

CentrePort Shipping Channel Deepening Project

Assessment of Environmental Effects– **OPERATIONS AND
COMMERCIAL**

Date: May 2016

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Version status: Draft for Public Consultation

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1. EXECUTIVE SUMMARY

- 1.1 CentrePort's goal is to be the port of choice for Central New Zealand¹ and to efficiently connect Central New Zealand's producers and consumers with the world. This ongoing cargo connection is essential to the prosperity of Central New Zealand's economy. Enabling CentrePort to accommodate larger ships² will maintain, and provide for the future connection of, Central New Zealand's cargo links to the world.
- 1.2 Central New Zealand's cargo of approximately 400,000 - 500,000 TEU is most efficiently³ serviced by CentrePort, making it the logical hub port for Central New Zealand. Through the daily CentreRail service, CentrePort services remote regions throughout Central New Zealand more efficiently than other ports. The current and ongoing State highway 1 upgrades as a result of the Government's Wellington North Corridor Road of National Significance projects will deliver considerably enhanced cargo efficiency and journey time reliability. These excellent transport networks enable CentrePort to provide the least cost island transport cargo linkage to Central New Zealand.
- 1.3 The efficient rail and road transport networks, combined with CentrePort's latent capacity, high productivity, low expansion costs, centrality, intermediacy with north/south shipping routes, balance of trade (imports and exports⁴) and a substantial Central New Zealand market, enable CentrePort to provide significant shipping network and economic benefits to the Wellington Region, Central New Zealand and New Zealand as a whole.
- 1.4 The arrival of larger ships from late 2016 will deliver a generational change to New Zealand's national and international cargo networks. Larger ships enable greater aggregation of cargo and this is likely to lead to fewer 'hub' ports.
- 1.5 If Central New Zealand cannot provide a cargo connection with the world that cargo connection will move north. For businesses in Central New Zealand this will significantly increase internal shipping costs reducing returns and jobs. There will be a point beyond which the increase will result in businesses either changing their business activity, moving their business closer to the hub port (and away from Central New Zealand), or closing their business. Producers who cannot readily shift closer to hub port, or who are time sensitive, such as the agriculture base of Central New Zealand, will be particularly vulnerable to this change. Consumers in Central New Zealand will face increasing product costs reflecting the significant increase in shipping costs for imported goods.
- 1.6 Should CenterPort not be able to accommodate larger ships then the Wellington Region will be the most affected in New Zealand by increased internal cargo costs resulting from the arrival of larger ships. For the Wellington Region the change from the Status Quo port structure would involve an increase in total internal cargo costs by greater than 100%, with reduced, but still significant, increased costs for the Manawatu, Taranaki and Tasman/Nelson/Marlborough regions.⁵

¹ For the purpose of this report central New Zealand includes the Taranaki, Hawke's Bay, Manawatu/Wanganui, Wellington, Tasman, Nelson and Marlborough regions.

² Larger ships are used in this report as container ships with a greater container (TEU) capacity than those currently visiting New Zealand (which are up to 4,500TEU), and typically of 6,500 TEU size or greater.

³ There is a specialist, largely seasonal, cargo located in close proximity to the Port of Napier that is efficiently serviced by that port.

⁴ CentrePort is the only balanced trade port in Central New Zealand. This avoids shipping empty containers and enables CentrePort to provide shipping lines with greater revenue per box.

⁵ Future Freight Scenarios Study, November 2014, Figure 28.

- 1.7 The outcomes of the 2014 Future Freight Scenarios Study show that without a Central New Zealand port call Central New Zealand shippers face significant increases in costs, with the Wellington Region the most affected. In addition if the project does not proceed CentrePort's commercial viability will be significantly affected.
- 1.8 Larger ships also require significantly upgraded infrastructure to, and at, ports to efficiently aggregate and shift large volumes of cargo. The 2014 Future Freight Scenarios Study concluded that the potential benefits of larger ships on the New Zealand economy were outweighed by the infrastructure costs.⁶ However, CentrePort benefits from a naturally deep harbour and its excellent (and improving) rail and road connections. Except for deepening the shipping channel at the harbour entrance, and at the berth, CentrePort already has the port infrastructure capable of handling larger ships. This makes CentrePort one of the least cost ports to develop to service larger ships.
- 1.9 New Zealand's current total container trade is sufficient to support two Upper North Island ports with approximately 1,600,000TEU, a South Island call (excluding Nelson which is much closer to Wellington and has no rail connection) with approximately 560,000TEU, and a Central New Zealand port (which includes Nelson and Marlborough) with approximately 400,000 - 500,000 TEU. CentrePort's aim is to be the port of choice for Central New Zealand in a 3-4 or 4-5 port larger ship strategy which includes 1-2 Upper North Island call(s), 1-2 South Island call(s) and 1 Central New Zealand call. The proposed 3-4 or 4-5 port larger ship strategy provides the key trade areas in New Zealand with a hub port while local efficiencies remain for specialised local cargo ports, such as the Port of Nelson.
- 1.10 To participate as a sustainable port into the future, CentrePort must complete the last step in its upgrade programme by deepening the shipping channel in Wellington harbour. The Shipping Channel Deepening Project provides CentrePort, and the Central New Zealand shippers, with the certainty that the port will be able to continue to efficiently service the international shipping requirements of Central New Zealand.

2. PURPOSE

2.1 This report provides an introduction to CentrePort and the commercial context for the Shipping Channel Deepening Project. This report is split into two parts:

(b) **Part A** provides:

- (i) the background to the shipping industry, ports in New Zealand and CentrePort; and
- (ii) an overview of CentrePort's current operations;

Part B explains:

- (i) the global shipping trends of larger ships;
- (ii) the consequences of larger ships to New Zealand and Central New Zealand and the benefits of CentrePort being capable of accommodating larger ships;
- (iii) the reasons why CentrePort is ideally placed to provide future larger ship operations; and

⁶ Future Freight Scenarios Study, November 2014, prepared for the Ministry of Transport by Deloitte. This adverse effect on the New Zealand economy of bigger ships was reduced by retaining a Central New Zealand port.

- (iv) the commercial parameters for the Project.

3. EXPERIENCE

- 3.1 I am the Chief Executive of CentrePort Limited Wellington. From August 2012 to December 2015 I was General Manager Commercial at CentrePort.
- 3.2 I have over 20 years' experience in various areas of the shipping industry and international trade. I have a Master's Degree in Commerce from the University of Otago and I am a published academic author in port and shipping related research. I was the General Manager, Market and Strategy Development for Delta Utility Services from 2011 to 2012. From 2006 to 2011, I was the Marketing Manager for Lyttelton Port Company. I was the Director of Executive Education for Otago University from 2001-2006. From 1998 to 2000 I was a consultant for SouthPort NZ Limited, prior to which from 1995 to 1997 I was the Business Development Manager for SouthPort NZ Limited.

PART A

4. BACKGROUND

Introduction

- 4.1 Global shipping networks are vital to New Zealand's economy as they enable international trade. The 2014 Future Freight Scenarios Study for the Ministry of Transport states:⁷

"Transport is essential to New Zealand's ability to engage in international trade. The quality and frequency of international shipping services is critical to New Zealand's ongoing competitiveness in global markets."

...

"As 99.5% of New Zealand's trade by weight is shipped through seaports, the economy is heavily reliant on the international shipping industry."

- 4.2 The 2015 Transport and Trade Report states:⁸

"A key barrier to New Zealand's success is its geographical remoteness and distance from world markets. As a trading nation we are further from our markets than any other OECD country. This means that our exporters have a significant cost and time disadvantage to make up every day their goods travel. In 2009 the World Bank noted that, in terms of sea freight, every day away that country is from its trading partners means a one percent reduction in probability that its trading partners will purchase goods from that country."

- 4.3 A summary of the shipping industry and New Zealand's port network is set out in **Appendix 1**. Presently 9 New Zealand ports are involved in the international container trade. New Zealand ports have evolved from servicing regional economies.
- 4.4 In the past 20 years, the New Zealand port network has seen an increase in container volumes, container vessel sizes and shipping services. The increase in container volumes has been driven by

⁷ Future Freight Scenarios Study, November 2014, at page 5.

⁸ 'Transport and Trade' Report, Ministry of Transport, June 2015, at page 2.

strong trade growth and a modal shift towards increased containerisation of cargoes. New Zealand container volumes have increased by 36 percent from 2009 to 2015⁹. New Zealand's freight task continues to grow and the National Freight Demand Study forecasts an increase in freight tonnage of around 58% over the next 30 years.¹⁰ The median size container vessel to visit New Zealand has increased by 76% from 1,700 TEU in 2007 to 3,000 TEU in 2013¹¹.

- 4.5 Throughout the New Zealand shipping network ports are preparing for the larger vessels. The Port of Tauranga will become 6,500 TEU and over capable by August 2016¹². The Port of Tauranga is also investing in two super post-Panamax gantry cranes (for handling wider ships). Port Otago has commenced dredging and infrastructure works to become 6,000 - 8,000 TEU capable by the end of 2016.¹³ Port Lyttelton is committed to a new deep water berth and the Port of Napier is now exploring resource consents for dredging to a depth of 14.5m to enable larger ships.¹⁴

CentrePort

- 4.6 In 1839 the initial Port of Wellington was established on the northern side of Port Nicholson Harbour at Petone. This site quickly proved unsuitable as flooding from the Heretaunga River left the land damp and unusable as a port. A decision was made to move the port to the Thorndon / Te Aro area where it remains today. The initial port was expanded significantly by various reclamations over the years.
- 4.7 In 1988 the port was corporatized from a local authority, going from the Wellington Harbour Board to Port Wellington Limited. In 1999 Port Wellington Limited changed its name to CentrePort Limited. CentrePort is a Port Company under the Port Companies Act 1988 and is registered under the Companies Act 1993. It is owned by Greater Wellington Regional Council (76.4%) and Horizon's Regional Council (23.6%).
- 4.8 As explained in the Economics Report during the year ended 30 June 2015, CentrePort collected \$66.2 million in revenue from port operations, provided 219 jobs from port operations, and paid \$19.8 million in salaries and wages, of which \$19m were to employees engaged in port operations.

5. CENTREPORT'S OPERATIONS

- 5.1 CentrePort provides a varied range of services including container, cruise ship, bulk logs, bulk liquids and the two inter-island ferry services. A summary of CentrePort's non-container services is attached as **Appendix 2**. The Shipping Channel Deepening Project benefits not only container services but also cruise ship services and tanker services. As explained in the Navigation Report the existing channel is limiting for deep draught cruise ships¹⁵ and tankers. Deepening the shipping channel therefore enables CentrePort to continue to provide for a range of its current operations.
- 5.2 A number of global container shipping lines call at CentrePort including Maersk, MSC, ANL, CMA, CGM, OOCL, PIL, MOL, NYK, Cosco, Marfret and APL. These lines operate vessels on five

⁹ 'Container Handling : Annual container handling statistics'; January 2016; Ministry of Transport

<http://www.transport.govt.nz/ourwork/tmif/freighttransportindustry/ft021/>

¹⁰ National Freight Demand Study, March 2014, Ministry of Transport, page 12.

¹¹ Future Freight Scenarios Study, November 2014, page 11.

¹² 'Tauranga Dredging Underway', 25 September 2015, <http://www.port-tauranga.co.nz/Media-Room-and-Publications/News-Archive/Tauranga-Dredging-Underway/>.

¹³ Next Generation Port Otago, 2015, see <http://www.nextgenerationportotago.nz/channel-deepening/summary/>

¹⁴ <http://projects.napierport.co.nz/overview/>.

¹⁵ <http://www.stuff.co.nz/travel/news/67430738/queen-mary-cruise-ship-bypasses-wellington.html>.

international shipping services providing easy access to Australia, Europe, North Asia, South East Asia, UK, Africa, Americas/USA and South Asia, either directly or through hubbing in Singapore.

- 5.3 CentrePort's container trade grew by 5%¹⁶ between the 2013FY and 2014FY and a further 13%¹⁷ between the 2014FY and 2015FY, emphasising the effectiveness of the current growth strategies. The growth in container volumes has brought 2 new shipping services to Wellington, one in 2014FY and one in the 2015FY. CentrePort's forecast container growth is to 124,000 TEUs by the end of 2016FY, and we expect this growth to continue.
- 5.4 CentrePort provides the benefit of a balanced trade to shipping lines. A balanced trade means there are a proportionate number of full import containers to full export containers moving through the port. Import containers can be reused by the shipping lines for export bookings, negating the costs of repositioning empty containers via land or sea. Consequently, shipping lines can achieve higher profits per container slot on their ships by removing the physical cost, time and opportunity cost of transporting empty containers. CentrePort is the only balanced trade port in Central New Zealand reducing the shipping line's cost to call.
- 5.5 CentrePort's existing core infrastructure has produced the highest productivity in New Zealand¹⁸ with its modern gantry cranes, twin lift straddles and new tug boats all lifting productivity.
- 5.6 CentrePort has significant latent container capacity.¹⁹ This means that it can efficiently accommodate significantly more throughput generated by larger ships.
- 5.7 The launch of CentreRail, a daily train service across central New Zealand, has enabled the establishment of inland hubs and daily rail connections across central New Zealand. CentreRail is an agreement between CentrePort and KiwiRail providing CentrePort with a set amount of wagon space which it can supply to its shippers at competitive rates.
- 5.8 The CentreRail network connects the regional economy to CentrePort's highly productive port enabling regional shippers to access international and coastal shipping services. CentreRail effectively moves the port gate into the hinterland, to be closer to producers, distributors and consumers. CentrePort's ongoing investment in the low cost and reliable CentreRail network helps regional shippers remain competitive in an increasingly globalised market. The CentreRail service has provided shippers with a daily, reliable and low cost (saving them millions of dollars) mode of transportation to the port.

PART B

6. WHY DEEPEN THE SHIPPING CHANNEL?

Larger ships

- 6.1 Larger ships provide shipping lines with better returns. Globally ship sizes are increasing at a significant rate both through the addition of new larger ships and the scrapping of older smaller ships. Therefore, the number and market share of smaller ships (5,000 TEU or less) is falling. As larger

¹⁶ CentrePort Wellington Annual Report 2014.

¹⁷ CentrePort Wellington Annual Report 2015.

¹⁸ Container Handling: Annual container handling statistics: <http://www.transport.govt.nz/ourwork/tmif/freighttransportindustry/ft021/>.

¹⁹ Future Scenarios Freight Study, November 2014, Table 11, page 42.

ships are built the ships that are replaced cascade from the main shipping routes to the smaller routes. These global shipping changes are addressed in more detail in **Appendix 3**.

6.2 Larger ships will arrive in New Zealand in the near future and will cause a generational change in New Zealand's shipping industry. Exactly what sizes will arrive when is uncertain but in my opinion ships around 6,500 TEU will visit New Zealand from the end of 2016²⁰ and ships of 8,000 TEUs plus will arrive within 10 years. This is demonstrated by:

- (a) the similar charter costs for 1600-1700 TEU through to 5,900 TEU vessels;²¹
- (b) the trend of the shipping operators to increase ship size (and benefit from economies of scale);
- (c) the Port of Tauranga, Maersk and Kotahi agreement (aggregation of approximately 40% of New Zealand's exports through the Port of Tauranga on Maersk's vessels giving volume certainty for Maersk to introduce 6,500TEU vessels into New Zealand waters by the end of 2016);²²
- (d) dredging operations already consented for various New Zealand ports to enable their channels to accommodate the larger vessels;
- (e) phase 1 dredging works commencing at Port Otago for it to become 6,000 - 8,000 TEU capable by the end of 2016²³ and the Port of Tauranga to become over 6,000 TEU capable by August 2016 (and is also investing in two super post-Panamax gantry cranes);²⁴
- (f) the new Panama Canal opening in 2016 which will enable new Panama size vessels to pass through and release the old Panama size vessels onto lower volume routes; and
- (g) the opening of the Webb Dock terminal in 2016 which will make the Port of Melbourne larger ship capable.²⁵

Deeper draughts

6.3 Larger ships have deeper draughts (See **Appendix 3, Figure 1**). The Ports of Tauranga and Otago have both used 14.5m draught vessels to design their dredging operations and the Port of Napier is presently using the same draught for its project. Provision for a 14.5m draught vessel is the benchmark for the New Zealand network as the draught of container vessels between 6,000 and 8,000 (plus) TEU sits around 14.5m (see **Appendix 3, Figure 1**). The design ship size for the Shipping Channel Deepening Project was chosen to provide flexibility for future operations of CentrePort over a 30 year timeframe and to reduce the risk (and cost) of potentially having to obtain new resource consents in the medium term.

²⁰ 'Kotahi Agreement: Presentation to Analysts', 26 June 2014.

²¹ 'Container ship charter gloom spreads', 18 October 2015, see http://www.joc.com/maritime-news/international-freight-shipping/container-ship-charter-gloom-spreads_20151018.html.

²² 'Kotahi Agreement: Presentation to Analysts', 26 June 2014

²³ 'Port Otago leads way to next generation', 20 May 2015, <http://www.scoop.co.nz/stories/AK1505/S00496/port-otago-leads-way-to-next-generation.htm> and <https://www.portotago.co.nz/our-harbour/overview/>.

²⁴ See 'Tauranga port dredging work to start', 13 July 2015, <http://www.odt.co.nz/news/business/348810/tauranga-port-dredging-work-start>; 'Tauranga appoints Rohde Nielsen for dredging', 7 July 2015, <http://www.ihsmaritime360.com/article/18557/tauranga-appoints-rohde-nielsen-for-dredging>; and 'Tauranga moves forward on project to handle larger ships', 8 July 2015, http://www.joc.com/port-news/international-ports/tauranga-moves-forward-project-handle-larger-ships_20150708.html.

²⁵ Although it is recognised that presently limited New Zealand cargoes pass through Melbourne, it does reflect the movement of big ships closer to New Zealand and enables the potential for Australian hubs if New Zealand Ports are not big ship capable – see, for example, page 8 of the NZ Shipping Council's 'The Question of Bigger Ships'. It is important however to note that almost all NZ shipping services include at least one Australian port call - see, <http://www.interest.co.nz/business/78678/westpacs-david-norman-sees-more-larger-ships-visiting-and-assesses-what-we-must-do>.

- 6.4 As described in section 10 below, CentrePort needs the flexibility to dredge in stages if required to respond to a staged arrival of larger ships up to the maximum 14.5m draught vessel. The Port of Tauranga and Port of Otago have adopted a similar staged approach to channel deepening. Should consents be granted CentrePort intends to immediately move to at least enable up to a 12m draught vessel to enter the harbour unencumbered by tide.

Commercial necessity

- 6.5 In order for CentrePort to continue to remain a significant container port into the future it must be able to accommodate larger vessels. Being seen by the market as having the ability to accommodate larger ships is essential to achieving CentrePort's aim to be the Port of choice for Central New Zealand and to growing CentrePort's container operations. This will enable CentrePort to continue to efficiently and effectively service Central New Zealand shippers.
- 6.6 Ports sell berth windows to shipping lines. These windows fit the shipping lines network timetable. For CentrePort to be able to optimise port utilisation it must be able to provide certainty as to berthing windows for shipping operators. Container vessels face delays with weather and infrastructure malfunction (both on port and on ship). Delays have a financial and time cost to shipping lines and affect timetables to reach overseas markets. These delays compound through the voyage as the short voyage legs between New Zealand ports, such as Wellington to Lyttelton, do not allow make-up time. The shipping lines do not wish to be encumbered with draught related delays. CentrePort needs to be able to berth vessels at all tides to remove the potential for a tidal delay and the subsequent loss of shipping services.
- 6.7 If CentrePort does not proceed with the Shipping Channel Deepening Project shipping networks using larger ships will be unable to visit. This will result in CentrePort becoming either a short to medium term provider of a limited and specialist service, a feeder port (through a coastal shipping route), or losing its container services completely to land/rail transport north and south.²⁶ If CentrePort is not capable of accommodating larger ships it will lose 30-40,000 TEUs when larger shipping services arrive, significantly affecting its ongoing commercial viability, especially as the likely loss of cargo to larger ship services will increase over time. In addition, without the Project, CentrePort will have stranded assets with a value of \$65m. It will also limit future deeper draught cruise ship and tanker services. All these options come at the expense of the Wellington, Central
- (a) New Zealand, and New Zealand economy.
- 6.8 Incorporating the above matters, the economic and commercial objectives for the Project are:
- (b)
- Economic: to support and enhance the economic growth and competitiveness of central New Zealand through enabling the region to maintain and grow direct international freight transport connections by ensuring CentrePort can accommodate larger ships.
- Commercial: to enhance the long term commercial competitiveness of CentrePort as a container freight port by providing for the needs of shipping customers through long term, flexible, resource consents.

²⁶ An example is Port Taranaki which does not currently have any container cargo services after the withdrawal of the MSC service, and later the withdrawal of the coastal service Pacifica.

6.9 In order to achieve these objectives, and to remain commercially competitive into the future, CentrePort needs to be able to accept vessels with a maximum 14.5m draught in all tides and up to 6m swells.²⁷

6.10 As explained in the Alternatives Report, and **Appendix 4**, CentrePort has considered a number of options as to how to enable larger ships up to 14.5m draught to enter Wellington harbour. Only a dredging option provides for the key commercial parameters to enable the future viability of CentrePort as a container terminal.

7. CONSEQUENCES OF LARGER SHIPS FOR NEW ZEALAND

7.1 Larger ships will result in a generational change to New Zealand's national and international cargo networks. The consequences of larger ships for New Zealand are:

potential cargo aggregation / hubbing;

infrastructure upgrades; and

(a) economic effects.

(b)

Cargo aggregation

(c)

7.2 The emergence of larger ships enables greater aggregation of cargo and this is likely to lead to fewer 'hub' ports. The 2010 NZ Shippers' Council Report stated:²⁸

"Depending on future shipping configurations, smaller regional ports currently served by a South East Asia service (eg Napier, Wellington, and Bluff), could in the short to medium term also continue to be directly served by ships similar in size to those deployed today.

In the longer term however, the ports are likely to be impacted by the trend towards bigger ships - even those within the current range of sizes calling [at] New Zealand."

7.3 In the short to medium term the response of shippers to larger ships may not be homogenous, reflecting the shipping market where different cargoes, and hence shippers, have different priorities. Larger ships may result in additional freight times due to fewer port visits and additional land transport time to reach a larger ship capable port. Time sensitive cargo, especially for produce (meat and vegetables), has limited ability to tolerate additional time delays. Shippers of cargo that is not time sensitive (for example milk powder) do not have the same focus on additional freight times.

(a) However, they are cost sensitive and, as explained below, larger ships may significantly increase some shippers' cargo transport costs.

(b)

7.4 Container ports not being called by the larger vessels may become:

specialist local cargo ports served by a current sized vessel²⁹ (for example the Port of Napier with its considerable, highly seasonal, local produce cargoes);

a feeder port to a larger hub port utilising a coastal shipping service; or

²⁷ While the likelihood is low this also enables the possibility of CentrePort being the final call on the North Asian and South East Asian shipping routes. The provision of such flexibility is critical to CentrePort being able to offer alternative solutions to the market.

²⁸ Future Freight Scenarios Study, November 2014, page 9.

²⁹ However, Westpac's industry analyst considers such an outcome to be "at odds with the evidence" -

<http://www.interest.co.nz/business/78678/westpacs-david-norman-sees-more-larger-ships-visiting-and-assesses-what-we-must-do>.

lose container trade altogether to land based rail or road transportation.

Infrastructure upgrades

- 7.5 The introduction of larger vessels will require significant investment in infrastructure.³⁰
- 7.6 The 2015 OECD Report 'The Impact of Mega Ships', first findings, indicated that the costs of
(c) accommodating larger vessels to be split equally among new port equipment (such as cranes); dredging; and port infrastructure (quay and yard) and hinterland costs.³¹
- 7.7 The 2010 NZ Shippers' Council Report considered the infrastructure upgrades necessary at the four main ports to receive larger vessels. It considered factors such as channel deepening, berth pocket deepening, berth length expansion and new crane requirements. Given these requirements the Report estimated the costs of becoming 7,000 TEU capable as:³²
- \$50m for Auckland (\$200m to accommodate a 14.5m draught vessel at all tides);
 - \$50-80m for Tauranga;
 - (a) \$40-\$80m for Lyttelton; and
 - (b)
 - (c) \$100m for Otago.
- 7.8^(d) While not included in the NZ Shippers' Council Report, in order to accommodate larger vessels the Port of Napier will need significant infrastructure development (for example strengthening new berth and dredging works). The Port of Napier has identified a "*significant infrastructure development programme*" of \$80 to \$140m over the next 5 and 10 years respectively,³³ with media reports stating the cost for a new berth and dredging to be \$100m³⁴ and \$50-100m³⁵ respectively.
- 7.9 Necessary infrastructure works will be expensive for all ports; however CentrePort has the infrastructure necessary and, due to the naturally deep harbour, only requires a relatively small volume of dredging work. In order to accommodate larger ships CentrePort requires one of the least infrastructure upgrades of any New Zealand Port. In terms of dredging to accommodate 14.5m draught ships, CentrePort requires one of the smallest dredged volumes, 6.0 million m³, compared for example to approximately 15 million m³ for Tauranga,³⁶ approximately 20 million m³ for Lyttelton³⁷ and 7.2 million m³ (to a 14m draught) for Otago.³⁸
- 7.10 Another key issue is the consentability of the necessary infrastructure upgrades. The recent High Court decision³⁹ overturning the non-notified resource consents for the proposed Ports of Auckland

³⁰ Future Freight Scenarios Study, November 2014, page 12.

³¹ International Transport Forum 'The Impact of Mega-Ships', OECD, 2015, at page 64.

³² NZ Shippers Council Report 'The Question of Bigger Ships', August 2010, Table 9, page 51.

³³ <http://www.napierport.co.nz/news/napier-port-annual-result-2014/>.

³⁴ <http://www.radionz.co.nz/news/business/298229/napier-port-dredging-plans-criticised>.

³⁵ <http://www.stuff.co.nz/dominion-post/news/77239244/Napier-Port-says-its-dredging-plan-map-is-not-a-cock-up>.

³⁶ Resource consent 65806.

³⁷ Lyttelton Port Recovery Plan, November 2014, section 2.2, [Link](#), states "*the total dredge volume has yet to be determined. It is likely to be more than 20 million cubic metres in total.*"

³⁸ 'Port Otago leads way to next generation', 20 May 2015, <http://www.scoop.co.nz/stories/AK1505/S00496/port-otago-leads-way-to-next-generation.htm> and Port Otago Project Next Generation Resource Consent Application 25 May 2010 and accompanying AEE.

³⁹ *Urban Auckland and others v Auckland Council* [2015] NZHC 1382.

extensions to Bledisloe Wharf illustrates the issues faced by port companies when consenting projects.⁴⁰

- 7.11 In addition to port infrastructure upgrades, upgrade to the whole freight transport network will be required. These costs are reviewed in detail in the 2014 Future Freight Scenarios Study which commented:⁴¹

"Hub port scenarios also lead to a higher number of bottleneck and capacity constraints on the transport network feeding the hub ports. The amount of additional capital investment required to alleviate bottlenecks caused by increased container freight on the road and rail network [is] close to double under the hub and spoke scenarios compared with the Status Quo."

- 7.12 CentrePort is ideally placed in the centre of New Zealand's transport network with excellent rail and interisland ferry links and a road transport network that is in the process of significant capacity upgrades as a result of the Government's Wellington Northern Corridor Roads of National Significance programme to provide enhanced freight efficiency and journey time reliability. These excellent transportation links enable CentrePort to provide the least cost inland transportation cargo linkages to Central New Zealand.

Economic effects

- 7.13 While the 2010 NZ Shippers' Council Report found significant supply chain benefits from larger container ships in the NZ market⁴² and identified potential increased transport, time related and infrastructure costs,⁴³ it did not factor the costs into its cost benefit assessment.

- 7.14 Cargo aggregation at fewer ports as a result of larger ships does not necessarily result in lower overall costs for the shipper. Land based transport costs and shipping time have to be factored in. The 2015 OECD Report stated that larger vessels "*create considerable operational problems and additional feeder traffic or longer hinterland distances.*"⁴⁴ While significant roading projects are underway or being investigated in and around Auckland and Tauranga, there remains significant transport network (road and rail) limitations if all Central New Zealand freight was to be shipped through either or both of these ports.

- 7.15 The 2014 Future Freight Scenarios Study estimated the costs and benefits to the New Zealand economy of larger ships. It concluded that larger ships do not benefit the New Zealand economy as any potential benefits are "*outweighed by the increased port costs, domestic freight transport costs, and capital costs on the road, rail and coastal shipping networks.*"⁴⁵ The Study also found that:⁴⁶

"The economic cost benefit analysis indicates that the projected benefit cost ratio (BCR) for all scenarios is less than 1 with almost all projected BCR being less than zero."

- 7.16 While the Status Quo "*generated the lowest overall cost impact for New Zealand supply chains*" of the scenarios tested "*Scenario 3 (two hub ports in each island) generated the best outcome on a PV*

⁴⁰ This has led to a review of potential port locations for Auckland – see <http://www.stuff.co.nz/business/78720624/aucklands-port-could-be-relocated-to-muriwai-under-new-proposal>.

⁴¹ Future Freight Scenarios Study, November 2014, page 61.

⁴² NZ Shippers Council Report 'The Question of Bigger Ships', August 2010, page 6. See also Section 5 of the Report.

⁴³ NZ Shippers Council Report 'The Question of Bigger Ships', August 2010, at page 9.

⁴⁴ International Transport Forum 'The Impact of Mega-Ships', OECD, 2015, at pages 9 and 43.

⁴⁵ Future Freight Scenarios Study, November 2014, page 13.

⁴⁶ Future Freight Scenarios Study, November 2014, page 16.

cost basis".⁴⁷ On a BCR assessment (which excluded the Status Quo) only Scenario 2 provided a positive BCR of 0.19.⁴⁸ This was the only scenario to include a central New Zealand port call.⁴⁹

7.17 Having the Port of Tauranga as a single hub for New Zealand was identified in the 2014 Future Freight Scenarios Study as not to be practical. Of the ten scenarios evaluated, this scenario was found to:

- have the highest operating costs;
- requires the largest investment in road, rail and port infrastructure; and
- increase the overall supply chain costs of New Zealand shippers considerably.

7.18 (a) The conclusions in the 2014 Future Freight Scenarios Study were despite the assumption that a percentage of the savings realised by shipping lines through economies of scale, would be shared
(b) with the shippers. The Port of Tauranga as a single hub for New Zealand container shipping does not adequately service (due to the increase in time to market and supply chain costs) a large portion of the total New Zealand freight task including the central New Zealand region and the South Island.
(c)

7.19 Other potential risks of moving to fewer hub ports are:

- (a) reduced competition, and potentially a monopoly provider, which may lead to higher freight costs overall;⁵⁰ and
- (b) reduced resilience of inland transport routes, employment/management issues and natural disasters.

8. CONSEQUENCES OF LARGER SHIPS FOR CENTRAL NEW ZEALAND

General economic effects

8.1 The 2014 Future Freight Scenarios Study also considered the economic effect of larger ships, and the hubbing scenarios considered, on the various regions of New Zealand. It found:⁵¹

"The impact of hubbing does not affect all supply chains equally. Generally, the further from a hub port that a producer is the bigger the impact on their supply chain costs. For example, cargo owners in Wellington and Taranaki are likely to be significantly worse off under the port hubbing scenarios considered in this study. Cargo owners in Auckland, Waikato and Bay of Plenty are all better off under the scenarios where hub ports are located in or adjacent to these regions."

8.2 The likely outcome of larger ships leading to port consolidation is that businesses close to the hub ports will benefit from cheaper shipping costs and those further away will lose.⁵²

⁴⁷ Future Freight Scenarios Study, November 2014, page 13.

⁴⁸ Future Freight Scenarios Study, November 2014, Table 17, page 63. Although Scenario 3 had a nearly positive BCR of -0.01.

⁴⁹ The ports included were Auckland, Tauranga, Napier, Lyttelton and Otago.

⁵⁰ See for example Westpac 'Industry Insights – Transport, logistics and distribution', 20 October 2015, page 11.

⁵¹ Future Freight Scenarios Study, November 2014, page 15. See also section 9 and Figure 28.

⁵² This is consistent with the view of Westpac Bank with its Industry Economist commenting "business located close to major ports would benefit from far lower international shipping costs i.e. there may be winners and losers among New Zealand businesses", 17 November 2015, <http://www.interest.co.nz/business/78678/westpacs-david-norman-sees-more-larger-ships-visiting-and-assesses-what-we-must-do>.

- 8.3 The 2014 Future Freight Scenarios Study found that for the Wellington Region having no Central New Zealand larger ship port would increase total cargo costs by greater than 100%.⁵³ The Wellington Region was identified as the most affected by increased internal shipping costs resulting from port hubbing. For Manawatu an increase in total cargo costs of between 50-100% was predicted. For Taranaki the increase in total cargo costs for all scenarios, apart from Scenario 3, was between 11% and 50% and for Tasman / Nelson / Marlborough the increase in total cargo costs, except for Scenario 2, was between 11% and 50%.
- 8.4 If Port of Napier is retained (and made larger ship capable) the 2014 Future Freight Scenarios Study found total shipping costs of larger ships for Central New Zealand will increase by 50-100% for Wellington and Tasman / Nelson / Marlborough regions, and 11-50% for Taranaki and Manawatu regions.⁵⁴
- 8.5 Shipping through either an Upper North Island or South Island port on a larger ship therefore significantly increases the total cargo cost to Central New Zealand shippers. For each producer there will be a point beyond which the increase in cargo costs, and/or time delays, will result in them either changing their business activity, moving their business closer to a hub port, or closing their business.
- 8.6 For time sensitive freight in Central New Zealand loss of a direct shipping service will be particularly significant. In order to access a hub port in a timely manner road transport, which is significantly more expensive than rail or coastal shipping, is the only option.⁵⁵
- 8.7 The inclusion of a Central New Zealand Port in New Zealand's future shipping network is therefore vital if Central New Zealand is to remain competitive.
- 8.8 The Shipping Channel Deepening project also has wider benefits for CentrePort's operations. For example it will enable unimpeded access for deeper draught cruise ships and potentially in the future tankers into the harbour.

Whanganui case study

- 8.9 Prior to the introduction of the CentreRail service, the inland transport options available poorly serviced shippers in the Whanganui region. The rail service required a two day minimum transit to a container port resulting in time sensitive cargo requiring road transport. The cost of the inland transport for shippers was high due to the limited demand for rail and therefore limited competition in the region.
- 8.10 The introduction of CentreRail provided shippers with a competitively priced rail service while reducing the transit time to a next day service. CentrePort has focused on the region through a Joint Venture ensuring an efficient, well equipped, rail head is available to service Whanganui shippers.
- 8.11 CentrePort have worked hard to generate greater efficiencies within the network. These include providing empty depot services at the Whanganui site, further reducing the transit time from 1 day to 6 hours, thereby reducing cost for time sensitive cargo shippers, and more than doubling the number of wagons to 34 per day on the service.

⁵³ Future Freight Scenarios Study, November 2014, Figure 28.

⁵⁴ Ibid.

⁵⁵ See for example Westpac 'Industry Insights – Transport, logistics and distribution', 20 October 2015, page 10.

8.12 As explained in the BERL Report⁵⁶ the CentreRail service has had a positive effect on the Whanganui region, providing larger and smaller shippers with the confidence to invest in the region, increasing productivity, production and the number of jobs. Smaller shippers' businesses have benefitted through the lower cost and efficient service. Since the inland port was set up in 2013 the volume of exports coming to CentrePort from Whanganui on the CentreRail service has increased from 29,000 to 105,000 tonnes.

8.13 If CentrePort is unable to service larger ships the inland transport service levels will revert to the situation prior to the establishment of CentreRail and require shippers to truck product to Tauranga or, if developed to accommodate larger ships, Port Napier. For shippers in the Whanganui region this means increased transit time and cost through either transshipments or inland transport.

Taranaki case study

8.14 The wider Taranaki economy has suffered from reduced dairy payouts and declining oil and gas activity.⁵⁷

8.15 In 2014 Fonterra ceased storage of product at the New Plymouth coolstore⁵⁸ in favour of transporting products by long distance rail to the Port of Tauranga.⁵⁹ Fonterra cargo consolidating through Tauranga has reduced the demand for rail into New Plymouth increasing cost and decreasing the service offering into the region.

8.16 Shipping services previously calling at Port Taranaki were high cost, due to the limited number of services and expensive alternative transport options. Small vessel exchanges meant that Port Taranaki was the first port call dropped due to shipping delays which resulted in unreliable services causing significant delays for shippers. With the loss of shipping services in 2014, shippers in the Taranaki Region had further limited transport options and are faced with a high cost of inland transport.

8.17 The introduction of CentreRail provided Taranaki shippers with a competitively priced and efficient rail service, ensuring a viable and sustainable inland transport option. CentrePort currently has 11 wagons per day transporting cargo between New Plymouth and Wellington.

8.18 CentrePort is working to increase its engagement with Taranaki shippers by investing in and operating the New Plymouth rail head site at Smart Road. The commencement of the Smart Road facility will significantly increase the service levels for rail users and displays CentrePort's long term commitment to the Taranaki region.

8.19 The CentreRail service has had a positive effect on the Taranaki region ensuring businesses continue to be viable through the low cost and efficient service, despite volatility in key markets. CentreRail has also increased the confidence of shippers by providing a long term inland transport solution.

8.20 If CentrePort is unable to service larger ships there is a risk that CentrePort's container trade will face the issues Taranaki Port has seen. The result for shippers in Taranaki would be the inland transport

⁵⁶ Economic Impact of CentrePort on Central New Zealand 2015, April 2016, BERL.

⁵⁷ <http://www.radionz.co.nz/news/regional/282621/taranaki-takes-hit-from-dairy,-oil-industry-fall-out>.

⁵⁸ https://www.porttaranaki.co.nz/sites/default/files/publications/portal_magazine/portal_august_2014.pdf.

⁵⁹ <http://www.stuff.co.nz/taranaki-daily-news/news/67659459/port-has-plans-for-old-fonterra-stores.html>

service levels for the region diminish and return to what they were prior to CentreRail. Without CentreRail or shipping service calling Taranaki Port, transport options are reduced and shippers will be forced to truck product to Tauranga, increasing costs significantly which will affect margins for businesses in the region.

9. WHY CENTREPORT?

9.1 The latent capacity, high productivity, low expansion costs, centrality, intermediacy with north/south shipping routes, balance of trade and a substantial Central New Zealand market, enable CentrePort to provide significant network and economic benefits not just to Central New Zealand but to New Zealand as a whole.

9.2 The advantages of CentrePort being the port of choice for Central New Zealand (and part of New Zealand's future port structure) include:

its existing modern infrastructure is capable of achieving the highest productivity in New Zealand on larger ships;

(a) its naturally deep harbour, unobstructed berth access and wharf length for larger vessels;

(b) an existing container terminal that can handle approximately triple the current container volumes;

(c) a capital infrastructure investment (including dredging) cost of \$15-45M compared to \$50-200m for Auckland, \$50-80m for Tauranga, \$40-80m for Lyttelton, \$100m for Otago and \$50-100m for Napier;

(d) efficiently servicing a highly productive hinterland with a substantial cargo base of over 400,000 - 500,000 TEU and all areas, bar Nelson, are serviced by CentrePort's efficient and cost effective daily train service, CentreRail;

(e) its location adjacent to State highway 1 (which is presently being significantly upgraded) and the main trunk rail line infrastructure;

(f) its ability to provide Marlborough shippers with its CentreRail offering through the two Cook Strait shipping services;

(g) the requirement for port calls in both the North and the South Islands (a single hub port in Tauranga does not adequately or efficiently service New Zealand's shipping demands);

(h) its centrality requires only 4 hours steaming each way from the route between the North Island and the South Island providing good intermediacy and minimal extra cost to shipping lines;

(i) its potential for North Asia shipping services to make Wellington the final port of call and depart via the Tasman Sea, providing significant steaming savings such that the cost to shipping lines of adding CentrePort in their schedule is therefore minimal;

(j) its ability to provide a superior hub port (as opposed to Tauranga) for Nelson cargo given significantly reduced transit times between Nelson to Wellington enabling a more regular 'shuttle' service between Nelson and Wellington improving reliability, increasing refrigerated capacity and reducing supply chain costs; and

its balanced trade provides shipping lines with greater revenue per box by negating the need to reposition empty containers.

- 9.3 New Zealand's current total container trade-off is sufficient to support two Upper North Island ports with approximately 1,600,000TEU, a South Island call (excluding Nelson which is much closer to Wellington and has no rail connection) with approximately 650,000TEU, and a Central New Zealand port (which includes Nelson and Marlborough) with approximately 400,000 - 500,000 TEU.⁶⁰ CentrePort's aim is to be the port of choice for Central New Zealand in a 3-4 or 4-5 port larger ship strategy which includes 1-2 Upper North Island call(s), 1-2 South Island call(s) and 1 Central New Zealand call. This strategy is close to Scenario 2 of the 2014 Future Freight Scenarios Study which was the only scenario in the study to have a positive BCR (though marginal). The proposed 3-4 or 4-5 port larger ship strategy provides the key trade areas in New Zealand with a hub port while local efficiencies remain for specialised local cargo ports, such as the Port of Nelson.

10. SHIPPING CHANNEL DEEPENING PROJECT COMMERCIAL PARAMETERS

Staging

- 10.1 Container ships of up to 6,500 TEU will come to New Zealand by the end of 2016 and major ports have already commenced dredging projects to accommodate them. The harder question to answer is exactly what sized larger ships will arrive when.
- 10.2 From a commercial perspective flexibility is critical. CentrePort must be able to respond in an efficient and cost effective manner to the arrival of larger ships. Dredging operations are expensive. It is estimated that to undertake the dredging required for 14.5m draught vessels to access CentrePort will cost between \$37 - 44m.⁶¹
- 10.3 Obviously CentrePort does not want to move early and spend a significant amount of money only to have more draught depth than required. Therefore a staged dredging approach enables provision for the draughts of ships to be provided as necessary and for the capital costs of the dredging to be spread over time. Port Otago is adopting a staged dredging process for its deepening project.⁶² The Port of Tauranga is also staging its dredging operations. However, staging may involve greater costs as a dredger may have to be mobilised a number of times.⁶³
- 10.4 CentrePort already has a lower draught clearance than the other main Ports and needs as a minimum to be able to accommodate a 12m draught vessel (at all tides) to remain competitive. This would sustain CentrePort's container operations for the use of the present larger New Zealand vessel sizes. Should consents be granted CentrePort intends to immediately move to dredge to sufficient depths to at least enable up to a 12m draught vessel to enter the harbour unencumbered by tide.
- 10.5 What is less certain is when CentrePort would be prudent to move to a greater depth. Being able to stage dredging allows CentrePort the flexibility to make the best commercial decision. It may be that

⁶⁰ See <http://www.transport.govt.nz/assets/Uploads/Sea/Documents/FIGS-March-2015.pdf>.

⁶¹ See the Dredging Report.

⁶² Port Otago proposes to reach its first depth milestone of 14m in two stages by first dredging to 13.5m by the end of 2015 and then to 14m by the end of 2016: 'Port to expand, deepen channel', 21 May 2015, <http://www.odt.co.nz/news/dunedin/342919/port-expand-deepen-channel>.

⁶³ Each mobilisation costs up to \$8m dollars if a large dredging vessel is utilised, although this may be able to be shared with other ports.

the dredging occurs in one project to the maximum depth sought to enable a 14.5m draught vessel to visit at all tides. It could be that an interim step(s) enabling a smaller draught vessel makes commercial sense (Port Otago can currently accommodate vessels with a draught of 13.0m and is dredging to a depth of 14m⁶⁴ with consent to 15m).⁶⁵

10.6 When considering staging and flexibility, Wellington International Airport Limited is planning to seek resource consents to extend its runway to the south and into Cook Strait. Should such consents be granted, and the extension developed, approximately 1 million cubic metres of fill will be required. While CentrePort is looking to potentially dredge a significantly greater quantity of material there are obvious synergies between the two projects which, if consenting and project timeframes allow, could provide commercial benefits to both parties and the Wellington Region, as well as beneficial environmental outcomes.

10.7 Finally, when considering staging and flexibility, as outlined in the Dredging Report, there are options as to:

the ability to synchronise timing with other port operators to share the mobilisation costs of a dredger; and

- (a) the size of dredger used (the balancing of time to undertake the works versus the cost of the dredging equipment used).
- (b)

10.8 Maintaining flexibility as to the type of dredger used has significant commercial benefits to CentrePort (and potentially other port operators providing a wider benefit). Port Otago has chosen for commercial reasons to utilise the smaller dredger option for its deepening works even though it anticipates the dredging will take almost three times as long to complete.⁶⁶ CentrePort could save tens of millions of dollars by dredging over a longer period with a small or medium sized dredge. CentrePort's preference is to use a small or medium sized dredger but that is dependent on the timing of the arrival of larger ships. If larger ships arrive sooner rather than later then it may be necessary to use a larger dredger and do the whole dredging operation in one or two stages.

⁶⁴ <https://www.portotago.co.nz/our-harbour/overview/>

⁶⁵ <http://www.nextgenerationportotago.nz/channel-deepening/summary/>

⁶⁶ 'Port to expand, deepen channel', 21 May 2015, <http://www.odt.co.nz/news/dunedin/342919/port-expand-deepen-channel>.

APPENDIX 1 - BACKGROUND TO THE SHIPPING INDUSTRY AND NEW ZEALAND PORT NETWORK

Shipping Industry

1. The shipping industry is constructed on the interactions of three key participants; the shipper, the shipping line and the port.
2. The shipper's key focus is to select the port and shipping line through which it will send its cargo. The shipper's port choice is influenced by:
 - (a) the shipping lines and services calling at the port;
 - (b) the total cost of transportation from pack point to the destination including sea freight costs and land transport costs;
 - (c) the transit time; and
 - (d) the load and discharge port charges.
3. Each shipper will have a different ranking of these matters in its decision making process. For example for shippers of perishable goods time to market is a more significant factor than for shippers of scrap metal.
4. For shipping lines ports form part of a network and their cargo supply must fit within the overall network of the service each shipping line operates. The shipping line's choice is determined by:
 - (a) port infrastructure;
 - (b) centrality;
 - (c) repositioning (steaming) costs of calling at ports; and
 - (d) intermediacy (location within the shipping network) of the port.
5. A port is focussed on aggregating cargo, providing a highly productive service for shipping lines, and the lowest cost supply chain to attract shippers and shipping lines.

New Zealand's port network

6. Presently 9 New Zealand ports are involved in the international container trade. New Zealand ports have evolved from servicing regional economies.
7. Ports in New Zealand are governed by the Port Companies Act 1988. Under section 5 of the Port Companies Act, the principal objective of every port company is to operate as a successful business. This requires each port company to operate the port as a standalone business, making corporate decisions independently of other port companies. The Port Companies Act therefore necessitates a competitive environment, without the intervention of central government into the running of the companies.
8. Many New Zealand ports are dominated by export volumes, reflecting the predominantly export oriented regional economies that they service. The Future Freight Scenarios Study gives the

following example: "*94% of Ports of Auckland's import containers are full, while only 21% of Port Otago's import containers are full.*"⁶⁷

9. Another significant change to New Zealand ports in the last 20 years was the introduction of mobile container cranes in the 1990s. Mobile container cranes enabled regional ports to establish container terminals with lower capital investment than gantry. However, mobile cranes are less efficient in their container handling and very few ports globally use them to process ships in excess of 5,000 TEU. CentrePort is the only port in Central New Zealand with gantry cranes.
10. In the last few years there has been an increase in the use of inland ports to more efficiently aggregate cargo freight from the hinterland and transport it to the port. CentrePort's New Plymouth and Whanganui rail head sites are examples of local aggregation of cargo outside the ports gate.

⁶⁷ Future Freight Scenarios Study, November 2014, page 39. See <http://www.transport.govt.nz/research/future-freight-scenarios-study/>. CentrePort also has a well-balanced import/export container service.

APPENDIX 2 - SUMMARY OF CENTREPORT'S CRUISE, FERRY, LOG AND TANKER OPERATIONS

Cruise ships

1. As one of the busiest cruise terminals in New Zealand the cruise business represents a substantial and important trade for the port. CentrePort established New Zealand's first dedicated international cruise terminal which it upgraded and strengthened in 2013. 77 ships called during the 2014/2015 season bringing more than 140,000 visitors to Wellington. Cruise tourism contributes more than \$50 million to the local economy each year⁶⁸.

Ferry services

2. CentrePort is home to the key coastal trade between the North and South Islands. The two inter island ferry services, Interislander and Strait Shipping, operate multiple services between Wellington and Picton each day.
3. CentrePort is able to provide Marlborough shippers with its CentreRail offering through the two Cook Strait shipping services. This connectivity presents the shippers with broader shipping options, more regular services, and the benefit of empty container availability due to CentrePort's strong import trade. As well as the CentreRail connection, the Cook Strait services move approximately 950,000 passengers, 360,000 vehicles and 56,000 rail wagons each year.

Log exports

4. CentrePort has continued to meet the ongoing growth of the log sector, including by adding 1.2 hectares of on-port space for logs and greater use of rail. Log trade achieved a 46% increase in ship calls and a 22% increase in volume moving to 807,338 tonnes in 2014 financial year, and a further 8% growth in log export volume in the 2015 financial year to 875,028 tonnes.
5. CentrePort has also developed of a new regional hub in the Wairarapa in partnership between CentrePort, KiwiRail and log exporters. The 2.5ha hub commenced operations in March 2016.

Bulk Liquids

6. CentrePort's bulk liquid berths discharged 910,000 kilo litres of fuel in the 2015 financial year. This provides an important strategic service for transport systems throughout Central New Zealand.

⁶⁸Economic Impact of the 2014–2015 Cruise Sector in New Zealand and Forecasts to 2017', 2015, Table 5, <http://cruisewzealand.org.nz/wp-content/uploads/2015/01/2014-2015-SUMMARY-Economic-Impact-Report-FINAL.pdf>.

APPENDIX 3 - GLOBAL SHIPPING CHANGES

Ship sizes

1. In 1996, the Regina Maersk was the first container vessel capable of carrying over 6,000 TEU and was the largest container vessel in the world. There have since been significant increases in the size of container vessels with the MSC Oscar currently being the largest container vessel with a capacity of 19,224 TEU. At the same time there has been increased consolidation of the shipping lines through mergers and alliances. Maersk has recently received the last of its 20 18,270 TEU vessels.⁶⁹ Even larger vessels are on order⁷⁰ and the potential next step change in ship size could be up to 24,000 TEUs.⁷¹
2. At the 'mega-ship' end of the market growth remains strong with a 2015 OECD Report stating that *"in April 2015, the order book included 52 ships with a capacity larger than 18,000 TEU."*⁷² This market is focused exclusively on the Far East - North Europe route. At the 'smaller' end of the market *"of the 220 new container vessels scheduled for delivery in 2013, 40% were for vessels over 7,500 TEU capacity which equates to 68% of new capacity (on a TEU basis)."*⁷³ Globally the 2015 OECD Report assessed various scenarios and found *"in almost all scenarios, the ship dimensions increase until 2020 on all of the selected trade lanes."*⁷⁴
3. In 2014 the average size of new container ships exceeded the 7,000 TEU mark for the first time.⁷⁵ By the end of 2015 it is expected that the average size of container ships delivered over the past five years will have increased 50% from the average size delivered in 2010.⁷⁶ At the same time the average size of container ships being scrapped has increased 40% reaching an average of 2,231 TEU in 2014.⁷⁷ Therefore, not only are container ships getting larger but the number, and market share, of smaller ships are falling.⁷⁸
4. The growth in container ship sizes is illustrated in **Figure 1** below.

⁶⁹ 'Marchen Maresk named in Felixstowe', Lloyds List, Thursday 16 July 2015.

⁷⁰ For example Maresk has 11 19,630 TEU sized vessel's on order, 'Marchen Maresk named in Felixstowe', Lloyds List, Thursday 16 July 2015. OOIL has also ordered 6 21,100 TEU vessels: 'Arms race of ultra large containerships will not end says OOIL', Lloyds List, 22 April 2015.

⁷¹ Generational shifts: the growth of container ships, Port Technology International, Edition 65: February 2015, page 42, www.porttechnology.org. See also the 2015 OECD Report 'The Impact of Mega-Ships', at page 42.

⁷² International Transport Forum 'The Impact of Mega-Ships', OECD, 2015, at page 18. According to ISH Maritime & Trade figures 67 ships of 19,000 TEU or more are currently on order: 'Big Ships bring big challenges for ports', 5 June 2015, http://www.ioc.com/port-news/big-ships-bring-big-challenges-ports_20150605.html.

⁷³ Future Freight Scenarios Study, November 2014, page 30.

⁷⁴ International Transport Forum 'The Impact of Mega-Ships', OECD, 2015, at page 44.

⁷⁵ 'Big, bigger, biggest for boxships', Lloyds List, 12 December 2014.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ This is in the 5,000 TEU or less category as explained in 'Number of Container Ships Peaks', www.martime-executive.com, 18 August 2014.

Figure 1: Evolution of container ships.⁷⁹

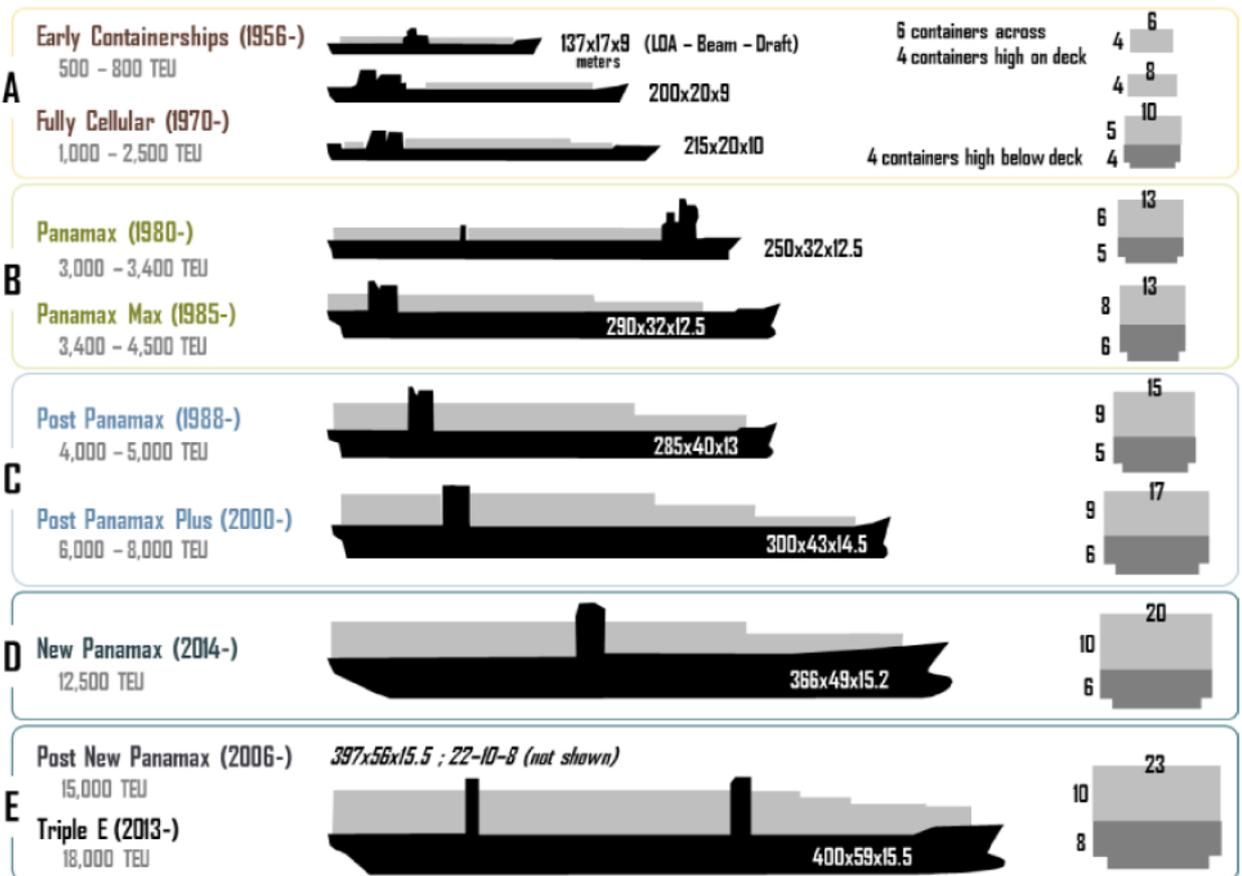


Figure 3.4: Evolution of Container Ships (Source: Rodrigue, et al. (2013))

5. As larger vessels come into service smaller vessels cascade down to lower volume routes.⁸⁰ At the bottom the smallest, and least efficient, vessels are retired from service⁸¹ providing over time an increase in the individual ship TEU capacity of the world's fleet. This 'cascading' effect does not necessarily produce benefits and the OECD has raised concerns as to the "*diseconomies related to cascading effects.*"⁸²

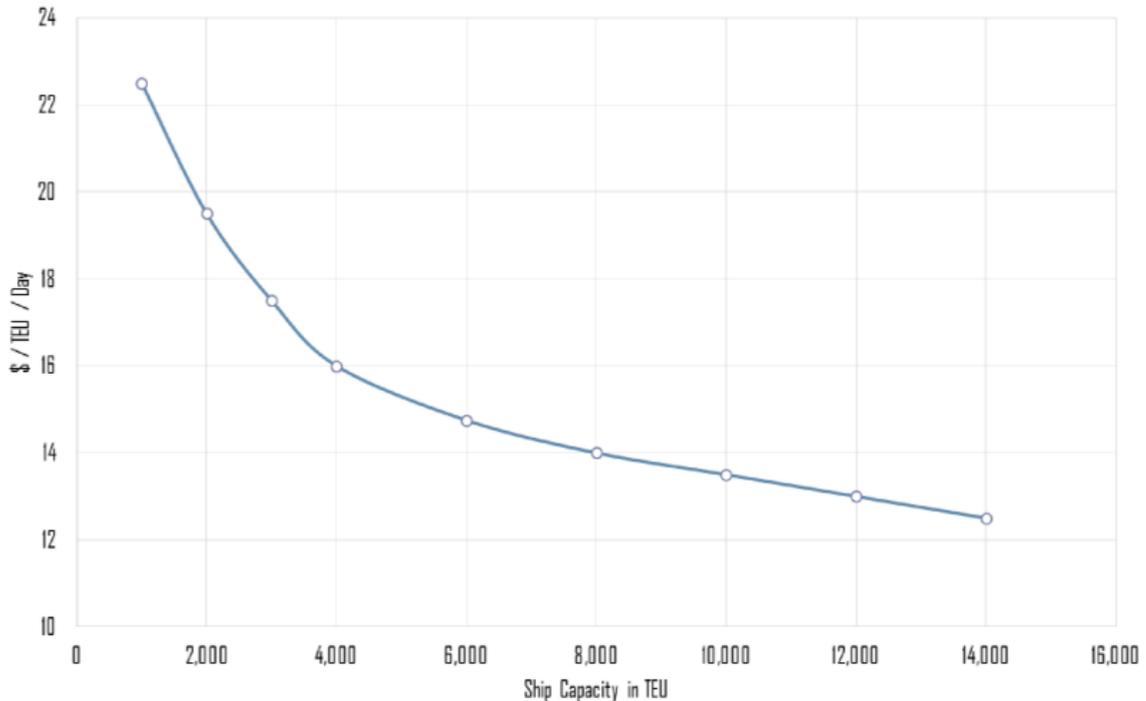
Economies of scale

6. The shipping line's desire to increase ship size, is largely influenced by:⁸³
- (a) modern ships have lower operating costs due to their more efficient hull designs and more efficient engines,⁸⁴
 - (b) easy access to funds;⁸⁵

⁷⁹ Ports Australia, Dredging and Australian Ports, Subtropical and Tropical Ports, April 2014, Figure 3.4, page 18.
⁸⁰ See for example the International Transport Forum 'The Impact of Mega-Ships', OECD, 2015, at page 15. At page 45 the OECD Report comments "even if there would be no upscaling of container ships to 24,000 TEU ships, the dimensions of the largest ships calling [at] the ports in almost all regions will change, due to cascading effects."
⁸¹ See for example, 'Marchen Maresk named in Felixstowe', Lloyd's list, Tuesday 14 July 2015. The average size of ships being scraped has increased over recent years and in 2014 reached 2,231 TEU, 'Big, bigger, biggest for boxships', Lloyds List, 12 December 2014.
⁸² International Transport Forum 'The Impact of Mega-Ships', OECD, 2015, at pages 27, 43-44 and Chapter 4. In particular these diseconomies can relate to reduced fuel savings (due to shorter steaming times) and also longer port turn-around times (due to infrastructure lagging behind ship size).
⁸³ International Transport Forum 'The Impact of Mega-Ships', OECD, 2015, at pages 9, 24, 29. However, the OECD Report does warn at page 9 "There are cost savings of mega-ships, but these are decreasing and may never be realised."
⁸⁴ International Transport Forum 'The Impact of Mega-Ships', OECD, 2015, at pages 9 and 24, allocates approximately 60% of the cost savings of the most recent mega-ships to more efficient engines.

- (c) the "herd"-effect of competitors wanting to keep pace with each other;⁸⁶
 - (d) the emergence of slow steaming⁸⁷ on major routes; and
 - (e) the economies of scale achieved by transporting container freight on larger vessels.
7. These reductions in costs to shipping lines with increased ship size are reflected in **Figure 2** below.

Figure 2: Economies of Scale of increasing ship sizes⁸⁸



The flattening out of the curve is to be expected as the savings per each TEU increase at a slower rate.

8. The further a larger ship port is from a shipper's base then the shipping costs may increase. For example in **Figure 2** above, the ship vessel cost per TEU reduces from \$16/TEU/Day for a 4,000 TEU vessel to around \$14/TEU/Day for an 8,000 TEU vessel. Assuming this saving is passed on by the shipping line, the shipper has to factor this saving against any increased land transport costs and time delay costs⁸⁹ due to any extra land and sea network travel required for their cargo to reach the larger ship port.

Panama Canal Expansion

9. The expansion of the Panama Canal is scheduled to be completed in 2016, allowing for larger vessels to service ports along that route. The expansion will permit the Panama Canal to remain competitive as a shipping route amidst an ongoing growth in the size of ships in the global shipping fleet.
10. Though there remain many uncertainties about exactly how various routes will compete with one another, there are clear implications of the canal expansion that will impact both Pacific and Atlantic

⁸⁵ 'Arms race of ultra large containerships will not end says OOIL', Lloyds List, 22 April 2015.

⁸⁶ Ibid.

⁸⁷ Slow steaming enables vessels to operate more efficiently saving fuel costs.

⁸⁸ 'Daily Operating Expenses for Containerships per TEU', The Geography of Transport Systems, 2015, see https://people.hofstra.edu/geotrans/eng/ch7en/conc7en/daily_operating_costs_teu.html. The \$ is USD.

⁸⁹ See for example the 2015 OECD Report 'The Impact of Mega-Ships', at page 15.

supply chains.⁹⁰ The Panamax size vessels currently servicing the canal will likely be replaced with New Panamax vessels. The resulting cascade effect will shift the vessels currently servicing the Panama Canal to other areas of the globe.⁹¹ New Zealand is a prime contender for such a shift, currently being serviced by vessels with capacity of up to 4500 TEU.

⁹⁰ 'Expansion of the Panama Canal and Global Shipping'; 24 June 2013; Stratfor Global Intelligence; Panamax and beyond, the story of ship sizes, Port Technology International, Edition 63: September 2014, page 42, www.porttechnology.org; and Generational shifts: the growth of container ships, Port Technology International, Edition 65: February 2015, page 42, www.porttechnology.org.

⁹¹ Already, as more of the very large (19,000 TEU) ships are introduced into the Europe and Asia east-west services, large ships in this service are being redeployed into other trades linking to these new services. This redeployment is consistent with what is anticipated to occur to the Panamax vessels following the widening on the Panama Canal.

APPENDIX 4 - COMMERCIAL CONSIDERATIONS OF ALTERNATIVES

Overview of options

1. Dredging of the harbour entrance shipping channel and TCW can be undertaken in several ways as described below. It may be undertaken in steps over time and using different types of dredgers.
2. The timing of the elements of the project will be affected almost entirely by the decisions of others such as international shipping lines. CentrePort is a service business that needs to respond to customer requirements in a timely manner. CentrePort cannot dictate the types, nor size of ships planning to call at the port.
3. The several potential options to enable larger ships, with deeper draughts, to enter Wellington harbour, the options being:
 - (a) do nothing;
 - (b) rely on existing consents;
 - (c) do minimum dredging supported by tide;
 - (d) do minimum dredging supported by tide and technology such as a Dynamic Underkeel Clearance system;
 - (e) full dredge (dredge on a single mobilisation of dredger); and
 - (f) full dredge (in stepped stages with a large dredger over a short period or more slowly using a smaller dredger over a longer time period).

Background

4. The economic objective for the Shipping Channel Dredging Project is to support and enhance the economic growth and competitiveness of central New Zealand through enabling the region to maintain and grow direct international freight transport connections by ensuring CentrePort can accommodate larger ships.
5. The commercial objective for the Project is to enhance the long term commercial competitiveness of CentrePort as a container freight port by providing certainty for the needs of shipping customers through long term, flexible, resource consents.
6. CentrePort's vision is to be the Port of Choice for Central New Zealand. The commercial position to achieve this vision and the above two objectives, as explained in this report (and in the Navigation Report), is that CentrePort needs to be able to accept vessels with a 14.5m draught, at all tides and in up to 6m swells. This ensures that there is a flexible window to access CentrePort in all tidal, and almost all weather, conditions. This is commensurate with normal operations internationally when wind and weather affect schedules and the ability to load and unload vessels.

Option 1: Do nothing

7. This option means that the maximum draught vessel permissible remains at the status quo as described in the Navigation Report.
8. The harbour entrance channel is already limiting as to visiting vessels (when they have a draught greater than 10.2m at low tide), with the saving factor that Wellington is presently a mid-port call so

the vessel's displacement, is lighter and draught smaller. This option does not achieve either of the objectives, and CentrePort's commercial position, set out above and is not a favoured option.

Option 2: Rely on existing consents (the "do minimum" option)

9. Consents were issued to CentrePort in 2003 to provide for a dredged depth of 12.4m and a dredged volume which was not to exceed 250,000m³. This would potentially provide for a vessel draught of 12.5m at a 1.6m HW with a similar berth draught. However, the consented volumes are insufficient to achieve a depth of 12.4m in the shipping channel.
10. This would provide a more suitable channel depth (with a wider operating window) for existing 4000 TEU sized vessels with a maximum draught of up to 12.5m (being approximately the deepest laden draught of the 'Kota Loceng' (as described in the Navigation Report)) which has already visited CentrePort many times.
11. Although an improvement over the existing draught limit, it is limiting in the context of future size of ships and has issues in relation to the volume of material that can be dredged. It would not enable the design 14.5m draught vessel to use CentrePort (nor even a 13.5m or potentially a 12.5m draught vessel). This option does not achieve either of the objectives, and CentrePort's commercial position, set out above and is not a favoured option.

Option 3: Minimum dredging supported by tide

12. This option relies on the rise of tide to provide just enough UKC to allow the design vessel's transit through the harbour entrance at high tide (while assuming there is no swell greater than 1.0m in the channel). However, as described in the Navigation Report, Wellington harbour has the lowest tidal range of any New Zealand port so the tidal advantage is of limited benefit. The Navigation Report also describes the wave heights and significant southerly swells that are recorded in the mouth of the channel entrance.
13. While this option goes some way towards CentrePort's goals, given the limited tidal range, the significant swell event and that minimum dredging would limit a 14.5m draught vessel to 2 daily transits at HW only this scenario only partly achieves either of the objectives, and CentrePort's commercial position, set out above and is not a favoured option.

Option 4: Minimum dredging supported by tide and technology

14. This is a repeat of option 3 but with the introduction of "DUKC" technology system to extend a vessel's transit window through the harbour entrance channel. A DUKC system makes predications for maximum draught or provides tidal windows for vessel transits. It requires not only a vessel's physical dimensions but current stability data and loading details to model the specific vessel's motions in the predicted tide, current and wave conditions, allowing precise values for UKC to be made.
15. As it is a predicative system it relies on having accurate present and forward information. Due to the possibility of changes of weather (very common in Wellington) vessel motion predictions can only be made to a 24-36 hour horizon. As a result firm transit decisions can only be based on predications calculated close to the transit time. Hence this is of very limited advantage to a container line customer who is unable to change ship loading configuration or port rotations at short notice.

16. It costs approximately \$600,000 to implement a DUKC system (software and buoy) and approximately \$60,000 to operate it each year.
17. While technology such as a DUKC system may allow some degree of reduced dredging given the minimal tide rise cycle in Wellington, and the exposed harbour entrance, the benefit, if at all, is likely to be minimal. As for option 3 it only partially achieves CentrePort's objectives, and CentrePort's commercial position, set out above and is not a favoured option.

Options 5 and 5a: Full dredge to accommodate ships of 14.5m draught at LW in 6m swells travelling at 10 knots (Option 5a in a staged manner)

18. These options enable the safe navigation of a 14.5m draught vessel at all tides and in up to a 6m swell as confirmed and optimised during ship simulator exercises (as explained in the Navigation Report). Dredging could also be undertaken in stages to reflect the timing of the arrival of different draught vessels and commercial drivers. This provides CentrePort with the flexibility to respond to deeper draught vessels in a timely, and commercially prudent, manner.
19. These options achieve the objectives, and CentrePort's commercial position, set out above and is the favoured option.

Overall conclusion

20. Having considered the 5 options above, only the option 5 (and 5a), the full dredge option, serves CentrePort's vision to be the Port of Choice for Central New Zealand and achieves CentrePort's economic and commercial objectives. It is also the only option that will enable CentrePort's container operations to link the world to Central New Zealand into the future.