tauranga and Bay of Plenty indicates the opportunity costs are significant at the regional level. The potential constraint on activity at the largest port in the country located next to one of the country's most active areas of economic growth, and the lack of feasible alternatives indicates that the dredging has significance at national level. Maintenance dredging is required to secure the benefits that capital dredging can provide in enabling communities to provide for their wellbeing and efficiently use the port's resources.

This report demonstrates that the opportunity cost can be significant, for the port company and its client industries, for the city of Tauranga and for the country at large. It does not attempt to quantify other environmental effects that may have economic consequences, leaving it to experts from other disciplines to determine their significance.