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# Infrastructure Australia and the National Transport Commission

*Background Paper 4 for the NPS*

“Examples of best practice  
port planning overseas”

April 2010



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## 1. Introduction

This background paper, one in a series to help inform the development of the National Ports Strategy (NPS), presents some best practice port planning examples identified in a number of overseas countries, which are potentially applicable to the port situation in Australia. The best practice port planning examples cover approaches to national port planning and strategy. Examples are discussed from the United Kingdom, the Netherlands, Canada (the Asia-Pacific gateway and corridor initiative), and the United States (Southern California's Alameda rail corridor and other initiatives). A pen picture is also provided of the situation in Brazil regarding iron ore exports which compete in a major way with Australian exports to the North Asian market.

This background paper number four, entitled "Examples of Best Practice Port Planning Overseas", may be used as a reference document for stakeholder and general public review of the draft NPS document jointly released for comment by Infrastructure Australia and the National Transport Commission.



## 2. The United Kingdom

### 2.1 National policy statement for ports (2009)

The United Kingdom's (UK) Department for Transport (DfT) recently presented to Parliament (November 2009) a "Draft National Policy Statement for Ports", which is pursuant to the UK's Planning Act 2008, as part of the new (revised) Planning System for the UK. Ports are seen as traditionally operating in an environment where many of the past changes have been unpredictable but some have (and remain) constants. The (national) planning system is seen as being the key to the future sustainable development of ports. In particular:

*"The improvements introduced through the Planning Act 2008 and the Marine and Coastal Access Bill now passing through Parliament will strengthen the system, making it more transparent, and offering greater certainty both to those who propose new developments, and to people who wish to make representations on those proposals."*<sup>1</sup>

*"The National Policy Statement (NPS) provides the framework for future decisions on proposals for new port development to be taken by the Infrastructure Planning Commission (IPC) established under the 2008 Act to deal with nationally significant infrastructure proposals; it may also be a relevant consideration for the Marine Management Organisation proposed in the Marine and Coastal Access Bill which will in future decide other port development proposals. It applies, wherever relevant, to associated development, such as road and rail links, for which consent is sought alongside that for the principal development. Non-ports associated development should be considered on a case-by-case basis, using appropriate assessment methods consistent with this NPS ..."*<sup>2</sup>

*"The NPS sets out the Government's conclusions on the need for new port infrastructure, considering the current place of ports in the national economy, the available evidence on future demand, and the options for meeting future needs. It explains to planning decision-makers the approach they should take to proposals, including the main issues which, in the Government's view, will need to be addressed to ensure that future development is fully sustainable, and the weight to be given to the need for new port infrastructure and to the positive and negative impacts it may bring."*<sup>3</sup>

The NPS is a final part of process started in early 2000 with an Interim Report of the ports policy review in 2007. In the period 2007-2009, the ports policy has been amended to take account of the requirements of the Government's policies on sustainable development and wider policy relating to climate change both through mitigation and adaptation.

The UK Government is seeking to:

- » encourage sustainable port development to cater for long-term forecast growth in volumes of imports and exports by sea with a competitive and efficient port industry capable of meeting the needs of importers and exporters cost effectively and in a timely manner

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<sup>1</sup> 1.1.3 page 5 of Draft National Policy Statement for Ports, DfT, 9 Nov 2009.

<sup>2</sup> 1.2.1 page 6 of above document.

<sup>3</sup> 1.2.2 page 6 of above document.



- » allow judgments about when and where new developments might be proposed to be made on the basis of commercial factors by the port industry or port developers operating within a free market environment; and
- » ensure all proposed developments satisfy the relevant legal, environmental and social constraints and objectives .....

The UK Government wishes to see port development wherever possible:

- » supporting sustainable transport by offering more efficient transport links with lower environmental disbenefits
- » providing a basis for trans-modal shifts from road transport to shipping and rail, which are generally more sustainable
- » supporting sustainable development by providing additional capacity for the development of renewable energy; and
- » supporting economic and social cohesion.

The Government assesses the total need for port infrastructure as a consequence of overall demand for port capacity together with the need to retain the flexibility that ensures that port capacity is located where it is required, including in response to any changes in inland distribution networks and ship call patterns that may occur; and the need to ensure effective competition and resilience in port operations.

The issue of “resilience” is also seen as being important in the context of national policy:

*“Spare capacity also helps to assure the resilience of the national infrastructure. Port capacity is needed at a variety of locations. and covering a range of cargo and handling facilities, to enable the sector to meet short term peaks in demand, the impact of adverse weather conditions, accidents, deliberate disruptive acts and other operational difficulties, without causing economic disruption through impediments to the flow of imports and exports. Given the large number of factors involved the Government believes that resilience is provided most effectively as a by product of a competitive ports sector.”<sup>4</sup>*

The Government concludes the case for the NPS by stating that:

*“.... there is a compelling need for substantial additional port capacity over the next 20-30 years, to be met by a combination of development already consented, and development for which applications have yet to be received. Excluding the possibility of providing additional capacity for the movement of goods and commodities through new port development would be to accept limits on economic growth, and on the price, choice and availability of goods imported into the UK and available to consumers. It would also limit the local and regional economic benefits that new developments might bring. Such an outcome would be strongly against the public interest.”<sup>5</sup>*

Guidance is also provided in the NPS to decision-makers in how to assess the need for additional port capacity. This additional capacity should:

- » cater for long-term forecast growth in volumes of imports and exports by sea for all commodities indicated by the demand forecast figures set out in a reference national forecasting report accepted by Government, taking into account capacity already consented

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<sup>4</sup> 1.11.11 page 14 of Draft National Policy Statement for Ports, DfT, 9 Nov 2009.

<sup>5</sup> 1.11.12 page 14 of above document.



- » support the development of offshore sources of renewable energy
- » offer a sufficiently wide range of facilities at a variety of locations to match existing and expected trade, ship call and inland distribution patterns
- » ensure effective competition between ports and provide resilience in the national infrastructure; and
- » take full account of both the potential contribution port developments might make to regional and local economies.

The UK Government (DfT) has also developed a standard framework for assessing the need for nationally significant port and associated infrastructure (A Project Appraisal Framework for Ports, 200514), which allows all the material considerations to be taken into account in a systematic manner using both quantitative and qualitative indicators. It is also worth noting that impacts to be considered are those considered “significant”. New port projects, which fall within the remit of the new Infrastructure Planning Commission (IPC), are defined in the 2008 planning legislation as:

*“Applications for development consent with the estimated incremental annual capacity exceeding:*

- *0.5 million TEU for a container terminal;*
- *250,000 movements for roll-on roll off (ro-ro);*
- *5 million tonnes for other (bulk and general) traffic,*
- *or a weighted sum exceeding these figures taken together.*

*The Secretary of State may also refer to the IPC an application with capacity below the relevant threshold, if he considers that the project is of national significance.”<sup>6</sup>*

The NPS also states guidance on policy components and their integration:

- » Consideration of benefits and impacts (the applicable methodology)
- » Alternatives (for the Environment Statement)
- » Defence and national security
- » Health
- » Economic and commercial impacts, competition, and tourism
- » Environmental impact assessment
- » Pollution control and other environmental consenting regimes
- » Biodiversity and geological conservation
- » Climate change mitigation and adaptation
- » Flooding and coastal change
- » Transport (the associated and impacted infrastructure)
- » Waste generation and resource use
- » Water and air quality, noise, dust, odour, artificial light, smoke, steam and insects
- » Landscape and visual amenity, historic environment, and social impacts.

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<sup>6</sup> Page 6 footnote of Draft National Policy Statement for Ports, DfT, 9 Nov 2009.



## 2.2 Port of Southampton's master plan (2009)

The Port of Southampton is a good example of a main container port also handling other significant cargoes with its own metropolitan and bordering regional area. In 2007, it handled a total of 44 million tonnes of cargo, of which 1.9 million TEU of containers. Southampton has the UK's second largest container terminal with a share of around one fifth of the UK's total container traffic. The port land comprises three primary areas:

- » The Eastern Docks (170 acres)
- » The Western Docks (585 acres), and
- » A Strategic Land Reserve of around 800 acres held for future port expansion (located at Dibden).

In 2009, the port issued a consultative master plan document which was a direct result of the 2000-2009 UK Government process of determining an improved, appropriate national ports policy. The following statements in the Introduction section of the Port of Southampton's 2009 consultation master plan document provide interesting background:

- » *"The Port of Southampton is identified by Government as a key international gateway which is a component of the nation's transport system that is critical both to the functioning of that transport system, and the economic success of the country"*
- » *"Government makes clear that it is the responsibility of ports to bring forward and justify development proposals. The ports industry is recognised as a successful, competitive sector which does not require central direction"*
- » *"In July 2007, during the process of reviewing national ports policy, Government recommended that the major UK ports produce master plans, and consult on them, in order to help co-ordinate their future planning. Subsequent guidance on the production of master plans produced in 2008 indicated that such plans should be produced by major ports (defined as those handling at least 1 million tonnes) to:*
  - *clarify the port's own strategic planning for the medium to long term;*
  - *assist regional and local planning bodies, and transport network providers, in preparing and revising their own*
  - *development strategies; and*
  - *inform port users, employees and local communities as to how they can expect to see the port develop over the coming years."*
- » *"This master plan is the vehicle through which the Government requires the identification of the short and long term development and infrastructure requirements that are needed to maintain and enhance the role of the Port of Southampton as a major international deep-sea port."*
- » *"In summary, therefore, from a Government policy and planning perspective, the Port of Southampton master plan is being produced to:*
  - *i. Clarify the Port's own strategic planning for the medium to long term and thereby assist other bodies and stakeholders in the carrying out of their functions and activities;*
  - *ii. Set out the future development and infrastructure requirements needed to both maintain and enhance the role of Southampton as a major international deep-sea gateway port as required by Government policy for the region;*



- *iii. Set out the future needs of the Port in order that the Government's strategy for the South Hampshire subregion can be achieved; and*
- *iv. Provide an indication to relevant local authorities of the future needs of the Port to which regard should be had in the production of relevant local development documents."*

The master plan incorporates the national reference trade forecasts, which also cover Southampton, with a future forecasting time horizon of 25 years. The throughput in the forecasts is categorised into six main categories of cargo – containers, motor vehicles, dry bulks, general cargo and semi-bulks, liquid bulks, and cruise. The 25 year forecast sees total port throughput almost doubling and container traffic tripling (note: these figures are before the impacts of the global financial crisis in 2009 which have been extremely severe for the UK economy compared with Australia).

The forecasts at 10 and 20 years out (compared to present) are used to develop Infrastructure Proposals by 2020 and 2030 in the master plan with the resulting land use / special changes identified and disclosed. Emphasis is also given on Government policy on intermodal connections (road, rail and coastal shipping), the environment, and socio economic impact and how the Port of Southampton fits with these areas in its master plan for the long-term future.



### 3. The Netherlands

The Netherlands considers its ports sector, associated road/rail/waterway infrastructure and transport industry as pivotal to its economy. In particular, the Port of Rotterdam is a strategic hub port for Europe.

Reflecting this, the Dutch national government has a 5-year rolling National Seaports Policy – the latest (the third in a series) having been developed by the Ministry of Transport and Waterways in 2004 for the 2005-2010 timeframe.

The introduction in the policy document provides some useful background:

*“Developments in the international market for freight transport, shifting forces within Europe, greater autonomy in the management of seaports and the growth of production in Asia (especially China) require a clear vision and responsive strategy on the part of the central government. This memorandum embodies both, plus an agenda with a concrete policy for the coming five years. Part of this policy is a step-by-step decision-making for government grants for the State’s participation in the financing of seaport projects. Limited funding necessitates clear choices regarding their distribution, according to the Cabinet.”*

*“The new seaport policy presented in this memorandum will supersede the present policy framework described in the ‘Second Seaports Policy Progress Report’ that expires on 1 January 2005. The appendix to the ‘Seaports: anchors of the economy’ memorandum contains an evaluation of that policy framework. The memorandum further includes formal recommendations received from the National Ports Council and the Freight Transport Consultative Committee and my responses to them. In addition to these organisations, we consulted during preparation of this policy memorandum with port managers, the port-based business community, other authorities and interest groups at national and regional level.”*

*“The Cabinet wants to invest in sustainably strengthening the Dutch economy. By this the Cabinet means promoting workforce participation, stimulating the development of knowledge and innovation and enabling mobility. The way the Cabinet wants to do this is one of the subjects dealt with in the ‘Spatial Planning Policy Document’, the ‘Mobility Policy Document’ and the ‘Peaks in the Delta’ memorandum. These documents set out our spatial economic policy and mobility policy in general terms for the coming years. The seaports and their hinterland connections play an important role in this policy. In this ‘Seaports: anchors of the economy – National seaports policy’ memorandum, the Cabinet has built upon basic principles set out for policy on seaports in the memorandums mentioned above by choosing policy directions and putting forward reasons for them.”*

The Dutch central government intends to follow a three track policy in the 2005 - 2010 period, namely:

- » *Market mechanisms*: improve the market conditions for port-based companies
- » *Constraints*: regulate and promote safety and human environment; and
- » *Capacity*: maintain and improve the accessibility of seaports and create physical space for growth.

It details this three track policy as follows:

*“Fair competition between seaports is the central consideration in the first policy track, market mechanisms. This concerns such matters as state aid to European ports, liberalisation of port services, streamlining of government interventions, innovation, co-operation between ports and corporatisation of port management.*



*The ports must be able to grow, and at the same time the government must protect the public interests of safety and a good quality living environment. In the second policy track, the central government will strive to set down these constraints for the ports transparently in an international context, so as to ensure that they are the same in different countries and are enforced in the same way on a level playing field.*

*The central government must be selective in improving accessibility (maritime access to the seaports and the main infrastructure land inwards) and creating new space, i.e. the elements of the third policy track. As the demand for financing infrastructure projects far exceeds the budget that is available, the central government must set clear priorities. Therefore, the central government will apply a deliberation framework for projects for seaports in which the national interest is the number one consideration and in which clear requirements are laid down for the validation of projects. If different projects get the same score based on this deliberation framework, the prioritising contained in the 'Spatial Planning Policy Document' will be applied."*

The Dutch central government has a stated position on port governance, which has led it (in 2006) to take a minority share in the Port of Rotterdam Corporation to facilitate the national interest.

*"The management of seaports in the Netherlands has traditionally been a public responsibility assigned to regional and local governments. Increasing globalisation and the growing power of the international business make it necessary for a port manager to be able to operate flexibly and responsively in this playing field when it comes to operating water infrastructure and port sites. This may require creating a certain distance from the regional and local governmental and civil service organisation so as to allow faster decision-making and a more corporatised and businesslike conduct of operations. It is up to the regional and local governments to decide how far they wish to go in corporatising port management.*

*Proper assurance of public interests is essential when corporatising the management of seaports. Some central government tasks have been imposed on port companies in the past, based partly on the notion that a port company acts as a public body in the interest of the public. If a corporatised port company continues to perform central government tasks, it will be necessary to examine whether government regulation for nautical management (state harbour master tasks) and supervision of environmental and safety standards in the relevant seaport area must be amended. A corporatised port company will in any event require the creation of a clear dividing line between public tasks concerning nautical management and supervision of environmental and safety standards on the one hand and the more market oriented tasks of operating water infrastructure and port sites on the other. This is necessary to avoid a conflict of interests and to ensure the required transparency in the performance of tasks. This should preferably be achieved by dividing the tasks into separate institutions, or by means of defining sharp organisational and financial dividing lines between the two sets of tasks.*

*From 1 January 2006, the State will become a shareholder in the Port of Rotterdam Corporation. Therefore, the State must guarantee its neutrality in deliberations concerning investment decisions that involve choosing between seaports. The government will test requests for public financing of projects in all seaports against the deliberation framework in which the public costs / benefits analysis will ultimately play an important role."*

The central government also advocates the facilitation of ports cooperating at the national level but under the supervision of state competition authorities.

*"The central government advocates co-operation between port managers in performance of the public tasks of seaport management. The initiative for setting up such co-operation lies initially with the port managers and the National Ports Council. The central government will take on the role of an orchestrator*



*concerning matters of national or international importance. The objective of the government is jointly to develop improvements of the seaports system, whereby all parties will explicitly retain (and must take) their own particular responsibility. A recent example is the implementation of new legislation covering port security. The central government urged that the system developed for and by Rotterdam should be made available to the other Dutch seaports.*

*Co-operation between port managers of a more commercial nature is the responsibility of the managers themselves. This could include harmonising business location policy, acquiring cargoes and promoting the port. The central government takes a positive view of co-operation that leads to better harmonisation of freight streams over the hinterland connections, thus leading to improved reachability.*

*Commercial co-operation between companies in the ports is the responsibility of those companies. The central government – through the Netherlands Competition Authority (NMa) – and the European Commission will keep a watch on competition aspects.”*

The central government has the responsibility to manage and maintain sea accesses and hinterland connections.

*“The government has a statutory duty to ensure the management and maintenance of the maritime access and hinterland connections of all seaports, insofar as they are under government management. In the case of the hinterland connections, this concerns the national roads, the national rail network and the national waterways.*

*The government as a whole is responsible for ensuring the reachability of the seaports. The expected growth of freight transport can be accommodated only if an investment is done not only in management and maintenance but also in the construction of new basic infrastructure of the expansion of existing infrastructure. The basic infrastructure is an important precondition for the competitive strength of Dutch seaports. In this context it is important that there is a good insight into investments in competing ports. Basic infrastructure concerns both sea access (construction of coastal defences, enlargement and deepening of maritime fairways, construction or expansion of sea locks) and the hinterland connections (construction of new connections or expansion of existing ones over road, rail and water).”*

Interestingly, the Dutch third national seaport policy document includes performance measurement criteria for evaluating the success, or not, of the previous 5-year policy agenda and reports on them. The measurement framework is aligned to the key strategy of reinforcing the adding of social value by the seaports sector.

## 4. Canada – the gateway and corridor initiative

The Canadian federal government has developed and implemented a leading example of the potential for efficiency and speed of supply improvements in the form of its “Asia-Pacific Gateway and Corridor Initiative”, which was initially launched in 2006 with the aim of providing a state of the art transport system linking Asian and North American markets.

**Figure 1 Map of the Canadian Asia-Pacific Gateway and Corridor**



Source: Canadian Government (Transport Canada)

The mission of the Initiative is to establish Canada’s Asia-Pacific Gateway and Corridor as the best transportation network facilitating global supply chains between North America and Asia. Specifically, the Initiative seeks to:

- » boost Canada’s commerce with the Asia-Pacific region
- » increase the Gateway’s share of North America bound container imports from Asia, and
- » improve the efficiency and reliability of the Gateway for Canadian and North American exports.

The Asia-Pacific Gateway and Corridor Initiative is an integrated package of investment and policy measures that will advance the capacity and efficiency of the Asia-Pacific Gateway and Corridor and Canada’s ability to take advantage of it.

It reflects the Government of Canada’s commitment to work in partnership with provincial governments, private sector leaders and other stakeholders. The Initiative emphasizes concrete results in a set of immediate investments and policy measures. It also lays out strategic directions for the long term. Its focus on efficiency serves both competitiveness and sustainability goals.



It is interesting to note that in order to seize the opportunity through the Initiative, Canada had to move quickly to address a number of challenges, including:

- » *Capacity*: Unprecedented increases in freight flows through Canada's west coast had stretched existing infrastructure capacity
- » *Policy, regulatory and operating practices*: Government policy and regulatory requirements, and private sector operating practices, impacted the efficiency and use of the Gateway and Corridor — and investment in it
- » *Governance*: There was no single "owner" of the Gateway and Corridor. All levels of government and the private sector had to work in partnership to address the full range of measures necessary for a truly integrated approach. Governance arrangements had to foster maximum efficiency in the use of existing assets.

The Canadian federal government saw itself as having clear responsibilities for:

- » Fostering the national transportation system's efficiency, safety, security and sustainability in all modes. These fundamental objectives are pursued through marketplace framework policies, regulations, statutes and infrastructure investments
- » The secure and efficient administration of Canada's borders, for pursuing Canada's interests in international commerce, and for positioning Canada to compete and prosper in the global economy.

The Canadian federal government felt it necessary to develop a national policy framework (the Initiative) for strategic gateways and trade corridors to guide future actions. As such, the Initiative included significant new investments, policies and regulatory measures to improve the efficiency and effectiveness of the Asia-Pacific Gateway and Corridor, and Canada's exploitation of it. The Initiative also set directions for ongoing collaboration, future actions and long-term strategy. It was based on five core elements:

- » Strategic infrastructure
- » Private investment and innovation
- » Security and border efficiency
- » 21<sup>st</sup> century governance, and
- » Policy renewal.

The directions established by the Canadian federal government for each of the five core elements are worth noting.

#### **4.1 Strategic investment**

*"The primary focus of the Initiative is to enhance the capacity and efficiency of Canada's Asia-Pacific Gateway and Corridor. While traditional approaches to infrastructure investment respond to a broad range of factors, the Gateway approach focuses squarely on goods and people moving between North America and Asia. In developing an integrated long-term plan for Gateway and Corridor infrastructure, the Initiative aims to address emerging bottlenecks and multi-modal transfer points, and cement the reputation of the Gateway and Corridor as a reliable, efficient and secure connection between North America and Asia."*



## 4.2 Private investment and innovation

*“The Gateway approach is about far more than federal investment in infrastructure. Indeed, private capital invested in port, rail and airport infrastructure in recent years has been extensive. However, much more is needed if Canada is to meet the challenges of global commerce in the 21st century. The Government of Canada is committed to creating an attractive climate for private sector investment in infrastructure, while protecting the broad public interest. Policies adopted by all levels of government have an impact on how much, when and where the private sector is willing to invest. Such policies need to be looked at through the lens of the Gateway and Corridor Initiative, as part of an integrated approach to strengthening Canada’s competitive position in global commerce.*

*Innovation — in technologies, regulatory procedures and operating practices — is also crucial to maximizing the efficiency of existing Gateway infrastructure.”*

## 4.3 Security and border efficiency

*“Establishing the Asia-Pacific Gateway and Corridor as an efficient, secure destination and business environment will provide a competitive advantage to Canada. Canada already has one of the world’s safest and most secure transportation systems and one of the most secure and efficient border programs globally. However, the security environment is hardly static, and constant improvement is imperative.*

*Since 2001, the federal government has committed significant new funding to border and transportation security. Gateway transportation facilities, including Vancouver International Airport and the Port of Vancouver, have benefited directly from security and border facilitation investments. A number of other significant security initiatives relevant to the Gateway and Corridor are under development, including in the areas of rail and transit security, highway transport, air and intermodal cargo security, marine security operations, including a new security clearance program for port workers, and policing at ports.*

*The Asia-Pacific Gateway and Corridor Initiative provides an important new lens through which to identify opportunities for innovation and targeted measures that will keep the Gateway at the forefront of security and efficiency.”*

## 4.4 21<sup>st</sup> century governance

*“Since various issues directly impacting Gateway and Corridor effectiveness and exploitation interact with each other in important ways, they are best addressed in an integrated fashion rather than in isolation. Partnership is essential. The Gateway approach offers a coherent framework for joint leadership and focused collaboration among the different public and private sector actors who control or influence the key issues.*

*New approaches to governance, reflecting an outward-looking perspective on global commerce, are necessary to ensure maximum efficiency of existing assets.*

*For the Government of Canada, there is an internal dimension as well. Various federal departments have responsibilities that directly impact the Gateway. The immediate measures identified under this Initiative include activities led by Transport Canada, the Department of Foreign Affairs and International Trade, Western Economic Diversification Canada, the Canada Border Services Agency, Parks Canada and Human Resources and Social Development Canada. An ongoing element of the Initiative will be a policy renewal agenda that aims in part to work across the “silos” to advance the long-term development and exploitation of the Gateway and Corridor.*



*Success of the Asia-Pacific Gateway and Corridor Initiative over the long term will require enhanced commitments to policy coordination and integration within the federal government, and among all governments and the private sector.”*

#### **4.5 Policy renewal**

*“At a conceptual level, a wide array of issues are often associated with the Asia-Pacific Gateway and Corridor. However, the federal government’s Asia-Pacific Gateway and Corridor Initiative will target those most concretely connected to its clearly stated objectives. That is — a focused agenda of policy issues that directly impact the efficiency of the transportation infrastructure that defines the Gateway and Corridor, or its exploitation.*

*In this context, the key issues potentially include land use planning, macro-economic policies, labour market issues including the supply of skilled workers, international agreements in fields such as trade and air transport, targeted trade and investment promotion, standards harmonization, security and border facilitation, and tourism (including the 2010 Olympics).”*

#### **4.6 Inclusion of a fast-track process**

In order to make the Initiative work in a timely manner, the federal Canadian government decided to launch a fast-track consultation and planning process which emphasized simplicity and results.

The main elements of the fast-track process centred around:

- » *Federal-provincial consultation:* The integrative approach of the Initiative required real partnerships with the B.C., Alberta, Saskatchewan and Manitoba provincial governments, as well as collaboration between the public and private sectors, including municipalities. Consultations among federal and provincial ministers of transport, trade, and economic development have been essential to inform investment decisions and build real partnerships that enhance the integrative approach of the Initiative.
- » *Private sector perspective:* Wide ranging consultations. A small group of industry leaders explored the long-term strategic direction of the Gateway and contributed to the identification of broad policy and regulatory priorities. They considered the pan-western scope of the Gateway and Corridor, and examined issues beyond the purview of the federal government, bringing to bear a private sector perspective. Expert advice and analysis was also seen as being important to advancing the understanding of the long-term challenges and opportunities of the Gateway. This included an international conference of experts, with significant contributions from the academic and transportation communities, held in 2007.
- » *Ongoing Policy Coordination:* The success of the Initiative depends on the management of the range of issues impacting the Gateway and Corridor. The Asia-Pacific Gateway touches on various federal government departments and agencies, private sector players, and the international community. Coordination, integration and renewal across the federal government in key policy and regulatory areas impacting the Gateway and Corridor were seen as being essential.

#### **4.7 Some results**

The following extract of a Canadian news-story highlights the potential of the Initiative:



*“On October 30, 2007, a China Ocean Shipping company container vessel sailed into the Port of Prince Rupert marking the arrival of the first container ship to dock at the new Fairview Terminal. Within 92 hours, following offloading and security checks, the 9000 foot-long Canadian National Train carried 360 containers to Chicago. The speed and efficiency with which these first containers were moved, from Asia to the North American Midwest surpassed expectations, arriving in Chicago only 12 days after leaving the port of Yokohama, Japan.”*

To achieve this result, the Canadian government invested \$1 billion in road, rail and maritime infrastructure and, in the process, leveraged an estimated \$2.5 billion in private and other governments' expenditure in the Gateway project, including in terminals. Importantly, the project included legislative amendments to expedite the implementation and effectiveness of the project.

The current Canadian government infrastructure programs amounts to \$33 billion and additional funds were recently announced as part of its economic stimulus package.

Elements of the Initiative appear to be applicable to the Australian situation as the two countries have similar dependencies in terms of international trade, government structures, and long distances to market from often remote, unpopulated areas.



## 5. United States – Southern California

The Los Angeles “Alameda rail corridor” and other initiatives in Southern California port area of the United States provide a good example (case study) of the growing issue of landside connectivity of large city container ports having to cope with increasing demand and the initiatives required to help mitigate the situation.

### 5.1 Background on the San Pedro Bay ports of Los Angeles and Long Beach

The Californian San Pedro Bay ports of Los Angeles and Long Beach have been faced with a doubling of the container freight task in the last ten years and currently have a combined throughput of around 16 million TEU per year. This is expected to double again by 2020. The issues of grid-lock and severe air pollution have forced a number of key infrastructure and operational initiatives over the last ten years which continue to involve a coordinated port, government and industry approach to solution development and deployment. The key coordinating body driving the agenda is the Southern California Association of Governments (SCAG) which has an ongoing ‘Goods Movement Program’.

The key initiatives of interest are:

- » The Alameda rail corridor and its extension of scope to explore the development of inland truck depots and further short-haul shuttle trains
- » The PierPASS OffPeak program for truck receipt and delivery of containers at the port terminals involving a normal hours penalty charging scheme which is proving very successful (note: the need for it has temporarily reduced due to the recent impacts of the Global Financial Crisis, but this is only considered temporary until the economy recovers and import demand picks up once again)
- » Plans and studies actioned by SCAG for dedicated truck lanes, possible congestion relief surcharges up to US\$ 200 per container to fund initiatives and infrastructure improvements, short-haul shuttle train operations, and IT solutions/concepts – the port ‘Virtual Container Yard’.

An important observation is that the Los Angeles / Long Beach port community is using a suite of initiatives from infrastructure fixes, to new infrastructure, and new operational and IT-related practices. The key initiatives are (so far) self-financing with across-the-board upfront charging to fund developments.

Some further statistics of note are:

- » The container trade imbalance is extreme with less than 50% of outbound containers loaded (of the combined total 16 million TEU of containers handled by the ports over 4 million are empties)
- » The land transport modal split of the containers is around 35-40% by rail (including via off-dock rail) and 60-65% by truck (mainly for local delivery)
- » For import loads carried by truck, nearly all (99%) have destinations within 113 km of the ports, whilst 42% of the import loads are destined within 40 km of the ports, 13% within 40-64 km, and 45% within 64-113 km
- » For empties and export loads carried by truck, nearly all (99%) have origins within 8-113 km of the ports

- » The area to the North of the ports has a daily movement of around 16,000 container trucks from the ports and almost 14,000 container trucks to the ports.

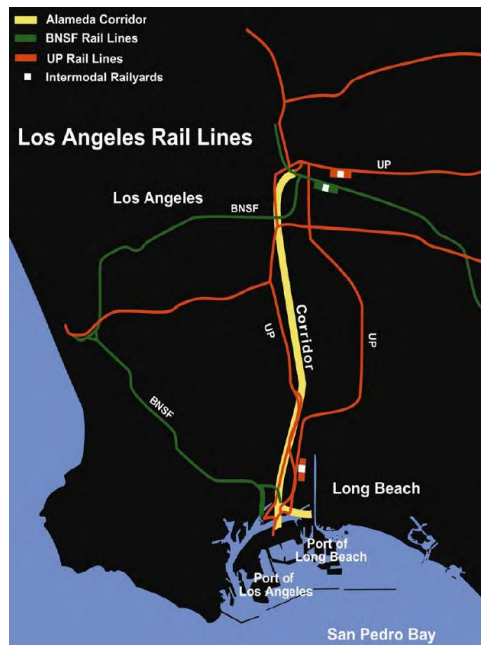
## 5.2 The Alameda rail corridor and the ACTA

Prior to 2002, the Alameda rail tracks, from the San Pedro Bay ports running north through Los Angeles, severely impacted road traffic and had limited capacity to handle the growing container volumes through the ports which resulted in further truck traffic and road congestion. The solution was to build a dedicated rail corridor which is operated by the Alameda Corridor Transportation Authority (ACTA).

The Alameda Corridor Transportation Authority (ACTA) is a joint powers authority formed by the cities and Ports of Long Beach and Los Angeles. ACTA's seven-member Governing Board includes two representatives from each port; a member of each city council, and a representative of the Los Angeles County Metropolitan Transportation Authority.

The Alameda Corridor is a 32 km rail cargo expressway linking the ports of Long Beach and Los Angeles to the transcontinental rail network near downtown Los Angeles. It is a series of bridges, underpasses, overpasses and street improvements that separate freight trains from street traffic and passenger trains, facilitating a more efficient transportation network. The project's centrepiece is the Mid-Corridor Trench, which carries freight trains in an open trench. Construction began in April 1997 and operations commenced in April 2002.

**Figure 2 Map of the Alameda rail corridor and connections to Los Angeles rail lines**



Source: ACTA

In the period 2002-2007, there have been a total of almost 100,000 trains or around 40-55 trains per day. Recently, there have been fewer trains per day but each train has been larger such that the total number



of containers transported per day has been held constant (i.e. the operation is now more efficient with extra capacity available).

It is interesting to note the funding arrangements. The US\$ 2.4 billion Alameda Corridor was funded through a mix of public and private sources. Revenues from user fees paid by the railroads are being used to retire debts. Railroads initially paid US\$ 15.00 per loaded TEU and US\$ 4.00 per empty container. Over a 30-year period, fees will be increased between 1.5% and 3% per year, depending on inflation. The fees are US\$ 19.60 per loaded TEU and US\$ 4.96 per empty container (note: as of January 2010). These fees are charged by the railroads to the shipping lines which then recover them from shippers (exporters and importers) as part of freight rate surcharges.

The ACTA adopted an Expanded Mission in January 2004 to address cargo growth at the San Pedro Bay ports and to optimise use of the existing rail and highway network while larger scale projects are planned and funded. As part of its expanded mission, ACTA identified two categories of congestion relief measures – one concerning shifting more truck trips to rail, and the other making better use of the existing road network.

Of particular note, are two initiatives:

- » The shuttle train pilot program, and
- » The development of inland truck depots / container yards.

The initiative of extending gate hours (the Extended PierPass program) is discussed later in the paper.

As a backdrop to these initiatives, ACTA considers it critical for success to forge partnerships with federal, state, local and private-sector leaders to develop and implement the new vision and strategy for improving goods movement in Southern California and securing reductions in transport-related air pollution.

### **5.3 The shuttle train pilot program**

The shuttle train pilot program addresses the need to develop a short-haul rail alternative to trucking cargo from the ports to inland distribution centres and storage facilities.

The ACTA estimates that two million TEUs per year travel from the ports to the Inland Empire (Colton, Ontario, Mira Loma, etc). The Inland Empire is home to over 350 million square feet of warehousing. Most of the port related containers are carried on heavily travelled freeways. The Inland Empire is thus an ideal candidate for the shuttle train pilot program.

The aim of this innovative pilot program is to develop a large scale shuttle train service that will alleviate truck traffic along the major freeways, by transporting containerised cargo via rail from the port complex to a rail facility in the Inland Empire. From the rail facility, cargo will be trucked a short distance to warehouses and distribution centres.

The pilot shuttle train, as well as the future permanent service, would use the existing Alameda Corridor and the existing railroad mainlines, and will operate between the ports' on-dock rail facilities and a rail facility in Colton.

The pilot program will consist of a daily train to and from Colton comprising 100 roundtrip containers. The containers will be trucked between the Colton rail facility and the beneficial cargo owners' facility. This will help reduce the number of trucks on the freeways and improve truck driver turn time. Due to the added handling in rail and trucking costs vs. trucking, ACTA is seeking (note: as of 2008) US\$ 5 million in



subsidies to offset the difference in costs. In the long-term, ACTA is looking for a permanent inland location, added track capacity and the ability to operate five shuttle trains per day.

#### **5.4 Inland truck depots / container yards**

Working with private partners, ACTA is facilitating the development of inland truck depots / container yards that will improve the transport of cargo throughout Southern California during off-peak hours.

The inland truck depots / container yards will be used by truckers to temporarily park cargo containers prior to being delivered to distribution centres during normal business hours.

This innovative program will help alleviate port-related truck traffic on major highways by maximizing the use of extended gate hours at the port complex and it will help to accommodate the projected increases in cargo volumes. Trucking companies would also benefit from using inland truck depots / container yards due increased productivity per truck driver.

Container yards are also seen to include the handling of empty containers (depot function). This would then be supported by an IT initiative to create a “virtual container yard for the San Pedro Bay ports area”. It is currently estimated that only 2% of import containers are directly used directly for exports. Through implementing a port-community wide system to match an empty container from an import move to an empty export move, the goal is to increase the direct backhauling in Southern California to 10% which would eliminate a number of empty container movements on the highways.

#### **5.5 PierPass and the OffPeak Program**

Prior to PierPass being introduced in 2005, only 18-20% of container trucks arrived at San Pedro Bay terminal gates during off-peak hours – the majority were handled during the day shift (8am-5pm) with resulting congestion and long trip times. Studies made of the future situation on the Southern California road network indicated that, without congestion relief, average travel times would increase by 30-50% during weekday peak-times and the inclusion of buffer times to ensure on-time arrivals would increase the total required time by 85-105% at weekday peak-times.

Given a worsening situation and future growth in trade, the Port of Los Angeles Regional Goods Movement Task Team, supported by SCAG, made a recommendation that a fee be assessed to the cargo owner for usage of terminal gates during peak commuter hours. The fee could be used to help offset the cost of off-peak gates.

The shipping industry responded with the implementation of the OffPeak program, managed by PierPASS Inc., a not-for-profit organization created by marine terminal operators. PierPASS’ scope covers addressing multi-terminal issues such as congestion, security and air quality.

The program provides five off-peak terminal gates on the same day, same shift – at all 13 terminals within the Ports of Los Angeles and Long Beach (note: pre Global Financial Crisis and resulting downturn in the US economy).

OffPeak uses a pricing model that provides an incentive for cargo owners to move shipments at night and on weekends. Cargo owners moving containers at the two ports during peak daytime hours (Monday through Friday, 3:00 a.m. to 6:00 p.m.) are required to pay a Traffic Mitigation Fee, which helps fund the cost of operating five new shifts per week at marine terminals (Monday through Thursday from 6:00 p.m. to 3:00 a.m. and Saturday from 8:00 a.m. to 6:00 p.m.).



The US\$ 50 per TEU Traffic Mitigation Fee (TMF) is charged to the beneficial cargo owners for all containers arriving at the San Pedro Bay ports (the exceptions are empties, domestic trade containers and some ACTA moved containers). If a container is moved during one of the off-peak terminal gates or via rail, the beneficial cargo owner receives a refund of that fee. PierPass state that since the inception of the TMF in 2005, the collection has not fully covered the added costs of operating the five OffPeak shifts (in the fourth quarter of 2008, the incremental cost of the five OffPeak shifts was calculated as US\$ 79 per TEU – this level of cost, and resulting US\$ 29 per TEU cost recovery gap, being caused by the high proportion of fixed costs of the OffPeak shifts and a 32% decline in container volumes caused by the Global Financial Crisis). It should be noted that PierPass is a not-for-profit company created by the marine terminal operators.

The goal/target of the program back at the start in 2005 was to increase off-peak gate usage to more than 40%, which translates to around 68,000 truck trips per week. These levels are now being exceeded (50-60% of gate traffic being off-peak according to PierPass 2009-2010 statistics) with reduced truck-waiting time inside port terminals and reduced truck traffic during peak daytime commuting periods.

In terms of results, during the period mid-2005 to mid-2008, the PierPASS OffPeak program has diverted more than nine million truck trips from peak daytime traffic. The program has eliminated costly bottlenecks at the Ports of Los Angeles and Long Beach, reduced gridlock on area freeways and curtailed air pollution from idling traffic. In an average week, OffPeak currently removes more than 70,000 truck trips from the freeways during busy commuting hours, reducing congestion and benefiting local air quality. In 2004, before PierPass, public roads close to the port terminals had 10% share of their off-peak traffic as port container trucks. In 2007, a survey showed this had risen to 32%.

In 2006, more than 2.9 million truck trips used OffPeak operation hours. This represents more than 13,000 trucks per OffPeak shift, or about 36% of all container traffic at the ports. In 2007, around 38% of all container truck trips to and from the ports were diverted to OffPeak operation hours. This means that, in 2007, approximately 3.4 million trucks trips have been taken off the roads during busy commuter periods.

As a result of the negative impact of the Global Financial Crisis on container volumes, PierPass decided in March 2009 to reduce the number of OffPeak shifts by one to better cover the costs of the program. This is seen as a temporary measure with the overall net benefits of OffPeak not in question ensuring the continuity of the program in the future.

Local, state and Federal officials and business leaders have lauded OffPeak as a model for industry-led initiatives to mitigate impacts on communities and the environment. It has also given government, community and business stakeholders a window of opportunity to work together on longer-term solutions. The OffPeak program is considered a success.

## **5.6 Conclusions**

The Southern California ports of Los Angeles and Long Beach provide good examples of planning, initiatives, and forms of cooperation to tackle the problem of increasing landside congestion and future trade growth.

The combination of the port authorities, Alameda Corridor Transportation Authority (ACTA), PierPASS, and the Southern California Association of Governments (SCAG) acting together with industry has led to significant operational and physical enhancements, which, on a smaller scale given required economies, should be applicable to the Australian planning situation for capital-city/metropolitan container ports.



## 6. Brazilian iron ore exports – a pen picture

### 6.1 Background

The origins of Brazil's iron ore export trade are tied up with the company Vale (the world's largest iron ore exporter) which date back to 1942 when it was formed as a publicly-owned mining and export company by the Brazilian government.

In the following year, the state railroad company was also established which provided the backbone of the iron ore export trade from mine to port. The government developed a connecting iron ore export port at the port of Tubarao in 1946, and in 1966 this was owned and operated by the state miner Vale.

In 1986, the iron export port of Ponta Madeira was opened with the connection of a new mine by the new Carajas railroad – all facilities being operated by Vale. In 1997, the Brazilian government privatised Vale with the company continuing to keep control of and operate the integrated iron ore export transport chain of railroads and port terminals. Vale seeing its logistics and energy activities as key 'strategic' (non-revenue making) parts of its core mining business.

Until recently, Brazil was the world's largest exporter of iron ore but was in 2008 shifted into the number two position by Australia which now leads as the world's number one iron ore exporting nation.

The following summary statistics for 2008 (as published by UNCTAD) help to further set the scene:

- » World iron ore trade was 883 MT, of which Australia captured 300 MT (34%), Brazil 282 MT (32%), and India 101 MT (11%)
- » The major importing nations were China at 444 MT (50%), Europe at 164 MT (19%), and Japan at 140 MT (16%)
- » The market share of the big three miners (Vale, Rio Tinto, and BHP Billiton) amounted to 34%
- » According to ABARE, in 2008/2009, Australia exported 323 MT, of which 69% to China (223 MT), 19% to Japan (61 MT), 9% to South Korea (28 MT) and less than 1% to Europe – the vast majority of Europe's imports being supplied by Brazil
- » Since 2008, and post the Global Financial Crisis (GFC), Chinese imports continue to surge ahead of other nations with Australia's exports being driven by this demand – Australia continues to increase its market share of the Chinese market at the expense of Brazil and others
- » In 2009, according to Chinese government statistics, out of a total 564 MT of iron ore imports, China sourced 260 MT from Australia (46%), 140 MT from Brazil (25%), 110 MT from India (20%), and a remaining 54 MT (9%) from South Africa/Ukraine/Canada collectively. It is evident that Australia and Brazil keenly compete for the Chinese market. It is believed that around 60% of the combined total iron ore exports of Rio Tinto and BHP Billiton are taken by the Chinese market compared with 40% for Vale.

### 6.2 The main iron ore export ports of Tubarao and Ponta da Madeira

The deepwater ports of Tubarao and Ponta da Madeira, owned and operated Vale, are the main Brazilian iron ore export ports.



The port of Tubarao is able accommodate bulk carriers up to 350,000 tonnes deadweight with a maximum draft of 20 m plus tide, while the port of Ponta da Madeira can handle bulk carriers up to a maximum of 420,000 tonnes deadweight (larger than the world's current biggest iron ore bulk carrier – the Berge Stahl - at 365,000 tonnes and 25 m draft) with a maximum draft of 25 m plus tide.

The port of Ponta da Madeira handles the Berge Stahl on a dedicated routing between Brazil and Rotterdam which is currently the only European import port able to accommodate the vessel when fully laden with iron ore (it takes around four to five days to unload the vessel at Rotterdam with the roundtrip taking around five weeks).

In 2006, the Berge Stahl called at the Pilbara port of Dampier for an export trip to Europe but was only able to load around 190,000 tonnes of iron ore (instead of around 350,000 tonnes typically loaded in Brazil) due to the depth of the shipping lanes at Dampier port.

The Brazilian ports are also handling the largest, most recently built, bulk carriers of 320,000 tonnes deadweight and 21 m draft (operated by the Japanese) transporting Brazilian iron ore to Japan under long-term contracts.

By comparison with Brazil, the Australian Pilbara ports are more limited by depth:

- » Dampier can handle maximum 250,000 tonnes deadweight vessels with a depth of 17.2 m plus tide
- » Port Hedland can generally handle maximum 260,000 tonnes deadweight vessels with a depth of 19.2-19.3 m, but the new berth at Anderson Point (Fortescue) can handle 320,000 tonnes deadweight vessels with a depth of 19.8 m
- » Port Walcott has a depth of 19.8 m.

Both of the Brazilian ports, at their largest terminals, are able load bulk carriers up to a maximum of 16,000 tonnes per hour which, according some reports, makes them the most productive iron ore loading ports in the world. By comparison, Pilbara ports has ship-loaders rated at maximums of around 10,000 tonnes per hour with the new Port Hedland – Andersons Point (Fortescue) berth having a ship-loader rated at a maximum of 13,500 tonnes per hour.

### **6.3 Connecting rail operations from mine to port**

Vale owns the concession of three Brazilian railways: Vitória a Minas railroad (EFVM), Ferrovia Centro Atlântica (FCA) and Carajás railroad (EFC), all of which are operated by Vale logistics as an integrated network with the iron ore export ports as end destinations.

- » *Vitória a Minas railroad* - Vale operates under a 30 year contract this 905 km railroad, which is used to transport iron from the Iron Quadrangle in Minas Gerais to the Port of Tubarão in the state of Espírito Santo. The concession expires in 2027. This railroad also carried 1.1 million passengers in 2006. (Note: this railroad concession is not fully-owned by Vale).
- » *Carajás railroad* - The concession of this 892 km railroad also expires in 2027, it links Carajás iron ore mines in the state of Pará to Ponta Madeira port terminal in the state of Maranhão. Vale operates a train of 3.2 km and 340 cars on this railroad.
- » *Ferrovia Centro-Atlântica* - Vale controls this railroad through the subsidiary FCA. This 7,000 km railroad extends through six Brazilian states, this railroad originally belonged to the RFFSA. Vale's concession of this railroad expires in 2026.



In terms of rail assets, Vale acquired and invested in rolling stock from 2000 to 2006, making it the owner of over 800 locomotives and more than 35,000 freight cars. However, it is believed that Vale plans to reduce its investment in rolling stock in the coming years.

#### **6.4 Conclusions**

It would appear that Brazil has a highly integrated iron ore export supply-chain from mine to port with leading levels of size economies (vessels and maritime access) and port handling productivities which allows it to make up for the distinct geographical distance disadvantage compared with Australia when serving the Chinese and Japanese markets.

The history of Vale has probably given it a head-start in establishing integrated/dedicated supply-chains from mine to port with the control and operation of mine, rail and port assets. This means that any interface issues are purely in-house and probably easier to resolve than port/land interfaces with different owners and governance arrangements.



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