



Review of the Interface between the Land Transport Industries
and the Stevedores at Port Botany

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1 INTRODUCTION

QR's subsidiary company, CRT Group Pty Ltd, has been a pioneer in attempting to establish metropolitan port shuttle rail services between its terminal in Sydney (Yenora) and Port Botany; and between its terminal in Melbourne (Altona North) and the Port of Melbourne.

Unfortunately, the Melbourne service was terminated on 18th February 2007 due to factors such as low priced road transport alternatives and the lack of support for short haul rail.

The general market place will not support metropolitan port shuttle rail services when road transport is a much cheaper alternative, principally as a result of the differential charges levied on shipping containers at the port.

CRT's experience would support the following statement made in the Draft Melbourne Port@I Strategy (August 2006):

"Promoting an increase in rail activity will require a systematic rail growth plan that recognises the current lack of cost competitiveness of short-haul urban freight rail. Such a plan will also need to address issues such as terminal governance, track access, operating protocols and other policy initiatives considered appropriate to encourage the use of rail shuttles from the port to outer-urban intermodal terminals."

Further, as documented in the Victorian Freight and Logistics Council Consultation Paper "A Toolkit for the Development of Intermodal Hubs" (October 2006):

"Short haul rail is uneconomical compared to road, given the requirement for rail to absorb additional costs of certification, safety standards, and access to infrastructure. In addition, rail has the lift on and off costs which are unavoidable. Over distances shorter than 150 kilometres, these costs are difficult to absorb and remain competitive with road."

While rail is able to compete with road transport over regional and interstate distances, it cannot over the shorter distances of the metropolitan rail network until governments are able to principally obtain the cooperation of the stevedores to a restructure of charges that will help bring into effect a common charge for the handling of shipping containers at the port, regardless of the mode of transport.

There are many benefits to freight being transported to and from the port via rail as have been documented by P & O in "Observations from an intermodal operation" in the VFLC Industry Intermodal Awareness Program Report (April 2004) (see extract provided). Such benefits should support the case for the setting of a common stevedore shipping container handling fee, particularly, as stated by P & O, that the benefits that would be derived from a modal shift from road to rail would be equally shared by many participants in the complete supply chain --- as well as contribute to the general public good of our society.

CRT Group would be pleased to elaborate on this in a subsequent submission to the Tribunal. It would also be pleased to provide responses to the specific questions posed by the Tribunal in its Issues Paper. Further work is being conducted and will be forwarded in the upcoming weeks.

QRNational also believes that it is critical to address two key infrastructure issues in Sydney to effectively deal with the port congestion problem:

- Providing the right infrastructure
- Ensuring that this infrastructure is correctly used.

The submission makes concrete recommendations in both of these areas.

QRNational generally believes that the current rail infrastructure throughout the AusLink network is inadequate to deal with the predicted rapid increase in freight volumes. Deficiencies in the rail network, and specifically in rail infrastructure in and around the Sydney metropolitan area, are widely acknowledged as the most serious shortcomings in the rail system. At the same time, Sydney has severe road congestion problems, and these problems are expected to worsen over the coming decades.

Improving the rail infrastructure, and ensuring that both road and rail infrastructure are appropriately used, can make a significant contribution to reducing the load on the city's road system. This will in turn lead to improvements not only in transport efficiency but also in health, safety, the environment and urban amenity.

But the benefits of improving rail infrastructure within the Sydney metropolitan area will extend well beyond the limits of the city. The rail system and intermodal terminals that fall within the Sydney Urban Corridor is used in the transport of freight along the Sydney–Melbourne, Sydney–Brisbane and Melbourne–Brisbane corridors. In all of these corridors, the share of freight moved by rail falls well below its potential¹. Congestion and other problems within the Sydney Urban Corridor increase transit times and reduce reliability on these routes, and are a significant impediment to increasing rail mode share, and realising the economic and social benefits that would flow from this.

¹ Australian Railways Association, 'The future of freight', Canberra, 2005.

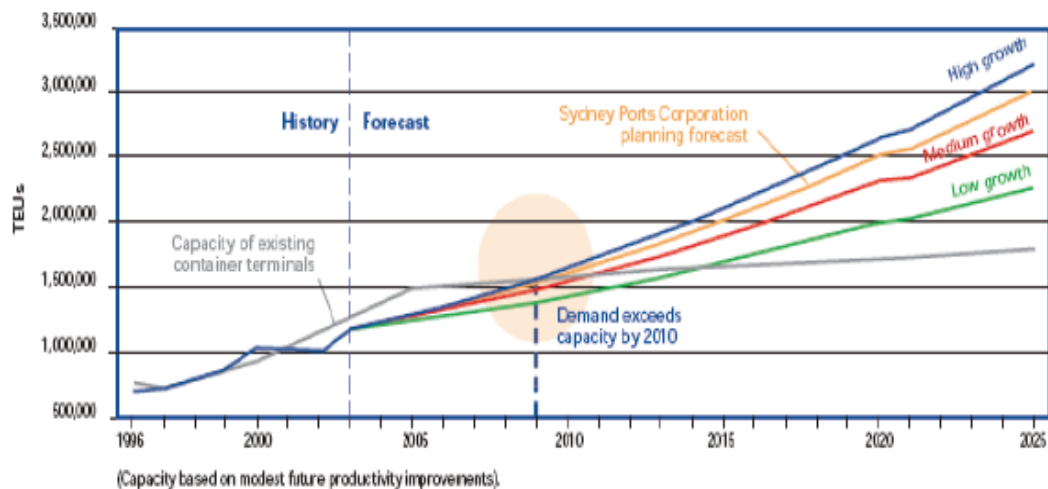
2 FUTURE CHALLENGES FOR THE CORRIDOR

2.1 Increased freight task

In 2005/06, Port Botany moved over 1.4 million containers. This volume is forecast to grow at a rate of 5-6 per cent annually to approximately 3 million containers by the early 2020s. This projected growth of freight movement across the Sydney metropolitan area will pose substantial challenges for the intermodal logistics chain to and from Port Botany. To meet this challenge it will be necessary to boost investment in new intermodal terminal facilities, develop dedicated rail freight lines and improve the rail interface at Port Botany.

Figure 1 displays forecast growth and capacity constraints at Port Botany, from work undertaken by Access Economics and Maunsell for the Sydney Ports Corporation. The growth scenarios are based on average long term economic and demographic growth trends, world trade prospects and likely operational arrangements, and incorporate the rate of conversion of bulk trade to containerised trade at the port. Four scenarios are presented, showing possible outcomes depending on possible trade growth and the rate of conversion. Access Economics and Maunsell also provide analysis of port capacity, predicting that the existing port will exceed capacity by 2010. Plans for the expansion of Port Botany are based on these forecasts.

FIGURE 1: FORECASTS OF CONTAINER THROUGHPUT AT PORT BOTANY



Source: Sydney Ports Corporation (SPC), *Port Botany Expansion*, January 2004

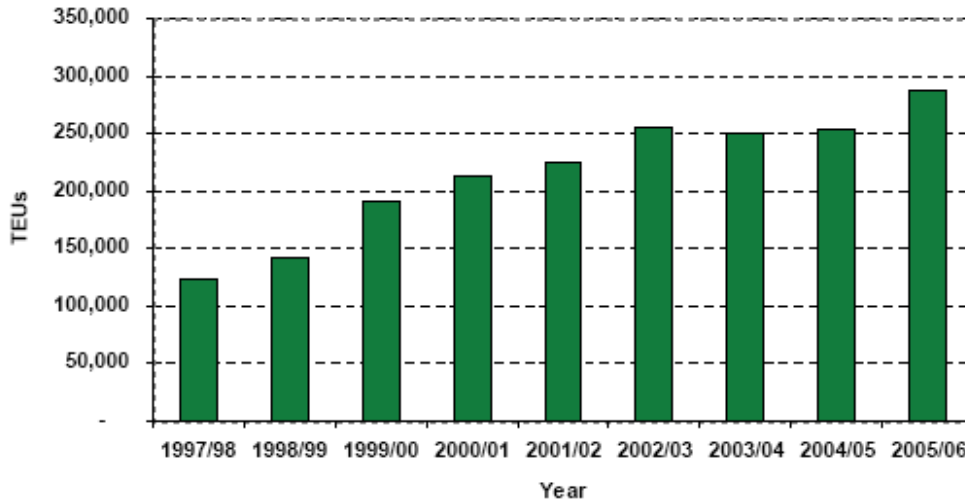
2.2 Achieving 40% rail share of port-related volumes

The key strategy in helping manage the forecast growth of the Sydney freight task is the NSW Government's policy of ensuring that 40 per cent of all port-related container movements are hauled on rail by 2011.

At present, the rail share of port traffic falls far short of this target. In its 2005-06 Logistics Review, Sydney Ports Corporation estimated that the rail share of the total freight task at Port Botany was 21.5 per cent or 290,000 containers. Figure 2 shows the recent historical trend movements in port-related rail container volumes.

To meet this target by the early 2020s will require a fourfold increase in rail freight volumes. With a 40 per cent rail mode share the number of daily train movements to and from Port Botany would need to increase by 260 per cent from 30 movements to 108 movements over the same time period.

FIGURE 2: RAIL VOLUMES THROUGH PORT BOTANY



Source: Sydney Ports Corporation, *Logistics Review*, 2005/06

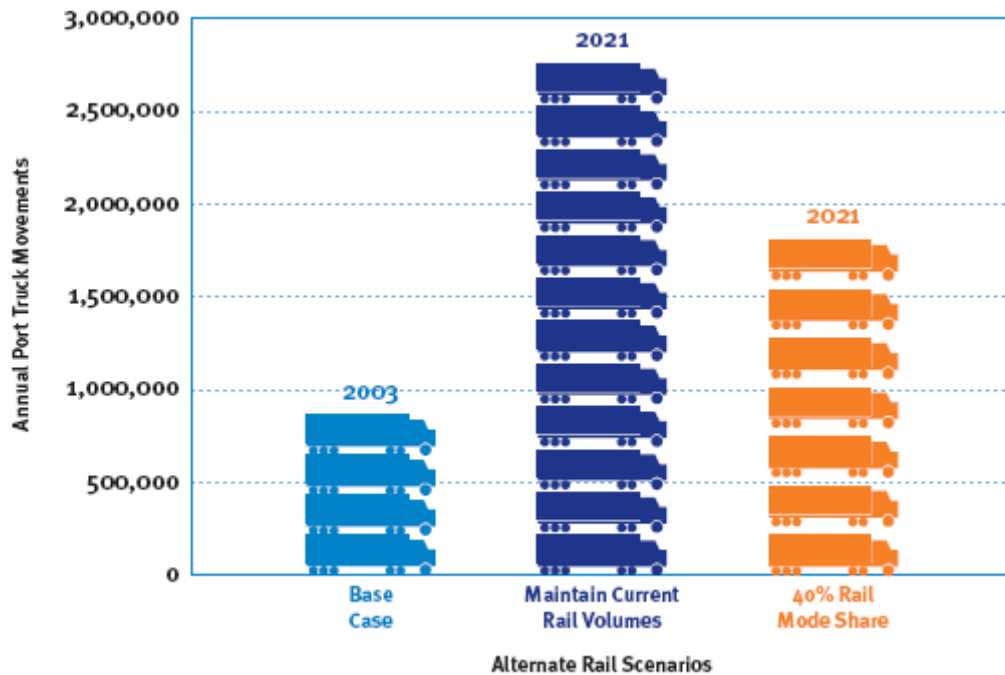
2.3 Port-related volumes carried by road

It is important to recognise that even if the NSW 40 per cent rail mode share target is achieved, container truck traffic to and from Port Botany will still increase considerably. This is due to the absolute level of forecast increase in container traffic forecast for Port Botany (as shown in Figure 1).

Figure 3 displays the prospective level of port-related container movements by trucks under different rail scenarios. With a 40% rail share, the port-related road task is forecast to rise to approximately 1.8 million containers by 2021, up from around 850,000 containers in 2003.

The Sydney Urban Corridor strategy expressed the size of the road tracking task in daily terms. Daily truck traffic generated by the terminals at Port Botany is forecast to increase by 61 per cent from the current 2,900 movements to 4,700 movements by 2021 – under a 40 per cent rail mode share.

FIGURE 3: PORT RELATED CONTAINER MOVEMENTS ON KEY ARTERIAL ROADS BY RAIL SCENARIO



Source: Summary Report, *Draft Metropolitan Intermodal Freight Strategy*, NSW Department of Infrastructure, Planning and Natural Resources, October 2004

If the rail share challenge is not met and truck container volumes reach around 2.7 million containers by 2021 (Figure 3), then the strain placed on Sydney roads in the form of congestion effects will reach levels that severely increase transport costs and reduce the performance of the Sydney Urban corridor.

The Freight Infrastructure Advisory Board's July 2005 report *'Railing Port Botany's Containers: Proposals to Ease Pressure on Sydney's Roads'* stated that unless there is a significant shift to rail, annual container truck volumes on say the M5 Motorway are likely to increase by more than 150 per cent by 2021. Even with a 40 percent rail share, container truck volumes on the M5 are projected to increase by approximately 75 per cent.

2.4 Increased traffic congestion

High levels of traffic and traffic growth lead to significant levels of urban congestion — especially in peak-time travel periods. This imposes considerable direct and indirect costs on capital city residents and industry. These costs include lengthening average journey times, variable trip times, higher vehicle engine operating costs, increased fuel consumption and more air pollution.

In December 2006, the Council of Australian Government' (CoAG) Competition and Regulation Working Group released an information paper on the impacts and solutions to urban congestion. As part of this, the Bureau of Transport and Regional Economics (BTRE) was commissioned to generate forecast estimates of congestion costs for Australia's capital cities².

² *'Estimating Urban Traffic and Congestion Cost Trends for Australian Cities'* (October 2006)

Congestion costs for Sydney are projected to reach \$7.8 billion by 2020 – up from \$3.5 billion in 2005³. This reflects an expected increase of 38% in total metropolitan vehicle travel. The challenge for the Sydney Urban corridor will be to adopt measures to avoid or mitigate these costs.

3 OBSTACLES TO EFFICIENT RAIL PERFORMANCE

3.1 Insufficient intermodal infrastructure

QRNational concurs with the Sydney Urban Corridor strategy comments regarding the current state of Sydney's intermodal terminal system:

'The current intermodal terminal configuration within Sydney for both interstate domestic and port-rail IMEX containers has inadequate capacity to efficiently handle forecast growth and NSW Government targets for increased rail mode share in containers to and from Port Botany' (pg 24).

For ease of reference, Table 1 below reproduces the summary information on current rail container throughput, capacity and indicative constraints from the corridor strategy report.

TABLE 1 SYDNEY'S IMPORT EXPORT AND DOMESTIC INTERMODAL TERMINALS

Terminal	Siding length	Estimated IMEX max. capacity (TEU pa)	Throughput 2005/06	% Utilisation	Role/ Developments
Enfield (Sadleirs Siding)	>600m	NA	10,000	NA	Marshalling Yard - Proposed 300,000 TEU Import/Export (IMEX) terminal subject to approval Distribution Centre – movement of rail freight from Western Australia
Chullora	1800m	NA	300,000	NA	Domestic – Main siding obstructs trains when occupied and trains require shunting for placement into sidings for loading/unloading
Camellia (Sandown)	<350m x 3	70,000	70,000	100%	IMEX - Access constrained by Parramatta Road level crossing
Leightonfield (Villawood)	<400m x 3	30,000	26,000	87%	Domestic - Constrained by residential development
Minto MIST	400m	100,000	40,000	40%	Domestic (15,000 TEU) - Expansion planned to 1500m siding. Located away from the planned SSFL
Yennora	900m x 2 <800m x 3	70,000	40,000	57%	Domestic (10,000) - Shunting to sidings obstructs main line/constrained by residential development
Clyde	800m	NA	NA	NA	Marshalling Yard - Near capacity/restricted access to Metropolitan Freight Network due to shared passenger train paths
Cooks River	<600m	NA	150,000	NA	Empty container park - Marshalling long trains requires yard closure during shunting

Source: AusLink Sydney Urban Corridor Strategy, pg 8

The intermodal terminal and freight yard network that currently services the Sydney Urban rail corridor includes Cooks River, Enfield (freight yard), Camellia, Yennora, Leightonfield, Minto, Chullora and Clyde (freight yard).

³ The BTRE approach to estimating congestion costs is based on an aggregate modeling approach. This provides broad estimates of the scale of congestion at the city level but it is not as accurate as location-specific network models. As such, the estimates should be regarded as being 'order of magnitude'.

Within this network, there are four terminals that primarily handle the import and export of containerized rail cargoes — Camellia, Yennora, Leightonfield and Minto — with a combined throughput of 176,000 TEU in 2005/06. Given that 290,000 TEU were transported by rail to/from Port Botany in 2005/06, this implies that 114,000 TEU were railed direct to/from regional NSW. The remaining terminal at Chullora is domestically-orientated, and handled around 300,000 in 2005/06. It is worth noting that Yennora and Minto terminals accounted for a relatively small domestic cargo task of 10,000 and 15,000 in 2005/06, respectively.

While the four import-export terminals can play a role in meeting future freight demand, it is unlikely that large scale expansions at these terminals will be either practically or financially viable. The import-export terminals at Camellia and Leightonfield are operating at full and near-full capacity, respectively. With the exception of Minto, Sydney's intermodal terminals are characterised by a combination of capacity constraints and limited future expansion potential, due to a range of obstacles including poor road access, insufficient rail siding length (causing unnecessary shunting of trains) and neighbouring residential zones (leading to freight operation/community tensions over noise, traffic and general amenity).

The potential for insufficient intermodal terminal capacity to inhibit future growth of rail mode share is accurately reflected in the Sydney Urban Corridor strategy:

'it is estimated that the existing network of IMEX intermodal terminals will reach capacity before 2011 with a 40 per cent rail mode share and by 2016 with a 20 per cent mode share.'
(pg 20)

The Freight Infrastructure Advisory Board (FIAB) projected that, by 2020, Sydney will require intermodal terminal capacity of least 1.2 million TEU/year. The current shortage of terminal infrastructure will undermine rail's ability to do its share in meeting Sydney's future freight challenge.

3.2 Inadequate rail infrastructure

The deficiencies in intermodal terminal infrastructure are mirrored by the inadequate level of rail freight infrastructure in the Sydney Urban corridor.

Figure 4 displays Sydney's existing freight train network in conjunction with intermodal terminal locations. It clearly shows that at the moment, the Botany freight line is the only dedicated rail freight track to Port Botany. It extends from Port Botany to Sefton junction via the Enfield marshalling yard (pink shaded line). Trains serving the import-export intermodal terminals at Camellia (denoted as Sandown in Figure 4), Leightonfield, Yennora or Minto cannot access the port without traversing track shared with passenger operations.

3.2.1 Southern Sydney Freight Line (SSFL)

The impending construction of the SSFL (discussed in detail in Section 4) will be a welcome improvement to the south/south-western section of the Sydney rail freight network. However, the current plans do not provide sufficient passing sections or holding locations within the SSFL corridor.

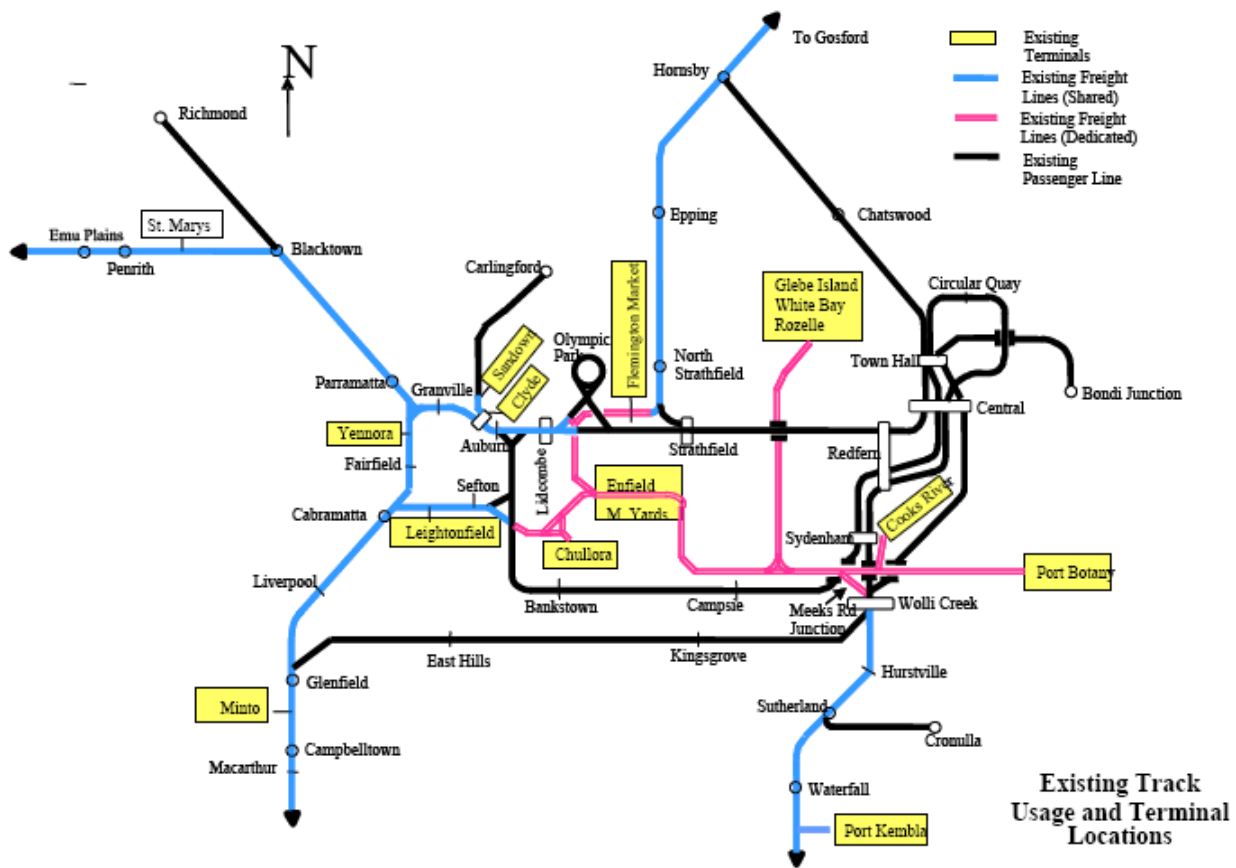
3.2.2 Western Sydney

There are some critically important freight-intensive areas of Sydney which will still not have dedicated rail freight lines.

At the moment there are no commercially viable plans under consideration for the provision of dedicated rail freight paths directly linking Port Botany to the western suburbs of Sydney.

In 2005, FIAB assessed the cost of building a freight line connecting the proposed SSFL and the Main West Line to a potential intermodal site at Eastern Creek, and concluded that the excessive cost and environmental impacts of the required engineering solution made the plan unacceptable.

FIGURE 4 FREIGHT TRAIN TRACK USAGE AND INTERMODAL TERMINAL LOCATIONS



Source: Sydney Ports Corporation *Sydney-Intermodal Sustainability and Opportunities for Growth*, Presentation at the Planning and Transport Research Centre (PATREC) Conference November 2004

This has left the western suburbs in a serious situation. There has been rapid recent expansion in transport/logistics facilities located in suburbs like St Marys, Rooty Hill, Wetherill Park, Arndell Park, Erskine Park. Given existing infrastructure constraints, road is the only viable access mode for these developments.

Strong growth of warehousing and distribution centre activity in this precinct is predicted. In 2005, the NSW Department of Infrastructure, Planning and Natural Resources commissioned independent research indicating that approximately 1.9 million square metres of new industrial space would come on line in the Sydney metropolitan area by 2011. The western Sydney area was projected to accommodate 48% of this new floor space.

Over the longer term, the western and south-western Sydney are expected to provide the highest industrial and employment growth, with over 70 percent of Sydney's industrial floorspace projected to be located in these areas by 2027.

The above forecasts are consistent with projections of Sydney Ports Corporation and the NSW Government's Sydney Metropolitan Strategy:

- Sydney Ports Corporation forecasts that by 2025 almost 50% of containers processed at Port Botany will be destined for/sourced from the western or south-western suburbs.
- The Sydney Metropolitan Strategy states that *'freight activity is likely to intensify in Western Sydney. The availability of industrial land in outer western and south western Sydney, coupled with the opening of the M7 Motorway, has resulted in considerable industrial activity within the motorway corridor, particularly near the junction of the M4 and M7 Motorways.'*

Since western and south-western Sydney is where the freight task is clearly burgeoning, QRNational argues that the lack of rail freight infrastructure in those areas is a significant obstacle to achieving the NSW Government's mandated target of moving 40% of port-related volumes by rail.

3.3 Limited rail siding capacity at Port Botany terminals

At the moment, some of the Port Botany stevedoring terminals provide insufficient rail siding capacity (or temporary holding area). The P&O sidings are only 350 metres in length. Since freight trains are longer than the rail sidings, arriving and departing trains must be broken into two or more parts at the Botany rail yard. The constant shunting and marshalling of trains means that the available carrying and track capacity are not used efficiently – around 40 per cent of the available track capacity to and from Port Botany is currently wasted.

QRNational would argue that the current siding problem is an impediment to improving rail performance for two key reasons. Firstly, it precludes the extraction of rail cost efficiencies through lower shuttle and terminal shunting times⁴. Secondly, and more significantly, if port-based rail capacity cannot be markedly expanded, then it will be very difficult to achieve the required 40% rail freight share.

⁴ Shorter train lengths will require additional inspection time for each individual flat car brake system, which increases overall shuttle times

QRNational also argues that Port Botany is inefficient for rail operations due to the competitive nature of the stevedores and rail having to deliver to set windows given by the stevedores. Rail operations would work more efficiently under the model used at the Port of Brisbane where trains are delivered at one location at the port and the cargo is forwarded onto stevedoring operators via road.

3.4 Track system constraints

Current infrastructure constraints preclude the use of double-stacked container freight trains on the Sydney Urban corridor. This inhibits the development of profitable short-haul rail shuttle services between Port Botany and Sydney's intermodal terminals.

Double-stacking is constrained due vertical and horizontal clearances. QRNational has identified three overhead bridges and a series of redundant overhead electric cables (freight trains are not electrified) along the Botany Freight Line – these currently inhibit the double-stacking of trains. However, further investigation is required to identify all the constraints.

As a result, considerable rail capacity and cost-efficiencies are foregone at present.

3.5 Operating constraints

Current operating procedures on the Botany Freight Line involve a number of practices that impede the line's efficiency. FIAB noted the following two examples:

- At General Holmes Drive, the existing road/rail level crossing requires freight trains to stop before proceeding through the crossing. This practice is generally incompatible with the essential requirements of an efficient freight rail system running trains pulling thousands of tonnes of freight in/out of Port Botany every day.
- Similarly, the pedestrian crossing of the rail line at Banksia Street, Botany requires every freight train to blow its horn on approach as a warning to local residents who use the at-grade crossing. Surrounding residents in medium density development along the rail line are forced to live with the noise impacts of each train warning of its approach. While this particular problem does not adversely affect rail performance per se, QRNational is conscious of the need for an effective urban corridor strategy to account for the legitimate environmental and social needs of the community.

3.6 Road pricing issues

QRNational is of the view that appropriate road pricing could play an important role in ensuring that the freight task allocated to the most efficient modes. Particularly useful in this regard would be:

- correction of current anomalies in road pricing that provide a cross-subsidy to B-Doubles (as recommended by the Productivity Commission⁵)
- the introduction of an appropriate congestion pricing scheme (as recommended by the Council of Australian Government's Working Group on Urban Congestion⁶).

⁵ Productivity Commission, *Road and Rail Freight Infrastructure Pricing*, Inquiry Report, No 41, December 2006.

⁶ Council of Australian Government, *Review of Urban Congestion: Trends Impacts and Solutions*, Urban Congestion Working Group, December 2006.

4 QRNATIONAL STRATEGIES FOR IMPROVING CORRIDOR PERFORMANCE

4.1 Streamlining Sydney's Intermodal Terminal Strategy

Until recently, the Sydney intermodal landscape, and the planning behind it, appears to have been fragmented and short term in nature. QRNational firmly believes that the Sydney Urban Corridor needs a proper long-term intermodal terminal strategy — an integrated and prioritised vision for intermodal terminals and associated rail to deal with the forecast growth in freight volumes.

The FIAB intermodal strategy (presented in its July 2005 *Railing Port Botany's Containers* report) captures the essence of QRNational's view on the appropriate basis and rationale for developing Sydney intermodal system:

'terminals should be located within major industrial precincts and containerised freight transported by rail to the terminals. Containers should then be transported to warehouses and other destinations by road. The rationale for the establishment of an intermodal network is to reduce traffic congestion near Port Botany and reduce container transport costs, as well as to reduce the number of heavy vehicles on residential streets between Port Botany and Western Sydney'.⁷

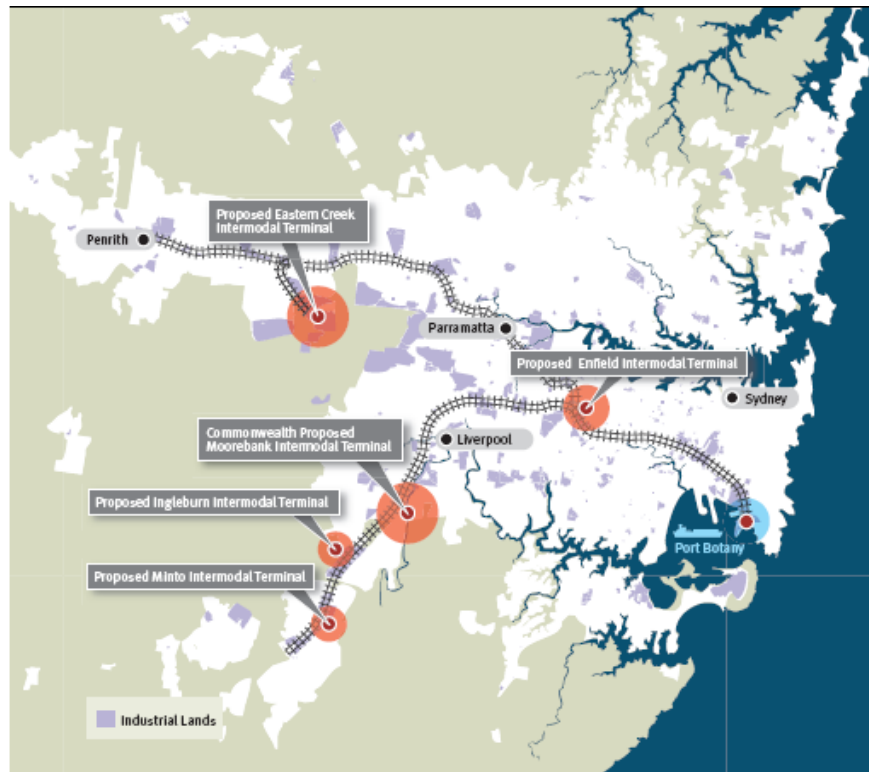
On the basis of this strategy, FIAB recommended a network of intermodal terminals (including Enfield, Moorebank and Eastern Creek), an expansion of the existing terminal at Minto and development of the planned facility at Ingleburn.

QRNational believes that serious consideration needs to be given to further streamlining (or prioritising) FIAB's proposed network of intermodal terminal sites. This will ensure the most appropriate (in a freight logistics sense) and cost-effective site is secured for Sydney's next terminal development.

Figure 5 shows the locations of proposed new terminals and rail links across the Sydney Urban corridor.

⁷ Quoted in the May 2007 NSW Independent Pricing and Regulatory Tribunal's (IPART) review of land transport and stevedores at Port Botany.

FIGURE 5: PROPOSED NEW SYDNEY INTERMODAL TERMINAL LOCATIONS AND RAIL LINKS



Source: FIAB, *Railing Port Botany's Containers*, Proposals to Ease Pressure on Sydney's Roads, July 2005

4.1.1 Moorebank

Central to QRNational's intermodal vision is the development of the large site (Defence Force site) at Moorebank as Sydney's next greenfields terminal. We see Moorebank as being the most logistically suitable and cost-effective site for delivering Sydney's future intermodal freight task.

This site is ideally located, with ready access to the inter-state road and rail network, the M5 road corridor and Western Sydney via the M7 corridor, and the ability to connect to Sydney's ports via the proposed SSFL to be constructed under AusLink. The main benefits of setting up an intermodal terminal at Moorebank are outlined below.

- Access to the M5 and M7 is particularly advantageous since these roads service the fastest growing freight hubs in the Sydney Urban Corridor – the western and south-western suburbs. This means that containers can be shuttled on rail services from Port Botany to Moorebank, followed by short road trip to their final customers (either distribution centres or retail outlets).

- The relative proximity of a terminal at Moorebank with the main customer catchment zones could play a role in addressing one of the system's long-standing cost weaknesses. Sydney imports considerably more full containers than it exports, so there is always a quantity of empty containers waiting to be returned to Port Botany for ship-loading. At the moment, the collection of empty containers (generally regarded as a low value/margin activity) from numerous customer locations for back-hauling by road to either a terminal or the port is costly. Apart from sending rail shuttle backloads of empty containers directly to the port, a Moorebank terminal could act as an industrial/manufacturing pick-up point for empty containers, which could be deployed to the industrial catchment via Moorebank's strong road connections.
- A Moorebank intermodal terminal is expected to extend the life of the M5 and protect its ability to serve the needs of the wider motoring public. (The M5 is already carrying traffic volumes far in excess of original traffic predictions).

Given the above factors, QRNational fully supports the main Moorebank-specific recommendations made by FIAB. These include:

- The Moorebank site should be earmarked as being critical in the provision of sufficient intermodal terminal capacity to meet the 40 per cent rail freight target.
- The Commonwealth and State Government need to secure the Moorebank site for intermodal terminal development by the private sector and be prepared if necessary, on a transitional basis, to use funds from FIAB's proposed Freight Infrastructure Charge for this purpose. This would cover the period leading up to the relocation of the Military School (anticipated to be 2011).

QRNational congratulates the Commonwealth Government on its decision to suspend its May 2005 tender process to sell land adjacent to the Moorebank site. This land will, in part, be required for road access to directly connect the Moorebank site to the M5. Figure 6 displays an indicative site layout with proposed connection to the M5. It also highlights two rail sidings (coloured in green and yellow in Figure 6).

FIGURE 6: MOOREBANK INTERMODAL TERMINAL SITE LAYOUT

Source: GHD, personal communication, April 2007.

4.1.2 Other proposed sites



With respect to some of the other proposed FIAB-endorsed sites for intermodal terminal development (shown in Figure 5), QRNational would like to make the following comments.

Enfield

We support Sydney Ports Corporation's plans for an intermodal logistics centre at Enfield. Enfield would be an important first-step measure to expanding intermodal capacity in Sydney over the short term. As such, it could go some way to moving Sydney's port-orientated freight task toward the 40 per cent rail target. According to Sydney Ports Corporation, the 300,000 container facility could be up and running by the end of 2008/early 2009.

QRNational believes that Enfield could provide vital short-term intermodal capacity while awaiting larger longer-term development to be undertaken at Moorebank.

Minto

The intermodal terminal at Minto is owned by Macarthur Intermodal Shipping Terminal (MIST), and it is currently working with adjoining land owners, ING and Austrak, to develop the Greater Minto Terminal. The plan is to extend the rail sidings to accommodate freight trains up to 1,500 metres in length.

While the expansion of rail capacity at Minto is welcome, QRNational does have some concerns about the viability of road trucking operations between the intermodal and final customer premises. Minto is located on the edge of south-western Sydney and is some distance from the main catchment zones and core centres of industrial/logistics activity. This means that there is little financial incentive for trucking operators to pick-up and back-haul empty containers to the terminal.

Most importantly, QRNational does not believe that an expanded Minto terminal could serve as an adequate substitute for the development of a high capacity terminal at Moorebank.

Eastern Creek

QRNational's recommendations for intermodal facilities for Eastern Creek and outer-Western Sydney more generally are discussed later in this section.

4.2 Improving Sydney's dedicated rail freight lines

There are a number of practical measures that could be taken to improving the capacity and efficiency of Sydney's dedicated rail freight lines.

4.2.1 Southern Sydney Freight Line (SSFL)

QRNational acknowledges the important contribution that the proposed SSFL (planned and about to be implemented by ARTC and funded through AusLink) will make to the improvement of rail operations in the corridor. SSFL will help eliminate the impact of RailCorp's commuter peak-time constraint on rail freight operations through the Sydney metropolitan passenger network. In addition, the SSFL will provide greater flexibility for scheduling rail paths to and from the south. By extending the current dedicated freight network from where it now finishes at Chullora through to Macarthur, will allow rural trains from the south and trains from Minto and Leightonfield to use the dedicated freight corridor. This will reduce the loading on the passenger network between these locations and support the development of additional intermodal terminals where appropriate.

One issue that the corridor strategy may need to consider is how to effectively deal with the interface between the SSFL and the main southern passenger line. Since the two lines will inevitably approach each other at Macarthur, grade separation must be undertaken. QRNational's view is that grade separation is best achieved by modifying the passenger line to pass over the freight line, rather than running the SSFL over the passenger line. The latter would be both highly problematic (in an engineering sense) and costly as it would be constrained by an overbridge at Glenfield.

4.2.2 Double-stacking

QRNational believes that the dedicated rail freight network should be designed, and where necessary modified, to accommodate double-stacked container trains.

Double-stacking of containers on freight trains will result in lower unit rail haulage costs between Port Botany and Sydney's intermodal terminals, and allow short-haul rail to become genuinely competitive with road.

There are currently no working examples of double-stacked short-haul port to intermodal shuttles in Australia. However, there are some relevant international examples of double-stacking in operation. These include the Alameda Corridor in the United States and the Betuwe Route in Germany – see Appendix A.

Vertical clearance

In order to facilitate double-stacking of containers along the Botany Freight Line, QRNational recommends that the ARTC and related parties give serious consideration to track lowering works and the removal of redundant overhead lines. Preliminary inspections by QRNational identified three overhead bridges along the Botany Freight Line where track lowering would be required. As a very indicative guide, 200 metres of the track could be lowered at each of these three sections – at a cost of around \$30 million. (This is an indicative estimate and further investigations would be required to obtain a more precise costing).

Rail track lowering is preferred to increasing the height clearances of overhead bridges because it is more cost-effective — with the required works quarantined to small specific sections of track. The problem with the lifting of overhead bridges is that it can result in adverse impacts on surrounding road and residential systems.

Vertical clearance on the line could also be improved by removing redundant overhead passenger train electricity lines. These lines could readily be removed at a modest cost.

Allowable axle loads

Designing track for higher axle loads will be an important element in developing a freight-only network capable of accommodating double-stacking. This will require that ARTC track design standards and construction plans account for the evolving trend towards higher axle loads. Rail operators may source new generation locos from international suppliers. By the year 2020, it is expected that international track standards permit the use of locomotives with axle loads of up to 35 tonnes. Efficient rail operations will increasingly make use of imported rolling stock, and Australian track design standards should not place unnecessarily limits on the sourcing or deployment of efficient rolling stock and locos.

It is acknowledged that increasing the load-carrying capacity of rail track is a costly process, and QRNational understands that improving the capacity of the tracks to accommodate higher axle loads is a long-term project. It will best be accomplished by ensuring that all new track meets appropriate standards, and progressively upgrading older track in a staged process.

4.2.3 Botany freight line

QRNational acknowledges the steady progress of the Botany Freight Line amplification process. This includes:

- Stage 1 - comprising a parallel shunting line, administration building, signalling works and circuitry upgrades in the Botany Yard (completed 2000); and
- Stages 2 and 3, comprising duplication of track from Marrickville to Cooks River and an upgrade of the signalling system from Marrickville to Port Botany (completed 2002).

QRNational supports the Stage 4 amplification plan. This comprises duplication of the dedicated freight line between Cooks River and Port Botany, grade separation of the General Holmes Drive road level crossing, grade separation of the Banksia Street pedestrian crossing, duplicated bridges over Southern Cross Drive and O'Riordan St and various other works.

These improvements will rectify some of the track and operational constraints identified in Section 3, as well as increasing rail capacity to Enfield to 800,000 container annually (up from 500,000 containers) and assisting the operational throughput of the Port Botany yard.

We urge that the Stage 4 amplification of the Botany Freight Line be implemented as soon as possible. Otherwise, there is a risk that the required intermodal terminal expansions at Enfield and Moorebank will be delayed or not proceed at all.

4.2.4 On-dock rail

QRNational argues that Port Botany is inefficient for rail operations due to the competitive nature of the stevedores and rail having to deliver to set windows given by the stevedores. Rail operations would work more efficiently under the model used at the Port of Brisbane where trains are delivered at one location at the port and the cargo is forwarded onto stevedoring operators via road.

4.3 Relieving road congestion

Increasing the capacity and efficiency of intermodal and port-based rail freight systems in the ways outlined above are likely to make a substantial contribution to increasing rail share, which in turn should relieve road traffic congestion.

QRNational believes further serious consideration should be given to adopting the FIAB recommendation of a Freight Infrastructure Charge (FIC).

- In 2005, FIAB proposed that a FIC of \$30 per container be collected on all import and export containers passing through Port Botany by truck during peak periods. It is an explicit and transparent attempt at changing behaviour and re-directing mode share from road to rail.
- Importantly, the proceeds of the FIC could be pooled and used for building up Sydney's intermodal capacity and rail network efficiency. The NSW Department of Infrastructure, Planning and Natural Resources undertook financial modelling which concluded that the FIC could possibly fund seed-capital of approximately \$375 million (at a 7 percent discount rate).

4.4 Developing viable rail access to Western Sydney

QRNational believes that the corridor strategy should include a commitment to developing a western freight link.

While the provision of a dedicated rail freight link from Eastern Creek to Port Botany may not be feasible in the short to medium term, QRNational concurs with the FIAB recommendation that a dedicated freight line to the outer western Sydney area should be kept open as an option for the future. After all, this area is forecast to be Sydney's main attractor and producer of logistics activity and therefore freight movement.

As it stands, the corridor strategy does not present any concrete proposals for remedying this. While we recognise that this is a complex and difficult problem, we believe that it cannot be ignored.

As a first step, there should be a comprehensive study of the options for improving rail access to/from the western corridor. This should consider outside-of-the-corridor benefits. For example, the efficiency of the Sydney-to-Adelaide corridor is currently constrained by the rail section running between Parkes and Cootamundra. Apart from average train speeds of only 45kms/hour, the section is directionally inefficient as it does not move a train any closer to its destination point (of either Adelaide or Sydney). If a more direct freight route could be developed from Parkes through to the Blue Mountains and onto western Sydney, it could also serve the burgeoning western Sydney freight market.

APPENDIX A: DOUBLE STACKING ON SHORT AND MEDIUM HAUL RAIL

For many, the concept of double-stacking is closely associated with long-haul, trans-continental routes, particularly in North America. QRNational believes that double-stacking is a viable option for short-haul operations within the Sydney Urban Corridor, and between regional centres and Port Botany. This Appendix provides examples from North America and Europe of the use of double-stacked container trains on short to medium haul routes.

Alameda Corridor

The Alameda Corridor is a 20-mile-long dedicated rail freight line that links the ports of Long Beach and Los Angeles to the transcontinental rail network near downtown Los Angeles. The Alameda Corridor comprises a series of bridges, underpasses, overpasses and street improvements that segregate rail freight trains from road traffic and passenger trains and saw the elimination of 200 rail crossings where drivers had previously waited, often for up to 20 minutes, for slow-moving trains to pass.

The Alameda Corridor was originally planned in the 1980s as a way to accommodate the anticipated increase in freight traffic from the ports of Long beach and Los Angeles in California which was by 1985 above 2 million TEU per annum. The Alameda Corridor was then Southern California's most expensive public works project, was projected to carry half the cargo generated by the ports

The Alameda Corridor consolidated the freight task carried by four train lines into one thoroughway and was predicted to remove a significant number of trucks off the major freeways, as shown below.

FIGURE 7: THE ALAMEDA CORRIDOR – ROAD AND RAIL



The Alameda Corridor is now operating at 50 trains a day and carries over 5.8 million TEU which is about 37% of the ports' cargo.

FIGURE 8: DOUBLE STACKED TRAIN ON THE ALAMEDA CORRIDOR



Betuwe Route

The Betuwe Route is a double-track, double-stack freight line between Rotterdam and Germany. The track is approximately 160km long, double tracked, and has cost US \$6.03 billion and will be employed solely for freight transport with up to 500 trains a day are expected to use the route.

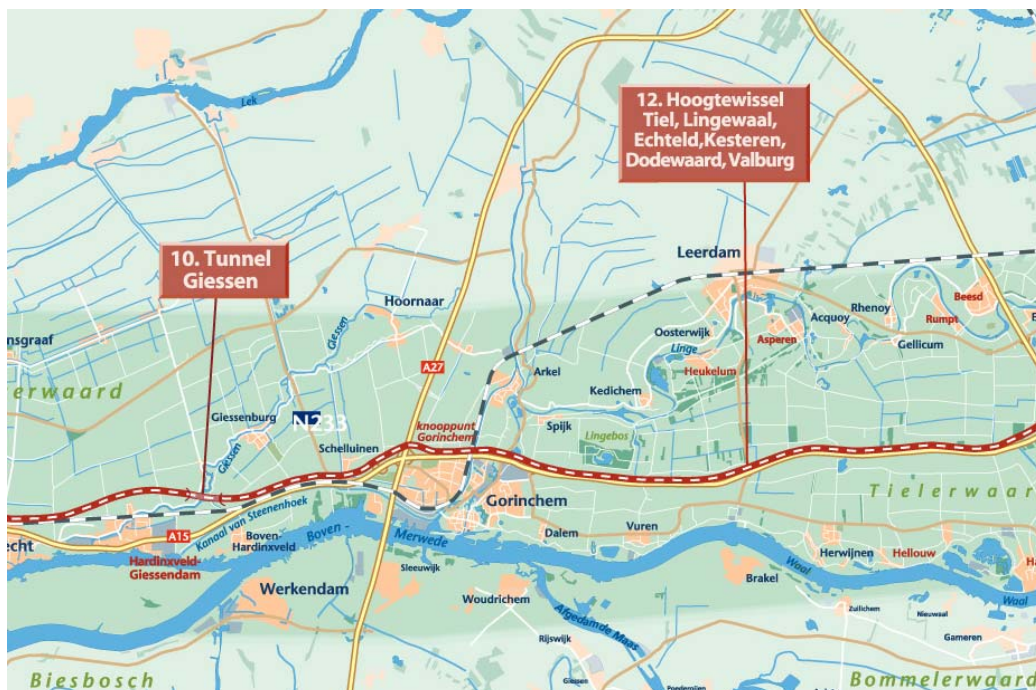
The Betuweroute runs from the port of Rotterdam to the German border. Before leaving the Netherlands at Zevenaar and is the latest part of the Trans European Freight Rail Network.

The Betuweroute is expected to significantly increase the opportunities for transporting containers and bulk goods to the European hinterland and vice versa.

FIGURE 9: THE BETUWE ROUTE PART A



FIGURE 10: THE BETUWE ROUTE PART B



APPENDIX B: VICTORIA FREIGHT AND LOGISTICS COUNCIL – INDUSTRY INTERMODAL AWARENESS PROGRAM



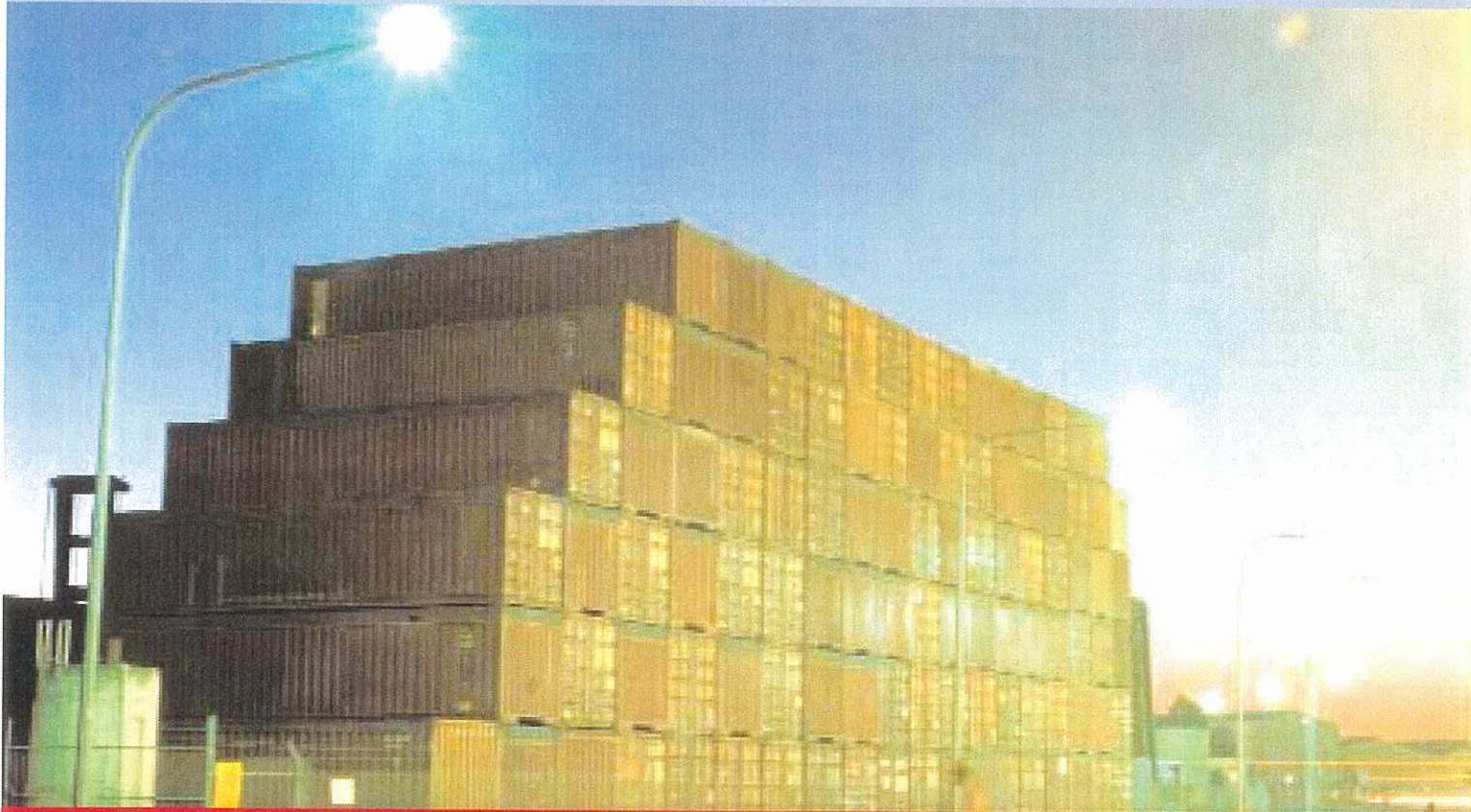
*Victorian Freight and Logistics Council
Freight Intermodal Efficiency Group*



Industry Intermodal Awareness Program

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Observations from an intermodal operation



The following are comments and observations by P&O on the existing and potential impacts of rail on operations at the West Swanson (WS) Container Terminal.

P&O's rail operations in summary

- P&O's rail operations are handled and coordinated via the P&O Trans Australia (POTA) terminal on Coode Road.
- The rail siding has a 27 x 60 ft (3TEU) wagon capacity for a maximum of 81 TEU exchange or 162 TEU if two-way loading.
- Trains are received and processed around the clock.
- Container movements between POTA and the WS container terminal are undertaken on the night shift and at weekends.
- All export containers are electronically pre-received into the West Swanson container terminal system before the container physically arrives at the terminal.
- All import containers destined for rail are identified and block-stacked for transfer to the POTA rail siding.

P&O's rail operations impacts

What have been the impacts of the rail operations on the West Swanson container terminal?

- On import delivery operations:
 - enables denser three-high block-stacking of containers as opposed to traditional terminal storage method required for general road delivery (that is, two-high stacking to facilitate sorting)
 - containers are collected on a next-container basis which requires no sorting, less straddles to do the task and less straddle travel
 - all containers are transferred on bulk runs at night, freeing up timeslots and straddle capacity.
- This translates to more straddles, space and timeslots being available for the general road receipt and delivery process for the road transport industry.



P&O's rail operations impacts

What have been the impacts of the rail operations on the West Swanston container terminal?

- On export delivery operations:
 - all export ERA's are received electronically prior to the container arrival, which enables terminal and vessel planning processes to start sooner and with greater accuracy
 - allows terminal to nominate which vessels have priority and containers can be 'held back' at POTA if required
 - all containers are transferred on bulk runs at night, releasing timeslots and straddle capacity.
- This translates to more straddles, space and timeslots being available for the general road receipt and delivery process for the road transport industry.

Observations

- Reduced daytime truck/road traffic volumes in terminal and on port roads with rail movements processed as midnight bulk run movement.
- Reduced road congestion in terminal and on port roads during peak hours as more carriers support urban shuttles.
- Increased volume capacity of the terminal and port without requirement of additional infrastructure for road movements, for example, roads, gates and marshalling areas due to above improvements.
- Increased terminal and port activity during evening, nights and weekends (improves daytime capacity for general road servicing).
- Increased density of container stacking within the Terminal with use of block stacks (improves terminal and ports efficiency/capacity).
- Increased flexibility and reduced costs to exporter for change of export vessel, port of destination or consignee (as changes can be effected before arrival at the terminal).

Comments

- When critical consolidated mass (block stacks) of rail volumes are available, sorting of imports can be reduced which improves straddle and land utilisation on the port.
 - Improved straddle utilisation leads to opportunity for improved service levels for general road services.
 - Opportunity to improve planning and scheduling of rail movements to/from the terminal allows for:
 - increased benefit of back loading of trucks and rail wagons
 - increased utilisation of transfer trucks and rail wagon capacity
 - improved efficiency of straddle operations (no sorting and reduced travel)
 - enhanced level and reliability of service
 - reduced container dwell time provides greater efficiency of existing port infrastructure
 - electronic information interchange to reduce paperwork processing at terminal gate and associated delay and transcribing error.

General observations

- Supports the State Government's and Port of Melbourne Corporation's policy and targets for increased use of rail to/from the Port of Melbourne
- less road and more rail deliveries will lead to reduced greenhouse gas emissions
- alters terminal/carrier relationship from many to a focused single rail operator service level outcome. Will lead to more harmonious relationships as the terminal is no longer trying to meet as many varying carrier-service-level requests
- will create an opportunity and atmosphere to facilitate improvements and flexibility in future supply chain offerings
- creates another positive environment to introduce improvements into the transport & logistics chain to support the State Government's 'smartfreight' initiative
- increased rail operations further supports the need to link the two P&O sites with the closure of Coode Road west, to extract further efficiencies for the port users.



Conclusion

In summary, P&O is a strong supporter of increased use of rail to and from the Port of Melbourne, as it can see that the benefits that are derived from this modal shift will be equally shared by many participants in the complete supply chain.

These include:

- exporters and importers
- road transport operators who support the intermodal operation
- rail service providers
- rail track owners and operators
- operators of the intermodal hubs
- residents living on the affected local roads
- State Government in the delivery of policy outcomes
- port managers through an increase in port capacity without the need for additional short-term capital expenditure
- terminal operators.