WESTPORT Beacon

Long-term container trade forecasts

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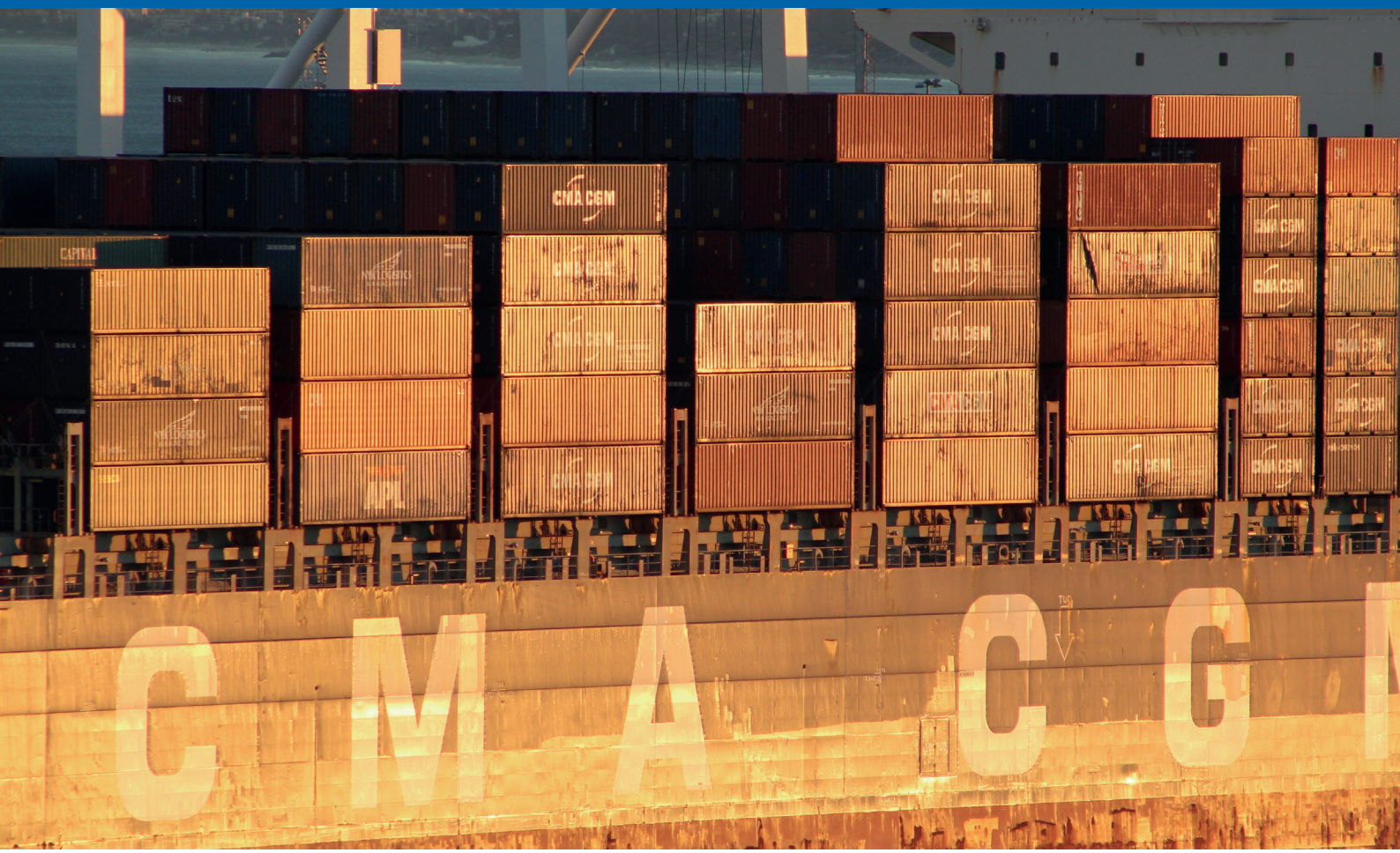

The volume of shipping containers required for imports and exports to and from Perth and surrounding regions over the next 50 years and beyond is one of the most important factors influencing Westport's process and outcomes. Any infrastructure options that can't accommodate the volume of containers forecast for our long-term requirements are simply not viable.

Long-term forecasting is not an exact science. But what's important when planning for future freight demand in the context of expanding industries and a growing population, is that you allow for even greater growth in the future.

The *Westport: What we have found so far* report (December 2018) used a long-term average container growth rate of 2.8 per cent per annum, as calculated by Deloitte Access Economics using an economic model, to estimate Perth's trade volume in 50 years' time (2068).

That estimate – starting with the baseline of 770,000 containers (TEU*) handled at Fremantle's Inner Harbour in 2017/18 – predicted the need to plan for 3.1 million TEU being handled at Fremantle in 50 years' time.

When Deloitte integrated the latest population forecasts provided by the Western Australian Department of Treasury in 2019 into their model, the recalculated annual container growth rate increased to 3.2 per cent.

For the purposes of our first multi-criteria analysis (MCA-1), Westport chose to use an annual container growth figure of 3.25 per cent, which led to an estimated trade task of 3.8 million TEU by 2068. The reasons as to why Westport elected to use a container growth figure of 3.25 per cent rather than the original 2.8 per cent are explained in this Beacon.

GOVERNMENT OF WESTERN AUSTRALIA

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Port and Environs Strategy

*TEU = Twenty-foot equivalent unit, which is the volume measurement for shipping containers.

Why were there changes to the forecasts?

No-one can actually tell the future and long-term forecasts often turn out to be incorrect for a whole variety of reasons. To future-proof our work as much as possible, Westport was determined to undertake a rigorous review of the container compound annual growth rate (CAGR) against a wide array of sources. A range of growth percentages would also be used to sensitivity-test the scalability of our options and determine the timings as to when new infrastructure will be required in both high-growth and low-growth scenarios.

Following feedback from a range of stakeholders that Westport's initial container CAGR of 2.8 per cent may be too conservative, Western Australian Treasury Corporation (WATC) carried out extensive analysis of container growth rates, industry trends and historic data in Western Australia, Australia and internationally. WATC sourced market research, stakeholder feedback and economic and industry reports from WA and Australian government agencies, Drewry Maritime Consulting and Indec Consulting, as well as long-term forecasts from Fremantle Ports and other Australian ports.

WATC also reviewed historic container growth at Fremantle over the last 20 years and found that its container CAGR over this time was 5.4 per cent, as shown in Diagram 1 (right) — significantly higher than Westport's initial CAGR of 2.8 per cent. This figure of 5.4 per cent was also in line with growth at other major Australian ports over the past 20 years.

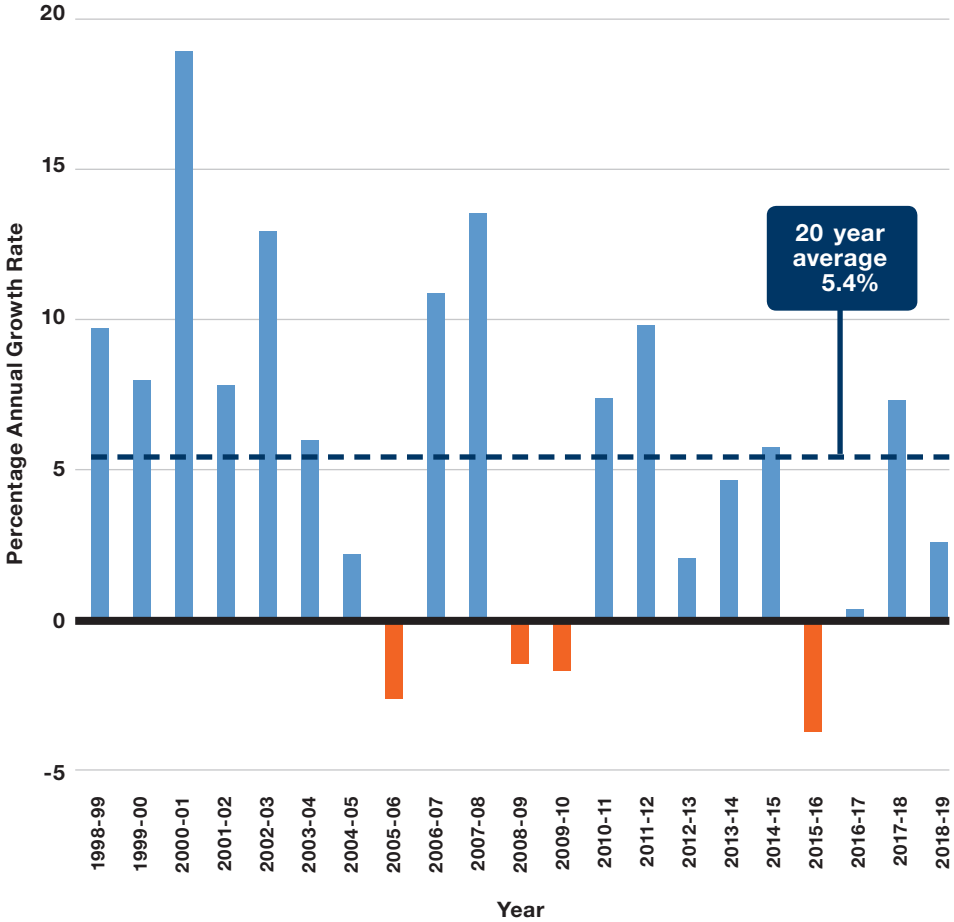
Following WATC's extensive review, it was recommended that Westport use an average annual container growth range of **3.0 to 4.0 per cent** to determine our end-state capacity requirements. This range is obviously higher than the original 2.8 per cent CAGR.

The higher growth range of 3.0 to 4.0 per cent was subsequently endorsed by the Westport Taskforce governing committees, the Minister for Ports and the Minister for Transport and Planning.

For the first multi-criteria analysis, Westport was required to select one long-term growth figure to measure the end-state performance of the long-list of options. Westport decided on 3.25 per cent as it struck a good balance between the lowest average TEU growth rate in WA during economically weak periods (3.0 per cent per annum) and the TEU growth range in WA when compared to historic GDP growth (between 3.5 and 5.4 per cent per annum).

It should be noted that while the 3.0 to 4.0 per cent growth range now being used by Westport aligns with Fremantle Ports' long-term growth expectations, it is still conservative when compared to the long-term forecasts being used by Drewry Maritime Consulting (3.9 to 4.7 per cent) and the ports in Melbourne, New South Wales and Brisbane (3.5 to 4.5 per cent).

Diagram 1: Annual container growth rates at Fremantle over the past 20 years (1998-99 to 2018-19)



Why does the container growth rate matter so much?

Why has Westport put so much focus on reviewing and testing the container compound annual growth rate (CAGR)?

While a variation of one, or even half a per cent may not sound significant, the cumulative effects of the growth rate compounded over time result in very large variations by 2068.

As shown in Diagram 2 (below), now that Westport has adopted a growth range of between 3.0 and 4.0 per cent, we must ensure that all our options can cater for between 3.4 million and 5.5 million TEU in 50 years' time. Even a very minor increase in the CAGR from 2.8 to 3.25 per cent results in 700,000 additional TEU by 2068 – which is close to the total number of containers Fremantle handles currently.

While using a growth forecast that is unreasonably high and triggers the Government to build new infrastructure before it is required carries risk, using a forecast that is too low presents a more significantrisk. It could lead to current infrastructure reaching or exceeding capacity before additional facilities are ready.

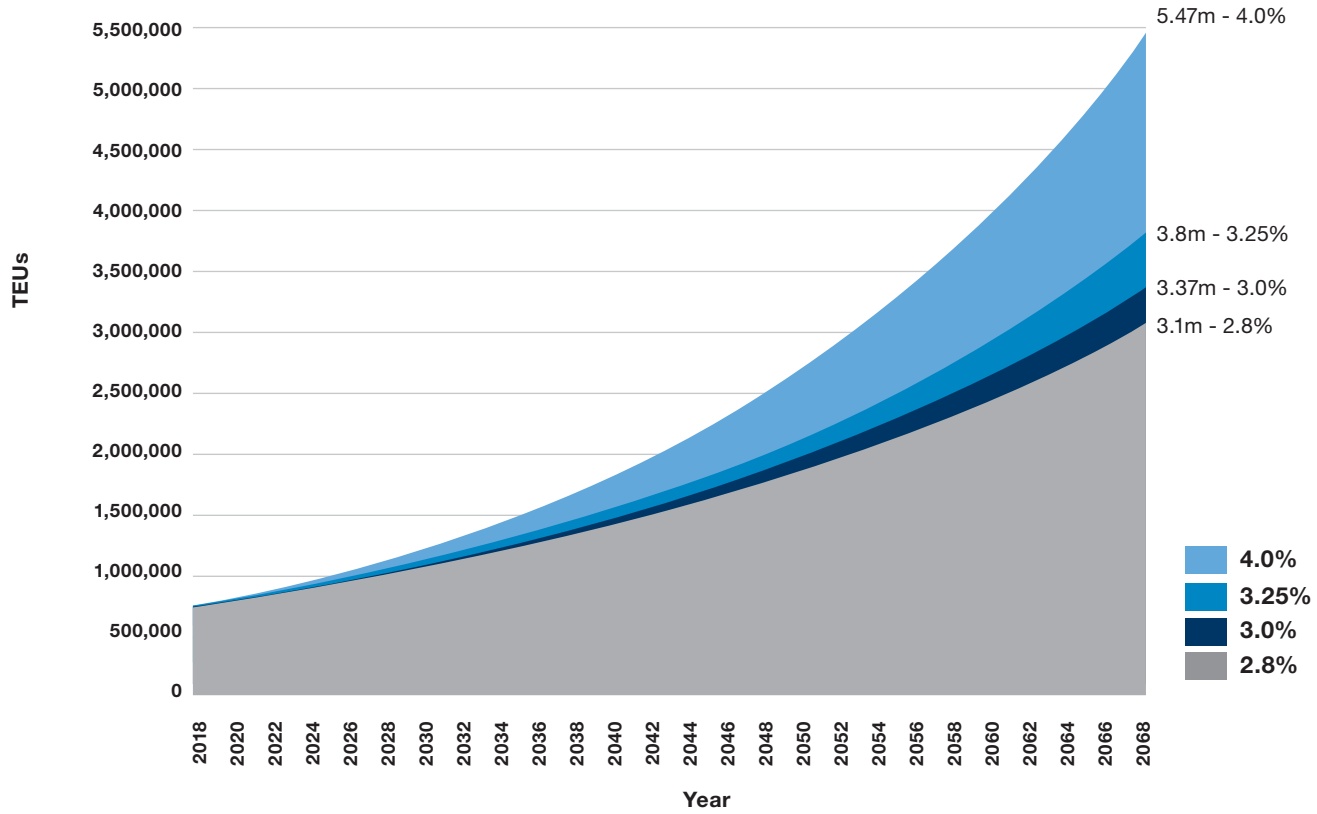
Building or upgrading any infrastructure requires a long lead time. Ports have an added complexity in that they require consideration of the whole supply chain, including potential changes to roads, rail and intermodal terminals.

There are extensive engineering requirements, environmental approvals, planning and design processes, funding and investment attraction and other considerations to be addressed. All of this work, along with construction of the port, may take up to a decade.

If Western Australia waits too long to embark on the port planning process, we risk a situation where our ability to import and transport the volume of containers to meet future demand is limited. This could have significant impacts on congestion and mobility (particularly around Fremantle), product availability and affordability, and delivery times. This would all be detrimental to our economy, productivity, liveability and the environment.

Diagram 2: Container growth rates over time

TEU growth rate implication for necessary capacity in 50 years (TEU 000's) A long-term TEU growth rate of 3.0% to 4.0% may require long-term port capacity of between 3.4 million and 5.5 million TEU.



Why are containers so important to Westport's work?

While Westport is considering all trades – including bulk (grains, minerals, liquids), general cargo (such as livestock and vehicles) and passengers – our primary focus is on the long-term future of the container trade. This is for a few reasons:

- Nearly all our everyday consumer goods arrive in shipping containers – from food and beverages to electronics and clothing. Ensuring we can meet the escalating demand from Perth's growing population – which is forecast to double around mid-century – is critical to maintaining our high standards of living.
- Westport was formed to specifically address the issue of Perth's container terminal capacity and land transport access, as stated in the 2019 Infrastructure Australia priority list.
- When compared to other trades, container ports and their associated supply chain networks have the most significant impacts on infrastructure, land use, environment and social amenity. This means they require more significant planning and investment.

  For example, the road and rail links to the Inner Harbour are becoming increasingly constrained largely based on recent growth in container numbers. This is impacting local road users and residents living near the freight rail line. Roads and rail are both expensive and disruptive pieces of infrastructure to build in their own right, so Government must ensure it is directing its time and investment towards building the most effective supply chain solutions for the long-term.

The Inner Harbour is operating two-thirds below its capacity – so why are we discussing a new port?

A study of the Inner Harbour conducted in 2014 found that the existing berths and port footprint could handle up to 2.1 million TEU. This is a substantial increase on the 770,000 TEU the port handled in 2017/18.

However, a fundamental area was overlooked, as this study did not consider the road and rail connections to the port. These supply chain links are, in fact, the biggest constraints to Fremantle. This is explained further in *Westport Beacon 8: Why Fremantle can't handle the long-term freight task alone.*

It is not a new concept that Fremantle will reach its capacity at some point in the future and a new port will be required; far from it. In fact, establishing major port facilities in the Outer Harbour was first flagged back in 1952 as part of BP's State Agreement.

The plan to develop additional port facilities in the Outer Harbour was reiterated over multiple planning processes conducted by both sides of Government over subsequent years.

The timeline below shows a history of port planning for Perth:

- **1897:** Inner Harbour at Fremantle opens
- **1940s-50s:** Town Planning Commissioner, David Davidson, prepares a master plan for metropolitan Perth, with Kwinana designated as the heavy industry location
- **1952:** Oil Refinery (Kwinana) Agreement Act 1952 is passed. This State Agreement with Anglo-Iranian Oil Company (now BP Development Australia) promises land, utilities, transport links and a major port in Kwinana
- **1955:** The Hepburn-Stephenson Plan for Perth and Fremantle reconfirms the planning imperative for Kwinana industrial areas and port facilities in Cockburn Sound
- **1966:** Development of the Outer Harbour begins, and the Causeway to Garden Island is proposed
- **1971:** Corridor Plan again reinforces Kwinana industrial area and Cockburn Sound port facilities
- **1972:** The Port Development Scheme Point Peron Area is produced which incorporated a marina in Mangles Bay
- **1973:** The Garden Island Causeway opens
- **1982-84:** Plan for Outer Harbour at Mangles Bay
- **1989:** New Port Options Study assessed five locations along the coast between the CBH grain terminal and Fremantle Port
- **1991:** Metroplan endorses Kwinana industrial areas and port facilities in Cockburn Sound
- **1994:** Future Port Options – Naval Base/Kwinana study
- **1996:** Cabinet endorses Naval Base/Kwinana as the preferred site for a second major container port
- **1997:** Port Development Plan – looked at two options close to the CBH grain terminal
- **1999:** Outer Harbour Development – proposed a design at Naval Base
- **2005-06:** Port Options for Fremantle Outer Harbour proposed a number of options, including an island port connected to the coast north of the Alcoa jetty
- **2007:** Port Options for Fremantle Outer Harbour – Cabinet endorses an island and land-backed port at Naval Base
- **2009-14:** New port planning undertaken by the Barnett Government. Fremantle Ports assessed for privatisation. Port planning stopped when the Perth Freight Link is announced
- **2017-19:** Westport Taskforce established to assess long-term port and freight options for Perth and surrounds, and deliver a recommendation

It's also fair to ask why the Outer Harbour seems to be the only location being considered as an alternative port location to Fremantle within the whole Perth metropolitan area.

A long history of port planning studies have assessed potential locations for a second major container port for Perth. Each investigation has landed on Kwinana/Cockburn Sound as arguably the only suitable location for another major port within the Greater Perth area.

Alternative sites that have been investigated include:

- Regional locations at **Geraldton**, **Bunbury, Wilbinga and Breton Bay.** This study found that:
  - land transport costs associated with cartage between a regional container port and Perth were prohibitive, given that the majority of containers had an origin or destination in the metropolitan area;
  - there would be high costs for upgrading rail connections to these ports to handle high volumes of containers; and
  - regional ports go against the international trend of consolidated container port facilities.
- **North Fremantle** (north of North Mole): found to be unsuitable due to potentially causing substantial congestion on the transport network resulting in severe restrictions to the efficiency of operations;
- **Catherine Point** (within Owen Anchorage): deemed unsuitable due to existing proposals to redevelop industrial land for urban uses, water quality issues; and social impacts (noise, light, risk) on nearby urban communities;

- **Jervoise Bay:** was unsuitable due to a lack of land for supporting industries, proximity to key recreational areas, impact on marine flora, proximity to the area earmarked for expansion of marine construction facilities;
- **Rockingham Wells Park:** deemed unsuitable due to proximity to urban land in Rockingham; major constraints presented by the unsympathetic bathometry of the area; and
- **Mangles Bay:** unsuitable due to transport constraints, proximity to urban uses, negative environmental impacts, and the military use of Garden Island.

Kwinana has been deemed suitable due to its:

- ability to meet port, land use and transport planning needs while minimising environmental and social impacts;
- buffer between industrial and urban land uses;
- integration with existing industry; and
- ability to meet ship operational criteria.

The Kwinana location was endorsed by the Richard Court-led Liberal-National Government in 1996 as the preferred site for the development of additional container port facilities to handle overflow trade beyond the capacity of the Inner Harbour at Fremantle. All subsequent Governments have maintained this view.