



SEA FREIGHT COUNCIL OF WESTERN AUSTRALIA

November 2005

Container Logistics & the Port of Fremantle



Introduction

Moving freight efficiently is critically important to Western Australia's economy. Over 60 million tonnes of freight moves to, through and from the Perth metropolitan area annually, and 22 percent of metropolitan income in Western Australia is dependent on exports. Well-designed transport networks with good access to major origins and destinations are essential.

Community amenity is also an important issue, with a need to minimise social and environmental impacts of rail and road freight traffic as trade grows.

Freight Network Review

In 2001-02, the Freight Network Review brought together the community, industry and government to find better ways to move freight in the Perth metropolitan area. The initiative resulted in a general focus on the imbalance in freight movements between road and rail and, in particular, concerns about containers transported to and from Fremantle Port.

A six-point solution was suggested to address the tension between freight efficiency and community amenity. The six points were:

- Extend the Roe Highway to the Kwinana Freeway
- Put more freight on rail
- Build inland container terminals.
- Make better use of our roads.
- Plan now for the Outer Harbour at Kwinana
- Improve existing roads.

The delivery of three of these six points depends on enhanced logistics for container movement. Unless this outcome is achieved, there is a risk that the Fremantle Inner Harbour may not be able to reach its full operational capacity.



Current Study

An earlier Origins/Destination study conducted in 2003 indicated how containers were moved to and from Fremantle Port and what routes they used. Based on that work, a subsequent study was designed to suggest better container logistics with a view to improving efficiency and reducing heavy vehicle movements to and from the Port.

The study was conducted by Bovis Lend Lease on behalf of the Sea Freight Council of Western Australia, Fremantle Ports and the Department for Planning and Infrastructure. It is entitled "Alternative Arrangements for Transport, Handling and Storage of Shipping Containers Associated with Fremantle Port Inner Harbour". A full copy of the report is available on the DPI website at www.dpi.wa.gov.au/freight/

Improving Container Logistics

The report examined a range of alternative rail, road and operational measures to meet the objective of improved container logistics.

While these opportunities are all potentially important in their own right, in practice they will interact with each other and be intrinsically linked. For the purposes of the examination, however, they were dealt with separately in the study.

The alternatives were examined against two key criteria. Community benefits were measured by the potential reduction in the number of vehicles moving to/from the Port. Commercial impacts were measured by potential changes in supply chain costs (transport and handling) compared with current practice.

a) Rail-based opportunities

The State Government aims to have 30 per cent of containers moving through Fremantle Ports on rail by about 2012. The new North Quay rail link and stage one of the new rail terminal servicing Fremantle's container terminals will assist by improving the efficiency of train operations and the rail/container terminal interface and by allowing narrow gauge trains to enter the Inner Harbour, allowing direct access to regional markets.



The study examined increased use of rail to Fremantle Port through the development of terminals at:

- Kewdale
- Picton
- Kwinana
- York
- Kalgoorlie

Each of these alternatives showed significant benefits in terms of reducing truck numbers. The areas with the largest market and freight volumes, Kewdale and Picton, showed the most positive impact. When it came to cost reduction, however, the shorter haul alternatives for rail faced significant commercial impediments because they offered less opportunity to offset the terminal costs associated with rail. For metropolitan-based terminals, rail was shown to be relatively more expensive than road.

b) Road-based opportunities

The average truck loading at Fremantle Port measured in containers is 1.3 teu ("twenty-foot equivalent unit"), which is well below the carrying capacity of most heavy vehicles. Furthermore, over one-quarter of trucks travelling to or from the Port are empty. There is enormous potential to develop more efficient truck running for the movement of containers.

In pursuit of these efficiencies, the study examined the feasibility of multi-user road hubs, with larger trucks offering better loading to/from the Port and specialised smaller trucks operating from depots. Potential hub locations examined were:

- Eastern suburbs (Kewdale)
- Northern suburbs (Flynn Drive, Neerabup)
- Southern suburbs (Kwinana)
- Fremantle Port Precinct

All of these alternatives offered savings to industry. Several also had strong potential to reduce truck numbers. Freight volumes appear to suggest a case for hubs in the eastern suburbs (at or near Kewdale) and in the port precinct.



Rail access to both these areas would offer the opportunity for multi-modal facilities. The demand in the southern suburbs is relatively small at present, but the development of the proposed Fremantle Ports Outer Harbour container port facilities over coming years will change that. With the northern suburbs, there is strong industrial growth off a low base and this suggests potential. Moreover, this area is unlikely to have access to a freight rail service in the foreseeable future.

c) Operational efficiency opportunities

This study also examined a number of operational alternatives to achieve changes in the way key industry players do business. They included:

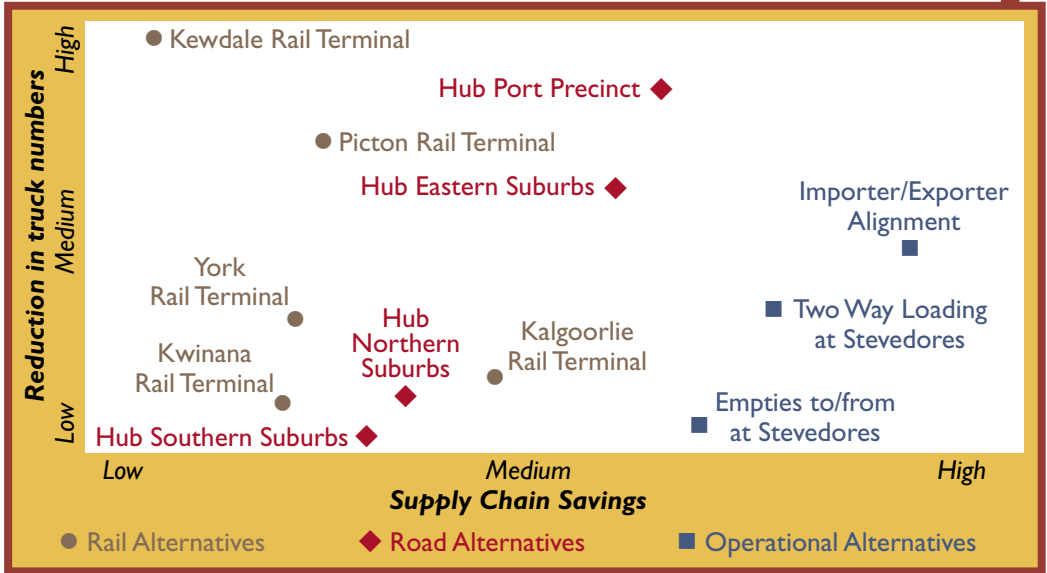
- two-way loading at container terminals (trucks delivering containers to the terminal pick one up for the return journey - currently less than 5 per cent of movements are two-way)
- empty containers moved directly to/from container terminals (instead of empty containers going via container parks, they are dropped off at, or collected directly from, the terminal - more than 20 per cent of containers moving across the wharf are empty at present)
- importer/exporter alignment (empty import containers move directly from importer to exporter rather than being returned to the Port – also known as triangulation)

These alternatives all rate highly on the industry savings criteria because they take whole truck movements out of the system and improve vehicle utilisation.



Study Findings

So what would be the relative impact of these alternatives if they were implemented, from the viewpoint of both the community (reduction in truck numbers) and industry (reduction in supply chain costs)? This diagram shows the results.



And if these individual alternatives are aggregated, their overall potential impact can be examined. On the following table, the Low Case is based on half of the alternatives being implemented. The High Case is if they all come to pass.

	Low Case	High Case
% of TEU through the port that are impacted	42 %	84 %
% reduction in truck numbers	28 %	55 %
Supply chain savings	\$7.5 M	\$15.1 M



Why Aren't These Improvements Already in Place?

If these alternatives are all so effective in taking trucks off the road and bringing down industry costs, why haven't they already happened? The answer gets back to a complex series of operational, commercial and historical factors. Among these are:

a) Rail opportunities

- cost disadvantage compared to road (especially on short haul routes)
- service flexibility (rail is best suited to regular, well planned movements whereas a number of trades fluctuate in volumes and timing)
- established commercial relationships (the industry has grown up around use of road and mindsets can be difficult to change)
- lack of narrow gauge connection to the Port

b) Road opportunities

- the large number of small operators tends to work against development of hub arrangements which require consolidation of business to achieve volume
- many road operators tend to be specialists in either import or export trades rather than both
- the industry is intensely competitive with low margins making investment in hub facilities difficult

c) Operational Alternatives

- alignment of importers' and exporters' shipping requirements can be difficult (matching of container size, availability, importer/exporter, shipping line)
- established commercial practices
- lack of collaboration across industry with different parties in the supply chain tending to focus on their own operation rather than what benefits the chain as a whole



What is Needed to Progress the Improvements?

Based on the findings of this study, a list of actions has been drawn up. These initiatives are now in the process of being developed. They include:

a) Rail

- reduce North Quay costs: the interface between container and rail terminals accounts for a large part of rail's cost disadvantage compared to road on short haul routes
- establish a container park in the eastern suburbs with a full range of associated services: if there was a suitable facility in the Kewdale area, empty containers would not generally have to be relocated to/from the Port by road and those that did could use the rail service
- develop regional rail facilities: the introduction of narrow gauge rail access to the Port opens the opportunity for rail facilities in the South West to handle export containers from south of Bunbury and in the York region to cater for movements of processed hay
- examine the case for Government support: rail can be uncompetitive at low traffic volumes because of its relatively high cost structure, particularly on short haul routes, and may need support to achieve the critical mass required to be competitive

b) Road

- establish a container depot in the eastern suburbs: if there were a container depot in the Kewdale area, ideally with direct rail and road access, more efficient truck operations would be possible with both rail and road able to perform the tasks best suited to each
- commence planning for a road hub in the northern suburbs: identify suitable locations with the right size and zoning, develop a least-cost traffic strategy and put land aside for a road hub that will stimulate industry growth, ensure future road efficiency and protect future communities in the region
- examine the feasibility of a port precinct road hub: given the significant potential industry and community benefits from the operation of a major road hub within the Port in terms of fewer trucks and more efficient loadings, review land availability and systems necessary to make this work.



c) Operational Alternatives

- the significant benefits arising from these alternatives will be difficult to capture because they rely on a high level of collaboration across industry; however, an approach based on case studies involving individual stakeholders, the identification of commercial champions, enhanced communication between sectors and the establishment of a properly functioning Vehicle Booking System at the Port will assist

The Way Forward

This study has added greatly to the general understanding of opportunities for, and barriers to, introducing alternative logistics practices. Its central conclusion is that there is no simple solution to solve the problem.

However, there are a large number of specific initiatives suggested in this study that can make a significant difference and allow key elements of the Six Point Plan to be put in place. Their achievement will require commitment from both Government and industry.

The process has already started. Specific initiatives will be addressed progressively. The intention is that the momentum will build incrementally to a point where a set of commercial, operational and Government practices are in place that result in activity at Fremantle Port being sustained into the long term.



For further information contact -

Sea Freight Council of Western Australia

Address: Marine House, 1 Essex St, Fremantle WA 6160

Postal Address: PO Box 402, Fremantle WA 6959

Telephone: +61 8 9216 8817

Fax: +61 8 9430 8734



SEA FREIGHT COUNCIL OF WESTERN AUSTRALIA

www.dpi.wa.gov.au/imarine/sea_freight/home.html





SEA FREIGHT COUNCIL OF WESTERN AUSTRALIA

