

Media Release: Port Otago Limited
Date: 7 August 2007

Preparing for the next generation

Port Otago has reached a critical point in its development -- development that will cement Port Chalmers as a key New Zealand export port.

To prepare Port Chalmers for the next 30 to 50 years, Port Otago has initiated a dedicated project to explore the issues and options associated with securing visits by bigger ships. A project team of local and national specialists in science, engineering and logistics will spend the next six months investigating and evaluating a range of scenarios and data related to making Port Chalmers ready for a new generation of ships.

This research will focus on three major areas:

- the need to deepen and widen the harbour channel to Port Chalmers;
- the need to extend the wharves and berths at Port Chalmers; and
- the logistical issues surrounding the management of larger container flows, both within the Terminal itself, and to and from the port.

Since New Zealand's first refrigerated meat export sailed from Port Chalmers in 1882, shipping has been the life-blood of New Zealand's economy. From the beginning, the Port of Otago has been at the forefront of every new stage of shipping development including the establishment of the country's first container ports in the mid-1970s. Today, New Zealand is readying itself for another generational shift in shipping services and Port Chalmers is in the vanguard once again.

Over the past 10 years, the size of container ships has been steadily increasing as shipping lines endeavour to move freight around the world more efficiently and economically. Shipping is already the most environmentally friendly method of transporting goods over long distances and newer, bigger ships provide even greater efficiencies and will further reduce the carbon footprint. The world trend towards bigger ships is certain to affect New Zealand and, like the 1970s when ports geared up for the start of containerisation, there will need to be planning and investment in infrastructure to make sure these ships can operate effectively in the key New Zealand ports.

Currently, the biggest container ships that come to New Zealand call at Port Chalmers. They have a nominal carrying capacity of 4,100 TEUs¹ and are 285 m long, 32.6m wide and have a maximum draft of 12.5 m. The next generation of ships is likely to have a carrying capacity of up to 6,000 TEUs and could be up to 320 m long, 42 m wide and require a draft of 14.5 m.

As a major deep-water export port of the South Island, Port Otago has identified this generational change in shipping as a critical juncture in the Port's development. Port Chalmers is a major part of the local economy and a vital link in the export supply chain. It is New Zealand's third largest port (by cargo value) and is the international gateway for some of the country's most important export cargo. Since 1997, cargo volumes have increased by more than 300%. Staff numbers have risen by 120% in

¹ 20' equivalent units – the international standard of measurement for containers.

the same period and today the Port's economic value to the local community is \$177 million per annum. It is essential for Dunedin, and the lower half of the South Island, that Port Otago remains a strong and significant part of New Zealand's international trading supply chain. To make sure that happens, Port Chalmers must be able to handle the largest ships that come to New Zealand.

Perhaps the single most important component of the project is the need to deepen and widen the existing harbour channel up to Port Chalmers. The current depth of the channel is 12.8m (this will be increased to 13.0 metres by 30 September 2007 under existing resource consents). Much of the channel is already greater than 14m in depth but will need to be between 14m and 15m to accommodate the draft of bigger ships. The impacts of this part of the project will be subjected to thorough investigation and will include a review of land-based and sea-based disposal of dredged material. The results of this initial investigation will be peer-reviewed by independent experts to ensure the data, used to base any future decisions on, is robust and reliable. The initial investigation stage is likely to be completed by 31 October, 2007.

The planning and development of the Port Chalmers Container Terminal in the 1970s was world-class and has stood the test of time for 30 years. Port Otago will maintain the same high standard for this new project so that, at the end of the investigation phase, the company and the community can be confident that the project can be implemented successfully, and that all the various impacts from the project are understood and addressed. Through this process, the company will liaise closely with key stakeholders and the community via a special Consultative Group comprising representatives from a wide cross section of stakeholders. Port Otago is committed to remaining at the forefront of New Zealand shipping but without compromising the company's and the community's environmental, social and economic benchmarks.

This is the dawn of a new era for Port Chalmers and the Otago/Southland region. This exciting project will cement Port Chalmers as a key export gateway for southern exporters and as a key New Zealand port. It will also secure the Port's vital role in the local economy for the next generation and beyond.

Ends.

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Background Information

Container ships are getting bigger

The 1960s revolution of containerisation opened up the world's economies and made them much more accessible to trade, leading to year-on-year growth in cargo volumes. Since then, the development of containerships has been characterised by efforts towards the optimisation of ship design in terms of the number of containers to be carried and the efficiency of loading and unloading them. This has resulted in a steady increase in the size of the ships².

Since 2000, world-TEU³ capacity has grown, on average, by 11% per year, whereas the number of containerships has risen by only 6%. This underscores a continuing trend towards larger vessels. The carrying capacity of the world container fleet of 3,490 ships (July 2005) has more than doubled during the past 10 years and has reached 7.5 million TEU, with the following increases for the different size categories:

Up to 1,999 TEU	+ 4%
2,000 to 3,999 TEU	+ 5%
4,000 to 5,999 TEU	+ 12%
Above 6,000 TEU	+ 44%

The current average size of a container ship is 1228 TEUs but the average size ship under construction is more than three times that size at 3745 TEUs. This clearly indicates that ships will be bigger in capacity in the years ahead (leaving aside the likes of the Maersk Emma, launched last year and capable of carrying 15,000 TEUs). Already we see a large number of Post-Panamax⁴ ships in the range between 5,000 and 6,000 TEU being deployed. This group has in fact grown by nearly 40% in the last three years. It is a group of ships which combine route deployment flexibility on the one hand with operational economy on the other.

The advantage of bigger ships is best realised with the ships travelling between designated "hub" ports where they are being fully loaded and unloaded, without intermediate port calls. This has benefits for both the shipping line and the exporter, as larger ships' operating costs are spread over a much larger number of containers carried, thus reducing the average freight cost per container significantly.

Will big ships come to New Zealand?

Current annual import/export container throughput at New Zealand ports is estimated to be 1.95 million TEUs (year ending June 2007). This volume grows organically, on average, each year by 5% to 7%, which means in five years, the total container throughput will have risen to 2.5 million TEUs (using 5% as the multiplier). Additional shipping capacity will be required to carry this increase in container volume, especially during the export season (January to June) when demand for shipping space is highest. The other major consideration for whether bigger ships will indeed come to New Zealand is the economies of scale these bigger ships allow.

² Dr. Hans G. Payer- Adviser and Consultant Naval Architect, Germany

³ 20' equivalent containers

⁴ Panamax size ships were the largest able to transit the Panama Canal in its current configuration.

Economies of scale make a trade more efficient, especially where there is a global move to larger vessels. New Zealand's export trade would become uncompetitive if it did not embrace the economies of scale that bigger ships provide.

How big are these "big ships"?

The largest container ships that visit New Zealand now are the Albatross class, with a nominal carrying capacity of 4,100 TEU. These ships are 285 m long, 32.6 m wide and require a draft of 12.5 m. The next generation of bigger ships are longer (up to 320m), wider (up to 42m) and require a deeper draft (14.5m). These bigger ships carry up to 6,000 TEUs.

What does this mean for Port Chalmers and Otago Harbour?

Port Chalmers is already the deepest container port in New Zealand, with a chart datum draft of 12.8m (13 metres by 30 September 2007). Approximately 50% of the harbour channel is at least 14m deep, but to accommodate the new generation of bigger ships, Port Otago will need to deepen and widen the harbour channel further, extend its multi-purpose wharf and re-design its container terminal layout. There will also need to be investment in additional plant and equipment to handle increasing volumes of container cargo.

This is a major project, just like the original design and construction of the original container terminal in 1976. The design and layout of the container terminal then, the channel dredging that was undertaken (3.5million m³) and the investment in infrastructure has lasted 30 years. It has helped make Port Chalmers one of the most efficient and effective ports in New Zealand.

Under the scenario of bigger ships, ports that want to remain competitive will have to upgrade their facilities, infrastructure and capabilities so as to ensure these bigger ships can call at their respective ports, especially gateway or transshipment ports. Ports will also have to ensure their access channels are deep enough to cater for such ships and that their gantry cranes and other services can turnaround these ships fast at the port⁵ - all key elements of the economics of bigger ships.

So to prepare Port Chalmers for the next 30 to 50 years, Port Otago is embarking on a project that will cement Port Chalmers as a key export gateway to global markets for South Island producers.. Port Otago is committed to investment in new infrastructure and terminal design work, and to commissioning a channel enlargement project that rivals the one carried out in the mid-1970s.

What are the elements of the project?

By any measure, this project will be a major undertaking, and Port Otago is investing a considerable amount of time and energy into investigating all aspects of it. A team of local and national experts in science, engineering, economics and logistics has been assembled to evaluate the social, environmental and economic effects of this project.

⁵ KYJ Kee "Optimum Container Ship Size for Intra South East Asia Services in 2015"

This preparatory work will enable Port Otago to lodge comprehensively researched resource consent applications that the company and local community can have confidence in.

Economic impact of Port Otago

Since the last report on its economic value in 2001, the economic contribution of Port Otago to its region has grown at more than four times the rate of economic growth in Dunedin and Otago as a whole. University of Otago research shows the Port's economic value has doubled in real terms in just six years. On the basis of average economic conditions and on consistently conservative assumptions, Port Otago is estimated to be able to continue to contribute around \$177 million annually to the region. Under favourable economic conditions, the Port's contribution is estimated to be in excess of \$200 million per annum. The following table gives an indication of the growth experienced by Port Otago (excluding Chalmers Properties) in the last 10 years.

	1997	2007
Staff (FTEs)	125	280
Containers handled (TEUs)	35,500	171,000
Conventional cargo (Tonnes)	927,000	969,000
Revenue (\$ millions)	20	50

Consultative Group

Port Otago Limited is coordinating the establishment of a Consultative Group of community representatives that the company hopes will work with the Port throughout the investigation phase of this project. The Port want the Consultative Group to be actively involved in developing the shape of the project from the outset, including the identification of key issues and how they can best be addressed. The input of the Consultative Group will give invaluable guidance to Port Otago and ensure transparency around the investigation phase.

Project Timeline

The precise timing for the project cannot be determined at this time, pending further assessment of the scope and timeframes for necessary environmental assessments. Initial investigations will commence over the next month, with a target date of December for identifying a clear path forward.