DRAFT NSW FREIGHT AND PORTS STRATEGY

November 2012

NSW GOVERNMENT | Transport for NSW

Draft NSW Freight and Ports Strategy
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Transport for NSW
18 Lee Street
Chippendale NSW 2008

www.transport.nsw.gov.au

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Freight matters to every person in NSW. The efficient movement of freight across the network helps minimise the cost of everyday goods and services and support our State's economic prosperity. The expected doubling of the freight task over the next 20 years highlights the need for the development of the first-ever NSW Freight and Ports Strategy.

Our Government has placed a renewed focus on freight and is committed to supporting strong economic performance through the delivery of an efficient and effective freight network for NSW. Since coming to office in March 2011 the NSW Government has made real progress in this area through targeted infrastructure investments including the Port Kembla Outer Harbour expansion project, the Northern Sydney Freight Corridor and highway upgrades as well as lessening red tape by reducing regulatory burden and inconsistency such as road transport access restrictions. Recent Government initiatives enhancing the freight network include a $277 million upgrade to NSW grain rail lines, a commitment to replace or upgrade road bridges in 17 key locations across rural and regional areas known as "Bridges for the Bush" and initiating the development of transport network solutions such as the WestConnex scheme to improve linkages within the Sydney metropolitan area.

To better understand future opportunities for improving the freight network we have undertaken extensive consultation with freight operators, commodity producers and industry representatives from a wide range of industries across metropolitan and regional NSW. We listened, learned and captured advice from industry on what their freight issues were and how Government could deliver solutions to help address these challenges. Community perspectives on topics such as congestion, noise and emissions have also informed our understanding of the freight task against the backdrop of environmental and societal considerations.

The draft Freight and Ports Strategy aims to tackle inefficiencies and capacity constraints in our freight network. By developing the draft Strategy, the NSW Government has established a road map for understanding and addressing current and future freight needs to enhance productivity and deliver economic benefits for industry and consumers. The Strategy identifies a series of actions to achieve network efficiency, capacity and sustainability through government mechanisms including policy reform, program delivery and infrastructure investment by both Government and the private sector.

The draft Freight and Ports Strategy provides a strong foundation for the Government's approach to NSW's freight challenge. The upcoming consultation period will allow public feedback to inform further analysis of freight requirements and development of proposed solutions, with the final Freight and Ports Strategy to be released as soon as consultation on the draft document is complete.

On behalf of the NSW Government, we thank industry, organisations and the community for contributing to the development of the draft Freight and Ports Strategy. This strategy, and the outcomes it yields, will guide the delivery of a productive freight network in NSW for the next 20 years and beyond.

Gladys Berejiklian
Minister for Transport

Duncan Gay
Minister for Roads and Ports

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A bucket wheel reclaimer at Port Waratah Coal Services' export terminal in Kooragang. Export coal is an essential element of the NSW economy and the dominating freight task in the Hunter Valley and Port of Newcastle. Demand for Hunter Valley coal is driving the expansion program of the rail network and supporting port infrastructure. The funding of the specialist network infrastructure is primarily user pays.

1 FOREWORD

1.1 It's all about logistics

The movement of freight is a basic element of logistics. In NSW, the freight movement task is mainly undertaken on a shared transport network where the movement of freight and the movement of people compete for space. As government primarily provides the physical network, and access to it, there is an inexorable link between the actions of government and the performance of logistic tasks across the economy.

The bulk commodities that are exported, the containers that carry general goods, the food people consume and the clothes they wear, all, at some time, use the railways, roads, airports and waterways that are also used by travellers for work and recreation. There are some parts of the network, such as rail lines in regional NSW, that are used specifically for the movement of grain and coal. However, the interaction of the movement of freight with the movement of people generally happens across the network.

The scale of the transport management task is formidable. In NSW, 67 billion tonne kilometres of freight is moved annually and the value of the products carried exceeds $80 billion. Transport of freight is critical to the State economy and the efficiency of the transport network contributes to the success and growth of NSW. Conversely, inefficiencies, friction and capacity constraints in the transport network add costs for manufacturers, producers and consumers.

An efficient transport network is a basic requirement for economic growth. Regardless of the commodity or industry, the ability to get goods to market at the right time and sell them at the right price is a cornerstone of a free market economy. This Strategy aims to support and promote effective and efficient freight movement by rail, road, sea and air.

This document explains how Transport for NSW will work with commercial interests and across government to provide an efficient network and a framework for managing growth. It highlights short, medium and long term tasks to improve freight movement on the network. This Strategy will inform government and commercial investment decisions across all modes of transport and allow for the alignment of purpose.

The role of government in the freight task focuses on delivering network capacity to enable supply chain efficiency. This includes removing obstacles for achieving best practice, creating capacity and, where necessary, becoming involved in the marketplace to ensure the network operates efficiently.

These actions will have to be achieved within available public funds, influenced by fiscal trends and the cost of infrastructure. Government can facilitate private investment, and will continue to balance the needs of industry and productivity with public amenity. It will concentrate on reducing network congestion and mitigating any noise and pollution impact on communities and the environment.

In addition to funding, the transport network also needs land. Future transport corridors, and land for logistics facilities, need to be protected. Knowing the capacity of the current network, and forecasting where and when growth will occur, will lead to the identification of areas where network expansion is required. The task will then be to coordinate planning between government and to reserve land to ensure network capacity is available in the right place and at the right time.

In other words, it's all about logistics.

Logistics is much more than transport.

In 2011 freight and logistics contributed approximately $58 billion (13.8%) of the NSW Gross State Product.

2 INTRODUCTION

2.1 Economic context

Economic impact

Freight and logistics are an indispensable component of economic activity. An estimate of the proportion of Gross State Product (GSP) attributable to logistics significantly understates its contribution to the whole economy, as logistics is a facilitator or enabler of almost all economic activity. New industries are dependent upon efficient and low cost transport, and improved logistics can transform the economy.

The direct contribution of the freight transport industry can be quantified, but it is a fraction of the entire logistics sector. Direct measures of how logistics contributes to the economy are difficult to determine. Nevertheless, the freight transport industry remains a starting point on which broader estimates are based.

Data from the Australia Bureau of Statistics (ABS) reveals that:

- 128,000 people are directly employed in freight transport in NSW
- 3.6 per cent of the State is employed in freight transport
- NSW freight transport has an annual turnover of $21.2 billion and a gross value added (GVA) of $13 billion, or 3.1 per cent of the GSP.

Although easily derived, these figures distinctly underestimate the size of the logistics industry in two ways.

Firstly, ABS estimates do not include transport activities that are embedded within other industries, such as the movement of freight by in-house services. In NSW, this in-house activity is generally agreed to cover about two fifths of the total freight market and can be captured with a multiplier of about 1.7.

Secondly, logistics is much more than just transport, with general agreement in previous studies that the entire logistics sector accounts for 2.2 to 2.5 times the freight transport component.

Applying these multipliers yields an estimate that gross value added for freight and logistics in NSW was 13.8 per cent of GSP or $58 billion in 2011.

Using the same multiplier for employment increases the number of **people working in logistics in NSW to 500,000, or nearly 14 per cent of NSW employment**. Even these estimates do not capture the $8.8 billion spent on construction of roads, bridges, railways, harbours, and warehouses and the resulting economic activity that this construction generates.

Key drivers of demand

The largest NSW logistics task is the movement of goods within the State, which accounts for 62 per cent of freight volume and is dominated by coal and aggregates. Exports account for 15 per cent of freight volume, while movements of manufactured goods into and out of NSW account for nine and 11 per cent of freight volume respectively. Imports, at two per cent of freight volume, make up the rest of the NSW transport task.

The major driver for the movement of goods is demand, both domestic and international. The key indicators of the freight task are therefore the export of goods and State Final Demand (SFD) for goods.

For more than two decades, these indicators have shown a very high correlation with the gross value added by transportation. They have grown at average annual rates of 3.2 per cent over this period, compared to 3.4 per cent average growth for gross value added in the NSW transport, postal and warehousing industry. Annual growth in exports of goods and SFD are forecast to average nearly 4.0 per cent over the next five years.

CASE STUDY 1: CASELLA WINES

Based at Yenda, 16 kilometres east of Griffith, Casella Wines is Australia's largest wine exporter. The winery employs over 500 people and exports approximately 10 million cartons of wine to over 50 countries around the world. The business has an annual revenue of $344 million, of which 85 per cent is export revenue.

The scale of the Casella Wines' production and logistics operation is significant to the Riverina and NSW. During harvest, over 250 trucks a day from across NSW, Victoria and South Australia deliver grapes to the winery. Some 160,000 tonnes of grapes are crushed and processed at the winery annually. This equates to 10 per cent of the entire Australian grape crush. To fulfil the demands of its international customer base, the company requires a world class supply chain.

To meet this challenge Casella Wines has teamed with suppliers to fulfil production material requirements, invested in state of the art production and packaging equipment at Griffith and established cost effective and efficient transport solutions for product delivery. The company's latest bottling line is capable of bottling, boxing and palletising 36,000 bottles per hour.

On average, 35 twenty foot equivalent units (TEU) of bulk and bottled wine leaves Casella Wines every day, destined for the international market. Of the 12,775 TEUs shipped annually, 79 per cent is destined for the US, where the Casella Wines' Yellow Tail brand is the most imported wine in the country. The bottled and bulk wine is exported via the Griffith intermodal terminal owned and operated by Patrick Logistics, with all the TEUs moving through the Port of Melbourne.

The scale and interstate contestability of Casella Wines' freight task highlights the challenges faced by users of the NSW transport network. The market is highly competitive with wines from Italy, France, Spain, Chile and South Africa vying for consumer attention. Coupled with economic factors such as the high Australian dollar, Casella and other Australian exporters need to optimise supply chain efficiency to remain cost competitive.

Currently road transport operators hauling grapes to Casella Wines are hindered by High Productivity Vehicle access restrictions at various source locations through regional NSW. Minimising barriers to highly productive use of the road network would allow industry to reduce operational costs by moving more freight with fewer trucks.

Additionally the majority of Casella's export product initially travels 18 kilometres by road through the Griffith urban area and several school zones to reach the intermodal terminal for transfer to rail. The relocation of the intermodal terminal out of the built up area will mitigate noise and interaction with light vehicle traffic and reduce the impact on residents' homes.

Like other exporters in the Riverina, Casella Wines is positioned halfway between the international port gateways of Port Botany and Melbourne. The preferred export route is currently to Melbourne, because of efficient terminal-to-port rail corridors that allow timely freight rail movement at a lower cost.

Such decisions deprive the NSW Government and industry of revenue and employment opportunities generated from these freight activities. Only by expanding network capacity between regional areas and ports can Port Botany offer exporters a cost effective rail freight option to deliver their goods to market.

Effective land use planning is critical to increasing the attractiveness of NSW's rail freight network to industry. For example the development of an intermodal terminal closer to the Casella Wines facility and free of the current constraints would maximise connectivity between the company's freight point of origin and export market. If this facility was connected to the Sydney-bound Cootamundra rail line, Port Botany would have enhanced viability as an export hub.

Land use decisions that optimise the State and national freight network, while achieving sustainability by minimising social impacts, will add value to the NSW economy.

Benefits of efficient logistics

Improvements in logistics have enabled increases in both the value and volume of freight transported. Lower costs have enabled new online markets to develop and greatly increased the output in others that rely upon improvements in coordination for just-in-time delivery.

Online trading has expanded rapidly, aided in part by improvements in freight and logistics that have lowered the cost of transporting goods direct to the customer. This has enabled smaller online operators, which are characterised by low volume and low cost freight requirements, to compete with established bricks and mortar retailers in a way that was impossible a decade ago.

Logistic management also enabled the Hunter Valley Coal Chain (HVCC), the largest coal chain operation in the world, to rapidly increase efficiency and output through a centrally managed coordinator tasked with minimising total logistics costs and maximising volumes.

With 40 different coal mines owned by 11 coal producers operating 30 different loading points delivering coal along rail lines up to 450 kilometres in length to three different port terminals, the HVCC was not naturally efficient. It had suffered from a lack of congruence between mines' requirement for additional capacity and contracts with rail service providers for loading and shipping capacity.

The HVCC is now considered to be world leading and is expected to enable a threefold expansion in outputs from 68 million tonnes in 2000 to 205 million tonnes by 2014.

2.2 Purpose of the NSW Freight and Ports Strategy

The NSW Freight and Ports Strategy is a core component of the State's overall strategic planning framework. It supports the goals identified in *NSW 2021* to:

- Rebuild the economy
- Return quality services
- Renovate infrastructure
- Strengthen our local environment and communities
- Restore accountability to Government.

The *NSW Transport Administration Act* was amended in November 2011 to create a single transport authority with responsibility for overseeing the entire transport system. The Act includes objectives focused on freight and economic development; this Strategy is the roadmap to meeting those legislative objectives.

This Strategy also responds to Infrastructure Australia's National Port Strategy and the National Land Freight Strategy. In addition, this Strategy is consistent with the objectives of the NSW Long Term Transport Master Plan.

This Strategy will provide a framework for industry, all levels of government and stakeholders to guide investment and other decisions to enhance freight logistics in NSW.

The NSW Freight and Ports Strategy identifies where government intervention is justified to enhance productivity and economic efficiency by addressing problems with the operation of market and institutions, and balancing competing interests and impacts. Government intervention can be in the form of the provision of physical infrastructure, coordination and control, market structure reforms, co-investment with the private sector, better regulations and other economic incentives.

Having a NSW Freight and Ports Strategy means that any government intervention in the market is:

- Guided by a clear aim and achievable objectives
- Proportional and accurately targeted
- Monitored for performance and progress in achieving its objectives.

The NSW Government plays a key role in balancing the need for improved strategic planning, investment, coordination and regulation of freight movement with the need to minimise the impact of freight movement on local communities, the environment and other transport users.

A strategy for integrated planning and investment in the NSW transport network has many benefits. For example, it provides a framework for agreement on the long term investment needs to deliver essential network capacity, efficiency and compatibility with the wider national network so that competitiveness is not hindered by network constraints.

2.3 Strategy framework

Aim and objectives

The aim of the NSW Freight and Ports Strategy is to provide a transport network that allows the efficient flow of goods to their market.

In 2012, congestion and inefficiencies are evident in all network modes with the people of NSW paying the costs, both directly and indirectly through inefficiencies and delays. Providing a network that eliminates or at least minimises congestion will support economic growth and productivity and encourage regional development.

In support of this aim, Transport for NSW has developed freight specific objectives which reflect the importance of the freight transport network for a competitive and productive NSW economy, as well as the need to integrate freight transport with other productive and non-productive activities and land uses.

The objectives are:

- **Delivery of a freight network that efficiently supports the projected growth of the NSW economy**
- **Balancing of freight needs with those of the broader community and the environment.**

These objectives are to be taken in the context of a wider set of considerations for this Strategy, including the need for alignment with related strategies and plans such as *NSW 2021*, NSW Long Term Transport Master Plan, National Transport Policy Framework including the National Ports Strategy. This Strategy will also inform the development of Regional Transport Plans that will include further attention to regional freight needs.

The maintenance of existing partnerships with industry and government, as well as enabling the creation of new and sustainable commercial relationships, is pivotal to this Strategy.

NSW Freight and Ports Strategy framework

The NSW Freight and Ports Strategy has been structured into three 'strategic action areas' that target specific challenges associated with the forecast doubling of the NSW freight task by 2031.

The aim, objectives and challenges of this Strategy, as well as the strategic action areas, are illustrated in the framework diagram shown in Figure 1. It should be noted that many of the challenges and actions within this framework are linked, and these interdependencies are recognised in this Strategy.

Challenges

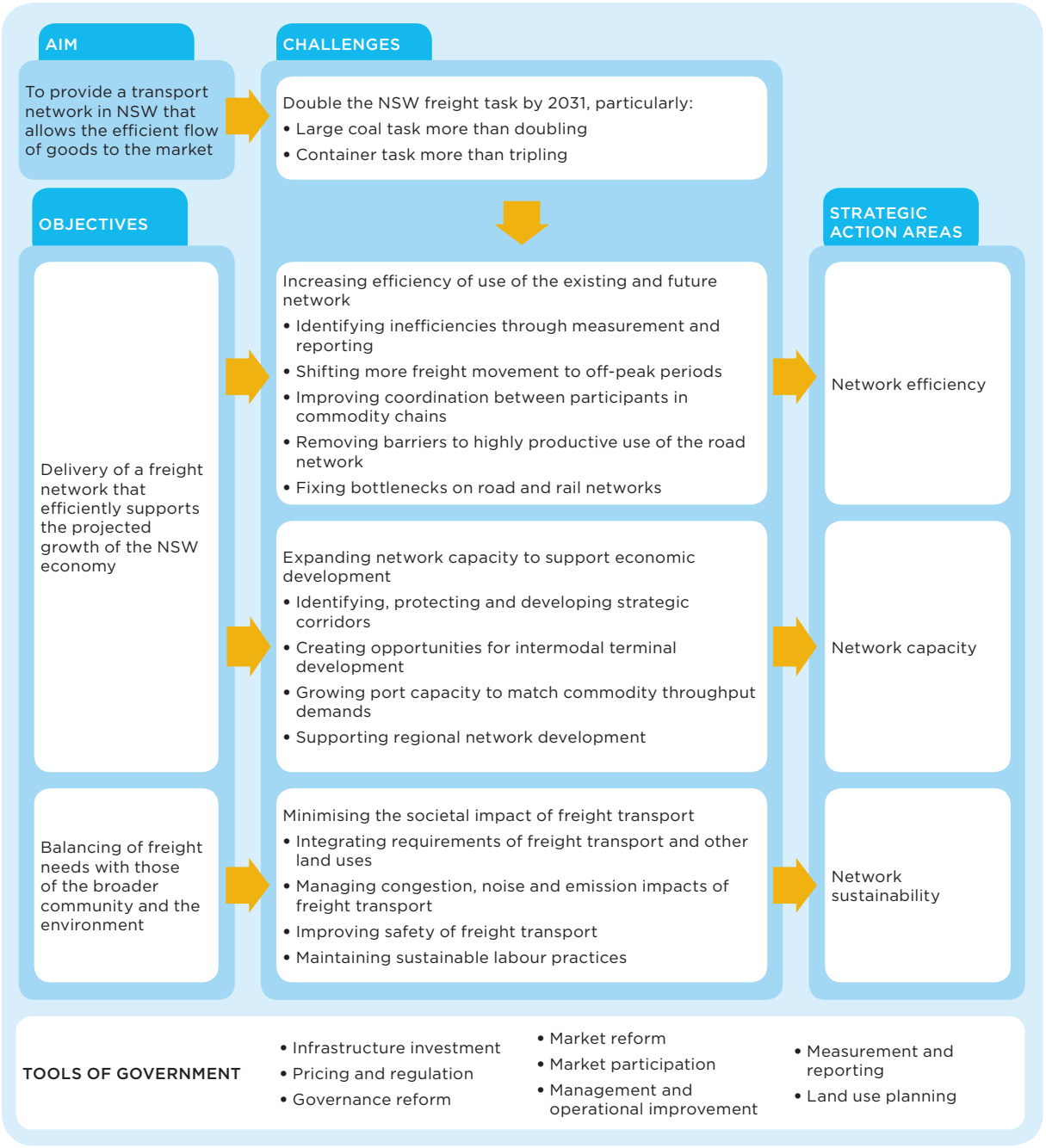
For the purposes of this Strategy, 'challenges' are defined as the targeted outcomes that need to be achieved in order to meet the objectives. The challenges associated with increases in freight volumes in NSW in the next 20 years are significant. They relate broadly to efficient network usage, network capacity expansion and sustainability. Within each of these broad challenges fall several more specific challenges that will need to be met in order to achieve the objectives. As shown in Figure 1, each set of challenges will be addressed by a strategic action area.

Expectations

The NSW Government has a range of tools at its disposal to use in meeting the challenges of the freight task. The NSW community expects that any government involvement in the transport network is transparent, represents value for money and avoids unintended commercial consequences and social impacts, such as congestion and noise (see Figure 1).

In turn, the expectation from government is that users of the transport network comply with transport and network regulations and perform their work efficiently, so that network performance is optimised. The shared goal is to create maximum economic value for NSW enterprises and the community.

Figure 1 NSW Freight and Ports Strategy framework



Government expects that the freight and logistics sector will communicate demand forecasts to inform government decision making, create value for the economy through innovation, apply best practice methods in using the network, comply with regulation and pricing and, where appropriate, cooperate with other users so that finite network capacity is optimised.

NSW transport planning framework

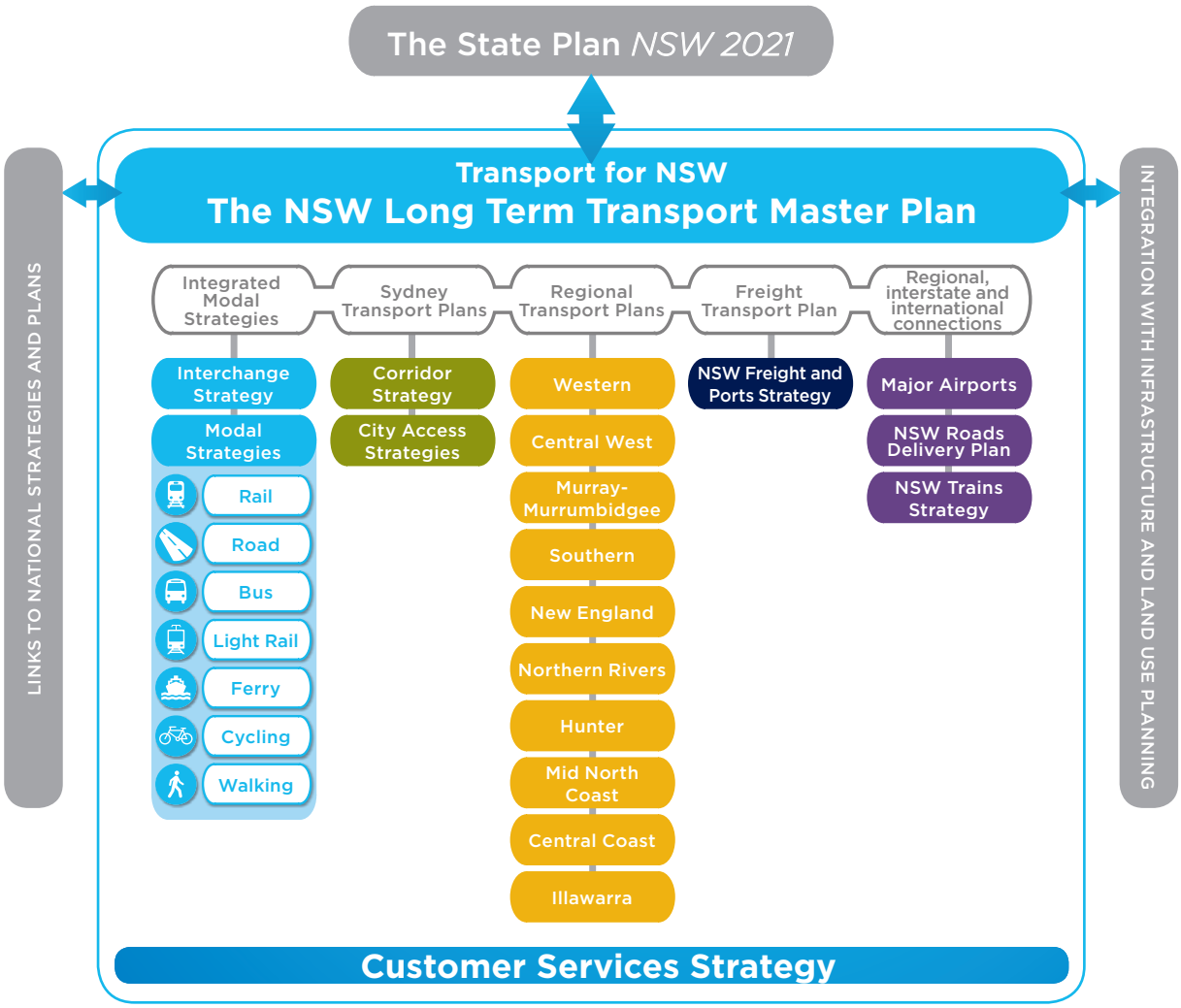
A 20 year timeframe, with 2011 as the base year, is used in developing Transport for NSW plans. The 2011 to 2031 timeframe has been used to develop volume forecasts referred to in this Strategy.

The Freight and Regional Development division has developed the NSW Freight and Ports Strategy. The basis of the Strategy is previous work undertaken by transport agencies in NSW, as well as contemporary input from industry and stakeholders. A series of industry and public consultations was undertaken, as well as the review of submissions provided as part of the development of the draft NSW Long Term Transport Master Plan.

Decisions that impact the State's freight network are made as part of the NSW Government budget planning process.

The integrated planning process is shown in Figure 2.

Figure 2 The NSW transport planning framework. The NSW Freight and Ports Strategy provides specialist freight and logistics input to the NSW Long Term Transport Master Plan.



2.4 Development and implementation of the Freight and Ports Strategy

Action prioritisation

This Strategy comprises three strategic action areas, with 17 actions and 42 underlying tasks. In order to ensure a high level of effectiveness and efficiency in implementing this Strategy, actions have been prioritised according to the following criteria:

- Positioning to address objectives, challenges and demand requirements
- Targeted outcome (size, nature and timing of impact)
- Linkages and dependencies (potentially resulting in the creation of portfolios of related actions)
- Difficulty and timing of implementation
- Cost and funding requirements.

The final section of this document incorporates this prioritisation (see Chapter 6).

Targets and measurement

In implementing this Strategy, Transport for NSW will develop a range of key performance indicators (KPI) that will provide the basis for ongoing assessment of network performance. The KPIs will draw upon those already established within some sectors of the transport and logistics industry, such as container movements by road and rail through Port Botany, as well as new indicators that measure network efficiency and capacity.

Historically, performance indicators have been established and monitored by individual organisations or groups of organisations. There have been few indicators related to overall supply chain efficiency. This segmentation has resulted in decisions being made on limited inputs, with few indicators shared between industry participants. Transport for NSW will build a single performance management framework, incorporating micro and macro level indicators.

An effective framework of targets and measures will provide a snapshot of freight network capacity, industry performance within key supply chains and the effectiveness of the State's freight transport operations for different modes. One of the key challenges in establishing the measures will be for all participants in the supply chain, and across industry, to share information which will enable decision making that benefits the freight industry and communities.

Updating this Strategy

This Strategy is built on a strong evidence base including advice from industry, local government and freight specialists. The strategic action areas and tasks identified in this Strategy nominate a range of policy approaches and tools to ensure the transport network allows optimal performance by all users. Measurement and communication of performance are critical to continual improvement and gaining maximum utility from the network.

There will be a continuous evolution of this Strategy through periodic review and assessment of strategic action areas to ensure they remain relevant and on schedule. The process will encompass ongoing engagement with industry and government agencies. Monitoring and review of this Strategy is addressed further in Chapter 6.

The NSW road network is shared between bicycles, pedestrians, passenger vehicles, buses, light commercial vehicles, construction vehicles, and heavy trucks. It is important to highlight that passenger vehicles primarily create congestion, particularly in the peak movement periods.

2.5 Strategic action areas summary

Strategic Action Area 1 – Network efficiency

ACTION 1A: Identify freight movements and network demand

Task 1A-1 Establish and manage freight network performance indicators

Task 1A-2 Analyse the role of freight transport in the NSW economy

Task 1A-3 Maintain a single agency for streamlined data collection and strategic analysis

Task 1A-4 Develop the Sydney Metropolitan Cargo Movement Model

Task 1A-5 Promote efficient movement of general road freight

ACTION 1B: Shift more freight movements to off-peak periods

Task 1B-1 Build the case for off-peak freight handling for planning purposes

Task 1B-2 Support the growth of off-peak freight

Task 1B-3 Identify the infrastructure requirements for off-peak freight handling

Strategic Action Area 2 – Network capacity

ACTION 2A: Identify and protect strategic freight corridors

Task 2A-1 Establish corridors to meet long term freight needs of NSW

ACTION 2B: Develop and maintain capacity for freight on the road network

Task 2B-1 Connect and complete Sydney's motorway network

Task 2B-2 Prioritise road infrastructure investments

Task 2B-3 Develop a Newell Highway Corridor Strategy to support greater use of high productivity vehicles

ACTION 2C: Enable separation of passenger and freight flows on the rail network

Task 2C-1 Separate passenger and freight movements with network enhancements and rail alignments

Task 2C-2 Complete the Northern Sydney Freight Corridor

Strategic Action Area 3 – Network sustainability

ACTION 3A: Embed freight requirements in planning schemes

Task 3A-1 Integrate land use planning and freight logistics

Task 3A-2 Enable efficient freight access

ACTION 3B: Manage congestion, noise and emission impacts of freight transport

Task 3B-1 Recognise costs of congestion

Task 3B-2 Mitigate noise from freight operations

Task 3B-3 Mitigate emissions from freight operations

ACTION 1C: Develop a seamless interstate freight network

Task 1C-1 Support national regulators and harmonise transport safety regulations

Task 1C-2 Continue working nationally to expand the National Road Freight Network

ACTION 1D: Improve productivity of the road freight network

Task 1D-1 Streamline and reform road funding

Task 1D-2 Provide necessary infrastructure to support High Productivity Vehicles access

Task 1D-3 Improve the Restricted Access Vehicle approval process

Task 1D-4 Incorporate freight considerations into managed motorway access decisions

Task 1D-5 Review the productivity and efficient usage of arterial roads

ACTION 1E: Maximise network capacity by reforming rail access

Task 1E-1 Conduct NSW Rail Access Review

ACTION 1F: Improve efficiency of landside cargo transport

Task 1F-1 Establish a NSW Cargo Movement Coordinator

ACTION 2D: Develop effective port growth plans to meet freight volume growth

Task 2D-1 Develop a Port Botany growth plan

Task 2D-2 Develop a Port of Newcastle growth plan

Task 2D-3 Develop a Port Kembla growth plan

ACTION 2E: Foster intermodal terminal network development

Task 2E-1 Foster intermodal terminals in Metropolitan areas

Task 2E-2 Regional intermodal terminals

ACTION 2F: Coordinate regional infrastructure and service provision

Task 2F-1 Adopt a best practice reform model for regional infrastructure

ACTION 2G: Develop a project program to support network capacity

Task 2G-1 Evaluate freight infrastructure through an investment framework

Task 2G-2 Maintain a program of projects for freight investment

Task 2G-3 Fund the infrastructure program

ACTION 3C: Prioritise safety of freight transport

Task 3C-1 Support National Rail Safety Regulation

Task 3C-2 Improve heavy vehicle safety

Task 3C-3 Enhance port safety

Task 3C-4 Manage the transport and storage of dangerous goods

ACTION 3D: Build and retain the transport and logistics workforce

Task 3D-1 Attract and retain skilled workers

In 2011 the volume of freight moved on the NSW transport network was 409 million tonnes.

By 2031 the volume to be moved is forecast to grow to 794 million tonnes.

Network capacity and performance must develop ahead of demand.

3 UNDERSTANDING THE CURRENT AND FUTURE FREIGHT TASK

3.1 Double the volume of freight in 20 years

Freight growth

By 2031, the freight task in NSW is projected to nearly double to 794 million tonnes. This projected increase highlights the need for the NSW Freight and Ports Strategy to ensure that the network keeps pace with growth, and that this growth is sustainable for the long term prosperity of the State.

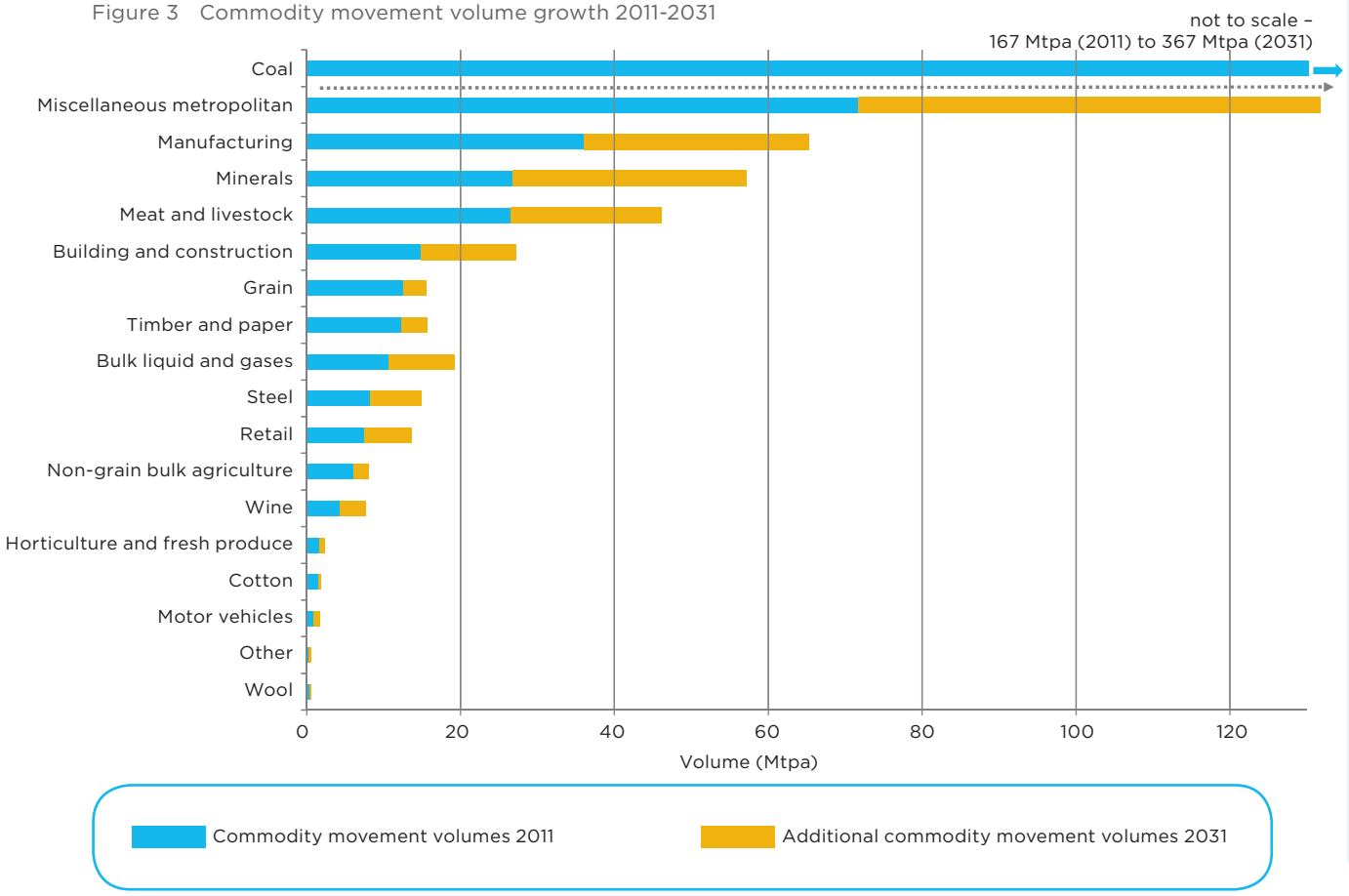
The volumes of all commodities demanding capacity on the freight network are expected to grow as population and economic activity increase across NSW. Mining represents almost half the current task. Around 167 million tonnes of coal were produced in NSW in 2011, growing to around 367 million tonnes by 2031.

Coal is expected to remain the single largest freight task in NSW, followed by manufactured products. All other commodities are forecast to grow between two and three per cent per annum. The forecast growth in 15 supply chains is shown in Figure 3. These supply chains were the focus of reference groups consulted during the preparation of this Strategy.

The implications of this growth for ports, road and rail networks, intermodal terminals and freight corridors are significant. Capacity across the freight network varies, but key parts of the network are already under pressure to match demand.

Opportunities exist to shift more freight onto rail and this remains an important priority for the NSW Government. The movement of freight by rail is forecast to increase under the influence of the coal task and the planned increase of containers on rail to and from Port Botany.

Figure 3 Commodity movement volume growth 2011-2031



Freight movements

Transport for NSW has identified over 72 different commodities transported in NSW. Industry advice, together with data from State and national sources, has been modelled to establish a picture of movements between origins and destinations across regions in NSW by Statistical Local Area (SLA), including the:

- Hunter, where significant volumes of coal are moved to Newcastle Port and several other important commodities are produced.
- Central West, where mining and agricultural production (especially grain) dominate the transport network.
- Sydney metropolitan area, where export and import products, typically in containers, are transported through Port Botany. Products can range from agricultural exports to imported consumer goods, such as electronics and whitegoods.
- Illawarra, where Port Kembla is a major trading port, exporting coal and grain among other products, and importing motor vehicles.
- South West, which is a major producer of food, such as fruit, grains, rice and wine. In this region, producers can make a choice between transporting products south to Melbourne or north to Port Kembla or Sydney.

Figure 4 Top 10 NSW inter regional freight flows 2011

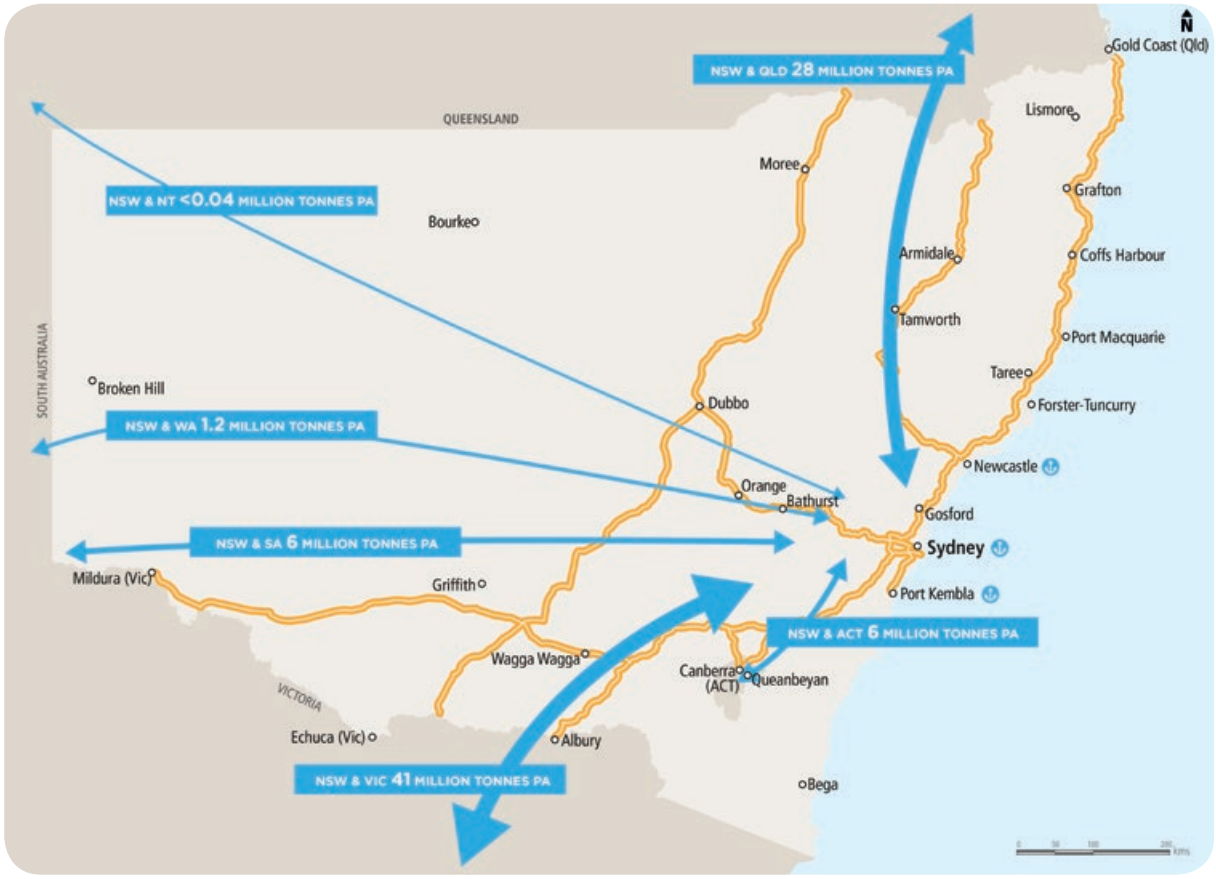
- North West, which is also a major agricultural production area with products such as grain and cotton. Again, this region can make transport choices between moving north to Brisbane or south to Newcastle or Sydney.

There are also many interregional movements in NSW, particularly around metropolitan Sydney and coal movements to power stations in Lithgow and the Central Coast. See Appendix A for further information on commodity flow by SLA.

The major NSW freight flows in 2011 are shown in Figure 5, with approximately 81 million tonnes moved almost entirely by road. The mode share for the total interstate freight task is 92 per cent by road and eight per cent by rail.

Figure 5 shows how the interstate freight task is distributed, with the largest task between NSW and Victoria at approximately 41 million tonnes of total flow. The majority of interstate flows between NSW and Victoria begin or end in Sydney. Interstate freight accounts for approximately 20 per cent of the total NSW freight task.

Figure 5 Interstate freight movements 2011



National highway network

Note: Interstate movements make up approximately 20 per cent of the total NSW task

Moving freight on road

The NSW road network carried 63 per cent of the total freight task in 2011, or around 256 million tonnes of freight. The importance of road transport for most commodities is shown clearly in Figure 6. The role of heavy vehicles in moving freight across NSW is substantial, and will continue to be so for the foreseeable future, as shown in Figure 7. Efforts to improve NSW roads and increase their capacity to handle heavy vehicles is central to this Strategy.

The most frequently used road corridors in NSW are the Pacific and Hume Highways, which carry most of the 81 million tonnes of interstate freight between Melbourne, Sydney and Brisbane. Road corridors including the Newell, Sturt and New England Highways support primary industries in western NSW.

As the freight task continues to grow, the capacity of existing roads to support this growth, as part of overall traffic demand, is a distinct challenge. Constraints around heavy vehicle use, particularly on local and regional roads, impact on the efficiency of the road freight task.

Road freight is also increasingly subject to capacity constraints and peak hour congestion in Sydney and other regional centres. The significant growth in freight is projected to impact all key NSW road corridors over the next 20 years, as shown in Figure 7. For many roads in Sydney, such as the M4 and M5 Motorways, available capacity is limited in peak periods.

Figure 6 NSW freight mode share for selected commodities 2011

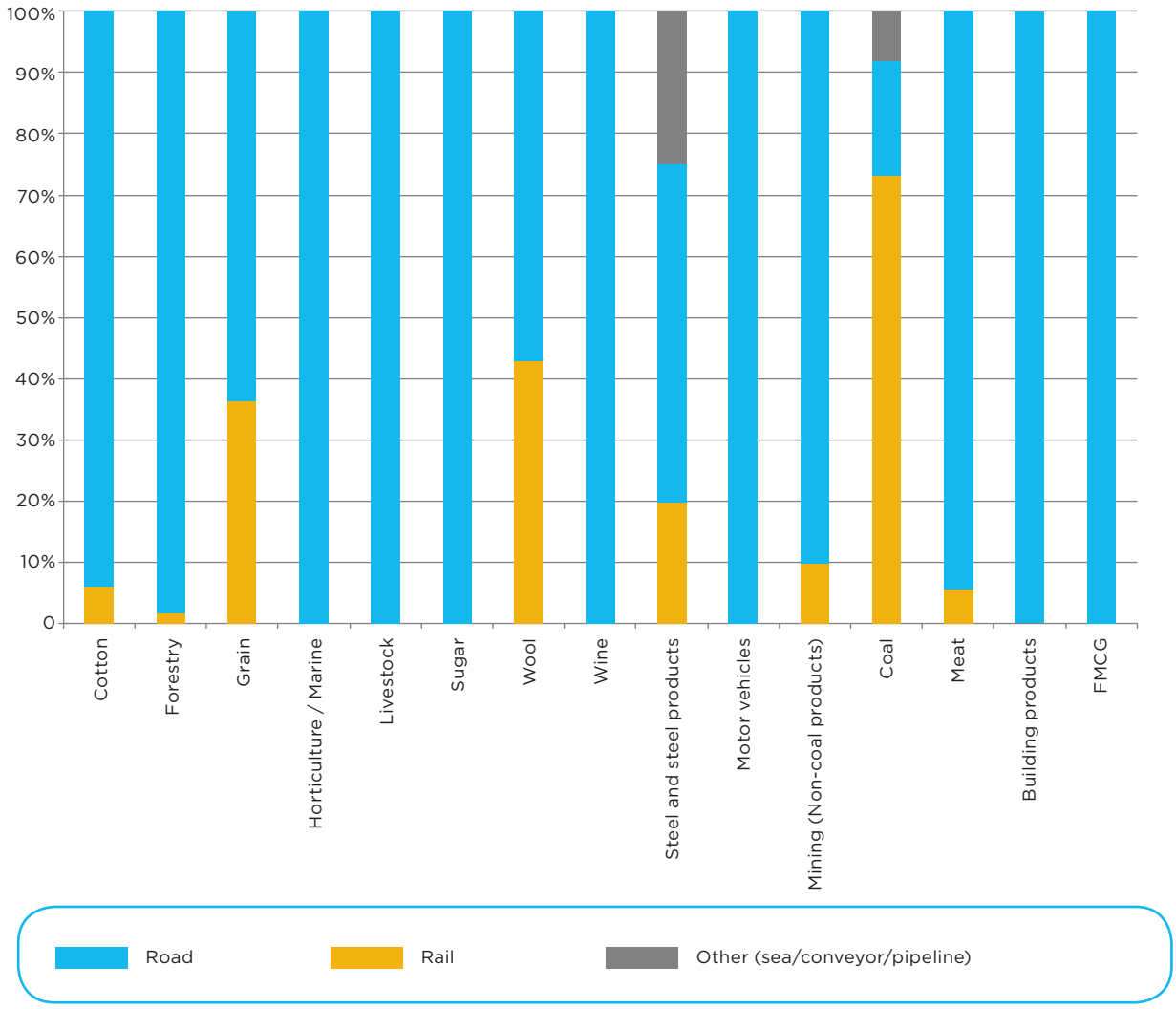
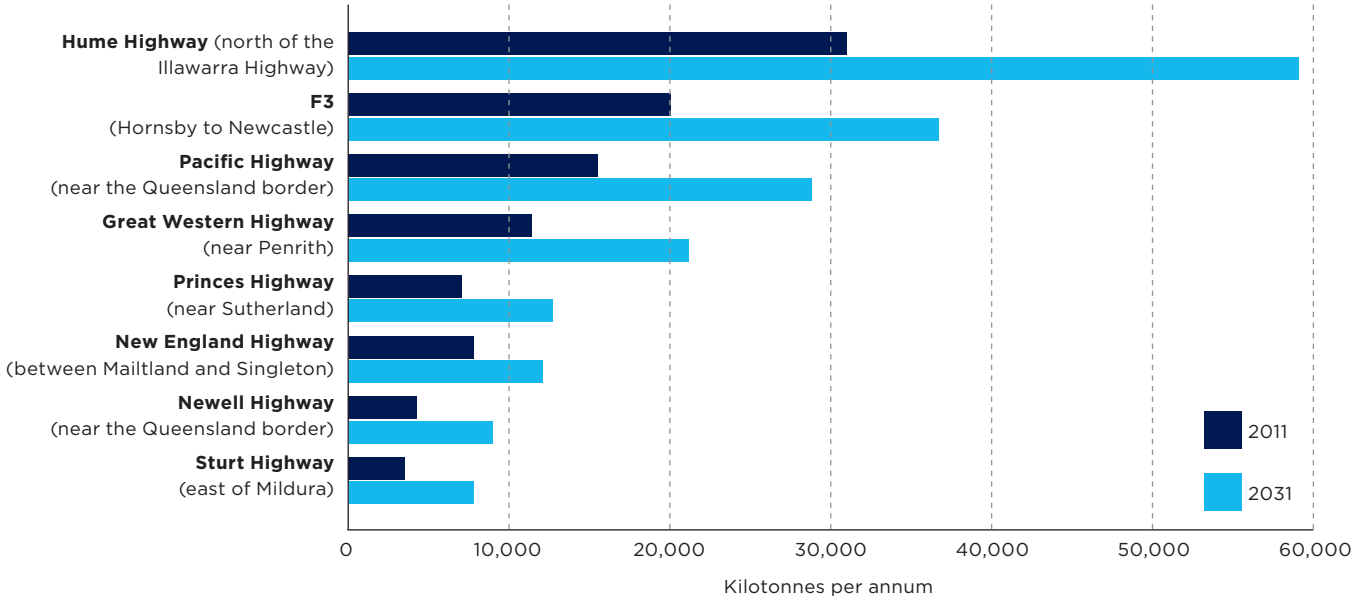
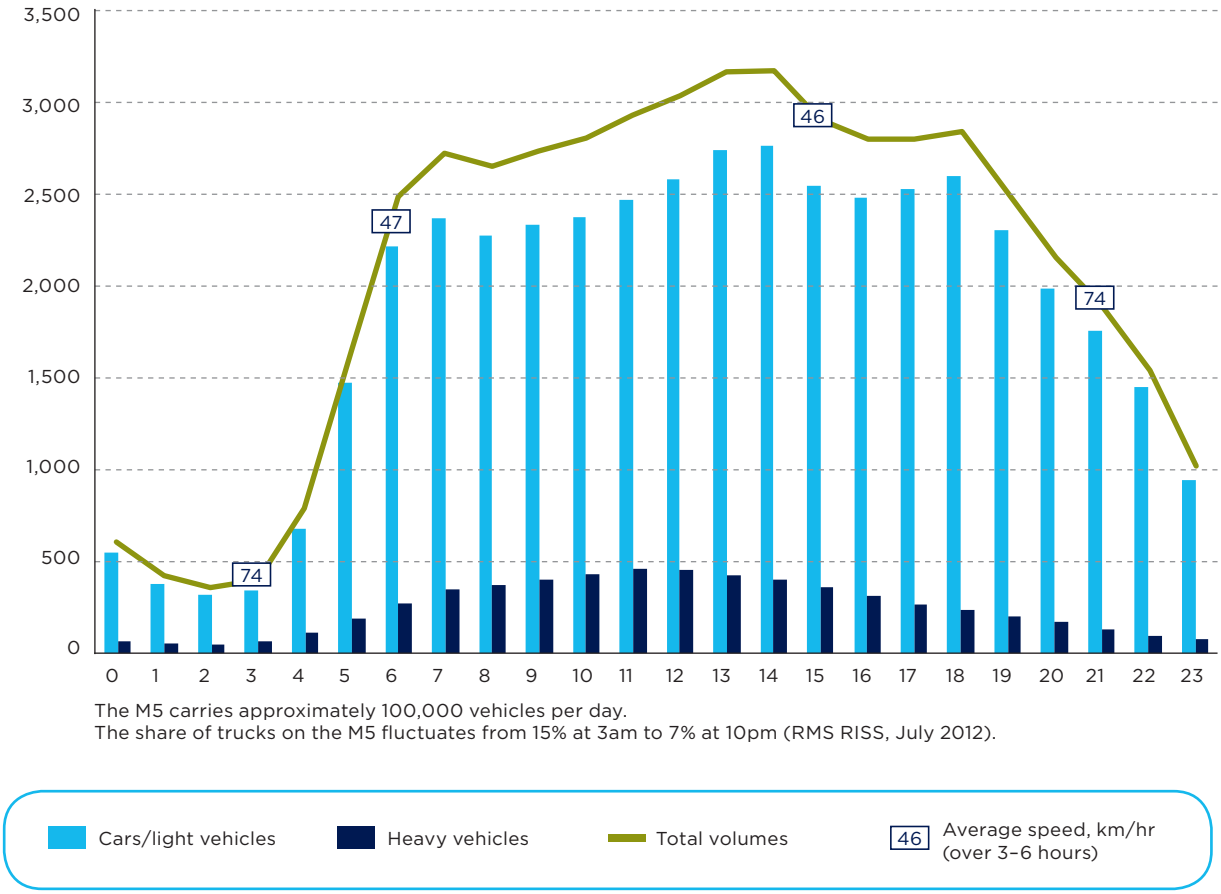


Figure 7 The current and forecast freight task on the key NSW road corridors



By 2031 container trade at Port Botany is forecast by Sydney Ports Corporation to reach seven million 20 foot equivalent units (TEUs), the target mode share is to double the proportion of containers carried by rail by 2020.

Figure 8 M5 hourly traffic volumes, average day 2011. West bound lanes of traffic at Kingsgrove weigh in motion counter



The M5 carries approximately 100,000 vehicles per day.
The share of trucks on the M5 fluctuates from 15% at 3am to 7% at 10pm (RMS RISS, July 2012).

The existing throughput of two million twenty foot equivalent units (TEU) per annum at Port Botany is projected to increase to a total of seven million TEU by 2031.

However almost tripling the container task is not likely to mean a tripling in the number of trucks serving the port. Currently Port Botany receives approximately 2,750 trucks per day.

The impact of container port traffic on surrounding roads will depend on factors such as the mode share to rail, the rate of modernisation of the truck fleet, the location and capacity of intermodal terminals, the location and size of major retail and warehousing centres and the management of empty containers.

However, even with the targeted increase in rail mode share, early modelling results indicate the M4 and M5 will not be able to accommodate the additional container traffic when combined with growth from other activities such as employment and population by 2031.

The hourly throughput of vehicles on the M5 is lower than capacity for many hours of the day due to congestion, low travel speeds and a break down in optimal flow. Accommodating 20 years of growth in this corridor will require a package of solutions to meet the needs of freight and other road users.

Port deliveries are already moving into the off-peak periods to avoid congestion. Although the M5 is at or near capacity for most of the day, there is still capacity for growth very late at night and very early in the morning.

Actions in the Long Term Transport Master Plan focussing on road upgrades and improved rail operations to support a doubling of freight on rail by 2020 are critical to meeting the forecast growth at Port Botany by 2031.

Moving freight on rail

NSW has suffered from under investment in transport infrastructure, including rail, for the freight task. While a number of rail infrastructure projects have occurred in the last 10 years, the focus has been on coal (driven by concentrated customer demand) and passenger transport (driven by government commitments).

The NSW Government has in place the dual policy objective of increasing the use of rail for the movement of both freight and passengers. In particular, the Sydney metropolitan rail network is an increasingly congested shared network.

During peak commuter periods, regulatory and operational mechanisms require that passenger services are prioritised over freight services. This results in a network that is not performing efficiently and warrants action to improve the performance of the rail freight task.

In 2011, the NSW rail network carried 136 million tonnes of freight (33 per cent of the total State freight task). The movement of coal in the Hunter Valley dominates rail freight activity in NSW. In comparison, other rail corridors carry relatively small freight volumes.

As with the road network, significant growth is projected across all key NSW rail corridors over the next 20 years.

In total capacity terms, the rail network has broadly kept pace with growth in freight demand. However, the transport of freight via the shared rail network is limited by the needs of passenger transport, particular during morning and afternoon passenger peaks.

The dedicated Metropolitan Freight Network (MFN) is currently underutilised, carrying approximately 300,000 TEU compared with the assessed throughput capacity of 1.1 million TEU. The mode share of rail for containers to and from Port Botany has declined from 25 per cent in 2001 to 14 per cent in 2012.

Despite this, there remains pressure on the rail network, given projected growth in freight demand. A comparison of the capacity of the key rail corridors under a 'do minimum' scenario and the projected demand is provided in Figure 10.

By 2031, all key corridors will struggle to meet demand unless action is taken. In particular, by 2031 the MFN will need to carry around two million TEU, which will equate to approximately 25,000 additional train movements each year on that part of the network alone.

Figure 9 Projected freight task growth across NSW rail corridors

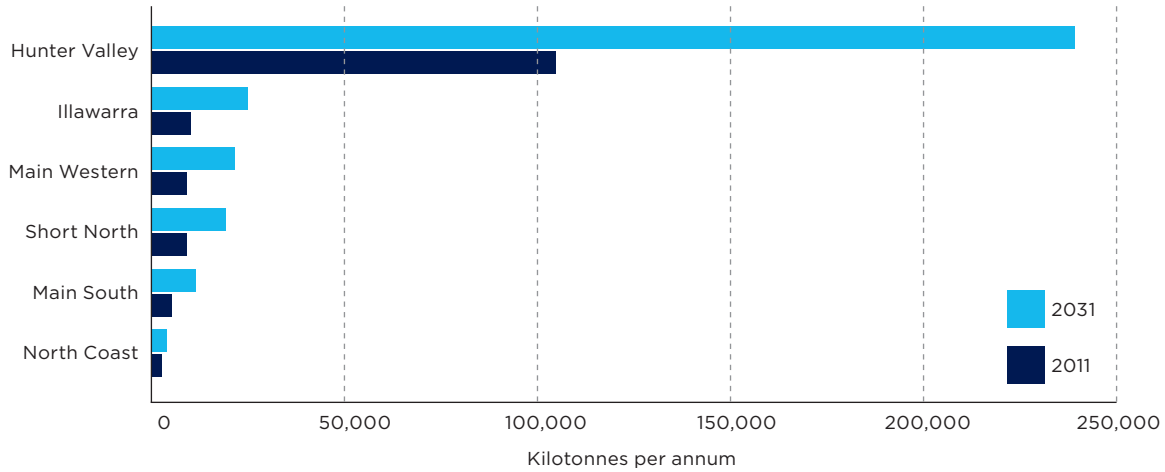
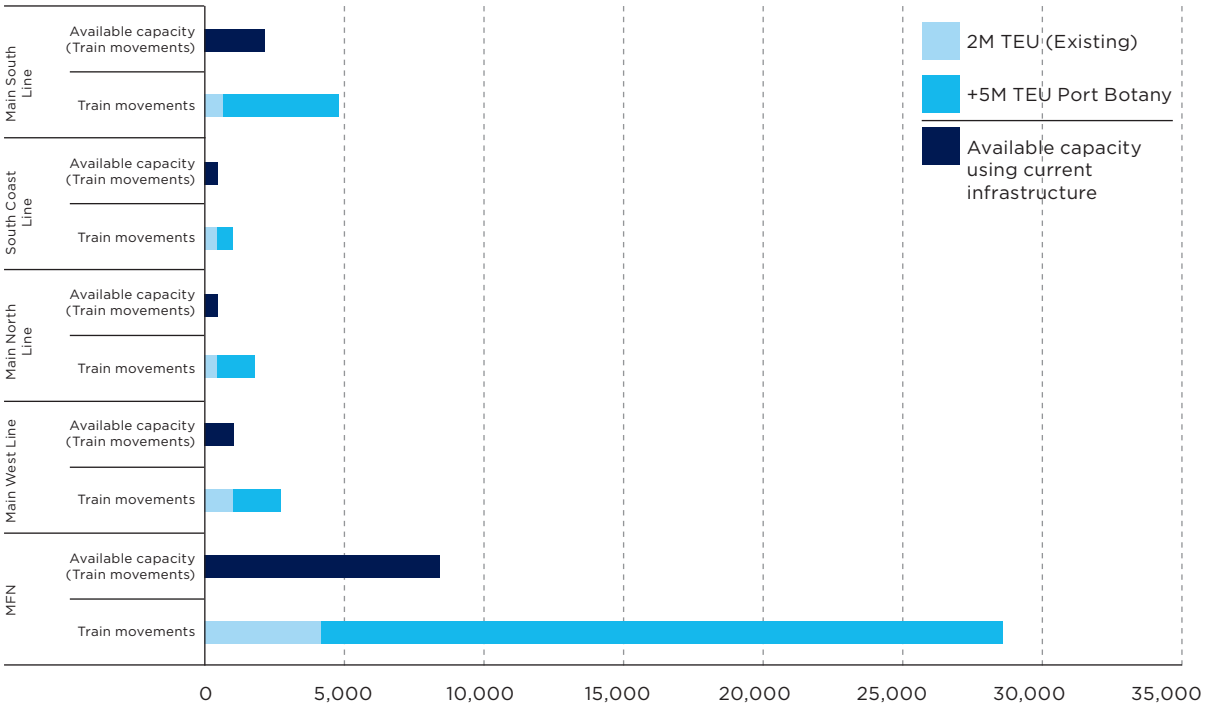


Figure 10 Key rail freight corridors showing estimated annual volume and capacity for container movement to and from Port Botany



The dark blue bars show the available capacity in train path movements when all other freight and passenger movements are counted.

The light blue bars show the current activity from container train movements in the rail corridor for 2 million TEU per annum at 14% mode share to rail.

The medium blue bars show the additional container train movements needed in the corridor if the total Port Botany container task reaches seven million TEU per annum at 28% mode share to rail.

Currently rail is used for 14 per cent of the container movement task to and from Port Botany. The Metropolitan Freight Network is currently underutilised, with less than 30 per cent of available capacity used for movement of containers. The reasons for the low mode share relate to reliability, available intermodal terminal capacity, time taken and cost. Infrastructure and operational constraints compound the poor performance of rail to and from Port Botany.

Containerised cargo from regional NSW destined for export is a 'natural' market for rail, provided the network and logistic service providers perform efficiently and are cost effective. This train at Junee is carrying Patrick Port Logistics cargo destined for export through the Port of Melbourne. The cargo origin in Griffith is part way between Melbourne and Sydney, however the cargo moves to Melbourne primarily because of the ease of access for trains to the port precinct. Establishing the NSW Cargo Coordinator seeks to eliminate the inefficiencies and pinch points that hinder the free flow of cargo on the NSW network.

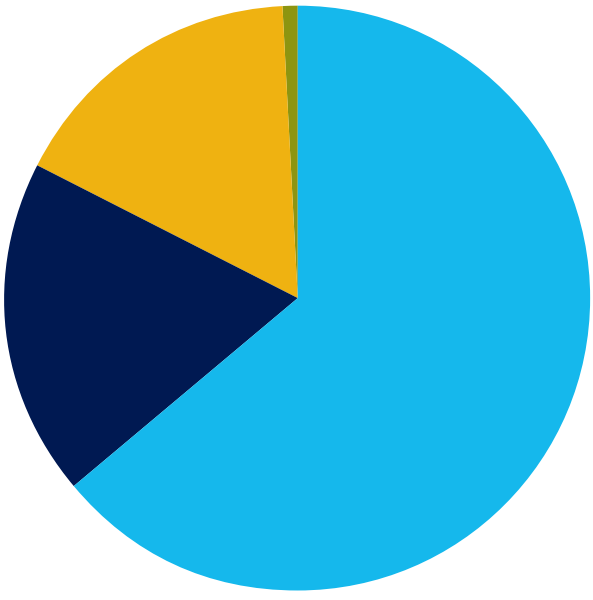
Freight terminal movements

An efficient transport network is characterised by seamless transhipment between modes. The largest and arguably most visible transhipment task occurs in NSW ports.

In 2010-11, NSW ports handled around 179 million tonnes of freight (44 per cent of the total NSW freight task). The Port of Newcastle recorded the greatest volume of seaborne exports, as a result of the dominance of coal in the NSW freight task. Port Botany also accounted for a significant share of the freight task, and is the primary NSW container port, as shown in Figure 11.

The rate of growth in exports through NSW ports has increased by around four per cent in each of the last five years. This increase has been driven by strong growth in coal exports as well as rapid sustained growth in container movements, which has averaged seven per cent growth annually over the last 15 years.

Figure 11 NSW port throughput in 2011 by tonnage

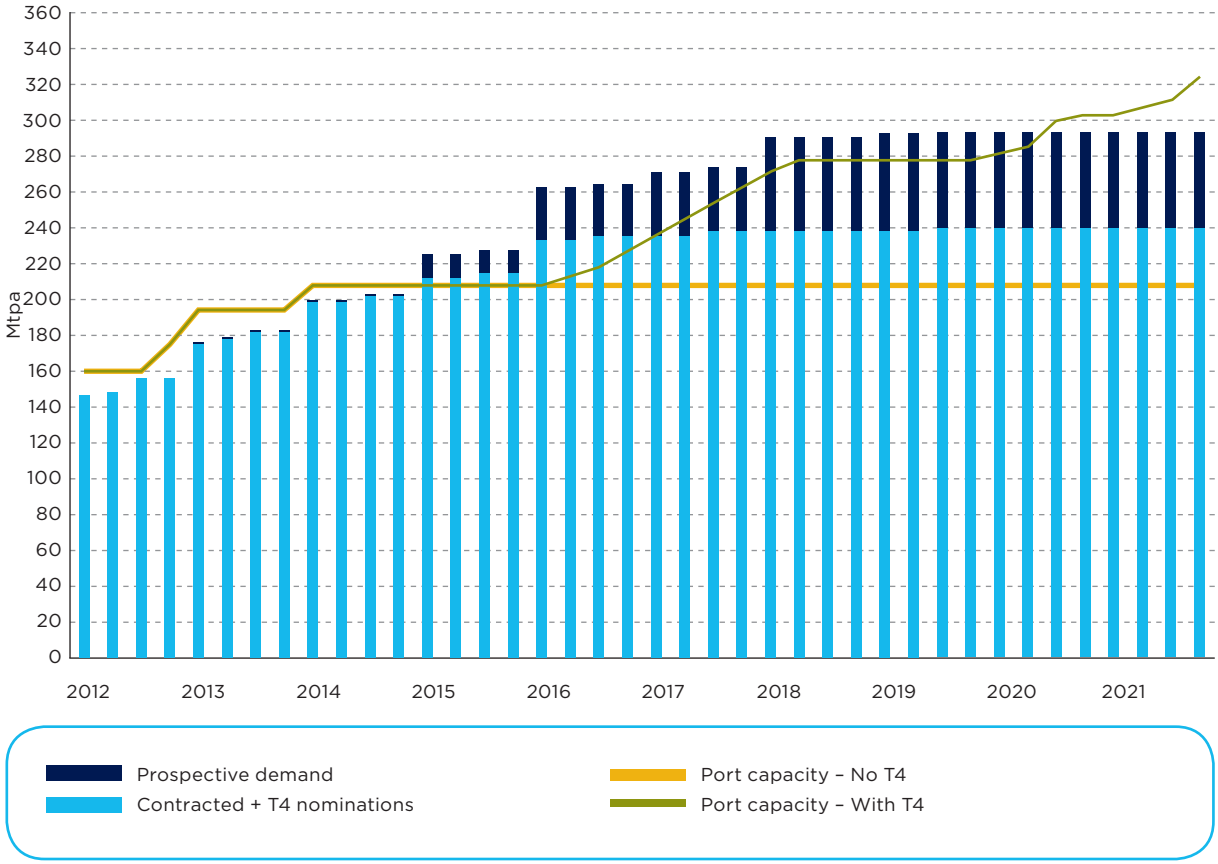


Pressure on port capacity is increasing, particularly at the Port of Newcastle, as shown in Figure 12.

Projections suggest port constraints may impact on production as soon as 2015. To accommodate the growth of coal through the Port of Newcastle, an additional fourth terminal is required, including a swing basin for the largest Cape class vessels, which could relieve pressure from 2016.

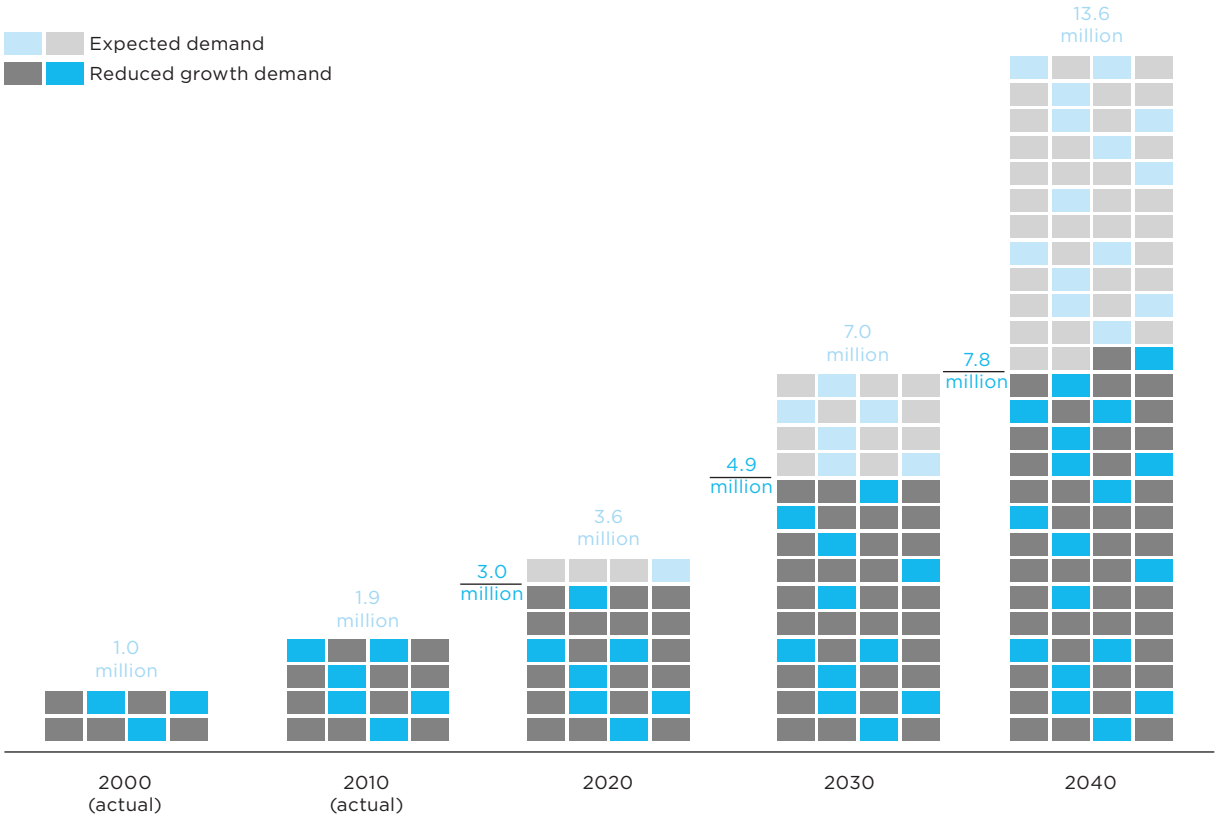
While there is currently significant spare capacity, constraints on container movements at Port Botany will depend on the rate of growth of containers, as well as the productivity levels that can be achieved by the stevedores and overall optimisation of the port. Depending on the rate of growth, from a planning perspective it appears reasonable to expect that Port Botany might approach its natural capacity between 2030 and 2040. New port infrastructure at Port Botany and or Port Kembla may be required to help relieve these pressures, and will need to be supported by significant land freight network improvements, as discussed in Sections 5.1 and 5.2.

Figure 12 Hunter Valley coal volume forecasts compared to port capacity in Newcastle



Source: ARTC's Hunter Valley Coal 2012-2021 Corridor Strategy, Fig 4 on p 8

Figure 13 NSW container volume forecasts 2020-2040 (Source: SPC 2012)



Ports are the trade gateways to the world. They are economic hubs which facilitate the movement of goods between the landside and the seaside. Planning for the future of ports is essential to ensure they remain competitive and have the capacity to handle the growing trade task.

The use of high productivity vehicle in regional NSW, linked to the rail network, supports larger consignments and allows producers such as Griffith's Casella Wines to be a world class producer in a highly competitive global marketplace.

4 PARTNERSHIP BETWEEN GOVERNMENT AND INDUSTRY

4.1 Summary of engagement process

In formulating the NSW Freight and Ports Strategy, the Freight and Regional Development Division of Transport for NSW conducted extensive consultation with NSW and Australian Government departments, local government organisations, NSW transport operating agencies, specialist transport entities and industry representatives. These engagement activities were instrumental in defining the nature and scope of NSW's freight task, as well as the key issues affecting the network's ability to allow the efficient flow of goods to the market.

A summation of Transport for NSW's consultation with government and freight industry organisations is depicted in Figure 14.

Figure 14 Engagement with key industry and government partners on the preparation of the Strategy

Industry

In the first half of 2012, Transport for NSW met with 15 industry supply chain groups and freight specialists to discuss commodity specific freight concerns that government could address. Significant issues raised include:

- Use restrictions on high productivity vehicles
- Low availability of higher mass limit routes on freight pathways
- Decreased supply chain efficiency arising from local government curfews on deliveries and collections
- Regulatory burdens and inconsistencies with oversize and overmass vehicles
- First and last mile road access issues
- Need for greater industry consultation in key infrastructure investment and land planning decisions
- Limited access to rail freight infrastructure
- Reliability of rail infrastructure and services to meet the freight task
- Port access, efficiency and congestion.

Local government

Transport for NSW convened a Local Government Workshop in April 2012 with representatives from the Local Government and Shires Associations of NSW and Regional Organisations of Councils from throughout urban and regional NSW. The workshop brought NSW Government and local government together to address first and last mile issues involving high productivity vehicle access, curfew hours and other land use planning matters.

This dialogue has also informed the consideration of noise and fuel emissions in this Strategy, as well as congestion and general community perceptions of the role and impact of freight.

Transport for NSW

Transport operating agencies in NSW provided specialist advice to help Transport for NSW understand the current and future freight task. As the managers of the majority of physical assets within the freight network, the agencies informed Transport for NSW on the feasibility of proposed actions for enhancing the freight network, as well as issues relating to regulation and compliance management.

Roads and Maritime Services, as the administrators of the NSW Road Freight Industry Council, have also provided Transport for NSW with valuable insight from council members regarding road freight network challenges.

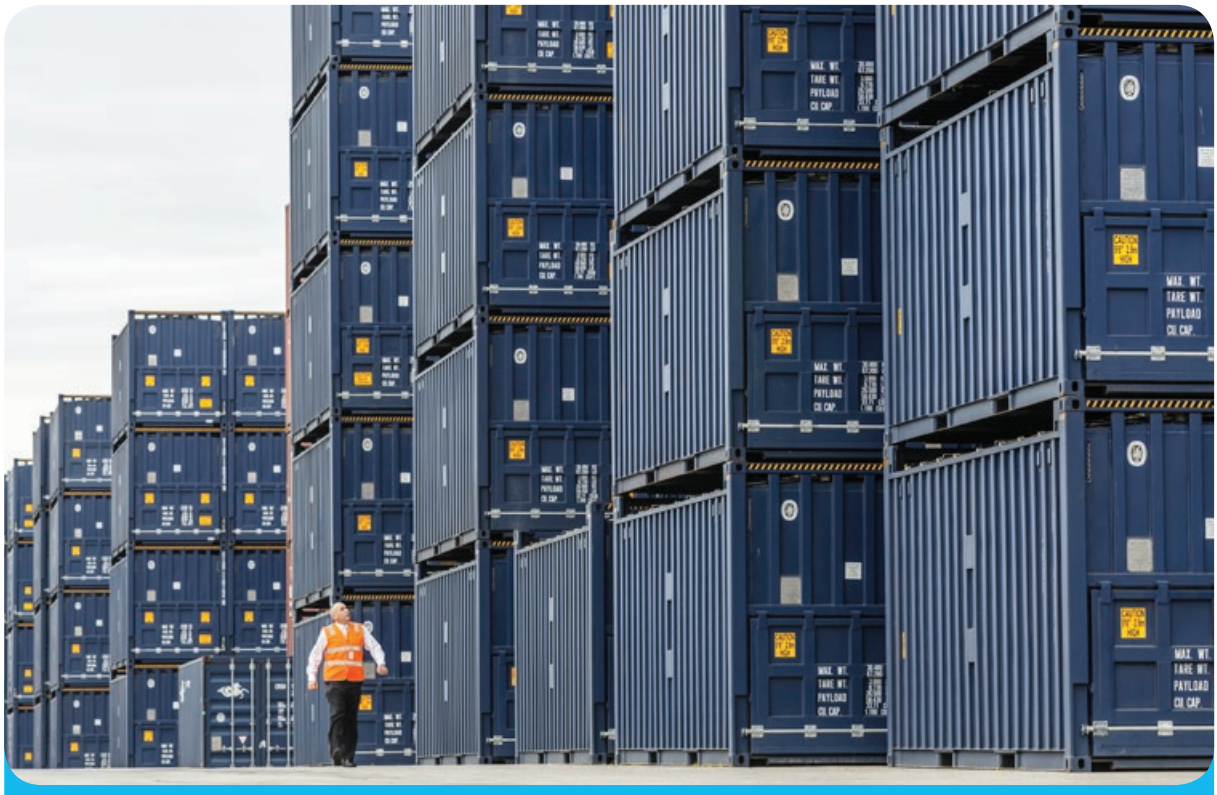
Government

Transport for NSW has worked closely with State Government departments to ensure the NSW Freight and Ports Strategy represents the themes and objectives of *NSW 2021*.

Transport for NSW's plan for an enhanced and integrated freight network has been developed against the backdrop of the Australian Government's freight transport infrastructure planning. Transport for NSW has ensured the NSW Freight and Ports Strategy is aligned with the principles outlined in the National Land Freight Strategy and National Ports Strategy recently developed by Infrastructure Australia. This cooperation is essential to ensure effective NSW and Australian Government partnerships for freight infrastructure funding are maintained.

This Strategy identifies a range of opportunities to build closer and more effective relationships across Government, including:

- Assisting councils to identify and actively plan for increased use of high productivity vehicles and addressing critical 'first and last mile' issues
- Providing further integration of freight needs in local, regional and State land use plans (the NSW Long Term Transport Master Plan provides guidance on freight issues for inclusion in the Sydney Metropolitan Strategy)
- Supporting the Australian Government in establishing national regulators for heavy vehicles and rail and maritime safety
- Identifying projects of significance to the national economy and, subject to available funding, delivering network capacity through a partnership approach such as the Nation Building program.



The Macarthur Intermodal Shipping Terminal provides a strategic freight link for containers moving between south western Sydney and Port Botany. The annual growth in container traffic through Port Botany tracks ahead of GDP growth and is forecast to be seven per cent per annum, mostly due to growth in imports.

4.2 Progress by industry and government

Investing in infrastructure

Government and industry are investing heavily in new infrastructure to deliver greater capacity across the transport network. Improvements across existing road and rail networks will also unlock greater capacity and performance to meet increasing demands over the next 20 years. These investments include:

- A $1 billion expansion and third container terminal at Port Botany.
- Creation of the Penrhyn Road roundabout as part of the Port Botany expansion, which will provide grade separation between trains and trucks near the main terminal entrance. At a total cost of $72 million (including a $10 million contribution towards the access ramp to the Patrick Terminal). The roundabout is expected to be operational in late 2012.
- The $700m long term development program for the Outer Harbour at Port Kembla.
- Further development of the Port of Newcastle, including the T4 coal facility worth in excess of $5 billion.
- Development of a intermodal logistics centre at Enfield.
- Over $1 billion investment in improving capacity on the rail network through Stage 1 of the Northern Sydney Freight Corridor.
- Working with the Australian Rail Track Corporation on the completion of the Southern Sydney Freight Line, which will provide a freight only rail line from Port Botany to Macarthur.
- Ongoing and indexed NSW Government funding for the maintenance and upgrade of the Country Regional Network totalling approximately $1.5 billion over ten years. This includes funding for replacement sleepers and upgrade of the Coonamble – Dubbo line.
- Road upgrades across the State, including the Pacific Highway, Great Western Highway, Holbrook Bypass on the Hume Highway, construction of the Hunter Expressway and Newell Highway overtaking lane and rest area improvements, and Picton Road safety upgrades.
- To keep rail capacity ahead of market demand for Hunter Valley coal, construction of the Maitland to Minimbah third track, a $362.8 million project.
- To assist in unlocking the coal resources of the Gunnedah basin, $284 million investment in projects to ease congestion over the Liverpool Range.

Achieving a level playing field

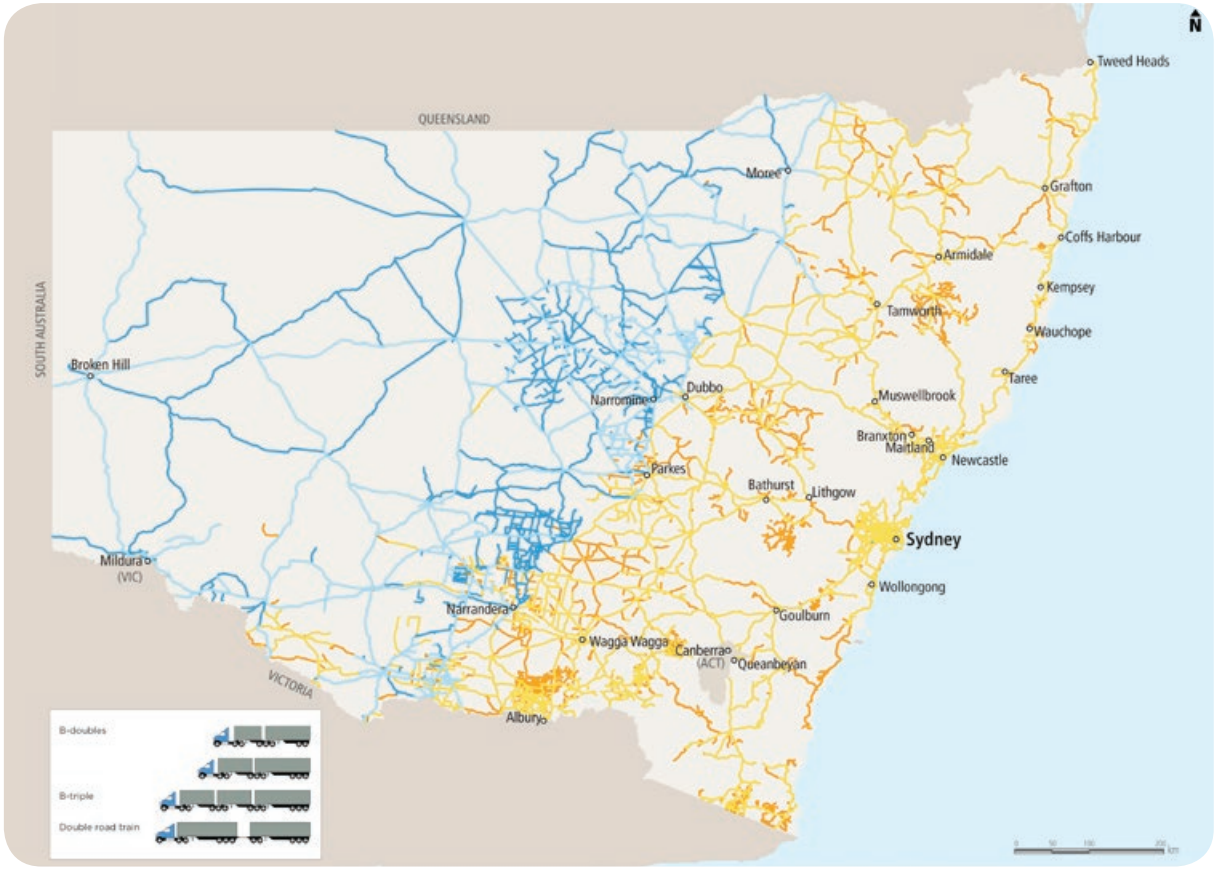
Lessening the burden of compliance and reducing regulatory inconsistency is a focus of governments across Australia. Reducing red tape can deliver economic benefits by improving national productivity. The NSW Government is committed to the harmonisation of regulation and the establishment of single national regulators for rail, heavy vehicles and maritime safety.

Along with supporting these national reforms, the NSW Government has implemented regulatory reforms over the last 12 months covering a range of areas including:

- A boost for NSW based transport operators under an assistance package announced in July 2012 to encourage freight businesses, jobs and associated registration revenue to stay in NSW. The package includes savings on registration for operators and abolishes stamp duty on the purchase of new truck trailers.
- More than 600 kilometres of the State road network being assessed in the last 12 months as suitable for semi-trailers and B-doubles operating at higher mass limits. Vehicles operating at higher mass limits result in greater payloads, efficiencies for transport operators and fewer trucks on the road.
- Improvement in the access restrictions for the movement of livestock, with the NSW Government giving in-principle approval to move to a ‘livestock’ or volumetric based loading scheme that is more consistent with those in neighbouring states (see Case Study 2).

Figure 15 Commitments to date on network infrastructure tasks across NSW

Figure 16 NSW B-double and road train routes 2007 and 2011



B-double routes 2007
Additional B-double routes 2011
Road train routes 2007
Additional road train routes 2011
Freight centres

- Provision of access under the national Performance Based Standards program for rigid trucks hauling quad and quin dog trailers to operate on the current 25 metre B-double routes and, where required, 25 metre higher mass limit B-double routes.
- Width concessions for baled agricultural commodities granted in 2012 have been extended up to 2017, facilitating the transport of wool, cotton, hay and straw, which tend to expand during travel and may have some irregularity in sizes.
- Introduction of the restricted access vehicle map service, which is a new interactive map based resource on the Roads and Maritime Services website. Improvements include fortnightly updating, maps that can be tailored by vehicle type, travel restrictions displays and maps viewable on laptops and tablets wherever mobile coverage is available.
- Wide mobile cranes enrolled in the Intelligent Access Program have been granted the urban access concession, simplifying access procedures to State roads between Williamtown, the Hawkesbury River and Kiama.
- Support for local infrastructure under the NSW Government's Local Infrastructure Renewal Scheme. The first round of applications closed in March 2012, with interest subsidies totalling $430 million approved for 82 projects by 62 councils across NSW. Around half of these projects relate to roads, bridges and airport upgrades.

Meat and livestock processing facilities are critical to the economic vitality of regional NSW. Efficient supply chains create value and ensure competitiveness. The transport network serving regional NSW is a critical part of any supply chain.

CASE STUDY 2: RESPONDING TO THE NEEDS OF THE LIVESTOCK INDUSTRY

For many years, Queensland and Victoria have allowed volumetric or welfare loading schemes for the transport of livestock. These schemes allow for statutory mass limits to be exceeded on suitable roads to ensure that livestock is not injured during transport and that optimum loadings can be gained. That is, they are based on a differing access arrangement under similar road transport regulations, and allow for a greater number of animals to be carried in one movement.

In NSW a B-double vehicle can carry 56 to 60 cattle depending on individual animal weights. In Queensland the same vehicle configuration can carry between 66 and 72 cattle. Industry estimates that the cost of current regulation on the supply chain in NSW is an extra $8 per animal, which translates into nine cents a kilo.

NSW has in the past been reluctant to adopt volumetric or welfare loading of schemes, citing that the benefits gained from increased productivity and enhanced animal welfare did not outweigh the costs in terms of potentially increased damage to bridges and pavements. Work did, however, proceed in consultation with the livestock transport industry to investigate other options such as enhanced access at higher mass limits to feedlots, saleyards and abattoirs. A restricted loading scheme that allowed access to concessional mass limits in return for implementing auditable systems for managing vehicle loadings was also considered. This restricted scheme was launched in late 2010. Details of the appropriate vehicle mass limits are shown in Table 1.

Table 1 Vehicle mass limits

Vehicle type	General mass limits (tonnes)	2010 Livestock Scheme (tonnes)	Higher mass limits (tonnes)
19m single trailer combination	42.5	43.5	45.5
25/26m B-double	62.5	64.5	68.0
36.5m B-triple	82.5	84.5	90.5

There was, however, low take up of the scheme due to concerns that the costs of scheme enrolment outweighed the benefits of concessions. Additionally, there was a general resistance to the adoption of higher mass limits by the livestock sector due to the costs of route compliance under the Intelligent Access Program, as well as a perceived lack of 'last mile' connectivity to key destinations.

In 2011, negotiations commenced with industry stakeholders when the allowable mass limits for the carriage of livestock were revisited. As a result of these negotiations the NSW Government has given in-principle approval to move to a 'livestock' or volumetric based loading scheme so that it is more consistent with those in neighbouring states. When implemented, the scheme will result in axle weights similar to higher mass limit loadings and will allow carriers to satisfy animal welfare standards. The key attributes of the scheme are similar to those already in place in Victoria, with the exception of the capping of mass

limits to higher mass limit levels and preventing access to unsuitable bridges. The Victorian Government is currently undertaking a review of its scheme, which will include the possible setting of maximum mass limits.

The NSW volumetric based loading scheme covers all roads across the State containing infrastructure capable of accommodating livestock vehicles operating at higher mass limits. Negotiations are continuing with local government as the road authority responsible for a significant part of the road system.

This scheme now provides significant higher productivity benefits for the transport of livestock in and through NSW. Implicit in the scheme's design is the view that productivity benefits flowing through the supply chain will outweigh the costs of additional pavement or other infrastructure damage, while applying an acceptable cap on total possible damage.

In addition, by allowing more livestock on each vehicle, the NSW scheme is expected to result in a significant reduction in the total number of livestock truck movements in NSW, resulting in lower emissions, improved amenity for local residents and road users and improved road safety.

Semi-trailers are commonly used for the transportation of livestock in NSW. Under the new volumetric based loading scheme, livestock vehicles can operate at higher mass limits enabling high productivity benefits.

5 STRATEGIC ACTION AREAS

"The cheapest capacity that you can normally find is latent capacity"
Marius Kloppers, CEO BHP Billiton

5.1 Strategic Action Area 1 – Network efficiency

Unused capacity is a waste of the investment in network infrastructure. Utilising latent capacity, where it exists, will maximise the return on investment.

Optimising the performance of supply chains is a central issue for industry in all sectors of the NSW economy. The capacity of the transport network needs to be sufficient to allow supply chains to perform. Pinch points, congestion and usage limitations all reduce the ability of businesses to perform. The transport network must keep pace with demand. However, before providing new capacity, Transport for NSW will make best use of the existing network and assets.

The transport network must allow for the efficient flow of goods and enable world class reliability and sustainability. A transport network that supports NSW business is the basis of economic success. A high performance transport network will act as an economic multiplier and enable the State economy to compete in the global marketplace to its full potential.

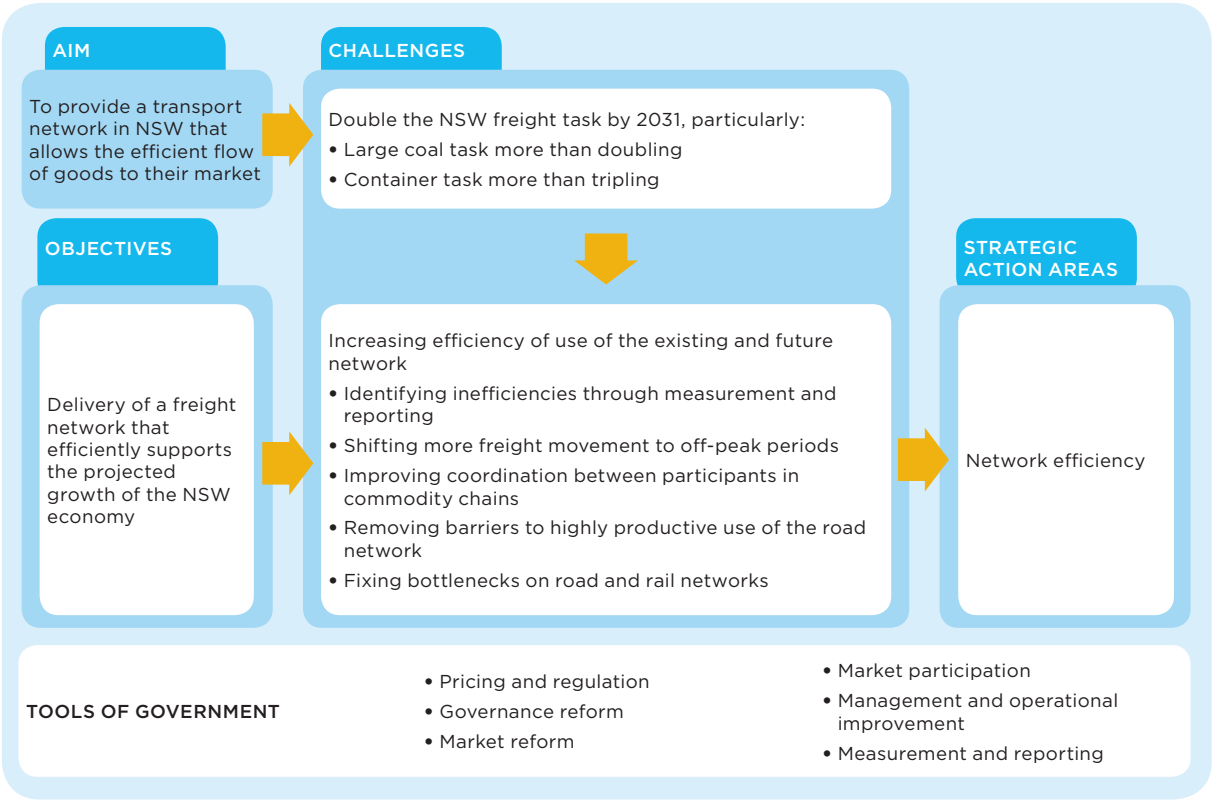
Network efficiency is achieved through the provision of physical infrastructure, control systems, user performance and pricing. Inefficiencies in use of the network create 'friction' and add unnecessary costs, hence the core issue in a supply chain is optimal efficiency. It is estimated that each one per cent increase in freight efficiency saves the national economy $1.5 billion. Given that supply chains can only perform as well as their weakest component, the logistics industry is focused on ensuring that performance, capacity and delivery are brought to the highest possible level across the whole supply chain.

Achieving network optimisation requires governance arrangements to better coordinate supply chains and to measure and report on their performance. It also requires government support to improve the underpinning regulatory environment through the harmonisation of rules and removal of unnecessary impediments.

The NSW Government will support the efforts of industry to improve supply chain performance and coordination. This is central to delivering improved productivity and economic benefits through efficient freight transport.

As shown in the framework for this Strategy, the actions in this strategic action area all contribute to a large subset of objectives and challenges. Each of the planned actions are described in further detail in this section.

Figure 17 NSW Freight and Ports Strategy framework



STRATEGIC ACTION AREA 1: NETWORK EFFICIENCY

ACTION 1A: Identify freight movements and network demand

- Establish and manage freight network key performance indicators
- Measure and report KPIs of freight network efficiency
- Analyse the role of freight transport in the NSW economy
- Maintain a single agency for streamlined data collection and strategic analysis
- Develop the Sydney Metropolitan Cargo Movement Model
- Promote efficient movement of general road freight

ACTION 1B: Shifting more freight movements to off-peak periods

- Build the case for off-peak freight handling for planning purposes
- Support growth of off-peak freight transport
- Identify the infrastructure requirements for off-peak freight handling

ACTION 1C: Develop a seamless interstate freight network

- Support National Regulators and harmonise transport safety regulations
- Continue working nationally to expand the National Road Freight Network

ACTION 1D: Improve productivity of road freight network

- Streamline and reform road funding
- Provide necessary infrastructure for HPV access
- Improve RAV proposal process
- Incorporate freight considerations into managed motorway access decisions
- Review the productivity and efficient usage of arterial roads

ACTION 1E: Maximise network capacity by reforming rail access

- Conduct NSW Rail Access Review

ACTION 1F: Improve efficiency of landside cargo transport

- Establish a NSW Cargo Movement Coordinator

ACTION 1A Identify freight movements and network demand

"Governments must be smarter and focus on evidence-based analysis of what infrastructure is needed and why, rather than on short term political pressures, before giving the green light to projects"

Sir Rod Eddington, Chairman Infrastructure Australia, CEDA

Identifying inefficiencies through measurement and reporting

Problem description

Understanding the performance of the transport network is central to managing the existing movement of freight. Similarly, having a clear picture of future demand is critical in developing revenue streams to fund network expansion. However, there are currently serious limitations on the data available regarding the freight task on the NSW network.

A single freight performance regime does not presently exist. Different stakeholders in supply chains use different measures to assess performance. The lack of a single set of performance indicators renders it difficult to assess the efficiency of the current network and to quantify required improvements.

In addition, data collection on the performance of the freight network is currently insufficient and handled by multiple agencies, leading to fragmented and inadequate information. Similarly, detailed analysis of the impact of freight on the NSW economy is not currently performed. This means that the contribution of freight to the NSW economy, and the degree of the economy's reliance on freight, are not fully known.

Impact

Due to gaps in knowledge about the performance of the current network and its contribution to the economy, the value of investments and improvements to the network cannot be properly quantified. In other words, the information to perform accurate cost benefit analyses when evaluating infrastructure investments is often lacking.

This knowledge gap impacts three main areas. Firstly, it allows some deficiencies in the current network to go unaddressed, since the information needed to identify those deficiencies is not always available. Secondly, the prioritisation of potential infrastructure investments is difficult, as the impact of investments on the network and the broader economy cannot be fully measured. Finally, and arguably most importantly, identifying demand for network capacity is critical in establishing the revenue to fund development and determining when it will be needed.

Transport for NSW recognises that establishing a consistent and reliable freight data resource can improve decision making. The recently established NSW Strategic Freight Model is a major step in addressing this need.

Task 1A-1 Establish and manage freight network performance indicators

In conjunction with users of the network, the Commonwealth and other State Governments, Transport for NSW will develop macro and micro level indicators of performance for use in measuring and reporting on the efficiency and effectiveness of the freight network.

To assess the performance of the current network and the value of proposed improvements, a set of key performance indicators (KPIs) must be established with stakeholders across the freight transport network. The ideal set of KPIs will effectively link the freight network to the performance of the commodity chain and the economy overall. KPIs should therefore be focused on the parts

of the network that make a particularly large contribution to the NSW economy, such as the Hunter Valley coal chain and Port Botany container chain.

As part of the COAG endorsed National Ports Strategy and National Freight Strategy TfNSW will work with the BITRE on an expansion of the current "Waterline" series of reported KPI to provide visibility of off wharf freight activity.

Once KPIs have been established, a coordinated approach to collection and measurement must be enacted. Similarly, once measured, KPIs must be reported in a consistent manner. This will allow for the best possible analysis of the network's performance, including any areas of deficiency.

Targeted outcome

The establishment of KPIs will ensure government and industry are working to a single performance measurement regime. With the support of stakeholders in the freight transport network, the outcome will be a measurement of performance that is comparable across time periods and network participants.

Effective measurement of KPIs will result in an improved understanding of performance constraints and their impact. This will enable the nature and scale of deficiencies to be identified, and the potential benefit of addressing those deficiencies to be determined.

The measurement of performance is important to unlocking latent capacity in the existing network. By measuring operating efficiency and performance, network coordination and control mechanisms can be used to maintain optimal performance.

The impact that the right measures and performance monitoring systems can have on the operation of a business is demonstrated in Case Study 3.

Task 1A-2 Analyse the role of freight transport in the NSW economy

Transport for NSW will build and maintain a dataset which articulates the value of the NSW freight task, as well as the value created by efficient operation of the freight network.

Thorough economic analysis is necessary to determine the direct and indirect contribution of freight transport to the NSW economy. The direct contribution consists of economic activity within the sector, particularly the Gross State Product and jobs created within the freight transport industry. The indirect contribution consists of the support freight transport provides to other industries, most notably agriculture, resources and manufacturing. This support could, for instance, be quantified through the value of commodities moved. Indirect analysis should be conducted for each of the major commodities moved in NSW.

Once the direct and indirect economic contributions of the sector have been identified, analysis needs to focus on the sensitivity of these contributions to the competitiveness of freight transport in NSW. This analysis should demonstrate the potential of improvements to network efficiency and capacity to create value. It should include changes in production levels in response to the capability of the network to transport commodities.

Targeted outcome

The analysis will provide stakeholders with a clear and shared understanding of the economic importance of freight transport. This will better inform discussion and decision making about for instance, land use and externalities.

More directly, the analysis will inform cost benefit analyses of supply chain efficiency and network capacity investments, providing a full economic view of the value of improvements. This will form the basis of more accurate investment prioritisation.

The M7 is an example of the successful use of data to plan ahead and deliver the right infrastructure at the right time.

CASE STUDY 3: COLLECTION OF ROAD FREIGHT DATA BY THE UK DEPARTMENT OF TRANSPORT

The UK Department for Transport takes a nationally consistent approach to data collection on freight and collects information on the road freight task through two main surveys. The Continuing Survey of Road Goods Transport targets domestic road freight haulage by hauliers in Britain and Northern Ireland, while the International Road Haulage Survey collects data on intercontinental freight transported by British hauliers. Similar survey instruments are used by the two surveys, which provide outputs including the:

- National population of heavy goods vehicles
- Number of new vehicles registered
- Number of road freight operators and other operator characteristics, such as size, employment and finance
- Activities of vehicles, including vans
- Movement of commodities
- Trends in activities and patterns of work.

While aspects of the Continuing Survey of Road Goods Transport are similar to the Survey of Motor Vehicle Use, which is undertaken by the Australian Bureau of Statistics, the former focuses entirely on road freight and provides detailed information on commodity movements. Both the UK surveys are carried out on a continuous basis, with results published annually. The Department for Transport obtains very high response rates to the surveys, mainly because participants are required to complete surveys to comply with operator licensing requirements. The surveys are undertaken according to an agreed European Union approach for gathering road freight statistics.

The two main UK surveys are supplemented with smaller surveys on specific road freight market sub groups, such as foreign registered vehicles operating in the UK. The Department for Transport is one of the few transport agencies in the world which consistently measures and reports environmental performance across different segments of the road freight industry. A number of efficiency studies have also been undertaken within the freight industry environmental program, called ‘Freight Best Practice’.

The first such study was undertaken in 1998, and again in 2002, by Herriot Watt University. It focused on the food distribution sector. Using a consistent approach to data collection, similar studies have now been undertaken for other road freight markets, including non food retail distribution, pallet networks, next day parcel delivery services and builders’ merchant services. These studies have provided government and industry with a rich source of data on the relative efficiency of different heavy vehicle fleets, and have been used as inputs to a variety of road freight models. To increase data coverage and reduce costs, the Department for Transport is now moving away from one-off benchmarking surveys and is currently trialling a continuous online benchmarking system.

Task 1A-3 Maintain a single agency for streamlined data collection and strategic analysis

Transport for NSW will ensure the Bureau of Freight Statistics (BFS) can provide a sound basis for freight transport decisions.

The BFS will liaise with, and access, databases held by the Bureau of Infrastructure, Transport and Regional Economics and the Australian Bureau of Statistics. It will hold all of NSW's freight data, to provide analysis and forecasting of demand for the entire transport network. The BFS will use industry insights, network modelling tools and strategic modelling and forecasting to provide evidence to support future freight investments.

Data collection and analysis is key to accurate performance measurement, economic analysis and forecasting of demand. Given the currently fragmented approach to this task, the creation of a single statistical agency is a key step in developing knowledge about the freight network.

Targeted outcome

The development of the BFS will provide government and industry with a single, reliable source of data to use when analysing the freight network.

As a result of common and transparent data and modelling, all network participants will be able to engage in more informed decision making. Eliminating double handling and misinterpretation of information can realise tangible benefits, thus improving the underlying value of physical network assets and lowering costs for network users.

The ultimate outcome of the BFS will be the ability to identify network deficiencies and quantify the benefits of infrastructure investments.

Task 1A-4 Develop the Sydney Metropolitan Cargo Movement Model

Transport for NSW will build a Sydney Metropolitan Cargo Movement Model covering ports, road and rail.

The movement of cargo in the Sydney metropolitan area is so complex, and of such critical importance to the NSW economy, that a detailed cargo movement model is needed. This should be an open model of the Port Botany cargo movement chain from quayside through to the inland logistic centres, incorporating both rail and road.

Targeted outcome

The outcome will be a detailed and rigorous model or models that will support decision making and prioritisation. It will also have the ability to simulate and visualise scenarios in an accessible manner. The model will have the ability to expand to encompass other parts of the State such as the linkages to Port Kembla and Newcastle.

The model will serve three main purposes:

- Identification of bottlenecks, caused by both usage inefficiencies and network limitations, in the current container chain
- Quantification of the potential for efficiency improvements associated with improved coordination between participants or with targeted infrastructure investments
- Modelling of scenarios on the ability of network capacity expansion options to meet forecasted demand.

This will result in better decision making in the management and development of the Sydney freight movement task, including:

- Improvements in container chain coordination
- Targeted investments in improving efficiency of usage (such as clearing bottlenecks in the network)
- Investments in network capacity.

Task 1A-5 Promote efficient movement of general road freight

Transport for NSW will assess the role and needs of general road freight in Sydney.

A variety of light and heavy commercial vehicles traverse the metropolitan area each day. These vehicles connect distribution centres with supermarkets, bulky goods retailers and retail and commercial centres across Sydney.

The Victorian Department of Transport recognised that more needed to be done to understand the patterns of movement for general road freight in urban areas. Initial analysis by the Department of Transport will underpin further work with Transport for NSW to establish a reliable evidence base for general road freight movements in urban and suburban areas.

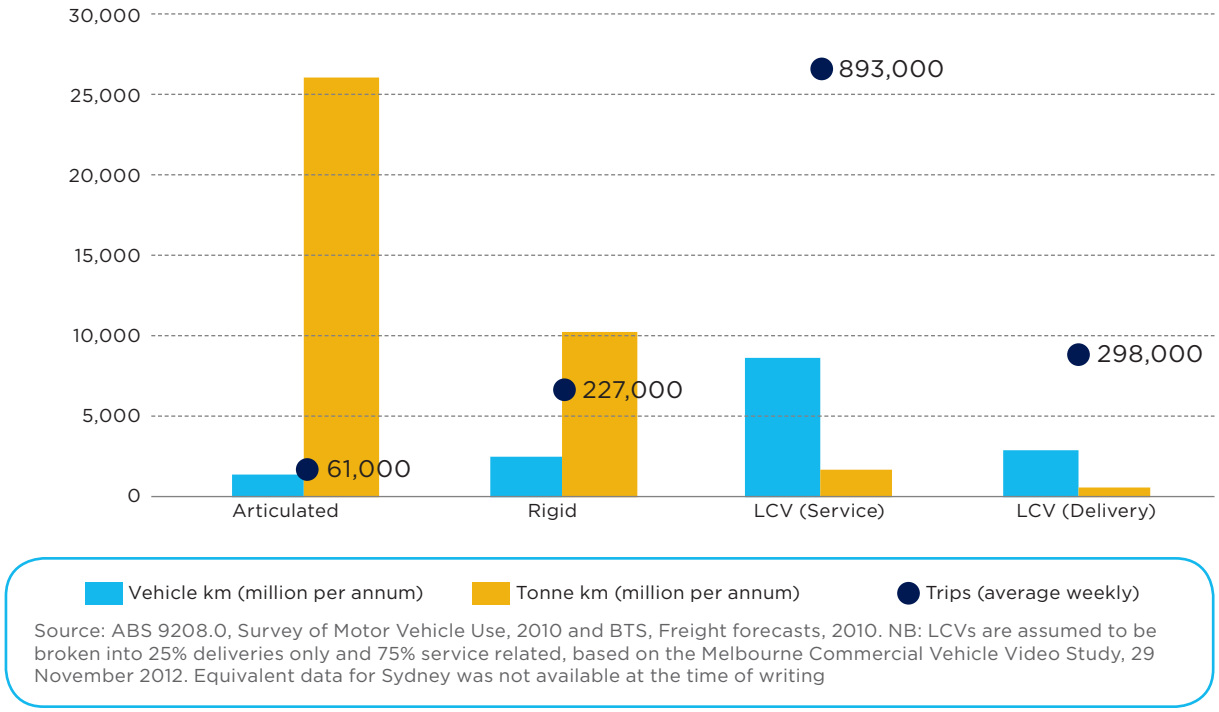
The Victorian research has identified the tasks undertaken by road freight vehicles. The study showed the importance of curtain sided trucks carrying palletised goods such as food and beverages, which made up 22 per cent of heavy commercial vehicles in Melbourne.

In contrast, the role of light commercial vehicles (LCVs), small vans and utilities was smaller than expected, since 75 per cent of these vehicles were actually service vehicles for trades such as plumbing. However, the relative importance of these trips could be growing. The freight carried by LCVs was predominantly documents and parcels. A recent study has shown that low value parcels coming into Australia have doubled between 2006 and 2011. Demand for LCV freight trips is thus likely to increase as internet shopping expands. The impact of these trips on traffic will need to be monitored.

Figure 18 shows freight related LCVs in NSW travelled a greater distance in 2010 than rigid or articulated trucks, although the amount of freight carried by LCVs was significantly lower.

Curtain sided trucks carrying palletised goods are a critical element of the daily metropolitan Sydney freight task.

Figure 18 Comparison of truck and light commercial vehicle activity in NSW (2010) with trips (2006)



Source: ABS 9208.0, Survey of Motor Vehicle Use, 2010 and BTS, Freight forecasts, 2010. NB: LCVs are assumed to be broken into 25% deliveries only and 75% service related, based on the Melbourne Commercial Vehicle Video Study, 29 November 2012. Equivalent data for Sydney was not available at the time of writing

Case Study 4 explains the results of preliminary work by the Victorian Department of Transport, which used a video camera survey to track and better understand the movement and composition of general road freight.

Targeted outcome

General road freight movements within the Sydney and Melbourne metropolitan areas are a significant part of the transport task. As the way people shop and work changes, TfNSW will need to gain a better understanding of the task, particularly in busy urban areas of NSW. Case Study 4 illustrates that in the Melbourne city centre around 40 per cent of trucks are curtainsiders and box trucks. Whether or not this proportion will change significantly is unknown.

For example, online shopping combined with direct home delivery may result in lower truck movements to retail centres. At the same time, some businesses in busy areas may need more frequent deliveries as the amount of pedestrian traffic grows around them. Pressure for parking in busy streets, and competition for loading zone space could potentially increase congestion and conflict for certain vehicles types in urban centres. Simultaneously, the number of general freight vehicles in residential streets may increase as households shift the way they shop.

At this time, not enough is known about the trends in general freight to fully assess and plan for the impact of these changes.

Gaining a better understanding of the general freight task will contribute to the quality of the solutions we develop for many other tasks related to the efficiency and sustainability of freight activities. The opportunity to collaborate with the Department of Transport in Victoria will provide a greater understanding of general freight movements. The outcome of the work will form the basis for better decision making about how urban areas will be served in the future.

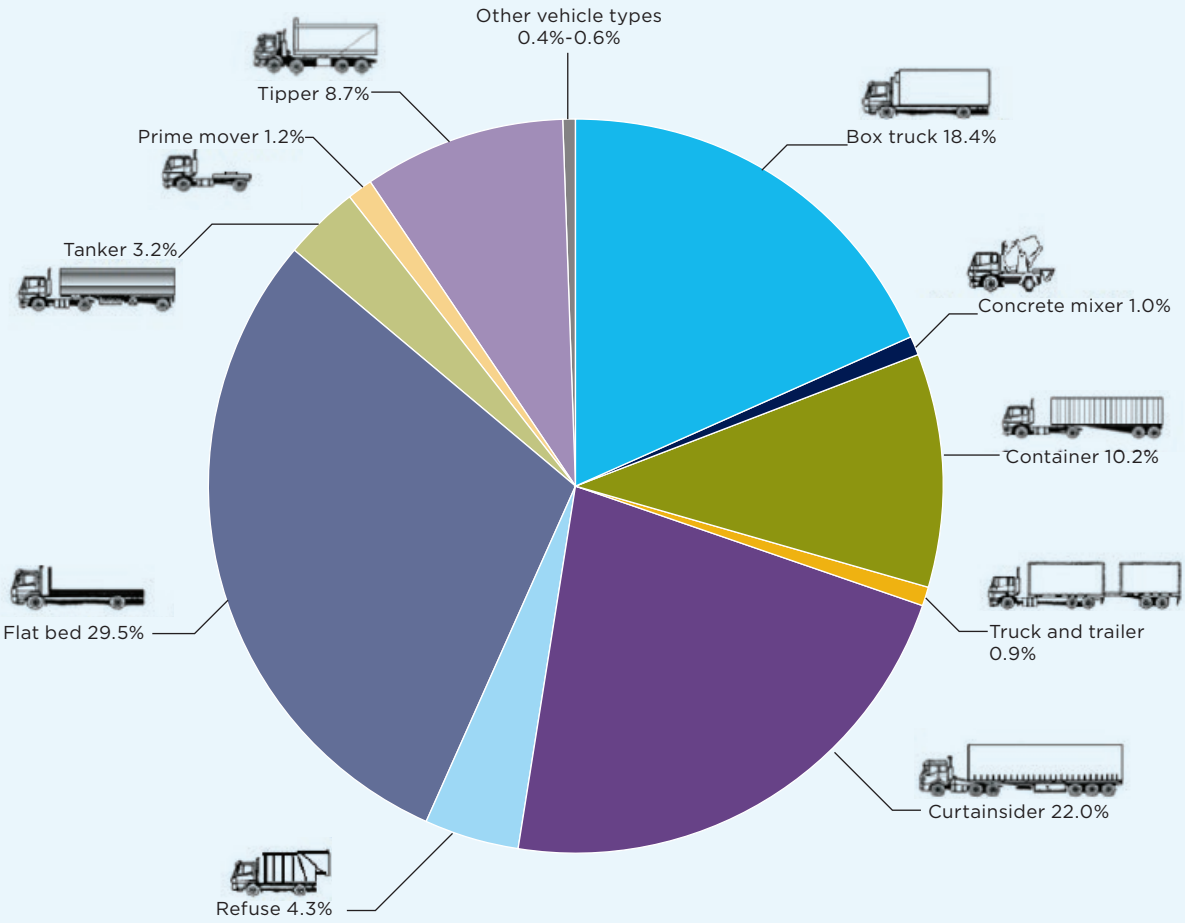
CASE STUDY 4: GENERAL ROAD FREIGHT ANALYSIS

The Victorian Department of Transport investigated the composition of urban traffic flows through a high definition video survey undertaken in mid 2011. The survey categorised traffic as either heavy vehicle or light commercial vehicle, and also identified vehicle types and apparent trip purpose or industry.

The analysis showed the importance of general freight in serving a wide variety of community needs, from deliveries to supermarkets to the removal of rubbish. The results support the inclusion of urban freight vehicles as part of broader planning to integrate land use and freight.

Figure 19 shows the composition of heavy vehicles found in the Melbourne study.

Figure 19 Composition of heavy vehicles in Melbourne



ACTION 1B Shift more freight movements to off-peak periods

"Avoiding difficult initiatives will result in un-economical decisions on infrastructure delivery and the further build out of existing roadways that are only fully utilised for a small number of hours a day"

Scott Charlton, CEO Transurban

Levelling out network demand by using off-peak periods

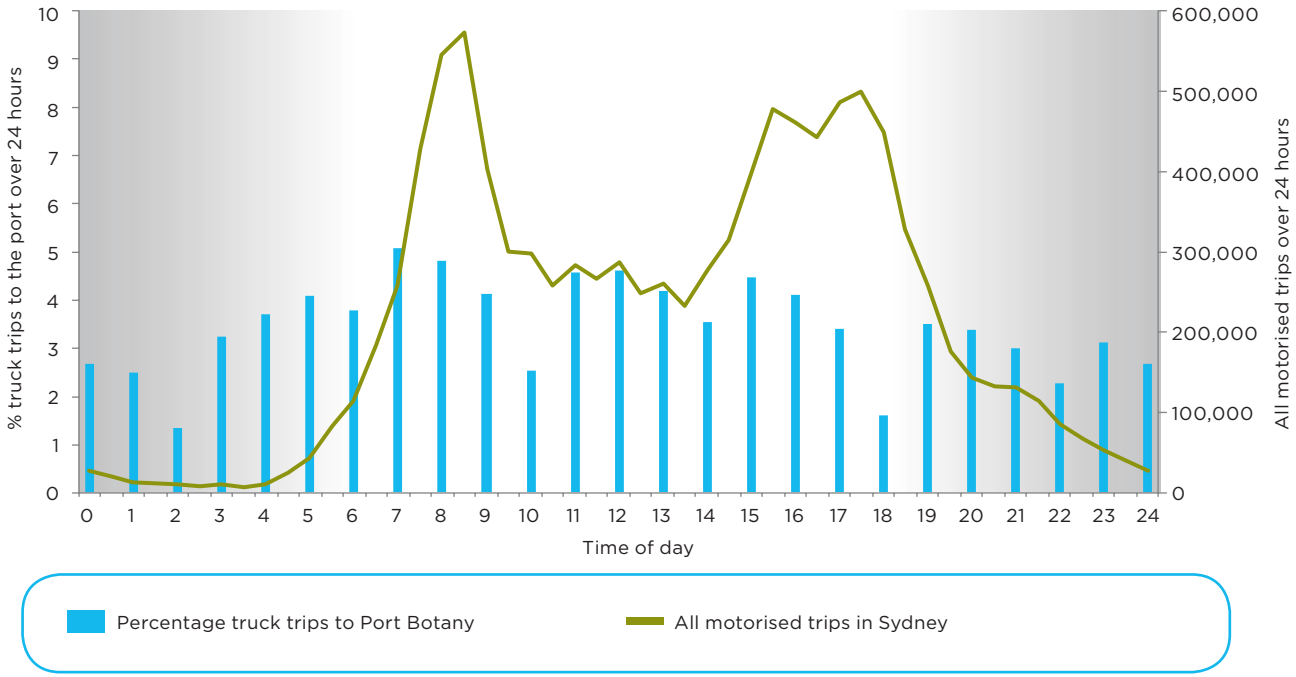
Problem description

Currently, most road freight movements take place during the daylight on weekdays. This means that freight and passenger movements largely happen at the same time. The demand for network capacity therefore peaks when passenger and freight demand coincide.

During these periods, especially in the morning and afternoon commuter peaks, demand exceeds capacity on many trunk and feeder parts of the network. In contrast, even the busiest parts of the network display latent capacity in off-peak periods, such as late evenings, early mornings, nights and weekends.

A good illustration of this is provided by comparing the time of day profile for Port Botany to the time of day pattern for all motorised trips in Sydney. As shown in Figure 20, general traffic follows a curve with two distinct peaks in the morning and afternoon. The morning peak reflects the common start time for most businesses and

Figure 20 Time of day profile for truck trips to Port Botany, compared to all motorised trips in Sydney 2011 (Source: SPC 2012 and BTS 2011)



education institutions. The double peak in the afternoon is the result of school travel followed by the later commuter peak.

Overnight and, to a lesser extent, during the middle of the day, the transport network has the capacity to accommodate growth.

Freight operators can only take advantage of relatively clear roads if their origins and destinations enable them to choose the least congested part of the day to travel. Port Botany is a good example of an operation that makes better use of the road network. Truck arrivals are balanced throughout the 24 hours, taking some of the pressure off the peak hours. All users benefit from the reduction in congestion and delays.

Moving freight trips to times outside peak periods will contribute to reduced congestion and, more importantly, can improve freight access and reliability. This will potentially lead to lower transport costs for the entire community. Reducing congestion saves fuel, time, labour and wear and tear on vehicles. It also reduces safety risks and can influence the timing for new infrastructure.

The major limitations to off-peak freight transport activity are the practice of paying penalty rates for off-peak labour and the difficulty of getting approval to operate trucks and other transport equipment in urban areas during the evening, night and early morning.

The problem extends both to heavy freight and last mile delivery. The latter is particularly impacted, because it is concentrated in urban areas.

Impact

As a result of the concentration of freight transport during peak periods, network capacity is underutilised. Even the busiest network links have latent capacity during off-peak periods.

Another outcome is the often heavy congestion during peak periods, which comes at a cost to the freight transport industry and to other road users.

Task 1B-1 Build the case for off-peak freight handling for planning purposes

Transport for NSW will deliver an economic business case to establish the viability and requirements for increasing off-peak use of the freight transport network and logistic activity precincts.

This business case should take into account all relevant variables such as a reduction in congestion, externalities of noise, emissions and impacts on amenity, productivity gains, higher employment, and targeted capital investment.

Targeted outcome

The aim of developing a business case for government is to trigger consideration of off-peak freight in current operations and provide certainty for forward planning and investment decisions. An example of the problem and its economic impacts is provided in Case Study 5.

TfNSW will work with local government to encourage and facilitate planning and zoning practices near freight links and activity precincts that are consistent with 24/7 operations.

Task 1B-2 Support the growth of off-peak freight

Transport for NSW will deliver an Off-Peak Freight Action Plan with industry and other key stakeholders. The plan will establish a workable target and measures for shifting freight into the off-peak period.

The Strategic Freight Model will assist in testing the viability of different off-peak scenarios as part of a broader economic evaluation. An Off-Peak Freight Strategy will advance an agreed scenario that balances the benefits for the freight industry with the needs of the community and environment.

Coal, container terminals and fast moving consumer goods are examples of logistic activities that generally operate 24 hours, seven days a week. The benefits of working outside peak periods on the road network, especially in Sydney, seem obvious, and yet many businesses are not exercising this capacity.

The capacity for more off-peak freight is subject to a range of factors including work practices, the scale of individual operations, the use of

CASE STUDY 5: RESTRICTIONS ON OFF-PEAK SUPERMARKET ACCESS

Some supermarkets in residential areas experience supply chain inefficiencies stemming from council restrictions to heavy vehicle access. The nature of these restrictions varies depending on the council, however most are related to delivery curfews and vehicle size.

The case of one store operated by a major supermarket chain in Sydney illustrates these issues. On average, the store receives 35 truck deliveries per week, evenly spread between the curfew times of 7am and 9pm on weekdays and 8am to 7pm on weekends and public holidays. Using the road during these on-peak times causes the supermarket to experience longer delivery runs, higher fuel consumption and increased driver hours. Furthermore, to meet demand during these restricted times, the store employs more drivers and uses a larger vehicle fleet.

These supply chain inefficiencies are compounded by vehicle access restrictions. As deliveries occur at peak periods, and the store cannot risk impeding vehicle and pedestrian traffic, it cannot use normal trailer configurations. Instead of using 24 pallet trailers, the store is serviced by 16 pallet trailers, meaning more freight runs and greater operational costs. These restrictions cause the scheduling of an additional eight deliveries each week, representing an extra 830 kilometres of freight movement.

secure and unattended delivery areas and the availability of incentives to encourage change.

The road network has the capacity to support increased off-peak movements. Even the busiest routes in Sydney, such as the M5, have available off-peak capacity. Moving toward increased off-peak movement of freight requires industry engagement to determine which supply chains are ready to make a change, and the measures needed to make this happen. For example, opportunities exist to reduce tolls in off-peak periods.

However freight will not move if the dispatch or receival depot is closed. In the case of containers moving in the Sydney metropolitan area matching the operating hours and practices of depots and IMT to match the 24/7 operations of the stevedores will be a step towards ensuring that the latent capacity of the network and equipment is used.

Targeted outcome

Taking advantage of off-peak periods increases the efficiency of the road network. Moving more freight on the road outside peak periods can reduce the cost of congestion and prepare for the doubling of the NSW freight task by 2031.

A target for shifting freight movements into off-peak periods, developed with industry and supported by a range of measures, is the key outcome of any strategy for off-peak freight.

Task 1B-3 Identify the infrastructure requirements for off-peak freight handling

Transport for NSW will assess critical infrastructure requirements as part of the business case into off-peak freight handling.

In order to shift more freight transport to off-peak periods, the freight and logistics sector needs to use supporting infrastructure in non-residential areas as much as possible. The role of government is to identify where this infrastructure is needed, or already available, and ensure it is commercially attractive. In particular, this will include ensuring network connections work. An example of this is the identification of locations for empty container parks near where containers are 'off hired'. Another example is the identification of distribution centres for fast moving consumer goods in areas with limited impact on residential areas and good access to the network, such as Hoxton Park and Western Sydney IMP proposal.

Targeted outcome

The aim of this task is to provide network capacity, connections and supporting logistics infrastructure for off-peak freight transport in locations where potential impacts of noise, light and vibration can be isolated from residential areas.

ACTION 1C Develop a seamless interstate freight network

Identifying and fixing pinch points on road and rail networks

Problem description

The NSW economy and transport network do not operate in isolation. The flow of goods interstate and internationally connects NSW to the national and global marketplace.

It is estimated that approximately half of all road freight and three quarters of all interstate road freight in Australia moves through NSW for at least part of its journey. This reflects the significance of NSW to the Australian economy, and thus the nation's reliance on NSW roads.

The way in which the NSW network is regulated and operated should be aligned as seamlessly as possible with other states, so that unnecessary duplication and cost are minimised. While governments have made substantial efforts over recent years to harmonise inconsistencies in network regulation, access and safety, more can be done. There is an ongoing work program to further reduce state differences, particularly for road and rail freight operations that cross borders.

However, differences in access arrangements across borders continue to affect productivity. For example, NSW permits the use of new module building cotton harvesters on its roads, while Queensland does not. Similarly, NSW allows road trains to operate on its roads, while Victoria does not.

Impact

Inconsistent network regulations and operating conditions have a negative impact on state and national productivity. Some of the most significant implications of these inconsistencies include the costs to operators of meeting different state safety requirements, such as the keeping of records related to fatigue.

Higher transport costs can be incurred by NSW producers in some supply chains due to lower productivity when competing for limited transport resources.

Task 1C-1 Support national regulators and harmonise transport safety regulations

Transport for NSW will finalise legislation to commence the new national regulator system in 2013.

The Council of Australian Governments (COAG) has approved an ambitious work program to improve national productivity and safety by establishing single national regulators for rail safety, heavy vehicles and maritime. In addition, a Road Reform Plan, which aims to create a more sustainable basis for charging heavy vehicles, continues to be progressed. Transport for NSW is working with the Standing Council on Transport and Infrastructure to support the delivery of these outcomes.

Queensland (as the host jurisdiction for the National Heavy Vehicle Regulator), South Australia (as the host of the National Rail Safety Regulator) and the Commonwealth (as the host for the expanded Australian Maritime Safety Authority) are busy finalising the national laws which will establish each regulator.

Once passed in the host jurisdiction, NSW and other jurisdictions will finalise legislation to authorise the commencement of the new national regulator system. This will occur from January 2013 in the rail and maritime areas and from around mid 2013 for heavy vehicles.

All three national regulators will be delivered in NSW via service agreements with the respective national offices. These are the Independent Transport Safety Regulator (ITSR) for rail and Roads and Maritime Services (RMS) for heavy vehicles and maritime.

Importantly, road access decisions will remain the responsibility of individual jurisdictions (that is, state government and local government) due to their detailed understanding of the relevant road networks. Interstate operators may therefore still be faced with some differences in access conditions as they move across state borders, due to variations in road conditions.

Targeted outcome

The establishment of national regulators will result in three bodies, each charged with streamlining transport safety regulations:

- The **Australian Maritime Safety Authority** (AMSA) is the single national regulator for domestic commercial vessel safety in Australia. AMSA will apply standards, rules and subordinate legislation consistently around Australia, and will be responsible for the development of the National Standard for Commercial Vessels.
- The **National Rail Safety Regulator** (NRSR) will provide national accreditation for rail transport operators, remove duplication of audits, monitoring and inspections, and improve availability of resources and specialist knowledge to inform decision making and safety investigation.
- The **National Heavy Vehicle Regulator** (NHVR) is responsible for regulating all road vehicles over 4.5 gross tonnes. Under the NHVR, a common set of laws for heavy vehicles for all states and territories will apply.

  The national law will cover many of the same issues as existing laws, such as registration, mass and loading and fatigue management, as well as compliance and enforcement. Under the Intergovernmental Agreement to establish the NHVR, a key undertaking was the preservation of existing local productivity initiatives.

  These are local regulations, instruments or operational practices that depart from national laws to allow a more productive, efficient or sustainable means of carrying out the freight task, where local conditions enable this to occur.

Task 1C-2 Continue working nationally to expand the National Road Freight Network

Transport for NSW will prioritise the assessment of the B-triple network and continue to work on national access arrangements for high productivity vehicles with relevant councils and the Transport and Infrastructure Senior Officials Committee.

NSW has been working with COAG and various transport and infrastructure committees to expand the road freight network available to modern, safer and more productive heavy vehicles. To this end, a national modular B-triple network was agreed to by the Standing Council on Transport and Infrastructure in May 2012.

Targeted outcome

National agreement on an expanded network for high productivity vehicles will significantly improve the ability of the existing road network to meet the predicted growth of interstate road freight in NSW.

CASE STUDY 6: LINKS TO THE NORTHERN RIVERS – WOODENBONG TO LEGUME

The Northern Rivers and Darling Downs area straddles the NSW/Queensland border.

The Northern Rivers region of NSW is a rapidly growing residential and holiday destination. The areas away from the coast support primary production, such as cattle and forestry, and a range of value adding and processing industries, such as abattoirs, timber mills, grain and feed mills and milk processing.

The Northern Co-operative Meat Company in Casino employs in excess of 1,100 people and produces beef, wet blue leather and pork for both the domestic and export markets. Up to 10 TEUs per day are transported from Casino to the Port of Brisbane for export. The meat works draws cattle from the New England and north west of NSW and from the Darling Downs in Queensland. Some 80 per cent of pigs processed at the abattoir are sourced from South East Queensland. Most of the other processing industries are reliant on raw materials sourced from north west NSW and Queensland.

The Darling Downs is one of Australia's most significant agricultural regions. It is located on the western slopes of the Great Dividing Range in southern Queensland, extending west from Warwick and Toowoomba. It is a highly productive region producing crops including cotton, wheat, barley, soya beans and sorghum, as well as beef and dairy cattle, pigs and sheep. Toowoomba is a major, growing city of more than 130,000 people, while Warwick's population is about 12,500. There is a Big W distribution centre at Warwick servicing areas between Sydney and Darwin including the North Coast of NSW.

The challenge for industries in the Northern Rivers is transport restrictions. These affect both raw materials being transported into the area and finished products being transported out of the area, particularly to the key Brisbane market and port. Due to terrain constraints, the number of east-west links between the north coast and the New England Tablelands and the Darling Downs is limited. There is only one approved east-west B-double route between Newcastle and the Queensland border, being the Gwydir Highway which connects Grafton with Glen Innes. This route is also the only continuous higher mass limit route. Other major connecting roads are the Bruxner Highway, Summerland Way and Main Road 622 the Woodenbong to Legume Road. All of these routes have significant constraints.

There have been a number of proposals in recent years for the development of upgraded links between the Northern Rivers and South East Queensland. In particular, there have been proposals to upgrade the Summerland Way north of Kyogle as an alternative route to the Pacific Highway and to provide access to a proposed industrial and distribution precinct at Bromelton near Beaudesert. In addition, there have been requests to upgrade the section of Main Road 622 between Woodenbong and Legume.

While both these projects would provide significant benefits in the long term, the substantial costs involved make it difficult for them to be ranked at the top of the priority list. However, strategic upgrading projects that will improve road safety, reduce travel times and facilitate access by high productivity vehicles are likely to be warranted.

ACTION 1D Improve productivity of the road freight network

"it's obvious: we need new capacity – and we have to find better ways to utilise our existing assets"

Scott Charlton, CEO Transurban

Removing barriers to highly productive use of the road network

Problem description

Trucks, and the freight that they carry, constitute a critical link in NSW's economic activity. Trucks of varying size, role and capability facilitate almost all economic activity at some point in the supply chain. However, trucks are currently not carrying freight across the NSW road network in the most efficient way. This is due to the lack of a streamlined approach to managing the movements of vehicles carrying freight.

A more productive movement of freight can be achieved, with fewer vehicle movements, through the use of vehicles carrying greater loads. General access vehicles, which can travel on all roads in the NSW network, are vehicles up to and including the allowable mass for a conventional 19 metre semi-trailer.

Vehicles that exceed the carrying capacity of a standard semi-trailer are known as high productivity vehicles (HPV). The main categories of HPV are:

- Restricted access vehicles (RAV), which is a general term for a subset of vehicles whose length, width, height or mass is greater than that of a standard 19 metre semi-trailer.
- Higher mass limit (HML) vehicles, which are a subset of RAVs that meet a number of requirements, such as road friendly suspension and enrolment in the Intelligent Access Program. This allows them to carry up to 500 kilograms more on a single steer axle and up to 2.5 tonnes more on a triaxle group than the general access limit.

Despite the ability of HPVs to enhance the productive use of the road network, their access to some key parts of the network is currently restricted. This restriction can be attributed to one of two underlying factors.

The first factor is insufficient infrastructure to support HPVs, such as bridges that cannot support heavier vehicles, or roads that are not wide enough to accommodate longer vehicles when turning. When portions of the road are unsuitable for HPVs, these vehicles may be denied access to an important delivery route.

The second limiting factor for HPV access is a disjointed approach to funding and approvals for RAVs. More than 160,000 kilometres of the 185,000 kilometres of road network in NSW are local and regional roads. These roads are

Higher Mass Limits (HML)
is a scheme allowing heavier vehicles such as B-doubles on specific parts of the road network.

High Productivity Vehicles (HPV)
are vehicles approved to carry loads above standard mass limits under Higher Mass Limits or Performance Base Standards.

managed by local governments, but funded through a variety of sources including road user charges from freight vehicles and special grants for identified projects. In addition, the decision to grant RAV approval lies with local road managers, who are sometimes reluctant to grant approval due to issues of local amenity or concerns about funding road maintenance and upgrading.

In many cases, the funds collected from HPV access charges do not cover the cost of enabling road enhancements, which creates disincentives for councils to approve access. Priorities are therefore misaligned across State and Local Government. As an example, the height of containers moved to and from Port Botany is constrained by the height of road bridges and tunnels.

A lack of information regarding the capability of local road and bridge infrastructure to support HPV and HML access is also a significant issue. Detailed assessments of the condition of roads and bridges is needed to prioritise last mile freight investment.

Impact

Restricted access to the road network for HPVs, including HMLs, results in significantly lower productivity. Due to these limitations, many transport operators have resorted to decoupling trailers and making multiple trips, or carrying less than a full load for an entire journey.

In addition to these effects, restricting access to the road network clearly contributes to congestion, which is particularly problematic in the Sydney metropolitan area. In regional NSW, limits on HPV access result in a lack of end-to-end connectivity. Operators are forced to unload prior to reaching restricted portions of the network, which generates unnecessary double handling. Ultimately, barriers to freight travelling on the NSW road network prevents existing infrastructure from being used in the most efficient way possible.

Task 1D-1 Streamline and reform road funding

Transport for NSW will develop options to allow HPVs on the Hume Highway and work with the Victorian Government to explore the viability of allowing HPV access between Sydney and Melbourne.

Improving freight access to the road network would benefit from a streamlined funding process to support NSW road priorities. The role of Transport for NSW includes identifying strategic links for HPV access and the necessary infrastructure upgrades, such as driver rest areas. This approach to road funding reform is supported in the COAG Road Reform Plan (see Action 1C).

A reformed road funding system should also include a new approach to recouping the cost of enabling HPV access. Selecting roads that have sufficient demand to offset enabling costs is a key component to this approach. As an example, enabling increased HPV access on the Hume Highway is expected to achieve cost neutrality, demonstrating the feasibility of allowing HPV access without negative road funding ramifications.

Transport for NSW will investigate options to allow HPVs on the Hume Highway to improve freight productivity, using direct charges to fund enabling works such as additional driver rest areas, and working with the Victorian Government to explore the viability of allowing HPV access between Sydney and Melbourne.

Based on the Hume Highway trial other corridors will be considered for HPV access trials.

Targeted outcome

Reforming road funding will create a single harmonised approach to obtaining the necessary funds to maintain and upgrade roads. Reform will also allow councils to obtain adequate levels of funding for road maintenance and upgrades, while creating a system that incentivises HML approvals where appropriate.

Ultimately, road funding reform will, in many cases, remove the barriers currently stopping councils from approving HPV access.

Task 1D-2 Provide necessary infrastructure to support HPV access

Transport for NSW will deliver a program for strengthening and replacing bridges and roads on existing State freight routes, and enable the opening of new routes, for greater productivity across NSW.

Transport for NSW has an active role in identifying strategic links where expanding HPV access is crucial. Bridges built prior to 1976 are a common problem when attempting to grant a road HML approval, as they were built to lower weight limit standards. Other limitations include low underpasses and narrow shoulders, which present a problem for longer, wider or higher vehicles.

An example is the Port Botany precinct where the proposed expansion to the current Super-B approved network will be fast tracked to allow connection of the third terminal, an increase in GVM from 72.5t to 85t and where possible 109t where the road infrastructure allows.

Once important freight links with infrastructure limitations are identified and prioritised, State and Local Government must work together to address those limitations. In some cases, especially when granting HML approval is of particular importance, the NSW Government alone may provide the required infrastructure upgrades. Bridges for the Bush (see Case Study 8) is an example of a NSW Government led program to fix infrastructure limitations and increase HPV access.

Targeted outcome

Undertaking infrastructure enhancements is the key activity necessary to enable expanded HPV access. When bridges and other parts of roads are able to bear the weight and size of HPVs, restricting access for these more productive vehicles is no longer necessary.

Expanded access for HPVs will provide greater end-to-end connectivity for freight, reducing double handling, decoupling and, ultimately, the number of freight vehicles on the road network.

Task 1D-3 Improve the RAV approval process

Transport for NSW will assist councils to identify and assess key links and infrastructure as part of the RAV approval process.

An inconsistent local process, rather than infrastructure limitations, is often the main

CASE STUDY 7: ACCESS OVER ABERDEEN BRIDGE

A meat processor in Tamworth processes lamb for domestic and export consumption. The company currently sends approximately 50 containers per week for export, transported by road.

To reach Port Botany, vehicles use the New England Highway. Due to mass constraints on the bridge over the Hunter River at Aberdeen, the company is unable use the HML scheme to transport its product. There is also no readily available rail service. As a result, the company cannot achieve optimal loadings of its export products, with a three tonne mass penalty for each container despatched from the facility. This equates to $200 per container of lost productivity through the supply chain.

The company is now in the process of moving its exports to the Port of Brisbane. This will result in a journey that is approximately 140 kilometres longer over a route that offers slower transit times. However, the additional productivity gained will more than outweigh the cost.

Funding has been secured from the Commonwealth Government to replace the Fitzgerald Bridge at Aberdeen, with construction due to commence in FY 12/13. The replacement of the bridge will have significant economic benefits for the New England region and north west NSW. It will enable producers, including meat producers in Tamworth, to access Port Botany and their export markets as efficiently as possible.

HIGH PRODUCTIVITY VEHICLES ON THE HUME HIGHWAY – TRIAL B TRIPLE ACCESS

The Hume Highway currently allows access to HPVs up to and including B-doubles. In early 2012, Transport for NSW commissioned a scoping study to investigate the potential use of larger HPVs on the Hume Highway. The study found that allowing HPVs on the Hume Highway could provide sufficient labour and fuel cost savings to offset any charges to recover the costs of enabling access. The completion of the Hume Highway duplication in mid 2013 will enable B-triple access, once specific enabling works such as rest areas and truck change over areas are completed.

Transport for NSW is developing a detailed business case, which will include a cost benefit analysis and infrastructure cost estimates, to provide for greater HPV access. It is also conducting industry consultation to assess the demand for HPV access to the Hume Highway, suitable vehicle types and the willingness of industry to pay. The business case will also include a funding plan and identification of the required legislative changes.

This project is designed to be revenue neutral, with any required works being cost recovered through access charges directly levied on freight users who will receive a commercial benefit from improved productivity. The outcomes of this project will inform government and industry on the further opportunity for road pricing reform.

A single B-triple can do the job of two semi-trailers, reducing the number of heavy vehicles on the road and delivering time and cost savings for freight owners.

barrier to granting RAV approvals. While councils have an important stake in RAV approvals, due to their impact on local amenity and road maintenance, in some cases there is also a role for State Government. Councils may have protracted approval processes, or lack the resources to conduct an RAV approval assessment.

When Transport for NSW identifies key links that are not currently RAV approved, it must determine whether the council will be able to undertake an assessment in a timely and accurate fashion and perform necessary road maintenance. If this is not the case, then it can play a role facilitating the assessment and ensuring suitable HPV access.

Targeted outcome

By increasing involvement in what is currently a primarily local government process, State Government will reduce instances where RAV approval is denied or delayed due to a lack of local resources. The ultimate outcome will be a process that is consistent, efficient and transparent, allowing RAV access to suitable strategic links.

Task 1D-4 Incorporate freight considerations into managed motorway access decisions

Transport for NSW will develop a program of managed motorways and will seek a contribution from the Australian Government.

NSW has prepared a submission to the Australian Government for funding under Nation Building 2 program, commencing with the M4

HEAVY VEHICLE CHARGING AND INVESTMENT REFORM

In response to the findings of the Productivity Commission Review of Road and Rail Freight Infrastructure Pricing released in 2007, COAG agreed to a three phase program known as the Road Reform Plan. The plan included a number of research components looking at incremental charging and mass-distance-location charging. In its response, the Australian Transport Council agreed to a series of key reforms to the current heavy vehicle charging regime, including:

- Introducing mass and distance charging
- Ensuring recovery of infrastructure maintenance costs from heavy vehicles
- Ensuring that the cross subsidisation across heavy vehicle classes is removed.

At the Australian Transport Council meeting of May 2008, it was agreed that a strategic action area be developed to enable COAG to further consider the potential merits of a move to mass-distance-location based charging for heavy vehicles. In 2009, COAG considered an initial report into key road reform elements, including heavy vehicle road use and costs. COAG determined that there was sufficient evidence to support a feasibility study.

The Feasibility Study involved a multi jurisdictional approach and has considered various forms of direct charging, including fuel only, distance and distance-location options. The Feasibility Study was completed in 2011 and findings were recently presented to COAG for consideration.

Findings from the Feasibility Study suggest that the net economic benefits of more direct charging are low or negative, principally as a result of the high potential costs associated with implementation. Findings suggest that a broader focus on reform of road funding, provision and use would result in benefits well in excess of those from reform of heavy vehicle pricing alone.

The Standing Council on Transport and Infrastructure decided in May 2012 that the National Transport Commission will complete a comprehensive review of the heavy vehicle charging system, to be completed by mid 2013.

Motorway. This program is consistent with goals in *NSW 2021,* including the goals of reducing travel times and improving road safety.

The proper channelling of freight movements can reduce congestion on Sydney's motorways. There are key points at which high volumes of freight vehicles enter motorways, potentially creating bottlenecks. A good example of this is trucks accessing the M5 from Port Botany. Potential solutions include providing dedicated freight lanes on motorway ramps at key locations or creating dedicated freight lanes on arterial roads during off-peak hours. Regardless of the specific solution, it is important that freight be considered when seeking to manage congestion on managed motorways.

Targeted outcome

A program for managed motorways will facilitate safe and effective access for heavy vehicles, including both HPVs and HMLs. Improving access for heavy vehicles will also have benefits for passenger vehicles, including improved safety.

Task 1D-5 Review the productivity and use of arterial roads

Transport for NSW will review arterial roads which are important to freight and assess the benefits from restricting parking.

There are currently many arterial roads that receive a great deal of freight traffic, but that are not considered major freight routes. As a result, these roads often have restrictions that

The movement of freight on the network is highly visible and often blamed for congestion however this is not borne out by the traffic data. It is important to highlight that freight movement is a basic element of logistics and is part of everyone's life.

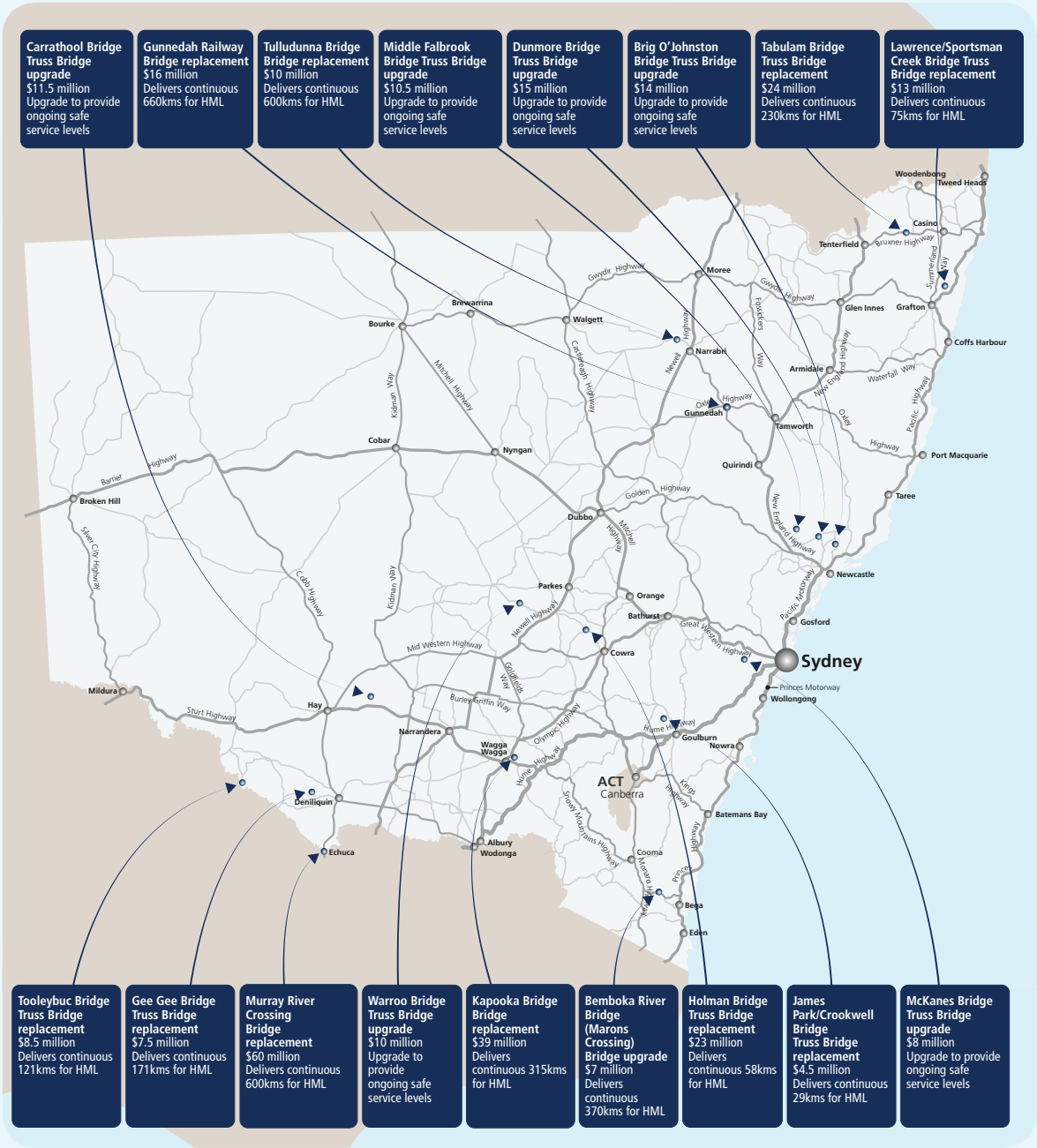
An example is retail activity. Firms handling Fast Moving Consumer Goods (FMCG) seek to eliminate inefficiencies and unnecessary costs in their logistic operations to ensure competitiveness. The new Big W Distribution Centre at Hoxton Park has been designed to optimise the storage and distribution function and eliminate costs.

Located adjacent to the Westlink M7, the 50,000 pallet capacity facility stores and distributes Big W merchandise to 64 stores across NSW, ACT, Tasmania and Victoria using an average of 250 truck movements a week. By establishing the Big W facility and the neighbouring Masters Distribution centre as a logistics precinct in South-west Sydney, Woolworths expects to save 5 million kilometres of driving per annum.

CASE STUDY 8: BRIDGES FOR THE BUSH – IMPROVING FREIGHT PRODUCTIVITY IN REGIONAL NSW

Some rural bridges and roads across the NSW road network are ageing, low-strength and struggling to keep up with the increasing loading demands from road freight. Replacing, upgrading or strengthening these bridges and roads at high priority locations is necessary in providing access for high productivity vehicles. Providing continuity of access for high productivity vehicles creates the opportunity to carry the same amount of freight in a fewer number of vehicles, thereby reducing the economic and financial costs associated with moving the goods.

Figure 21 Bridges for the Bush program



To improve accessibility for high productivity vehicles in NSW, TfNSW, in consultation with the RMS has prepared a submission to Infrastructure Australia seeking half of the $290 million program. 'Bridges for the Bush proposes to upgrade or replace key bridges in regional NSW at 17 locations including the following five high priority HML deficient bridges to improve freight productivity in NSW:

- Kapooka Bridge on Olympic Highway, South of Wagga Wagga
- Tulludunna Bridge on Kamilaroi Highway, near Wee Waa
- Gunnedah Railway Bridge on South Street/Oxley Highway
- Murray River crossing at Echuca on Cobb Highway
- Bridge over Bemboka River (Marons Crossing) near Cooma.

These bridges together with the replacement of six heritage timber truss bridges to HML standard are shown in Figure 21.

A new and dedicated infrastructure program over the next five years will fund the necessary upgrade of the network, commencing with priority HML deficient bridges.

The Bridges for the Bush initiative will enhance freight productivity in Country NSW by removing old bridge structures and releasing significant freight pinch points.

Over the next 30 years alone, 8,000 heavy vehicle trips or $200 million will be saved in NSW, by replacing the five priority HML deficient bridges.

make freight movement difficult. For example, arterial roads, including sections of King Georges Road and Botany Road, often allow parking. This not only eliminates the use of the kerbside lane, but also slows traffic in the adjacent lane, causing congestion.

Targeted outcome

The review of arterial roads will ensure these routes are being used most effectively and will balance the needs of passenger vehicles and freight movement. While street parking is a necessity in some areas, the review of arterial roads will ensure the optimal use of freight routes. Implementing parking restrictions could facilitate the flow of freight on arterial roads in off-peak periods, which will contribute to achieving other actions in this Strategy.

ACTION 1E Maximise network capacity by reforming rail access

Enhancing the efficiency and transparency of rail access

Problem description

National competition policy requires owners of essential facilities – such as rail networks - to provide access to third parties.

Since the mid -1990s 'above rail' operators (who own and run trains) have been able to use the NSW Rail Network to operate trains, most often freight trains. In practice, rail operators negotiate with the rail network owner, such as RailCorp, and the two parties enter into an agreement which sets out the terms and conditions for the operator's use of the network.

The regulatory basis for these arrangements is the NSW Rail Access Regime. It was established in August 1996 and includes the NSW Rail Access Undertaking (RAU).

In late 2011 the NSW and Australian Governments signed a Memorandum of Understanding for a program of works to improve capacity for freight rail services on the Northern Sydney Freight Corridor (NSFC) between North Strathfield and Islington Junction. In signing the Memorandum of Understanding, NSW agreed to review the NSW RAU and to seek certification of the reviewed undertaking by national competition authorities.

The review will provide an opportunity to examine the provisions and operation of the RAU. It will identify what's working well, as well as any deficiencies or aspects that need amendment to reflect changes in the rail industry, such as the pending establishment of Sydney Trains and NSW Trains.

It will also consider whether amendments are required to address future challenges, including how to increase freight on rail in Sydney and regulate rail lines in rural and regional NSW.

Details of the different rail networks operating in NSW are addressed in Appendix C.

Impact

A rail access regime which reflects the challenges facing NSW rail networks, and is consistent with NSW obligations under national competition policy and with.

Task 1E-1 Conduct NSW Rail Access Review

Transport for NSW is reviewing the NSW Rail Access Regime

The review will commence with stakeholder consultation, scheduled for late 2012. Stakeholders' views will then inform advice to Government on the scope of future rail access regulation applying to the networks that remain in NSW Government control.

Once the Government has decided the form and scope of future access regulation, further stakeholder consultation would be undertaken on any proposed changes, prior to seeking certification of the revised arrangements by national competition authorities.

Targeted outcome

An updated rail access regime endorsed by national competition authorities,that promotes:

- a consistent approach to rail access regulation and
- competition, through the economically efficient operation, use of and investment in rail.

ACCESS REFORM FOR REGIONAL NETWORKS

A number of independent reviews have raised questions about the way third party access regulation is applied to regional rail networks. In particular, the issue has arisen that the application of the current regulatory and structural reform model may not have given due cognisance to the particular circumstances and characteristics of regional networks.

In 2001, the Productivity Commission noted the additional costs imposed by regulated access. These included:

- Administrative costs for government and compliance costs for businesses
- Constraints on the ability of infrastructure providers to deliver and price services efficiently
- Reduced incentives to invest in infrastructure facilities
- Inefficient investment in related markets
- Wasteful strategic behaviour by both service providers and access seekers.

In 2006, the Productivity Commission found that there is the need for a case by case approach to determine if the benefits of mandated access are outweighed by the costs. In particular, the low volumes on regional networks strongly suggest there is limited capacity for above-rail competition and separation may further reduce the commercial viability of these networks. It is probable that having one vertically integrated operator would be the most efficient outcome for these networks.

ACTION 1F Improve efficiency of landside cargo transport

Improving coordination between participants in commodity chains

Problem description

The movement of cargo to and from the international maritime gateways at Port Botany, Newcastle and Port Kembla is a significant issue for the NSW transport network, and one that is becoming more critical as growth in cargo volumes passing through NSW ports continues. In particular the movement of cargo to and from Port Botany and Port Kembla warrants action as part of this strategy.

The volume of containers through Port Botany has doubled over the past 11 years from about one million TEU in 1999-00 to about two million TEU in 2010-11. Container volume growth is forecast to continue at between five per cent and eight per cent per annum over the next 25 years (Source: SPC 30 Year Vision). Using a growth rate of seven per cent, the volume of containers through NSW ports will be about 11 million TEU by 2036-37. This volume of movement on a constrained physical road and rail network requires optimal performance as well as expansion of physical infrastructure.

The movement of bulk and break bulk cargoes to Port Kembla by rail has a direct impact on the metropolitan rail network due to the volume of grain and coal that transit through Sydney from Western NSW. Similarly steel products originate at Port Kembla and are transported nationwide by train using the Illawarra line for the first part of the journey.

Rail has historically played a limited role in the movement of containers through Port Botany. In 2010-11 only 280,000 TEU were moved by rail, compared to over 1.7 million TEU by road. As rail volumes have been stable over the past 15 years, they have not kept pace with the growth in container movements through the Port. As shown in Table 2, the share of rail movements

Table 2 Port Botany rail modal share (Source: SPC)

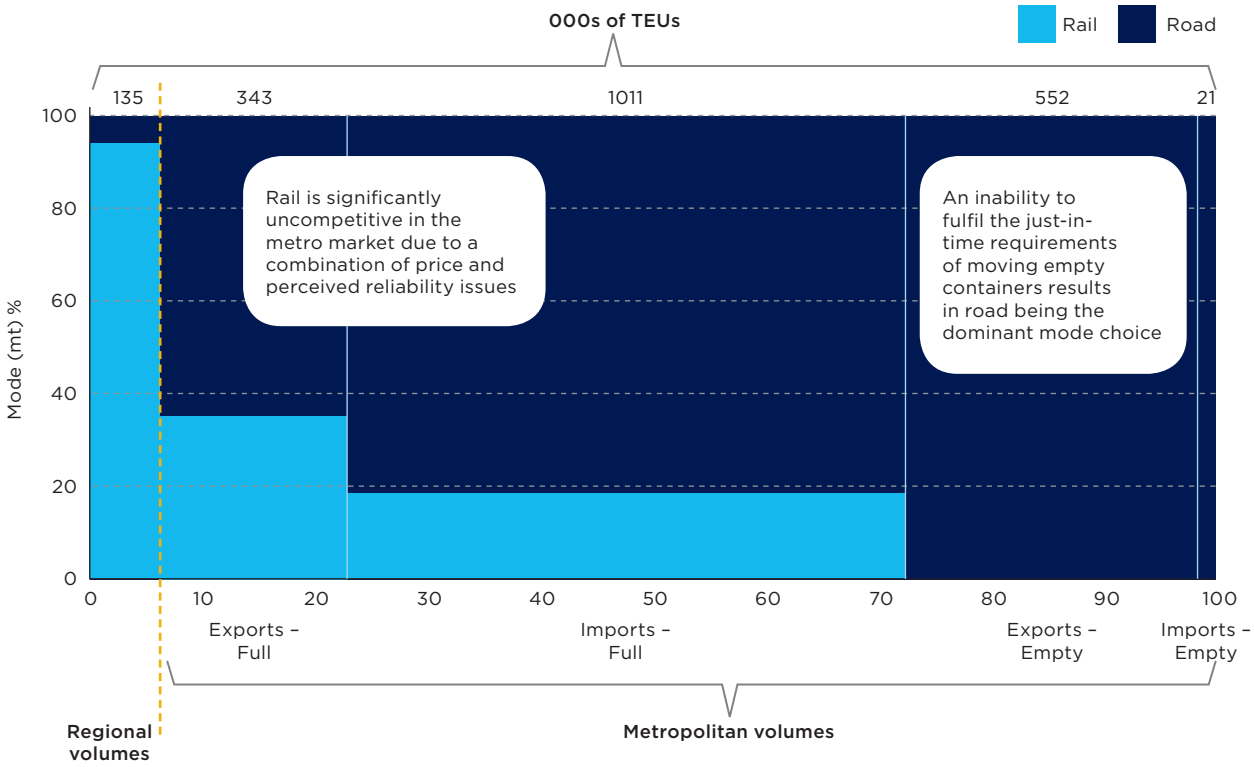
Year	Total TEUs (millions)	Rail mode share (%)	Rail TEUs (millions)
1999-00	1.02	22.5%	0.23
2000-01	0.99	25.0%	0.25
2001-02	1.01	25.0%	0.25
2002-03	1.16	23.8%	0.28
2003-04	1.27	21.0%	0.27
2004-05	1.38	19.4%	0.27
2005-06	1.45	21.3%	0.31
2006-07	1.62	19.7%	0.32
2007-08	1.78	19.0%	0.34
2008-09	1.78	19.4%	0.35
2009-10	1.93	18.8%	0.36
2010-11	2.02	14.0%	0.28

over the past 12 years grew to a peak of 25 per cent in 2000-01, and then dropped to the current modal share of 14 per cent.

Currently, rail is considered uncompetitive compared to road in the majority of container freight segments:

- Many end-customers in the Sydney metropolitan area prefer road for its responsiveness, reliability and timeliness, especially where the price differential between road and rail is small. It currently costs customers more for stevedores to load and unload trains than it does to service trucks.
- Shipping lines prefer road's just-in-time capabilities for moving empty containers.
- Indicative estimates of rail's cost disadvantage range upwards of $40 per TEU, depending on location.

Figure 22 Mode share for movement of containers to and from Port Botany 2012-13



The main freight segment where rail is competitive with road is exports from regional areas, because its cost advantage in line-haulage is only realised over long distances. The relative competitiveness of rail versus road in the various segments is illustrated well by its modal share, which is high for regional exports, but low in the other segments.

The commercial attractiveness of improving rail coordination varies by stakeholder. While rail operators and incoming intermodal terminal operators are in favour of maximising volumes to increase asset utilisation, stevedores and existing intermodal terminal operators are driven by the cost to service. A result of rail's lack of competitiveness is that this second group of key participants in the value chain do not have sufficient commercial incentive to effectively participate in the improved coordination of the rail value chain.

On the rail side, the highest barriers to achieving greater efficiency through the container chain are at the port-rail interface and in rail movements. These barriers include: poor real-time visibility of train status on train paths; low train utilisation on backload; a lack of adequate below-rail infrastructure; lack of flexibility in train windows; and unreliable train departure and arrival times.

The Port Botany container chain has been confronted with these issues for some time. They have been examined in detail in prior reports; notably by Brereton in 2005 and IPART in 2008, which resulted in a number of new initiatives and investments by Sydney Ports Corporation (SPC).

SPC has been successful in driving significant improvements in the container supply chain through initiatives such as the Port Botany Landside Improvement Strategy (PBLIS) supported by the Ports and Maritime Administration Regulation (PAMA). In particular, the Port Road Taskforce was formed in 2008 and has achieved efficiencies in truck turnaround times and on-time running, amongst other things. The Port Botany Rail Team, while in its infancy, has also made progress towards improved coordination, although there remain some issues beyond the direct control or influence of SPC.

Figure 23 Barriers to efficiency in the movement of containers by rail to and from Port Botany

In addition to the mandatory performance standards on trucks under PBLIS the Port Botany Rail Team (PBRT) has worked since 2008 to set up performance monitoring and to improve the efficiency of port rail operations. The membership of the PBRT includes SPC, the stevedores, rail network providers, rail operators and TfNSW. The PBRT have secured ACCC agreement for a Rail Charter to voluntarily agree to develop business rules to improve the port/rail interface, performance KPI, operating protocols and future rail governance. A Rail Operations Control Centre (ROCC) has been established by SPC for facilitating communications, and coordinating train movements within the port precinct. SPC is working with the ARTC as lessee of the MFN to coordinate the operation of the Port Botany rail corridor.

Although the need for improved container chain coordination is not new, there are several changes and developments in the short term that make it increasingly urgent. These developments are that the:

- Port Botany is currently in the process of being leased to the private sector, a process which is due to be completed by mid 2013
- MFN has been transferred to the Australian Rail Track Corporation (ARTC)
- Third terminal at Port Botany, operated by Hutchison Port Holdings, is scheduled to begin operations in early 2014
- Enfield Intermodal Logistics Centre and Enfield staging roads are scheduled to begin operations in mid 2014
- Proposed intermodal terminals at Moorebank led by SIMTA and the Australian government, are due to begin operations between 2015 and 2017 depending on access and planning approval.

Also, the NSW Government has a target of doubling rail's mode share of container movements through the port from its current level. This will be achieved though improved performance, capacity enhancements and where necessary the use of pricing. Improving rail's competitiveness will require both investments to build capacity (such as the planned intermodal terminals), but also improved coordination between the many different parties involved, including the ARTC, the above-rail operators and the stevedores.

The rail task is further complicated by the fact that there is already significant use of rail for movement of cargo, primarily steel, coal and grain, to and from Port Kembla. The capacity required to move coal alone is forecast to double from 167 Mtpa to 367 Mtpa from 2011 to 2031, and currently over 70 per cent of coal is transported by rail. As the cargo transport task continues to grow, the capacity of the existing rail network to support this growth is a key priority. The significant growth in rail movements to and from Port Kembla will be a key determinant of how much latent rail capacity the NSW regional network has to support growth in Port Botany cargo movements. Coordination of cargo transport in and around both Port Botany and Port Kembla will be necessary to support the expected growth in the cargo task and ensure that the existing network is used most efficiently and effectively.

On the road side, the forecasted growth in Port Botany container volumes continues to put pressure on the network's capacity. Ongoing improvements are required to maintain the success to date of PBLIS with both road and rail movement in order to maintain the port's competitiveness.

Impact

The anticipated port growth and the container movement issues described may create sub optimal utilisation of quayside and terminal infrastructure, as well as off wharf facilities such as depots, warehouses and intermodal terminals, if delivery and clearance transport by road and rail does not maintain the same level of efficiency.

Task 1F-1 Establish NSW Cargo Movement Coordinator

In this context, TfNSW is considering the optimal way of achieving the required capacity increases. Other mechanisms for capacity growth are also being explored. The movement of cargo to and from Port Botany and Port Kembla presents opportunities to balance cargo across the network and make better use of existing network capacity, both road and rail.

TfNSW is considering the establishment of a new body, the NSW Cargo Movement Coordinator (CMC), to better coordinate and plan the activities of key participants in the cargo transport chain focused on Port Botany and Port Kembla. This body would share some similar characteristics to the successful Hunter Valley Coal Chain Coordinator (refer to Case Study 9), modified to reflect the important differences with the cargo transport network around Port Botany and Port Kembla.

The CMC is planned as an evolution of the successful SPC PBLIS program and will be based on the PAMA. Any transition will require consultation with all stakeholders and close management to ensure that hard earned benefits are not lost.

The proposed aim of the CMC is to optimise landside cargo transport to meet Port Botany and Port Kembla demand growth, and to minimise overall supply chain costs including externalities such as congestion.

The objectives of the CMC at this stage have been identified as:

- Maintain the success of the SPC program of landside improvement measures including the Port Botany Landside Improvement Strategy incorporating the Port Botany Road Taskforce and Port Botany Rail Team
- Identify and eliminate pinch points and performance inhibitors on the NSW rail network serving Port Botany
- Identify and eliminate coordination failures in cargo movement to and from Port Botany and Port Kembla
- Identify and quantify externalities associated with the NSW cargo movement task to and from Port Botany and Port Kembla.

The suggested scope of activity for the CMC would be to include all containerised cargo, carried by rail to and from Port Botany, road movement at the sea terminal interchange as well as break bulk cargo such as steel and bulk cargoes such as coal, other minerals and grain carried by rail to Port Kembla to and from the rest of NSW and interstate.

This comprehensive scope would help ensure a whole-of-system approach to supply chain optimisation. This is important because it would allow the CMC to:

- Consider coordination issues across the freight network, and their knock-on effects on the whole network and particular supply chains such as export agricultural products
- Make trade-offs between road and rail, in order to maximise overall efficiency
- Consider the impact of road coordination improvements on rail, and vice versa.

The focus of the CMC's activities in addition to the existing PBLIS program should be on operational efficiency and capacity management. These two areas are elaborated on below.

The CMC's operational efficiency activities could include, but would not be limited to, the following categories:

- **Data collection, monitoring and reporting:** the role of the CMC would be to collect, analyse and distribute key metrics regarding system performance for both road and rail networks. This would allow cargo transport chain participants to evaluate the operational performance of the system. Example rail activities could include the reporting of aggregated on-time train running statistics, or system level information on train turnaround

times at the port-rail interface. Example road activities could include reporting of truck turnaround times and on-time running.

- **Short term cargo transport chain modelling and pinch point identification:** the role of the CMC would be to model all cargo transport chain interactions between road, rail, port and IMT operations. This would allow cargo transport chain participants to identify bottlenecks which are addressable in the short-term through process and coordination improvements. Example activities could include quantifying the impact and costs of bottlenecks.
- **Day-to-day operational planning and scheduling for rail:** the role of the CMC would be to generate and distribute daily train plans and schedules, similar to the role the HVCCC fulfils in the Hunter Valley. This would provide visibility over daily train movements for train operators, intermodal terminal operators, below-rail network providers and stevedores. Example activities could include the allocation of daily train paths, as well as marshalling plans.
- **Disruption management for rail:** the role of the CMC would be to respond to system disruption events through scheduling adjustments, similar to the role the Hunter Valley Coal Chain Coordinator fulfils. Example activities could include the cancellation of services and the dynamic adjustment of daily train paths in response to disruption events when they occur.
- **Dynamic operational optimisation for rail:** the role of the CMC could, if warranted, encompass dynamic whole-of-system coordination. This could include ad-hoc allocations of train paths as required on a daily basis.

The CMC's capacity management activities could include, but would not be limited to, the following categories:

- **System simulation modelling and bottleneck identification:** the role of the CMC would be to provide simulation modelling for the whole cargo transport chain. This would include the ability to evaluate system needs and model the impact of additional infrastructure investments on the cargo transport chain. Example activities could include stress-testing the system through sophisticated scenario analysis. This would identify bottlenecks and evaluate the impact of additional infrastructure investments.
- **Planning infrastructure investments:** the role of the CMC would involve assessing the costs and benefits of infrastructure investment options. This would involve the consideration of what can be quite complex trade-offs in order to optimise future investments in the system. Example activities could include comparing the system benefits of an additional rail marshalling yard against an additional truck marshalling yard.

Targeted outcome

Increased coordination of the cargo movement task will result in higher performance standards of supply chain activities utilising the road and rail networks connecting to the ports.

This will aid in optimising the use of existing limited capacity available across the network. Control and coordination will link land and port side infrastructure needs to ensure timely provision of new network capacity as demand grows over the next twenty years.

CASE STUDY 9: HUNTER VALLEY COAL CHAIN COORDINATOR

The Hunter region is the largest coal export operation in the world, supporting 40 mines and 11 producers. The Hunter Valley coal supply chain operations include:

- Thirty train loading points
- Three coal terminals at Newcastle, with a fourth in the planning approvals stage
- Fifty five trains per day, or around 18,000 trips per year
- Coal loading terminals
- Volumes to support around 1,500 shipping movements per annum
- Facilities to support coal power stations at Eraring, Bayswater, Liddell, Munmorah, Redbank and Vales Point.

Established in 2009, Hunter Valley Coal Chain Coordinator (HVCCC) is an innovative, industry cooperative model that undertakes end-to-end logistics and capacity planning for the Hunter Valley coal chain.

HVCCC works to maximise coal chain throughput while considering the collective needs and individual contractual entitlements of its member coal producers and service providers.

The value that HVCCC offers its members stems from its helicopter view, which allows it to approach planning for the coal chain as a system. This approach represents a significant departure from the previous supply chain management model, which was based on individual supply chain participants making their planning decisions in isolation. This had significant potential to result in adverse outcomes, both for the individual participants and the supply chain as a whole.

HVCCC's key deliverables include the provision of:

- Detailed long term coal chain capacity models and master plans, to determine long term contractible capacity and identify capacity constraints
- Coordinated annual coal chain maintenance and capacity planning required to deliver contracted capacity
- Monthly planning and coordinated scheduling of the daily movement of coal to meet forecast demand and contractual entitlements
- Reporting and performance measurement against coal chain system assumptions and recommendations for operations improvement.

5.2 Strategic Action Area 2 – Network capacity

"We have to work in today's reality – with the flexibility to deal with tomorrow's possibilities"

Scott Charlton, CEO
Transurban Infrastructure Partnerships Australia

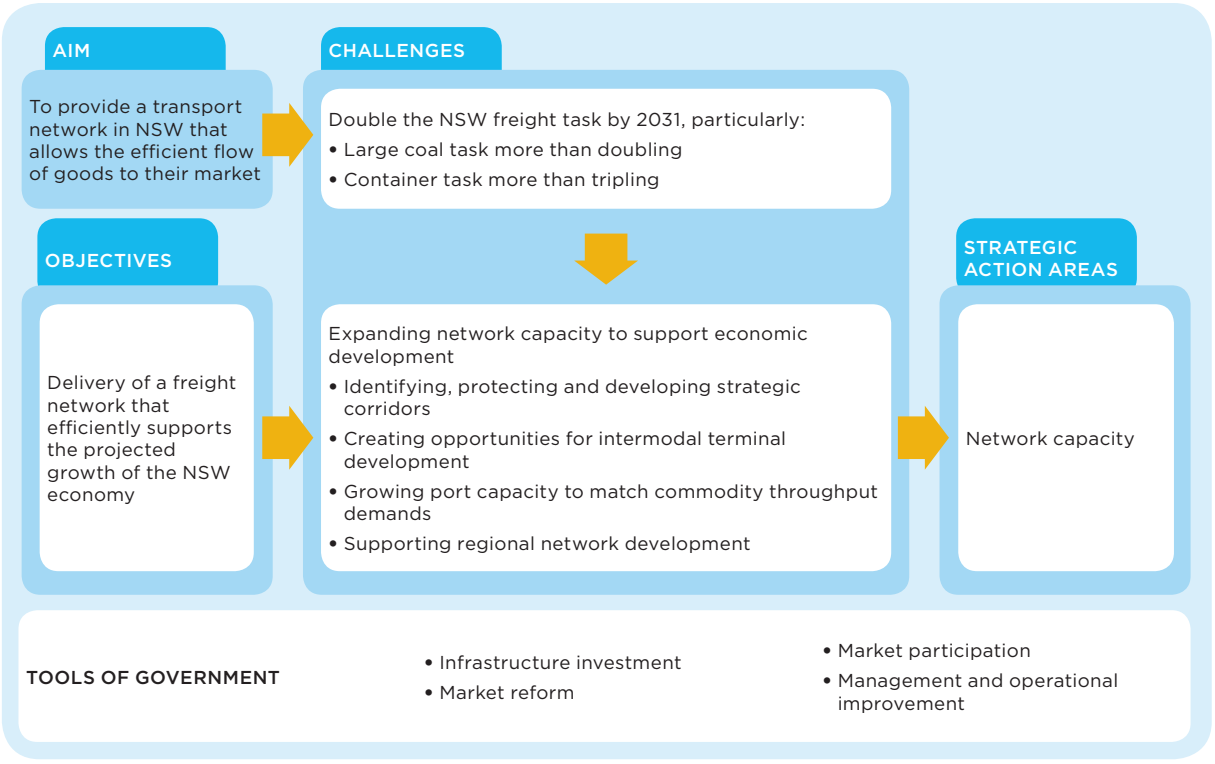
NSW has critical international gateways at Port Botany and Sydney Airport, together with extensive road and rail networks. The optimal performance of the network is critical for the efficient movement of passengers and cargo across the State.

The physical infrastructure of the network has been built, maintained and improved in a fragmented manner dependent on ownership, funding and usage patterns. The result is a network that achieves varied levels of performance. The examples of 'missing links', pinch points and weight limitations that constrain performance are numerous and are not limited to any particular region or mode. This strategic action area sets out to establish and maintain a whole of network approach to capacity and performance, in order to achieve the free flow of goods to the market.

As shown in the framework for this Strategy, the actions in this strategic action area all contribute to a large subset of objectives and challenges. Each of the planned actions are described in further detail in this section.

Network capacity is a statewide issue and is not constrained to metropolitan areas. Regional transport networks serving mining and commodity exports are critical to the NSW economy.

Figure 24 NSW Freight and Ports Strategy framework



STRATEGIC ACTION AREA 2: NETWORK CAPACITY

Action 2A: Identify and protect strategic freight corridors
- Establish corridors to meet long term freight needs of NSW

Action 2B: Develop and maintain capacity for freight on the road network
- Complete and connect Sydney's motorway network
- Prioritise road infrastructure investments
- Develop a Newell Highway Corridor Strategy to support greater use of High Productivity Vehicles

Action 2C: Enable separation of passenger and freight flows on rail network
- Separate passenger and freight movements with network enhancements and rail alignments
- Complete the Northern Sydney Freight Corridor

Action 2D: Develop effective port growth plans to meet freight volume growth
- Develop a Port Botany growth plan
- Develop a Port of Newcastle growth plan
- Develop a Port Kembla growth plan

Action 2E: Foster intermodal terminal network development
- Foster intermodal terminals in Metropolitan areas
- Regional intermodal terminals

Action 2F: Coordinate regional infrastructure and service provision
- Adopt a best practice reform model for regional infrastructure

Action 2G: Develop a project pipeline to support network capacity
- Evaluate freight infrastructure through the investment framework
- Maintain a program of projects for freight investment
- Fund the infrastructure program

ACTION 2A Identify and protect strategic freight corridors

"...failure to protect corridors and lands in the immediate-term for long-term projects may rule out these options in the future."

Infrastructure Partnerships Australia, Fixing NSW 2012

Identifying, protecting and developing strategic corridors

Problem description

The location of strategic freight corridors, incorporating both operational and buffer zones, is linked to future supply chain movements and freight flows. However, freight flows have a complex interrelation with population centres and production regions. The recent movement of different commodities across NSW is shown in Figure 25.

Population centres generate freight demand, but can also impede its flow. This is one result of land use change and competing requirements for passenger and freight transport. As shown in Figure 26, population growth varies across NSW, but is generally occurring most rapidly in coastal areas.

As population grows across Sydney and regional NSW, there is a real urgency to ensure that corridors and key freight terminals, including ports, are ready to meet future growth.

For example, the continuing population and employment growth across the Greater Metropolitan Area will place increasing pressure on the metropolitan shared rail network. Additionally, congestion on the road and rail networks serving Port Botany highlights the need for greater separation of freight flows and an increase in the amount of freight moved by rail.

Proposed long term corridors such as the Outer Sydney Orbital and Maldon to Dombarton Rail Line are needed to further separate freight and passenger rail movements, in order for both sectors to grow. Separating freight and passengers will continue through the provision of dedicated freight infrastructure as part of existing or future corridors, such as the Southern Sydney Freight Line connecting Macarthur and Port Botany.

Future corridor design must consider the potential need for a multi-modal outcome involving both road and rail. Most supply chains rely on both networks to reach their markets and customers. Increasingly, freight precincts like the proposed intermodal terminals at Moorebank, will support businesses that receive and distribute goods on road and rail.

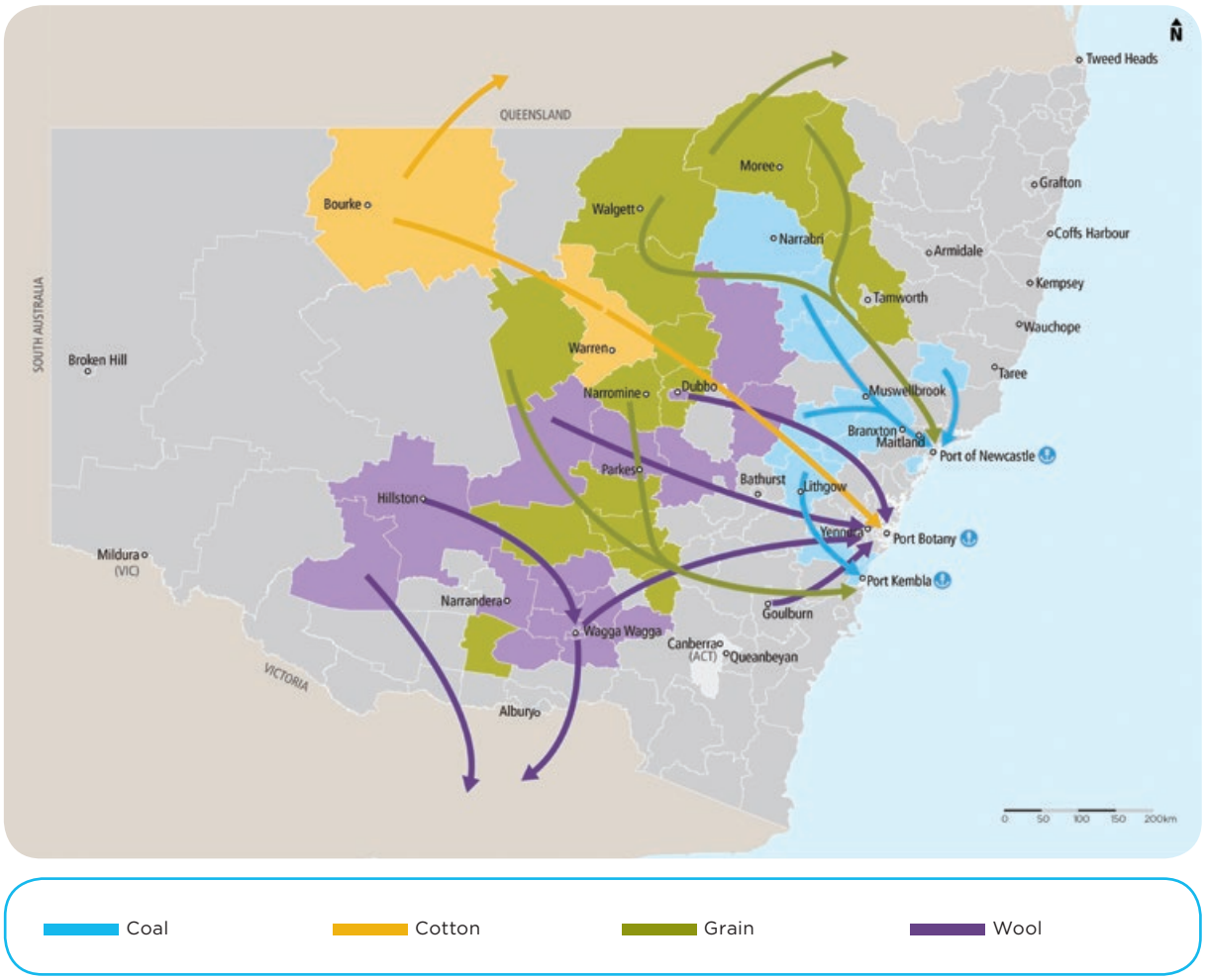
Early planning is needed to integrate future transport corridors and sites for new or expanding freight terminals. This planning work is also critical to maintain a future program of NSW freight infrastructure.

Impact

A failure to adequately identify, preserve and enable the development of long term transport corridors will compromise the ability to increase capacity across road and rail networks.

The Outer Sydney Orbital is a good example of the long term preservation of a corridor. This has enabled the development of critical infrastructure, such as the M7 and M2 Motorways. The F6 Freeway corridor through southern Sydney is another example of the long term preservation of a corridor, which will secure future transport opportunities.

Figure 25 Selected commodity movements 2011



Task 2A-1 Establish corridors to meet long term freight needs of NSW

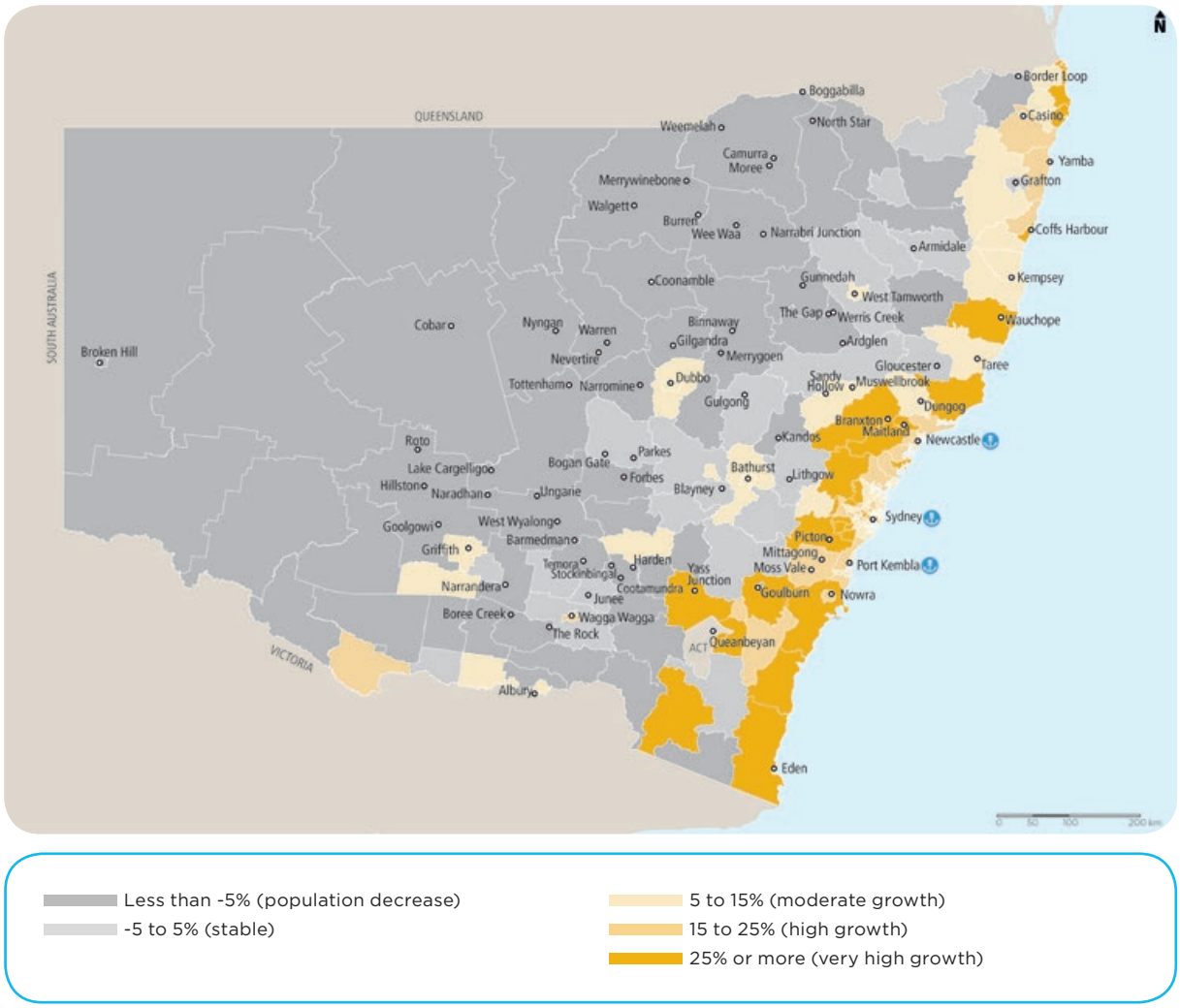
Transport for NSW, with the Department of Planning and Infrastructure and in consultation with local government, will deliver a program to secure an integrated network of corridor alignments and strategic freight sites.

Establishing long term strategic freight corridors is essential to achieving greater separation of freight and passenger movements. Establishing a network of transport corridors will also support key freight precincts and terminals, including NSW ports.

For example, an Outer Sydney Orbital would facilitate moving the interstate intermodal task from locations that conflict with the passenger and port freight tasks to Western Sydney. This is discussed in Case Study 10.

It will be important to develop a program of corridor investigations, commencing with the dedicated Western Sydney Freight Line and Western Sydney Intermodal Terminal site. Investigations have already commenced for the Maldon to Dombarton Rail Line in partnership with the Australian Government. Work is also proceeding on the Northern Sydney Freight Corridor and is the subject of a submission to the Nation Building 2 program.

Figure 26 Forecast NSW population growth 2011-2031



A program of corridor investigation will address the following key links:

- Outer Sydney Orbital
- Bells Line of Road
- Long term Inland Rail Corridor
- M5 Motorway duplication
- M4 East extension
- M2 to F3 Link
- Newcastle Rail Bypass
- Mount Ousley Road and F6 corridor.

Targeted outcome

The identification of a network of long term transport corridors would support separated freight movements and increase the share of freight moved on rail around the Sydney metropolitan area. A program to identify these corridors has commenced and will deliver the necessary approvals for proceeding to 'shovel ready' stage, as additional capacity is needed to meet forecast demand.

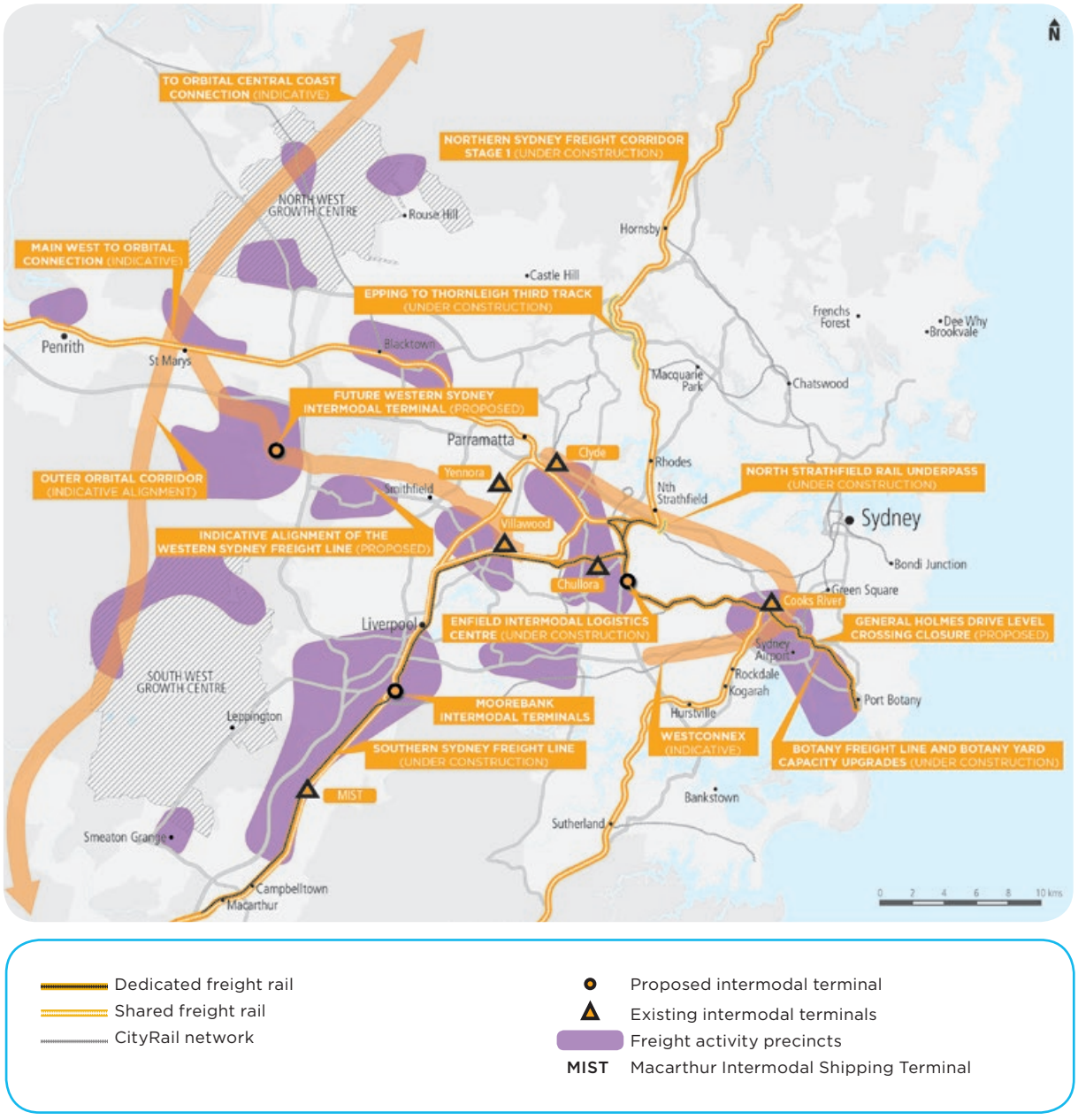
By applying a strategic corridor perspective, individual networks and actions to improve efficiency and capacity can be evaluated in terms of actual supply chain movements and forecast demand. Decisions regarding investment in new infrastructure can be compared across networks, together with

potential transformative corridors that may achieve a better longer term outcome. An example of this is discussed in Case Study 11.

To cater for forecast growth in the container market, further intermodal capacity will be needed in Sydney. In the longer term a key strategic location for an intermodal terminal could be in the Eastern Creek area. A future intermodal terminal in Western Sydney will need to be connected to the Metropolitan Freight Network. The necessary lands should be identified and protected in planning instruments to cater for future growth in the freight task.

This planning process to protect corridors, informed by the NSW Strategic Freight Model, will provide greater certainty for metropolitan, regional and local land use planning. This approach is consistent with corridor work in the NSW Long Term Transport Master Plan, which is contributing to the planned growth in centres, urban renewal areas and employment areas with a logistics focus.

Figure 27 Freight activity precincts and key infrastructure projects



CASE STUDY 10: OUTER SYDNEY ORBITAL CORRIDOR

Proposed long term corridors support freight growth and provide opportunities to move a greater share of freight around the Sydney metropolitan area on rail. Examples of such corridors include the Outer Sydney Orbital, Inland Rail Line, Western Sydney Freight Line and Maldon to Dombarton Rail Line.

The potential for a new Outer Sydney Orbital corridor has been considered for some time as the means to address the significant industrial development occurring in the west of Sydney.

The 2007 Pearlman Review into the F3 to M7 corridor selection recommended that work commence on the identification and reservation of a corridor for a new orbital link to the west of the current M7 Motorway.

Identifying a new Outer Sydney Orbital corridor and protecting it from incompatible development is an increasingly urgent priority, particularly as the corridor is of key strategic significance to both the road and the rail task.

While the corridor offers the potential to improve mobility between emerging suburbs and employment locations on Sydney's fringe, it is also a key enabler in progressing the separation of the passenger and freight rail networks in the Sydney metropolitan area. The initial driver for a dedicated freight network includes the interstate freight rail task, as this traffic is the most difficult to accommodate within a densely trafficked, metropolitan passenger system (see Action 2C). The movement of coal around Sydney is another potential driver that would facilitate alternatives to the congested Metropolitan Rail Network and, in particular, the Illawarra Line.

Analysis carried out by Infrastructure Australia suggests that a multi-modal corridor from Western Sydney north to the Central Coast and lower Hunter may provide a more effective long term connection between Sydney, the Illawarra and areas to the north.

An adaptive Outer Sydney Orbital corridor would support a new level of integrated transport planning. It would potentially allow four significant modal problems to be resolved through one integrated corridor. An Outer Sydney Orbital would:

- Provide a dedicated rail freight line north from Sydney, beyond the current Northern Sydney Freight Corridor Project
- Identify and reserve a corridor for the new orbital road link
- Provide a Western Sydney Freight Line
- Provide a corridor for an Inland Rail Route.

An additional consideration is that it may be possible for energy and water infrastructure to use this corridor, where it is sensible to do so.

CASE STUDY 11: F6 CORRIDOR PROTECTION

There are a number of protected transport corridors within metropolitan and regional NSW. Some of these corridors have major projects in planning or underway, while others are not yet in use for transport purposes.

The F6 Freeway corridor between St Peters and Loftus has been reserved in planning instruments for more than 50 years. It spans the local government areas of Marrickville, Rockdale and Sutherland, and in places is only 100 metres wide.

The F6 Freeway was a major road proposed in the 1951 County of Cumberland Planning Scheme, which provided an overall perspective on the future growth of Sydney. Once the corridor was identified, the (then) Department of Main Roads began purchasing land within the corridor for future road development. The original corridor extended from the end of the Southern Freeway at Waterfall, through to the Sydney CBD. In the 1960s, the section of the corridor over the Captain Cook Bridge and its southern approaches was built. Since then, the F6 corridor has been reduced, particularly in the southern sections between Loftus and Waterfall, to preserve National Parks and established open space areas. Over time, sections of the remaining reservation have also been used as community open space and active recreation space.

Transport for NSW is continuing to protect the F6 corridor to provide for possible future transport use. Such uses could include a road, busway, cycleway, light rail and/or heavy rail. While the NSW Government requires that the F6 corridor be retained for possible future use.

Freight origin and destination data provides the evidence base to identify and preserve network expansion corridors.

ACTION 2B Develop and maintain capacity for freight on the road network

Identify missing links and priorise investment to create capacity

Problem description

Even if the existing road network capacity is used optimally, there are remaining capacity constraints in NSW**.** Like many other major cities in the world, Sydney is facing increasing congestion on its road network. This issue is related to Australia's economic prosperity and population growth, which places extra demand on transport and road infrastructure and exacerbates congestion. On an average day in Sydney there are around 227,000 rigid truck movements, 61,000 articulated truck movements and 1.2 million light commercial vehicle trips.

For most of these trips, there is no alternative to road transport. Demand for freight movements via road is therefore high, but on some roads existing capacity cannot currently meet demand during peak hours. Exacerbating this problem is a lack of connectivity along certain routes. Port Botany provides one of the most obvious examples. As Sydney's container port and a major source of freight movements, access to and from the port is crucial, However, important routes that would provide capacity, such as the M4 Extension and a widening of the M5 East, are missing.

Impact

The primary impacts of gaps on the road network are congestion and increased travel time. The current road network is at or near capacity in many locations during peak periods. Without intervention, the transport network will face growing congestion, especially on key roads such as the M4 and M5.

Congestion around Port Botany due to insufficient capacity has a particularly negative effect. Efforts to improve container throughput speed are negated when trucks cannot effectively access the road network surrounding the ports. At Port Botany, this has the added negative impact of contributing to congestion surrounding Sydney Airport, an already heavily congested area.

Task 2B-1 Connect and complete Sydney's motorway network

Transport for NSW will continue its program of motorway connections, including priority freight movements.

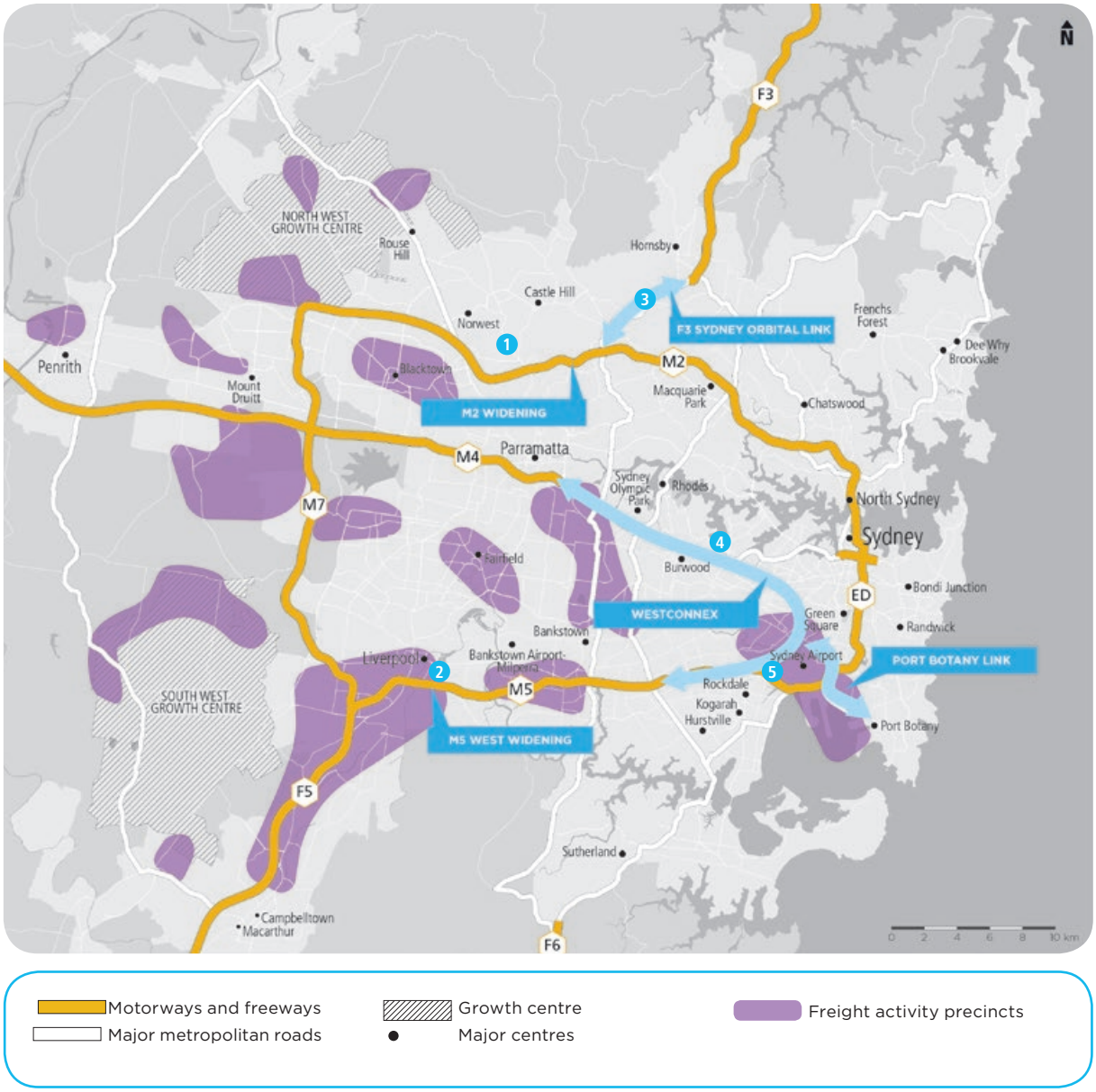
Addressing gaps in Sydney's motorway network is one of the most important steps in expanding capacity on NSW roads. Key motorway connections with benefits for freight include:

- Widening of the M2, particularly between Windsor and Pennant Hills Road (currently underway)
- Widening of the M5 West, providing greater capacity between Bankstown and Liverpool (planned to commence by the end of 2012)
- Construction of the connection between the M2 and F3, providing the opportunity to streamline interstate movements around Sydney
- The WestConnex project, delivering 33km of new motorway along the Western Motorway (M4) and South Western Motorway (M5) corridors.

Major freight activity centres including Sydney's international gateways, Port Botany and Sydney Airport, are concentrated around the M4 and M5 corridors.

The WestConnex project will reduce freight costs through increased travel speeds and reliability and reduce the distances travelled by freight vehicles. The WestConnex has the potential to deliver time savings on the M4/M5 corridors in the order of 15 minutes to 35 minutes by 2021.

Figure 28 Key projects connecting the motorway network



In addition to these specific steps to connect the Sydney motorway network, Transport for NSW will maintain a long term view of existing connections and plan for necessary upgrades over the next 15-20 years. This will include keeping up with growing demand on roads that serve major distribution centres, such as the M4 and the M7.

Figure 28 demonstrates where there are gaps in the Sydney motorway network.

Targeted outcome

Connecting the Sydney motorway network will provide additional capacity and connectivity for both freight and passenger vehicles travelling in the Sydney metropolitan area, where it is most needed to relieve congestion. The motorways identified for connection and expansion are part of key strategic freight corridors. The development of a strategic road network between key freight centres and ports would lead to improved economic productivity.

Task 2B-2 Prioritise road infrastructure investments

Transport for NSW will prioritise road infrastructure using key performance indicators developed for freight and strategic freight modelling.

Accurate prioritisation of investments is important, with the requirement for a number of significant investments to expand the capacity of the road network. This prioritisation must draw on the key performance indicators and strategic freight modelling described in Action 1A to perform a cost benefit analysis of various investments.

This approach would involve examining freight related measures and indicators, such as median travel time from Port Botany to distribution centres. It would consider the way in which different infrastructure investments would change those metrics. Investments that would do the most to relieve bottlenecks and raise productivity would then be prioritised.

Targeted outcome

Using key performance indicators and the freight model to evaluate the prioritisation of investments will ensure the application of a fact based approach to investment decisions. Prioritising the new road infrastructure projects that will confer the greatest benefits for the freight industry will allow the limited funds to be spent on the most important projects. Efficiency of infrastructure investment is required, particularly given the constraints on NSW Government finances.

High performance freight activity on the NSW network is enabled by accurate demand forecasting for thorough forward planning. This supports the timely delivery of well designed and efficient transport infrastructure by both government and business. The location of storage and distribution centres warrants coordinated planning to maximise the capacity of the network and allow businesses to operate efficiently.

Task 2B-3 Develop a Newell Highway Corridor Strategy to support greater use of high productivity vehicles

Transport for NSW will develop and implement a Corridor Strategy for the Newell Highway, including a range of measures to ensure high productivity vehicles can safely access the entire length of the highway over time.

The 1060 kilometre Newell Highway is the main inland north-south connection between Queensland and Victoria and links Australia's second and third largest cities. The highway is also part of the South Australian and Queensland link, and is part of the National Land Transport Network. The Newell Highway passes through 15 local government areas in NSW. The transport roles of the corridor reflect the mix of urbanised and rural populations, the agricultural and pastoral land through which it passes and the interstate freight connection it provides. For most of its length the highway is a two lane undivided road with infrequent overtaking lanes.

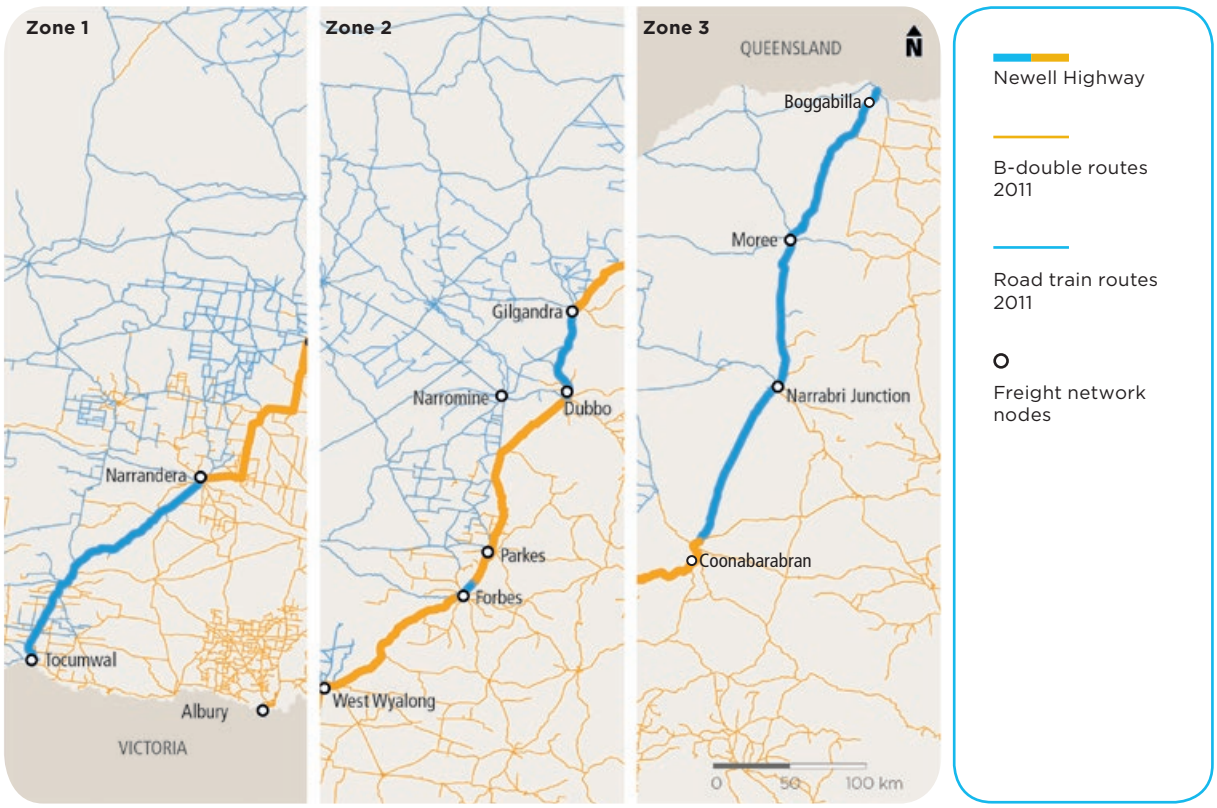
Regional centres like West Wyalong, Parkes, Dubbo and Moree depend heavily on major roads like the Newell Highway for their economic survival. Maintaining and improving the highway, and improving access for HPVs and vehicles with higher mass limits, is therefore an economic priority. Ensuring improved safety for all passengers is also an essential priority.

Over the next 20 years, freight volumes on the Newell Highway will nearly double from 4.6 Mtpa to 8.6 Mtpa. This increase does not include any potential growth that may occur due to improved access for HPVs.

Currently, restricted access vehicles such as 26 metre B-doubles are permitted for the entire length of the Newell Highway. However, access for B-triples, double road trains and AB-triples is restricted to certain sections of the highway, as shown in Figure 29.

Key deficiencies along the route that impact on access for heavy vehicles include intersections that do not provide appropriate turning circles and storage for long vehicles, the frequency

Figure 29 Road train and B-double access along the Newell Highway



of overtaking lanes, availability of rest areas and poor road alignment. In addition, the road pavement is significantly under designed for the current and anticipated future heavy vehicle loads. The Newell Highways pavements are under significant stress, and over a third are of major structural concern.

Inadequate structural capacity increases the risk that speed limits will need to be imposed due to the deterioration of the road, particularly following prolonged and repeated rainfall. To address this issue, heavy duty pavement will progressively replace the existing pavements.

The Corridor Strategy will identify the multiple challenges along the Newell Highway, including diminished urban amenity through town centres as traffic volumes increase. It will also address operational issues such as road safety performance and incident response planning.

Construction considerations including sources of pavement materials, and construction related traffic delays, will also be included.

Targeted outcome

A comprehensive Newell Highway Corridor Strategy will describe a framework for accessing the corridor and making improvements. It will provide access for HPVs along the entire length of the highway in the short to medium term. The Corridor Strategy will address road safety, transport efficiency and asset maintenance issues and set a framework for the management of the corridor.

CASE STUDY 12: CURFEW ON GILGANDRA ROAD

In December 2003 approval was granted to extend road train access on a trial basis from the Castlereagh Highway in Gilgandra to Dubbo. This allows better access for agricultural products to the Dubbo saleyards, abattoirs and grain terminals from the north west of the State and provides significant freight savings for primary producers

As part of the trial, conditions were put in place to restrict night-time (sunset to sunrise) and school bus time (7.30am to 9.00am and 3.30pm to 5.00pm on school days) access by road trains. These curfews were offered by the industry as part of the negotiations prior to the commencement of the trial. It was considered that these time restrictions would help to assuage any community concerns from a road safety perspective.

The trial ran for seven years with little or no incident. At the conclusion of the trial the night-time curfew was removed, however the school bus time curfew was retained.

In late 2011 concerns were raised with TfNSW and RMS that operators were being infringed for breaching the curfew even though they had been operating for a number of years and the community acceptance of road trains on the route was high. Operators also advised that the curfew was having some unintended consequences as groups of vehicles were forced to wait for the end of the curfew period before setting off with resultant traffic impacts. Furthermore operators noted that this was the only section of road train route in the State subject to such a curfew.

Following an assessment by RMS regional staff a revised gazettal was prepared to remove the school bus curfew. This occurred in March 2012. Removal of the curfew followed consultation with Dubbo City Council, Gilgandra Shire Council and local school bus operators.

This case highlights the need for regulators to take a proactive approach to the imposition and review of operating conditions that may have significant impacts on freight productivity.

ACTION 2C Enable separation of passenger and freight flows on the rail network

Enhance freight efficiency by allowing efficient freight movement

Problem description

Data shows that rail carries the 'weight' of the NSW freight task. Major commodities such as coal, grain, wine, meat and cotton are all carried by rail from their source of production to export through NSW ports.

There are approximately 9,400 kilometres of nominal route rail track across NSW, of which around 6,400 kilometres is operational and 3,000 kilometres is non-operational. This network is managed by three entities:

- Australian Rail Track Corporation (ARTC)
- RailCorp
- Transport for NSW.

The existing network (as shown in Figure 53, Appendix C) is comprised of the:

- Metropolitan Passenger Network (MPN), which consists of approximately 976 kilometres of operational track and is managed by RailCorp. The MPN extends south to Nowra and Macarthur, west to Lithgow and north to Broadmeadow and Newcastle. The MPN is shared infrastructure used predominantly for passenger services.
- The Leased Network, managed by the ARTC for a period of 60 years under the terms of a 2004 lease arrangement with TfNSW – approximately 3,270 kilometres of operational track including:
- The dedicated Metropolitan Freight Network (MFN), which serves Port Botany, transferred to ARTC in August 2012 and extends from Port Botany to Sefton and Flemington.
- The Interstate Network – mainline track that links to the Victorian, Queensland and South Australian networks
- The Hunter Valley Network – extends from Port Newcastle through the Hunter Valley to Gunnedah basin
- The Southern Sydney Freight Line (when complete) – from Macarthur to Sefton
- Country Regional Network (CRN), is owned by TfNSW, with maintenance services and below rail operations contracted to John Holland
- Branchline/ Grain Line Network is a subset of the CRN – approximately 1,000km of branch line track used predominantly for haulage of grain, with lower mass and speed limitations than other parts of the network.

While the dedicated freight lines are relatively well served by capacity development plans, there is limited available capacity on the shared rail network in metropolitan areas for freight traffic. As a result, there is tension between passenger and freight operations.

In addition, there is a legislative requirement for passenger priority in the development of rail timetables on the RailCorp, ARTC and CRN rail networks. This further constrains rail freight movements.

Access to the MPN and MFN during commuter peak periods is restricted due to capacity constraints for freight operators. There are also constraints placed on freight rail movements outside peak periods through the need to position passenger trains before the morning and afternoon peaks.

Similarly, the efficiency of freight operations on the Leased Network and CRN is affected by passenger operations. On single track sections, freight trains are held in crossing loops to allow the passenger services to proceed.

Impact

Pending development of dedicated rail freight infrastructure and alignments, the shared rail network will not keeping pace with growth. Sharing with a growing passenger task will lead to reduced capacity for rail freight, increased costs and a lack of competitiveness. Where freight continues to move, there will be an increase in road movements and most likely road congestion, as the road network may not have catered for the increased demand.

Task 2C-1 Separate passenger and freight movements with network enhancements and rail alignments

Transport for NSW will investigate network enhancements and rail freight alignments, including:

- Western Sydney Freight Line and Western Sydney Intermodal Terminal
- Northern Sydney Freight Corridor
- Outer Sydney Orbital
- Maldon to Dombarton Rail Link
- Newcastle Rail Bypass
- Awaba loops
- General Holmes Drive grade separation
- Coalcliff Eastern loop extension.

Infrastructure enhancements should continue to target bottlenecks on the shared network that restrict freight movements, together with the corridor investigations addressed in Action 2A.

Within Sydney, ARTC is constructing two new staging roads at Enfield for trains operating to and from Port Botany. These tracks will enable regional and metropolitan intermodal services to be advanced across the shared network to the MFN, where they can be staged awaiting pathing access to Port Botany.

On the interstate network, ARTC is continuing to roll out new and extended crossing loops and passing lanes for freight transport, install concrete sleepers and undertake curve easing projects on the North Coast line.

Transport for NSW is proceeding with pre-construction activities for the Maldon to Dombarton Rail Link, which would support the rapidly expanding resources sector in NSW by giving the mining sector alternate access to Port Kembla. Additionally, it may enable Port Kembla to provide overflow capacity for Port Botany's container business and provide a more reliable link between the south west and western coal mines and the rest of the eastern seaboard.

Targeted outcome

Upgrades and enhancements to existing infrastructure will provide capacity to move freight on the various shared rail networks while maintaining priority for passenger services, and improve the reliability of freight and passenger services.

Examples of other potential enhancements include further track duplication and track preparation for double stacking of containers.

Task 2C-2 Complete the Northern Sydney Freight Corridor

Transport for NSW will complete works as part of Stage 1 of the Northern Sydney Freight Corridor (NSFC) program in 2016. It will also seek funding from the Australian Government to commence planning and delivery for Stages 2 and 3 of the program, including the Newcastle Rail Bypass.

The movement of freight between Sydney and Newcastle on the Main North Line is a crucial aspect of freight transport in NSW. Several factors currently contribute to insufficient capacity for freight movement along this corridor, including a shortage of holding loops, steep inclines, junctions causing delays at critical locations, and passenger services restricting freight access.

Transport for NSW and ARTC have committed to a series of infrastructure enhancements that will address these issues in order to expand freight capacity on the Main North Line. Collectively, these enhancements make up the NSFC program. Stage 1 projects include:

Freight movement on the shared rail network is given a lower priority than passenger movement. Any poor performance by a rail freight operator, on a network working at or close to capacity, has the potential to create major delays. The end result is often freight choosing road over rail, regardless of the cost.

- Construction of Gosford passing loops (Transport for NSW)
- Addition of a third track between Epping and Thornleigh (Transport for NSW)
- Construction of North Strathfield rail underpass (Transport for NSW)
- Construction of Hexham passing loop (ARTC).

Targeted outcome

The goal of the NSFC is to expand the Main North Line's freight capacity. Each of the key infrastructure enhancements will therefore alleviate specific constraints that currently limit the corridor's capacity:

- The construction of two passing loops at Gosford will alleviate tension caused by passenger and freight trains sharing track. This will improve freight access and reliability through northern Sydney and the Central Coast.
- The addition of a third track between Epping and Pennant Hills, connecting into the existing passing loop between Pennant Hills and Thornleigh, will allow faster passenger services to pass freight trains on this steep section of track.
- The construction of a rail underpass at North Strathfield will enable additional paths for freight trains. This will reduce waiting times and improve the reliability of freight transport.
- The construction of the Hexham passing loop will create a space to hold freight trains before they enter the passenger network, thus avoiding competition with passenger services. The Hexham passing loop was completed in June 2012.

Once completed in 2016, the new infrastructure will lift the corridor's carrying capacity by 50 per cent, from 29 to 44 freight trains each day. This will help to accommodate the expected increase in freight volumes.

The NSFC is a critical link in the movement of interstate freight and supports important passenger movements, as well as domestic coal movements to power stations on the Central Coast. The potential development of an Outer Sydney Orbital in the longer term (see Action 2A) needs to consider the operation of the NSFC and its role in an integrated rail freight network. The NSFC works are designed to meet forecast demand for interstate freight until 2028.

CASE STUDY 12: SOUTHERN SYDNEY FREIGHT LINE

The Southern Sydney Freight Line (SSFL) will be a 36 kilometre dedicated freight line. It will be a single, bi-directional and non-electrified line from Macarthur to Sefton Park Junction, where it will join the existing Metropolitan Freight Network. The SSFL will also incorporate six kilometres of existing track between Ingleburn and Glenfield and will provide for a connection to the proposed intermodal terminals at Moorebank.

ARTC has initiated, and is funding, the SSFL project as part of its lease commitments. It conducted an Environmental Assessment and retained the current corridor alignment in 2005. Stage 1 of the construction work began in October 2008 and was completed in June 2012, while Stage 2 will be commissioned in early 2013.

The key objective of the SSFL is to enable the flow of goods to and from Sydney during peak passenger hours. Currently, access to the RailCorp network is constrained by the density of passenger operations, which limits freight access to the network between the peaks. This situation prevents deliveries in Sydney at optimum time.

Once operational, the new infrastructure will:

- Improve reliability for both passenger and freight rail movements
- Increase flexibility for timetabling of freight services
- Potentially shift some of the growing truck task to rail.

The SSFL is a core component of the north-south corridor strategy and should deliver shorter transit times and greater reliability to the Melbourne-Sydney freight market.

ACTION 2D Develop effective port growth plans to meet freight volume growth

Growing port capacity to match commodity throughput demands

Problem description

Long term plans for the growth of ports play a key role in meeting the challenge of growing trade volumes being experienced by NSW international maritime gateways.

Individual port plans need to demonstrate how infrastructure will be provided to meet the forecast trade volume, with an outlook horizon of a minimum of 30 years. Port plans must also be consistent with key State policies including *NSW 2021* and the Long Term Transport Master Plan. As significant national assets, future development of NSW ports needs to be consistent with the themes and priorities of the National Ports Strategy.

There are significant differences between the operating and institutional environments for bulk and container ports. These differences include location, stakeholder coordination, land transport arrangements, comparative market advantages, and growth prospects.

Given this diversity, port plans should not be based on a mandated 'one size fits all' approach. Plans, and practical outcomes, need to be tailored around what is most suitable for a particular region and port.

Over the next 20 years, NSW ports will need to focus on their primary markets. Port Botany will remain the key container port in NSW, given current planning and investments to date.

The Port of Newcastle will need to support forecast growth in coal exports, given its pivotal location serving the Hunter coal network. Developing the Port of Newcastle for future container shipping faces a range of constraints, such as attracting reliable container shipping movements. Containers accessing Sydney from the Port of Newcastle will also face increasing congestion on the F3 Freeway and capacity constraints on the Northern Sydney Freight Corridor.

Port Corporations and the new lessee(s) of Port Botany and Port Kembla therefore require access to up to date freight information and modelling to support their planning processes. Transport for NSW will, where required, provide this support, which together with ongoing technical input will help strengthen port corporation planning and the provision of freight and logistics infrastructure.

Impact

There are significant economic efficiency implications for NSW if major changes are not made to ports and related landside road and rail systems in the next 20 years.

Task 2D-1 Develop a Sydney Ports' growth plan

Port Botany is currently operated by Sydney Ports Corporation and is NSW's primary container port. This port currently handles the second largest container volumes in Australia and has a significant role in the importation of bulk liquids and gases.

During 2013 it is proposed that the Sydney Ports Corporation controlled facilities at Port Botany, Cooks River and Enfield will be leased on a long term basis to the private sector.

Port Botany will continue to grow to accommodate the future container demand in NSW. This growth will be supported by improvements to the supply chain connecting to the port and will be considered as part of the overall transport planning being undertaken for the Port Botany and Sydney Airport Precinct.

The port covers approximately 275 hectares and is an integrated area with facilities for stevedoring, trucking, warehousing, bulk liquid trade and storage, customs container examination and empty container storage. Stevedoring services for six berths are currently provided by two stevedores: Patrick and DP World.

As part of the expansion of Port Botany, a third terminal will be operated by Hutchison Port Holdings. Hutchison is currently equipping the terminal with the necessary port and container facilities to prepare for the commencement of operations in early 2014.

Meeting the growing container task

With continuing investment in the port and related supporting infrastructure, it is important that Port Botany's capacity is fully utilised to accommodate long term container trade growth. For the last 15 years this growth has averaged seven per cent per annum. To accommodate forecast growth, a new third container terminal (T3), will provide 1,850 metres of additional quayside capacity including five berths and additional rail sidings.

Growth in trade volumes affects the entire supply chain. While the provision of new port infrastructure is a key element, infrastructure investment in all segments of the port supply chain – port, road and rail – will be critical for servicing future NSW trade demands per annum.

Meeting the challenge of seven million TEUs per annum will only be possible if the arterial road and rail connections servicing the port can efficiently transport trade volumes. This will require arterial road capacity improvements and the increased use of rail. Land will also need to be acquired and developed for additional port-shuttle intermodal terminals to service the west and south-west of Sydney.

Sydney Port Corporation, under the T3 approval, will connect the terminal to Foreshore Road with a 135 metre road bridge. This road is being upgraded as part of a project to give each container terminal its own road access, allowing for more efficient truck movements into and out of the port.

Sydney Ports Corporation is also constructing an elevated road network in Penrhyn Road to eliminate the existing level crossing, which has been constraining truck access to Brotherson Dock for many years. The works, referred to as the grade separation works, consist of eight major elements, including a large elevated roundabout, three access ramps and four bridge spans linking the ramps to the roundabout.

Works commenced in early 2011 and at present two of the ramps and one bridge span have been constructed. Construction of the elevated roundabout started in November 2011 and is now complete.

Oil, bulk liquids and gas trade

Oil, bulk liquids and gas trade are also a major focus of Port Botany and are expected to continue to grow from 12.6 Mtpa in 2006 to 16.5 Mtpa in 2016, and 24.6 Mtpa in 2036 (Sinclair Knight Merz, 2007). To accommodate this growth, Sydney Ports Corporation is constructing a second bulk liquids berth, to be operational by late 2013.

It is forecast by SPC that a third bulk liquids berth will be required by around 2025. It is possible the need for this berth could be brought forward in light of jet fuel demand predictions for Sydney Airport, which indicate a period of significant growth in demand of 7.22 per cent per annum from 2009 to 2014 (Sydney Jet Fuel Infrastructure Working Group 2010).

To improve the capacity of the limited available land to accommodate bulk liquids at Port Botany, Sydney Ports Corporation developed the Bulk Liquids Land Strategy. This strategy considers potential opportunities to rationalise and intensify activities on some of the bulk liquids storage sites, as and when leases expire or come up for renewal.

Port Jackson

Port Jackson, a port of national significance, is operated by Sydney Ports Corporation and will continue to play a major role as a working port. Port Jackson is primarily used for the importation of bulk products such as salt, soda ash, dry bulk cargo and petroleum products. It is also Australia's premier cruise ship destination. The Royal Australian Navy has a significant presence at Garden Island, within the port. Of note Glebe Island and White Bay play a critical role in the provision of layover and emergency berthing facilities for large commercial and naval vessels.

Cruise shipping

Sydney Harbour will continue to be a favoured destination for international cruise ships. Future planning for Sydney Harbour will include management of the demand for cruise berths and access. The cruise industry is one of the fastest growing segments of the global tourism market, with annual growth of more than seven per cent. In 2012-13, Sydney will host a record passenger cruise season with 216 scheduled cruise ship visits, an increase from 150 visits in 2011-12.

Cruise Down Under's 2010-11 economic impact assessment estimates the direct expenditure associated with the cruise shipping industry to Sydney and NSW is approximately $400 million. This includes expenditure by passengers, crew and cruise operators.

A Deloitte Access Economics report on the Economic Contribution of the Cruise Sector to Sydney and NSW estimated the industry contributed approximately 3,150 full-time equivalent workers to the Sydney economy in 2010-11.

To cater for this growth, Sydney Ports Corporation secured planning approval in February 2011 to build a $57 million replacement domestic cruise passenger terminal at White Bay 5, with additional berthing capability at White Bay 4. Larger cruise ships will also have opportunity for limited berthing windows at Garden Island.

However, the trend towards larger international passenger cruise ships will mean that an increasing number of vessels will be unable to pass under the Sydney Harbour Bridge and will therefore need to be accommodated east of the bridge (GHD, 2010).

Sydney is recognised internationally as the 'must see' Australian cruise ship destination. Sydney Harbour is the only capital city port in Australia that provides two dedicated cruise terminals to cater for both the domestic and international cruise sectors.

Sydney Ports Corporation is currently preparing a master plan which will explore the opportunities to increase the capacity and operational capability of the Overseas Passenger Terminal (OPT) at Circular Quay. The master plan is expected to be completed in the fourth quarter of 2012. Meanwhile, Sydney Ports Corporation has installed a new mooring in Campbell's Cove to allow larger vessels, including the Queen Mary 2, to berth at the OPT.

Other bulk/general cargo trades

The Glebe Island/White Bay precinct comprises approximately 40 hectares with eight working berths. The major port activity at Glebe Island is the discharge of dry bulk cargo, such as cement, gypsum and sugar. These products are destined for the Sydney metropolitan market.

Dry bulk products are low value materials, with transport costs representing a significant portion of the product cost. It is for this reason that Sydney Harbour is an ideal port for the import of these products, as it minimises the transport costs associated with their distribution throughout Sydney. Using Sydney Harbour also has associated environmental benefits, as it allows products to be transported by sea instead of land.

There are currently three major leases in the Glebe Island precinct: Sugar Australia, Gypsum Resources Australia and Cement Australia. These lessees have considerable infrastructure in place at Glebe Island and have indicated to Sydney Ports Corporation that they wish to extend their leases beyond the current term of 2020.

Sydney Ports Corporation's proposed land use strategy for Glebe Island/White Bay envisages the consolidation of existing and future dry bulk trade at Glebe Island. The current Hanson aggregate import facility at Blackwattle Bay and Hymix cement batching plant at Pyrmont could be relocated to the Glebe Island site, releasing land for alternate uses such as expansion of the Sydney Fish Market and community access. If relocated to Glebe Island, the concrete batching plant could use cement and aggregate from Glebe Island without transporting the material via the external road network, as currently occurs.

In December 2011, Sydney Ports Corporation assumed responsibility for managing the regional ports of Eden and Yamba on behalf of the Minister for Roads and Ports.

These ports play an important role in supporting their respective regional economies through port trade and maritime related goods and services. For example the Port of Yamba provides approximately 74 full time jobs, and $8 million of value add to the Clarence Valley area, or approximately 0.5% of the region's GDP.

The Port of Eden has developed into a significant supply point for forest products exports such as woodchips and softwood logs, supplemented in recent years by the general cargo trade and the servicing of the Bass Strait oil fields. Future strategic planning by Sydney Ports will include the regional ports of Eden and Yamba

Targeted outcome

Port growth plans developed by the port owners will clarify the way in which NSW ports will expand to meet future growth in freight volumes. The plans will be consistent with the National Port Strategy, together with other key State and regional plans.

Planning for growth in Port Botany and Port Jackson will provide increased certainty through integrated planning of port and landside infrastructure needs.

Task 2D-2 Develop a Port of Newcastle growth plan

The Port of Newcastle, located close to coal mines in the Hunter Valley and Gunnedah basin, will continue to be NSW's primary coal export port. The Port of Newcastle will also continue to service bulk grain and other commodities.

The Port of Newcastle is the world's largest coal export port. The port's other major trades include alumina, petroleum, fertilisers, grains, cement, woodchips and steel. The current total coal export capacity of Newcastle is 186 Mtpa. This consists of 133 Mtpa through the Port Waratah Coal Services (PWCS) terminals at Carrington and Kooragang, and 53 Mtpa through the recently commissioned Newcastle Coal Infrastructure Group (NCIG) terminal.

NSW coal export demand is forecast to increase from 123 Mtpa in 2011 to 221 Mtpa by 2021 and 270 Mtpa by 2031. The majority of this trade will be serviced by the Port of Newcastle, with over 236 Mtpa forecast to pass through the port by 2031.

The Hunter Coal Export Framework (HCEF) was established to ensure additional coal export capacity is brought on line at Newcastle when it is needed. The HCEF allocates coal chain capacity to producers in accordance with long term contracts, aligns commercial incentives for infrastructure investment across the coal chain, and facilitates the efficient operation of the coal chain. These initiatives are designed to encourage investment and boost coal exports from the port.

Current and planned infrastructure development projects at Newcastle will increase the total coal export capacity of the port to 331 Mtpa through:

- PWCS undertaking development of its Carrington and Kooragang Terminals to an approved capacity of 145 Mtpa
- NCIG undertaking development of its terminals to an approved capacity limit of 66 Mtpa
- Planning approval to develop a new coal exporting terminal (T4) at the Kooragang Future Development Precinct with an export capacity of 120 Mtpa to meet its obligations under the HCEF.

The Port of Newcastle has significant opportunities for growth and development and has prepared plans to improve general cargo handling and bulk liquids.

Bulk liquid import facility at Newcastle

The Port of Newcastle's concept plan for Mayfield proposes a 15 hectare bulk liquids terminal facility for the import, blending and distribution of fuels and biofuels served by a 310 metre long berth. If approved, the berth is expected to boost fuel imports by 225 mega litres per annum from 2012-13. When peak operations are reached a total throughput of approximately 1.01 megalitres per annum be available.

General cargo handling facility

The Port of Newcastle's concept plan for Mayfield also includes provision for a 12 hectare bulk and general cargo precinct providing throughput capacity of approximately 2.4 Mtpa of imported and exported bulk products. This precinct will be used for the importing, exporting and storage of bulk goods, including coke, cement, soda ash, fertiliser and sand. Development of the precinct is forecast to be carried out over approximately eight years, pending development approval. Peak operations should be reached prior to 2019.

Also at Mayfield is a proposed 25 hectare general purpose precinct, which includes the already completed Mayfield No.4 Berth, to be

used for handling and storing containers, heavy machinery, break bulk and roll on/roll off cargo. It is anticipated that approximately 1.35 Mtpa of machinery, break bulk, and roll on/roll off cargo would be imported and exported at the precinct, which would meet the expected need for the port to accommodate approximately 1.05 Mtpa of general purpose cargo by 2019.

Gas export facility

There is increasing commercial interest in NSW reserves of coal seam gas (CSG). There are currently no export gas facilities on the Australian east coast, although construction of an LNG facility at Gladstone in Queensland is due to commence this year. The growing estimates of CSG reserves in NSW have led Santos to make enquiries about the feasibility of a Liquid Natural Gas (LNG) export facility in the Port of Newcastle.

Any proposal for an LNG export facility at the Port of Newcastle would be required to undergo a rigorous assessment of safety, environmental and other relevant issues as part of the NSW Government's planning and environmental assessment process.

Grain export facility

Grain exports through the Port of Newcastle totalled 1.8 million tonnes in 2011-2012, rising from the 1.3 million tonnes recorded in 2010-2011. The port has a nominal grain export capacity of around 4.2 Mtpa, which is sufficient for forecast growth demands. Achieving this nominal capacity is, however, dependent upon receiving sufficient rail access to move these volumes to port as well as supply, demand and logistic support impacts.

Targeted outcome

Port growth plans will clarify the way in which NSW ports will expand to meet future growth in freight volumes. The plans will be consistent with the National Port Strategy, together with other key State and regional plans.

Planning for growth in the Port of Newcastle will address the limitations of existing planning approvals by providing increased certainty through integrated planning of port and landside infrastructure needs.

Task 2D-3 Develop a Port Kembla growth plan

During 2013 it is proposed that land controlled by the Port Kembla Port Corporation will be leased on a long term basis to the private sector.

Port Kembla is currently the primary port in NSW port for motor vehicle imports and is likely to continue to support export trades such as coal, minerals and grains. Port Kembla is currently Australia's leading port for steel and is one of its largest grain export ports. Planning for the accommodation of these trades, and providing long term security of access to port facilities, are a core part of current expansion plans for Port Kembla.

Port Kembla is the State's principal vehicle importing hub. The $170 million expansion of the Port Kembla Inner Harbour provides world class facilities for the motor vehicle import trade.

Port Kembla has been identified as the location for the development of a future high intensity container terminal to augment the capacity of Port Botany when required.

The current capacity of the Port Kembla car import terminal is estimated at imports of 280,000 vehicles. Imports of 460,000 vehicles are projected for 2021, based on 4.5% pa average growth (Source: PKPC). Vehicle storage and handling facilities have already been increased at the port with the completion in 2009 of an additional 10 hectares in car storage and processing facilities.

In order to meet the forecast growth in car imports, the port's car import capacity can be increased through a mixture of additional planned infrastructure, including additional vehicle storage and handling facilities, as well as productivity improvements such as reducing the dwell times for cars after they arrive at the port.

Outer Harbour expansion project

As all land within the Inner Harbour of Port Kembla is now fully allocated, the port's strategic focus is the development of the Outer Harbour. This will ensure the port can continue to attract new trades, along with increasing the volume of existing cargoes. The development of the Port Kembla Outer Harbour was approved in March 2011. This approval provided concurrent Major Project Approval for Stage 1 of the development and Concept Plan Approval for Stages 2 and 3.

Stage 1, which commenced in August 2011, will provide for the first multi-purpose berth. This berth will be operated by Port Kembla Port Corporation as a common user facility. Stages 2 and 3 will provide for further reclamation, enhanced rail and road infrastructure, two additional multi-purpose berths and four container berths.

It is also likely that Port Kembla will need to play a role in accommodating the State's container trade towards the end of the current planning horizon. Port Kembla Port Corporation's Outer Harbour Concept Plan proposes the development of two separate container facilities, each serviced by two berths. The two terminals are expected to be constructed between 2014-2025 and 2026-2037 respectively, depending on demand. Each berth would have a capacity of 300,000 TEU per annum, providing a total capacity of 1.2M TEU per annum upon completion in 2037 (AECOM Australia, 2010).

Coal export infrastructure expansion

Current coal throughput at Port Kembla is around 14.3 Mtpa and nominal capacity is 17-18 Mtpa. The Port Kembla Coal Terminal proposes to upgrade its capacity in two stages to around 25.5 Mtpa. Stage 1 would increase capacity to 22.5 Mtpa by upgrading the existing plant and equipment, and is scheduled for completion in 2013. Stage 2, which is estimated to cost $500 million, is more substantial and would require an environmental assessment under the *Environmental Planning and Assessment Act 1979*.

Grain export infrastructure

Grain exports through Port Kembla totalled 2.9 million tonnes in 2011-2012, a significant increase from the 1.3 million tonnes recorded in 2010-2011. The nominal capacity of the port's grain terminal, at approximately 5 Mtpa, is therefore likely to be sufficient to deal with forecast growth.

Targeted outcome

Port growth plans will clarify the way in which NSW ports will expand to meet future growth in freight volumes. The plans will be consistent with the National Port Strategy, together with other key State and regional plans.

Planning for growth in Port Kembla will address the limitations of existing planning approvals by providing increased certainty through integrated planning of port and landside infrastructure needs. This will include, for example, investigation into the potential Maldon to Dombarton Rail Line.

ACTION 2E Foster intermodal terminal network development

Creating opportunities for intermodal terminal development

Problem description

An intermodal terminal is a facility where freight transfers from one mode of transport to another, and may be stored temporarily. Intermodal terminals are generally thought of as facilities that handle containers, but they also handle other forms of freight. For instance, a silo complex that has the capability to load rail wagons is an intermodal terminal for bulk produce.

Successful intermodal terminals across the State are increasingly including value-add services, either within the terminal or nearby. Examples of value adding services include:

- Freight consolidation and de-consolidation
- Warehousing and cross dock operations
- Container storage
- Quarantine and customs clearance
- Reefer points and cold storage
- Servicing of containers, vehicles and rolling stock.

Metropolitan intermodal terminals are critical to increase rail mode share and manage the rapidly growing import container trade, as well as the interstate freight task.

At present, 85 per cent of import and export containers originate or are destined for locations within a 40 kilometre radius of Port Botany. Approximately 14 per cent of container movements occur by rail, with the rest by road. The existing capacity of intermodal terminals in Sydney is inadequate to meet the growing demand for import and export container movements.

Regional intermodal terminals are critical to support the growing container export task, that in turn supports regional economies. A recent audit of intermodal terminals across the State identified more than 200 sites, with the majority handling grain. While regional intermodal terminals play a large part in freight consolidation and maintenance of market share for rail servicing the ports, many of these sites are considered to be inefficient and unsustainable in the long term.

Impact

A continued lack of forward planning in metropolitan and regional NSW is likely to result in further under provision of intermodal terminals. It will also result in new intermodal developments that do not make the best use of existing and planned improvements to road and rail networks.

In the Sydney metropolitan area, the planned Enfield Inland Logistics Centre seeks to address some of these planning issues. While it is remote from Port Botany, the centre is connected by a dedicated rail freight line and in close proximity to an established industrial area with links to MetRoad 3 and the Hume Highway. A similar model is proposed for the proposed intermodal terminals at Moorebank, which are close to the Southern Sydney Freight Line and the M5, Hume Highway and M7.

While government does not need to be directly involved in the development or operation of intermodal terminals, it has a role in identifying and protecting land and freight corridors. Government also has a role, where necessary, in identifying supporting road and rail infrastructure. The development of appropriate intermodal terminals in the Sydney metropolitan area and regional areas will contribute to increasing freight moved by rail, particularly in the container market.

Task 2E-1 Foster intermodal terminals in Metropolitan areas

Transport for NSW will support the development of sustainable facilities that create network capacity by:

- Supporting ARTC's completion of the Southern Sydney Freight Line to connect the proposed intermodal facilities at Moorebank to the Metropolitan Freight Network
- Supporting ARTC's construction of the Enfield staging roads to enable staging of Port Botany intermodal services and duplication of the Port Botany line
- Supporting the development of new intermodal facilities at Moorebank by identifying road upgrade requirements
- Identifying and preserving land for an intermodal terminal in the vicinity of Eastern Creek, along with road and rail freight corridors such as the proposed Western Sydney Freight Line.

The primary function of metropolitan intermodal terminals is to facilitate the import container trade. In this context, intermodal terminals function like inland satellite ports. This effectively reduces congestion from the Port Botany and Sydney Airport precinct and utilises capacity in other areas of Sydney, particularly in those areas where these is a growing freight logistics capability. Consideration of complementary road upgrades is usually necessary to support these new terminals.

In Sydney, intermodal terminals have traditionally developed to support either the domestic or international trade. Pacific National operates the only dedicated interstate intermodal terminal in NSW at Chullora, while QR National operates a second intermodal terminal providing import and export services at Yennora.

The intermodal terminals in Sydney that serve Port Botany are located at Cooks River, Yennora and Minto. The rail siding at the intermodal terminal at Camellia is currently not in use.

While Port Botany is located on the dedicated freight network, trains to and from Port Botany to Yennora and Minto must interact with passenger services on the RailCorp network, prior to the operation of the Southern Sydney Freight Line. This restricts the effectiveness of rail operations.

Targeted outcome

The development of new intermodal terminals in Enfield, Moorebank and Western Sydney will occur on sites that are supported by dedicated rail freight lines and adequate road connections. Rail lines to Port Botany will avoid interaction with passenger services on the RailCorp network and facilitate 24 hour port, rail and terminal operations.

Task 2E-2 Regional intermodal terminals

Transport for NSW will ensure that regional intermodal terminals play an ongoing role in the freight system by:

- Engaging with regional councils to explore planning issues associated with the development of intermodal facilities within industrial precincts, including adjoining land use, road and rail access to proposed sites
- Working with proponents of industrial estates and intermodal terminals to design facilities
- Working with government and industry to investigate road access issues to intermodal facilities
- Working with councils and the private sector to identify future sites for intermodal terminals.

In regional areas, co-location of production or processing facilities can provide necessary economies of scale to support sustainable operations. One of the main advantages of co-location for a producer is the ability to load containers to the maximum weight permitted for normal road operations. This approach removes a number of 'first and last mile' issues and reduces truck movements to the rail head. In situations where the base load is a seasonal commodity, intermodal facilities can often evolve by attracting complementary export and import freight to enable year round operations.

CASE STUDY 13: SUPPORTING THE DEVELOPMENT OF THE MOOREBANK INTERMODAL PRECINCT

The Moorebank precinct has been identified by the Commonwealth and NSW Governments as a key strategic location to increase intermodal capacity. Two intermodal terminals are planned in the precinct; the Moorebank Intermodal Terminal (MIT) has been proposed by the Commonwealth Government for the western side of the precinct, and a privately funded Sydney Intermodal Terminal Alliance (SIMTA) has been proposed for the eastern side. Once complete, these two IMTs are expected to result in up to two million TEU of intermodal terminal capacity.

TfNSW expect the development of these two intermodal terminals in the Moorebank precinct to place significant strain on the surrounding local road network. While not all effects of terminal developments have been identified at this time, initial analysis suggests the following impacts to the local road network:

- Travel demand on the section of the M5 Motorway between the Hume Highway at Casula and Moorebank Ave is expected to exceed capacity as early as 2016.
- The absence of west facing ramps from the M5 to the Hume Highway results in a significant number of vehicles using Moorebank Avenue to access the Liverpool CBD.
- By 2026 growth in background traffic will result in peak spreading and traffic conditions similar to the existing peak period in the Liverpool area and on the M5, persisting for most of the day.
- Key intersections providing access to the Moorebank intermodal precinct will exceed capacity with volumes, especially of turning vehicles, resulting in extensive delays, with queuing sufficient to disrupt through movement.

To support the development of the Moorebank intermodal terminals and meet the challenges posed by impact on the local road network, TfNSW is seeking to provide road network upgrades. The specific goals of these upgrades include:

- Providing additional capacity and traffic reliability on key routes accessing the precinct.
- Ensuring full access to the precinct for High Productivity Vehicles (HPV), including Higher Mass Limit (HML) vehicles.
- Managing the needs of the precinct in terms of road access while addressing negative externalities for the surrounding community and environment.

TfNSW has prepared a Nation Building 2 submission to undertake modelling and economic analysis to determine the optimal road upgrade package to meet the needs of the developed Moorebank intermodal terminal precinct.

CASE STUDY 14: FLETCHER INTERNATIONAL EXPORTS INTERMODAL TERMINAL – ENHANCING FREIGHT PERFORMANCE IN REGIONAL NSW

In November 2009 Fletcher International Exports established an intermodal rail terminal in Dubbo, central NSW. With a 1.5km rail siding and 450 metres of train loading hard standing area, the terminal services the rail movement of containerise agricultural commodities, mining commodities and sheep meat products from Dubbo to Port Botany.

The intermodal terminal was built to alleviate freight access and interface issues experienced by Fletchers with the existing intermodal terminal in Dubbo. The roads from the company's plant to the terminal incurred weight restrictions, limiting truck use to six axle semi trailers. Truck movement was also constrained due to congestion experienced along the route through school zones and hospital/residential and high traffic areas. Shunting requirements and a rail crossing near the CBD meant that freight and passenger movements often coincided, causing inconvenience for both.

The new terminal is situated in Dubbo's industrial precinct closer to Fletcher's plant and other commodity sources and is serviced by a higher-grade road that allows quad-axle semi trailer movements. Through cooperation with local council, and the implementation of a trial differential road pricing scheme, permits have been granted for truck movements to the terminal that facilitate more efficient truck freight and the delivery of higher payloads to the rail siding with direct access road train routes. This has allowed containers to be loaded at optimum weights and significant freight savings to be passed along the logistics chain to export customers across the globe.

Fletcher intermodal terminal has not only enhanced their freight performance but has provided a viable rail option for other regional exporters to move their freight containers to Port Botany.

However, many of the intermodal terminals in regional NSW are constructed around pre-existing sidings that are not designed for modern trains. Others offer poor road access, have minimal scope for expansion and lack buffer zones to ensure public amenity.

Despite regional intermodal terminals having varying levels of commercial viability, NSW Government has no plans to provide financial assistance to support under performing operations or to provide funding for new facilities.

Targeted outcome

Government and industry will work together to provide clear advice on best practice terminal development, including the mitigation of impacts such as noise and heavy vehicle access.

TfNSW will develop a set of criteria for assessing the value creation and network capacity enhancement of intermodal and cargo handling facilities. These criteria will be developed in consultation with industry and will form the basis of how developments, both existing and planned, will be supported by the NSW Government. The aim is to develop capacity for the movement of cargo.

The location, efficiency and sustainability of the transhipment task from road to rail is critical in the performance of the overall freight network.

ACTION 2F Coordinate regional infrastructure and service provision

Supporting regional network development

Problem description

Current governance arrangements reflect historical factors that see the NSW Government with responsibility for regional rail infrastructure, while local governments have responsibility for most regional road infrastructure.

Asset management, funding, planning and service procurement are therefore undertaken separately, at time with competition for funding between modes. This is despite regional infrastructure being characterised by high levels of public subsidy. This lack of coordination is both a suboptimal use of public funds and a poor incentive for private investment.

The governance framework for regional infrastructure is in need of reform and has been the subject of increasing attention from policy makers, including Infrastructure Australia. Recent work by Independent Pricing and Regulatory Tribunal (IPART) on access pricing for grain lines has also drawn attention to the inefficiencies that arise from the public subsidisation of competing road and rail infrastructure, including the resultant subsidisation spiral.

Investment decisions relating to regional rail infrastructure require careful risk assessment. Well defined demand forecasts are an essential element of investment decisions, as the 'build it and they will come' approach to infrastructure provision doesn't work.

Impact

The lack of a collaborative approach to regional infrastructure causes:

- Fragmentation of asset management and lack of responsiveness to market needs
- Uncoordinated subsidisation of road and rail infrastructure
- Uneven incentives for greater private investment in regional infrastructure.

Task 2F-1 Adopt a best practice reform model for regional infrastructure

Transport for NSW will deliver, in collaboration with local councils, a regional infrastructure model to deliver improved network capacity and efficiency.

Breaking down long standing practices of uncoordinated infrastructure provision and management is a significant reform that will need to proceed on an incremental basis. Progress will need to be closely assessed and evaluated to refine and inform further reform.

Regional road and rail infrastructure needs to be coordinated and integrated more effectively. Ideally, the distinction between management, regulation and investment functions for State owned and local government owned infrastructure should be broken down, in favour of a more consolidated view of regional infrastructure.

Such an approach is currently being explored through a collaborative process between the NSW Government and five councils in the Central West region. The concept being considered involves the development of a regional integrated asset management plan that covers the development, management, access and pricing of a mix of infrastructure assets.

These assets are primarily road and rail infrastructure, but may also include freight centres, loading points and intermodal facilities. The specific details of this concept are still in the design phase, and require careful negotiation between all parties. Design is progressing on the basis of introducing integrated cross-modal regulation, coordination and management.

As a way forward, a trial can be an effective initial approach, to test and refine a solution and carefully monitor progress. It has been suggested that the re-opening of the Cowra Rail Line offers the opportunity to trial an improved regional infrastructure model. Further discussion about the Cowra Rail Line is contained in Case Study 15.

The recommendations and findings of IPART's review of access pricing on the NSW grain line will also be taken into consideration. IPART made a number of observations about sustainability on the grain line network, which suffers from poor cost recovery and strongly competing road infrastructure.

Targeted outcome

The potential reopening of the Cowra Rail Line provides an opportunity to develop a best practice model of coordination between State and Local Government in the provision of regional infrastructure.

Expected learnings from the Cowra Rail Line reopening pilot may include understanding the:

- Application of the model to similar tasks, such as the movement of grain across other regional road and rail networks
- Cost reductions for building and managing infrastructure
- Benefits of more effective infrastructure usage.

CASE STUDY 15: COWRA RAIL LINE

Regional road and rail infrastructure is characterised by a high dependence on public subsidy and poor coordination of asset management, planning and service procurement activities across State and Local Government. To address this issue, regional road and rail infrastructure needs to be coordinated and integrated more effectively.

The 200 kilometres of rail line located in the Cowra area between Blayney in the north and Harden in the south are part of the Country Regional Network. The lines are non-operational, having been progressively suspended since 2007 due to low traffic volumes and safety concerns.

As there is strong local support to re-open the lines, a cooperative investigation process has been undertaken between five councils (Blayney, Cowra, Harden, Weddin and Young) and Transport for NSW. This investigation focussed on how the regulatory and operating model for the lines can be improved and customised to local circumstances.

Importantly, investigations have focussed not simply on improving economic sustainability, but on the potential to attract commercial investment. The project offers the opportunity to trial an improved integrated regional infrastructure model, in which a more effective rail operations model is supported by a complementary road access regime. This model would enable commercial bids for service provision to be developed.

Progress to tendering stage is dependent upon a well defined and commercially appealing transport 'product' being put to the market. This is the current focus of discussions between Transport for NSW and the five local councils.

Development of the transport product is currently being facilitated by the development of a Memorandum of Understanding (MoU) between the councils and the NSW Government. The MoU is intended to:

- Recognise that the current governance arrangements for regional infrastructure suffer from cost shifting, and uncoordinated planning, financial and asset management processes
- Promote stronger cooperation in the design, maintenance, management and operation of freight infrastructure and procurement of services that use the infrastructure
- Provide a joint governance framework to guide the development and implementation of an integrated approach to the provision of freight infrastructure and services in the region
- Provide a coordinated investment framework designed to promote and maximise private investment in freight infrastructure.

While the Cowra Rail Line project is currently in early development, if successful, this regional infrastructure model may have applicability to similar regions, or to other tasks.

ACTION 2G Develop a project program to support network capacity

Developing network capacity 'just in time' to meet forecast usage demand

Problem description

NSW is facing a significant network infrastructure task over the next 20 years, with an expected doubling of the freight task. Opportunities to improve the performance and efficiency of road and rail networks, ports and other terminals will coincide with planning for new infrastructure, as well as with private sector initiatives for new capacity.

NSW, like other states, is grappling with the capacity of existing and future networks. The lack of an overarching freight strategy in NSW has contributed to reduced container flows on the Metropolitan Freight Network and increasing pressure to identify and protect important transport corridors such as the Western Sydney Freight Corridor. A future program for freight infrastructure projects will enhance planning and delivery of the NSW Government's Infrastructure Strategy.

Strategic planning around freight in NSW has been limited in scope and delivered by different governments, port corporations and road and rail network owners. Congestion and bottlenecks have often reached crisis point, with quick fixes preferred over the planned implementation of projects to increase freight network capacity.

The cost of providing new infrastructure and competition for scarce public funds requires an improved standard of decision making by government. At the national level, Infrastructure Australia has established standards and criteria to secure funding for infrastructure projects. The National Port Strategy, East Coast Freight Strategy and National Land Freight Strategy provide further guidance to achieving greater national productivity.

A lack of consistent evaluation of infrastructure projects has prevented greater comparison and prioritisation of investment across different projects and programs for road and rail. Further a lack of detailed analysis and modelling has made it difficult to determine which projects provide the best economic outcomes for NSW and potential partners in the private sector and government.

The establishment of Transport for NSW will further enable integrated outcomes in grouping like transport projects, including freight projects. Inter-agency collaboration has the potential to enhance benefits realisation for projects, can reduce costs and resource requirements.

Impact

A freight infrastructure program has been developed and maintained through successive NSW Government Infrastructure Strategies, linking to goals in *NSW 2021*. This work is ongoing and has been informed through submissions to the Australian Government, most recently, under the Nation Building program. Opportunities for investment rely on a well conceived and integrated program of NSW freight projects.

The program of freight related projects in NSW must reflect current and projected priorities on road and rail networks, together with ports and other terminals. There is a distinct cost to the NSW economy where network capacity constrains the efficient movement of goods. Congestion is a clear example of this dampening effect on State productivity.

Without clear priorities for infrastructure investment, Action 2A for identifying and preserving future transport corridors cannot readily proceed past initial investigation.

Task 2G-1 Evaluate freight infrastructure through an investment framework

Transport for NSW will prioritise freight infrastructure projects to ensure value for money outcomes that integrate different modes, demands and networks.

Effective planning for identifying and delivering freight network capacity will contribute to a seamless freight network that enables efficient movement of goods, with real gains in productivity.

In developing a program of freight infrastructure the following considerations will broadly inform the process for input into the portfolio investment framework:

- **Strategic development and planning**: establishing credible long term plans that focus on outcomes.
- **Project identification and investigation**: identifying projects on the basis of their need and their fit with long term strategic plans.
- **Project assessment and evaluation**: adopting a structured and consistent approach, with common evaluation techniques and outcomes. This would achieve consistency across government when competing for limited funding.
- **Project prioritisation**: using the project assessment and evaluation process to develop a program of prioritised projects. Prioritisation would be undertaken on the basis of the social and economic returns to the State.
- **Project investment**: basing project investment decisions on the evaluation and assessment process. Options for financing need to be explored to maximise the pool of funds available to the NSW Government.
- **Governance and reform**: establishing and implementing policy and regulatory arrangements to make infrastructure markets more responsive to community needs and market demands, and to provide consistency across government.

This approach is consistent with Infrastructure Australia's approach.

Targeted outcome

A decision making framework is essential to making the right decisions about investing in new infrastructure. The infrastructure program for freight represents a snapshot of the projects and corridors under development, based on expected demand over the short, medium and longer term.

Many of the projects in the program need further evaluation and refinement, which is a recognised part of any infrastructure initiative. The Strategic Freight Model developed by Transport for NSW provides a mechanism for more comprehensive evaluation of supply chain demand and potential strategic responses.

A framework for infrastructure decision making will deliver benefits including:

- Better alignment of programs and projects with strategy objectives and performance indicators
- The ability to compare and make project investment decisions and trade-offs
- Improved balancing of investments across modes, asset types, drivers and lifecycles
- Transparent and defensible means of prioritisation based on available evidence
- Increased return on investment.

Task 2G-2 Maintain a program of projects for freight investment

Transport for NSW will develop and maintain a program of freight infrastructure projects to be delivered as part of the transport portfolio investment framework.

Over the next 20 years the growth in the freight task will require upgrades to the State's road, rail, port and terminal networks. As discussed earlier, progress has been made, with funding provided for significant road and rail upgrades. There are, however, other significant projects that will be required to improve the system.

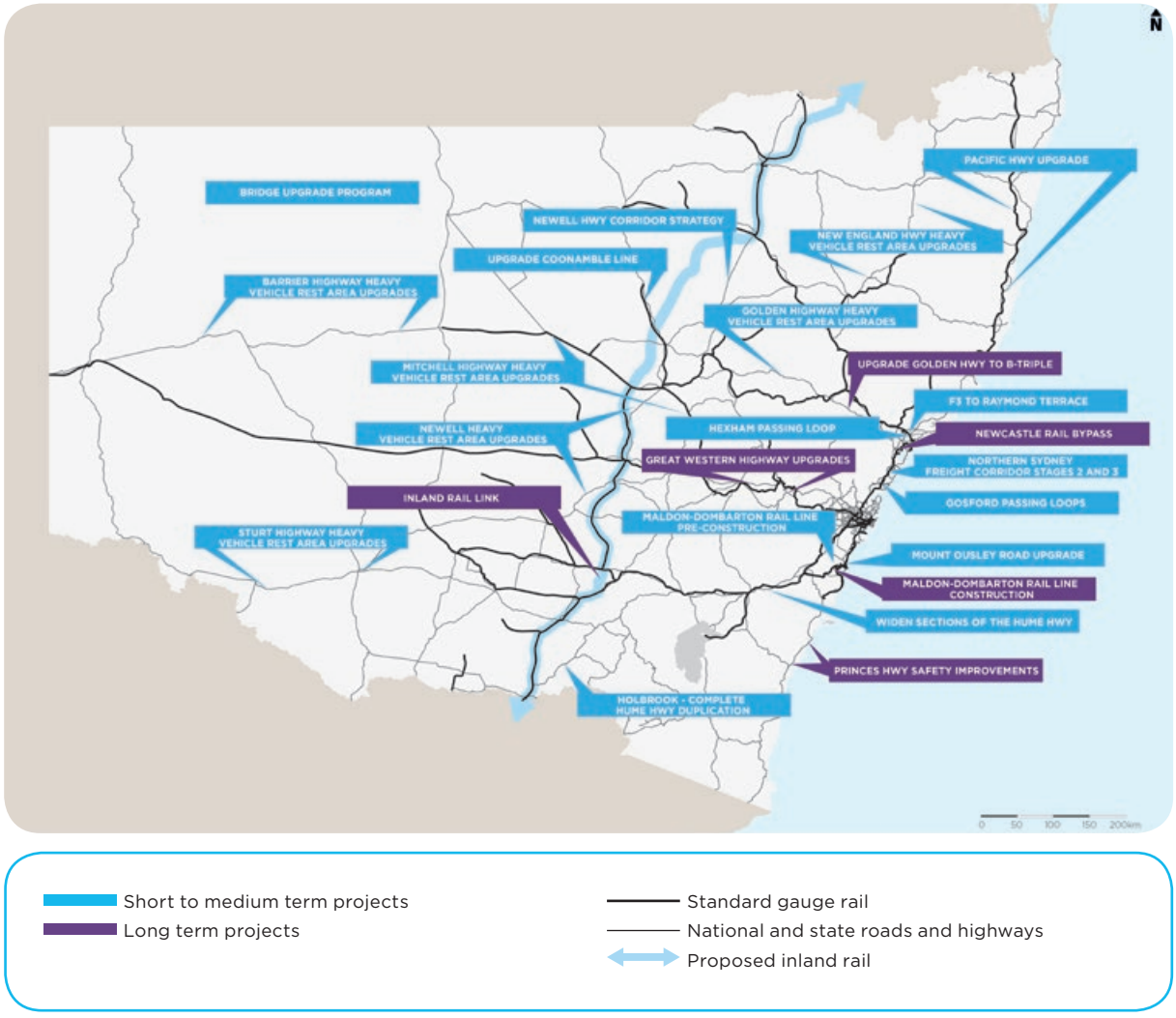
Some of these infrastructure projects have already been identified elsewhere in this Strategy. However, the planning horizon needs to be extended to ensure there is a program of projects developed through the planning and pre-construction phases, and ready to proceed to construction should market demand grow quicker than originally forecasted.

By working with the Australian Government, Transport for NSW will deliver key freight infrastructure as part of National Land Freight and Port Strategies. Infrastructure NSW will provide further advice on projects as part of the NSW Government's Infrastructure Strategy.

Targeted outcome

Maintaining a program of freight infrastructure projects helps provide a degree of planning certainty, allowing for quicker start-up and delivery once funding becomes available. The program of projects currently in delivery, planning or consideration are outlined in Figures 30 and 31, as well as Appendix F. Funding of this program is discussed in Section 6.

Figure 30 Forecast freight infrastructure projects in NSW



Task 2G-3 Fund the Infrastructure program

Transport for NSW will identify funding sources to enable the delivery of critical freight infrastructure by Government and the private sector.

Section 6.3 of this Strategy outlines the approach to funding and financing. The enabling capability outlined in Action 1A is critical in the development of accurate 'bankable' demand forecasts.

Planning ahead with greater certainty to meet expected demand in the NSW freight task is now possible with development of the NSW Strategic Freight Model and creation of the Bureau of Freight Statistics. Pinch points on road and rail networks have been determined at a strategic level using the latest data and input from industry across 15 supply chains.

The Australian Government has signalled that economic productivity is closely linked to improvements on national and state roads and rail lines, which support the efficient movement of freight. Overcoming pinch points across the freight network requires a systematic and ongoing process of analysis to identify the right projects for delivery at the right time. Accordingly, the NSW Government is pursuing funding for a range of important freight related projects under the Nation Building 2 program.

Projects which are subject to existing or potential funding from the Australian Government are identified in the following infrastructure program tables. By including these projects in the program, NSW has agreed to fund half of the project cost and is seeking a similar contribution from the Australian Government.

The importance of the NSW freight task to the national economy is substantial and covered in Section 2.1 of this Strategy. Significant investment in NSW by the Australian Government and the Australian Track and Rail Corporation highlights the shared nature of the task and the need for joint planning and investment. In 2011-12, the Australian Government's contribution to transport projects was just over $2 billion, with around half this spent on improving the Pacific Highway.

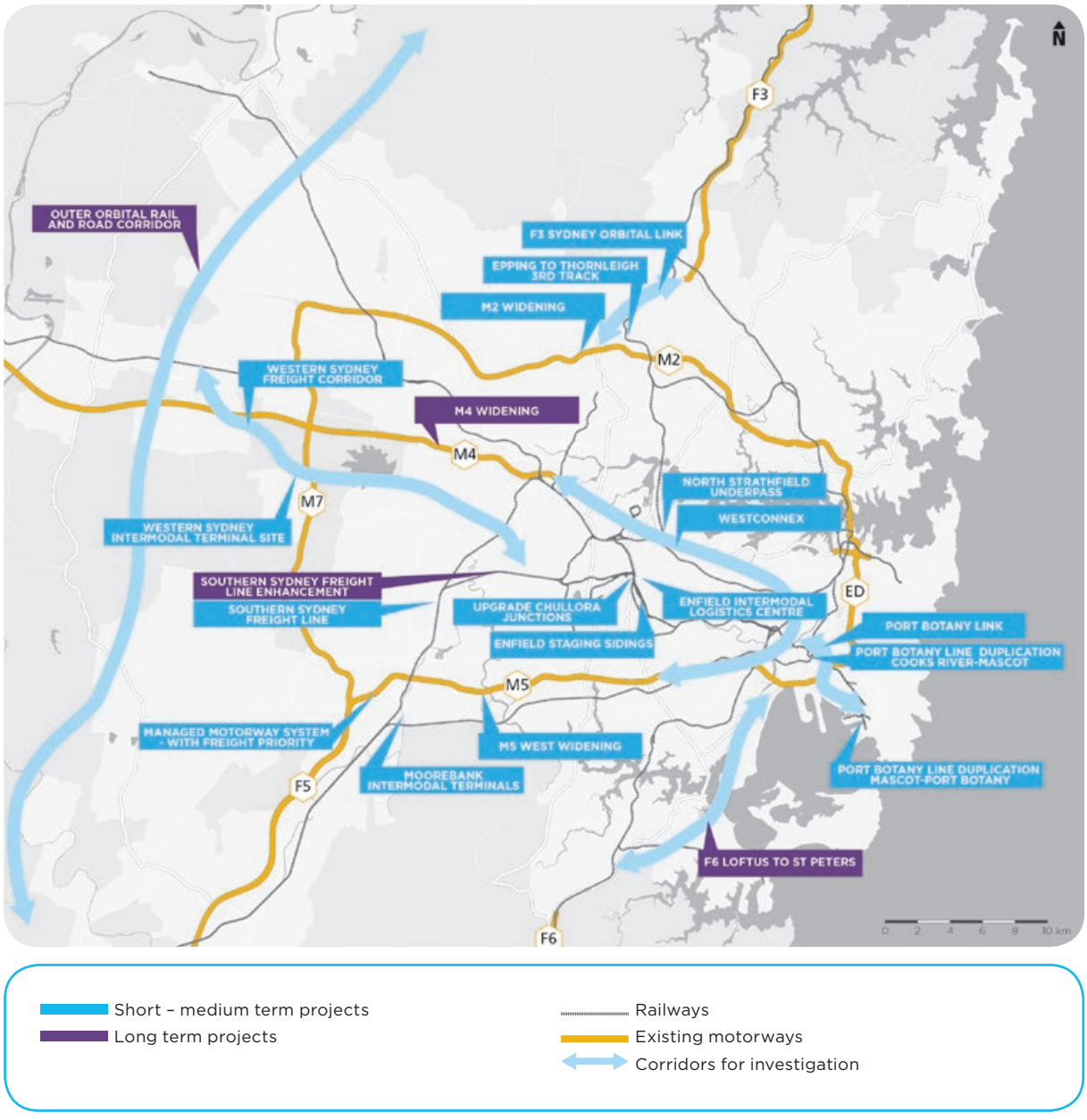
Many freight transport projects require seed funding to identify the initial corridor alignments and sufficient project definition to support a business case for public and private investment. TfNSW will provide this funding to accelerate critical projects like the Western Sydney Freight Line and Intermodal Terminal that face increasing pressure from urban growth.

Targeted outcome

A program of projects that enables government and freight network users to better understand what infrastructure is needed in the short, medium and long term. Funding to support the program is generally focused over the short to medium term (up to 10 years), which is consistent with the approach adopted by the Australian Government through successive national infrastructure programs, most recently Nation Building 2.

Active involvement of industry to expand the freight network and invest in solutions for better coordination and greater efficiency is essential to meet the challenges of growing freight task. The support of the Australian Government and local councils across NSW is also needed to deliver infrastructure projects.

Figure 31 Forecast freight infrastructure projects in the Sydney metropolitan area



5.3 Strategic Action Area 3 – Network sustainability

The NSW economy requires a sustainable freight network that balances efficient freight movements with community expectations of safety, good neighbourhood amenity and positive environmental outcomes.

Achieving sustainable transport networks is largely about planning, and the need to integrate land use and freight logistics planning to achieve long term outcomes. Early identification and protection of key freight infrastructure and corridors is one area which can help provide certainty for industry investment, and for the residents living in surrounding communities.

Greater integration of freight within metropolitan and regional land use plans is needed to manage the interface between freight infrastructure and communities. This interface is generally thought of as land adjoining transport corridors and freight terminals, including ports. However, the interface is much broader and includes development along road corridors, including local and regional roads that support freight movements to local businesses.

Population growth in the Sydney metropolitan area and in regional centres is putting pressure on industrial land, which includes important freight facilities. Protecting the capacity for industrial development in close proximity to ports and intermodal terminals is vital to service future growth. Preventing encroachment into these precincts will require a concerted across government, including local government.

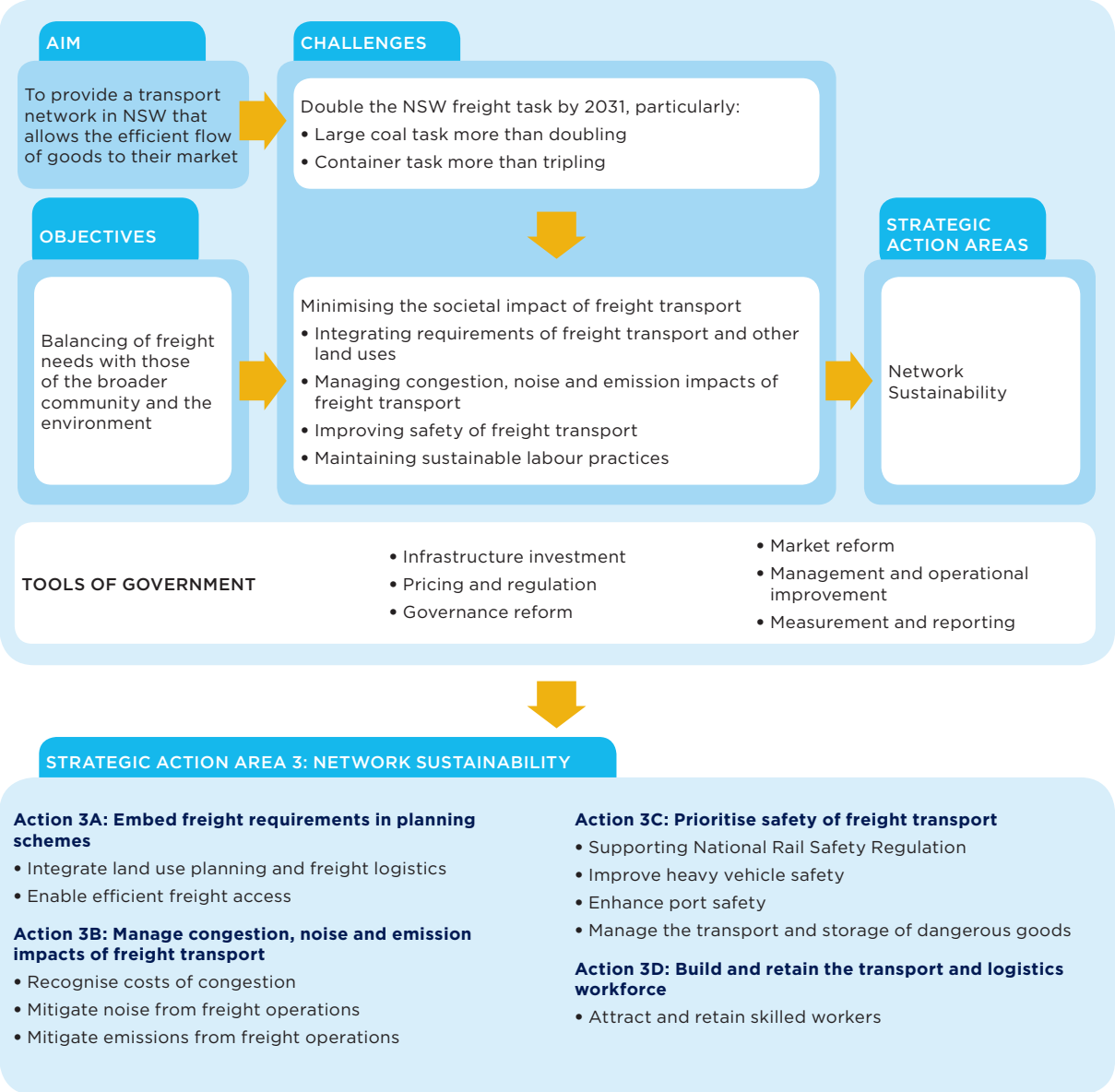
Delivering a sustainable freight system is a core responsibility for government and industry. Practical responses are needed to address significant problems such as the potentially adverse impact of freight on the community, constrained urban environments with limited room for freight activity, environmental challenges like climate change, and demographic changes such as an ageing workforce.

Allowing the efficient flow of goods to the market has inherent benefits for the environment and community. Lower costs, better management of impacts like noise, reduced emissions and increased use of green technology contribute to efficiency. Protecting communities and the environment up front also reduces longer term costs to government due to remediation and retrofitting.

Becoming more sustainable can deliver important outcomes for supply chain efficiency. For example, early planning and protection of transport corridors and strategic freight land can avoid future land use conflict and costs.

As shown in the framework for this Strategy, the actions in this strategic action area all contribute to a subset of the objectives and challenges. Each of the actions will be described in further detail in this section.

Figure 32 NSW Freight and Ports Strategy framework



ACTION 3A Embed freight requirements in planning schemes

Integrating requirements of freight transport and other land uses

Problem description

Growth in population centres and employment across NSW is driving the growth in freight movements. Effective access arrangements for freight transport are needed to service supply chains, which increasingly need to meet just-in-time delivery demands.

Integrating land use planning and freight logistics requires particular expertise that may not be available to local councils. Local plans are often silent on freight issues and potential solutions. This leaves councils with little evidence to support an integrated approach to freight logistics, and can often lead to 'blunt instrument' regulation, such as heavy vehicle bans or curfews, that may not allow the wider community to benefit from better freight access.

Restrictions on local access and limitations on existing infrastructure are impacting on freight productivity as businesses must run more vehicles to carry the same load. This means many businesses must make and accept more deliveries during congested peak hours. Contributing to this is the resistance by planners and councils to adopt high productivity vehicles.

Planning decisions need to consider freight logistics needs and network implications. Current planning instruments are silent on prior or existing freight access routes in areas that have undergone zoning changes, such as industrial areas that have been rezoned into residential areas. In some areas, especially those that have had zoning changes, councils are experiencing pressure from residents to implement curfews and heavy vehicle number restrictions.

The average person in NSW generate 1.5 tonnes of waste per annum. The movement of waste from household and business origin to resource recovery and land fill accounts for approximately five per cent of truck movements in NSW.

Impact

A lack of integration of freight transport with other land uses in planning has resulted in a conflict between freight needs and local planning.

The primary impact of this is more frequent truck movements into areas, contributing to increased congestion on local and state roads.

An increase in truck movements also has a negative impact on freight productivity. Freight costs increase due to the lost opportunity to take advantage of quieter, cleaner and generally safer heavy vehicles which subsequently causes an increase in the cost of goods to consumers.

Task 3A-1 Integrate land use planning and freight logistics

Transport for NSW will work with local government and the Department of Planning and Infrastructure to embed the needs of freight into strategic land use planning.

The NSW Government is currently undertaking a substantial review of the planning system, with an increased emphasis on strategic planning,

CASE STUDY 16: RESOURCE RECOVERY IN GREATER SYDNEY

SITA Australia specialises in resource recovery, recycling and waste management services for residential and commercial customers throughout NSW. SITA seeks to maximise the recovery of valuable resources for recycling and reuse via an extensive resource recovery network consisting of primary resource recovery facilities, material recycling facilities (MRF) and advanced resource recovery technology (ARRT) facilities. Within NSW, SITA currently owns and /or operates 10 primary resource recovery facilities, three MRFs and four ARRT facilities, with this network anticipated to develop and expand into the future.

SITA collects commercial and residential waste in colour coded bins that clearly identify the type of material stream to be placed within them: general waste; co-mingled recycling; paper and cardboard; organics; and dry materials (with the latter soon to be introduced into the Sydney basin). These bins are collected by dedicated collection vehicles and transferred either to a primary resource recovery facility, a MRF or directly to an ARRT, depending on the material stream and the degree of contamination. If delivered to a primary resource recovery facility, an initial sorting process is undertaken with the then separated feedstocks or commodities (that is, paper, cardboard, plastics and metals) being transported either to SITA's ARRTs for further processing to create the final recovered products, or for direct sale.

To enable the efficient movement, processing and recovery of resources, primary resource recovery facilities and MRFs reside within urban areas, while the ARRTs reside on the peri-urban boundary. For instance, SITA recovers residential and commercial organic feedstocks via a supply chain network that uses its primary resource recovery facilities at Chullora and Camellia in Sydney's west, which then feeds its composting ARRTs in Sydney's far west and south west. The separated organics are transformed into fit-for-purpose compost and mulch and delivered to the consumer market for reintegration back into the economy.

The prominence of resource recovery activities is likely to grow in the future as communities and businesses place greater emphasis on sustainable waste management practices. This will see increased demand for an integrated, multi-stream collection and dispatch network that feeds resource recovery facilities within and on the peri-urban boundary. Subsequently, heavy vehicle access for collection trucks in these locations and along key routes within the urban network requires continued support to appropriately service the expansion of these resource recovery operations.

streamlined approval processes and measures to link strategic plans with infrastructure provision.

This review provides an opportunity to ensure freight and logistics requirements are taken into account in NSW's new planning system.

Transport for NSW will support this process by providing access to updated freight information and modelling, together with ongoing technical support. This will help strengthen the integration of plans for land use change and for freight and logistics.

At the local level, greater support can be provided to assist councils in incorporating freight considerations into land use plans and policies. This may include assisting councils to develop guidelines to manage the interface between communities and freight activity centres, including providing technical and planning advice on significant projects and plan making at all levels.

Targeted outcome

A key outcome of the integration of land use planning and freight logistics will be the protection of key freight corridors and strategic sites. Where freight activity impacts on other land uses, such as delivery to shops in residential areas, this should be recognised in local planning and approvals. This may include the requirement to operate transport movements with a reduced footprint.

As much as possible, freight impacts will be contained within the immediate confines of freight corridors, precincts and other major generators. If these impacts cannot be contained onsite, then measures to 'buffer' important freight sites from more sensitive land uses will be implemented (see Action 2A for more detail). This will be achieved through a variety of measures including restrictions on the type and extent of adjoining development, as well as the implementation of mitigation measures within the development itself.

The task will also result in more effective management of the interface between communities and freight activity centres, thereby achieving a balance between industry, community and environmental needs.

Task 3A-2 Enable efficient freight access

In order to enable efficient freight access, Transport for NSW will extend recommendations detailed under Actions 1A, 1D and 2B to local planning to ensure last mile connectivity of the road network.

Targeted outcome

The extension of recommendations detailed in Actions 1A, 1D and 2B to local planning will result in the more efficient linkage of centres of production to centres of consumption.

Regulations on freight movements can sometimes get out of step with current technology and industry best practice as evidenced in the Case Study 12.

ACTION 3B Manage congestion, noise and emission impacts of freight transport

Problem description

Freight movement by road is impacted by and contributes to congestion, especially on urban roads during peak periods. A prime example of this is the congestion in the Port Botany precinct, where freight trucks and traffic to and from Sydney Airport are impacted by excess demand for road capacity.

In addition, rail freight is also affected by congestion, creating the need to build extra capacity as there is competition for rail paths. An example of how this is being addressed is detailed at Task 3, with the construction of the Southern Sydney Freight Line and the Northern Sydney Freight Corridor congestion will be alleviated, thereby reducing emissions.

The movement of freight is rarely silent and the generation of noise on a shared network in proximity to residential areas is a recognised issue.

Similarly, the movement of freight generates emissions. This is a problem in general, but especially in proximity to residential areas.

Impact

Congestion issues relating to freight are twofold:

- Freight is impacted by congestion, which carries both direct costs (such as fuel) and indirect costs (such as productivity loss)
- Freight contributes to congestion, which carries the same direct and indirect costs as for passenger traffic.

The impacts of noise and emissions are reduced community amenity near road and rail freight corridors and, importantly, reduced community acceptance of new infrastructure or growth of the freight task in their localities.

Freight movement, particularly with older and less efficient vehicles and equipment, also creates increased greenhouse emissions and fuel costs.

Task 3B-1 Recognise costs of congestion

Transport for NSW will assess the cost of congestion for freight users to inform decision making.

While there is a general acknowledgement that congestion is a problem in the Sydney metropolitan area, especially during peak hours, the specific contribution of freight transport to this congestion is unknown. There is also little available data which quantifies the impact of congestion on freight efficiency and emissions. There is therefore a need to identify the cost of congestion to the freight industry, as well as the relative contribution of freight to congestion overall. This assessment should take into account:

- Geographic area, as road congestion involving freight transport is concentrated on a relatively small number of locations, most notably in the Port Botany precinct on major arterial roads
- Timing, both day of the week and time of day, as most congestion issues occur during morning and afternoon peak hours on weekdays
- Type of freight, as container trucks have different characteristics to, for instance, removalist trucks or cement mixers
- Ability to reduce cost impacts, as while some road freight may be avoidable, for instance because of the availability of rail capacity, other movements may not have a viable alternative.

The cost and contribution to congestion problems can then be quantified in terms of indirect costs (such as lost productivity) and direct costs (such as fuel) for both passengers and the freight industry.

It is important that this cost calculation specifically recognises both avoidable and non-avoidable costs. For instance, the value of focusing on the congestion costs related to cement mixers (which are required to operate

during business hours) is less than the value of focusing on congestion related to container trucks in and out of Port Botany (where a rail alternative is available, as well as off peak operations).

As a next step to identifying the congestion cost impact, this cost should be taken into account in planning decisions. Full cost-benefit analyses of alternatives should inform decision making, particularly where there are avoidable costs resulting from road freight.

The most obvious example of this is regarding road versus rail trade-offs in the container chain around Port Botany. Full cost recognition should form the basis for modal comparisons around network investments, intermodal terminal planning and economic incentives.

Targeted outcome

Recognition of the costs of congestion to both the freight industry and passengers will result in the collection of useful data relating to the impacts of congestion. This will include identification of direct, indirect, avoidable and non-avoidable costs.

This data will allow government, communities and the freight industry to identify locations where unnecessary costs are being imposed by congestion, thereby informing decisions about alternative access options and potential problem solutions.

Task 3B-2 Mitigate noise from freight operations

Transport for NSW will continue to manage noise from road and rail freight through existing programs and new measures.

There are differing approaches to the mitigation of noise from road and rail freight operations.

For road freight, a range of approaches have been proven to be successful in reducing noise impacts. For example, the existing noise

CASE STUDY 17: COSTING CONGESTION

When evaluating the benefits that would be realised through infrastructure upgrades and enhancements, Transport for NSW recognised that there are a number of non-price characteristics that contribute to the cost savings resulting from infrastructure upgrades. In order to perform a full cost-benefit analysis of various upgrades, quantifying the non-price costs of freight transport across modes was necessary.

Among the various non-price costs identified was the value of travel time savings resulting from lower levels of congestion associated with infrastructure enhancements. To compute the value of freight travel time savings, a value must be assigned to a unit of travel time. This unit value of travel time takes into account the value of the driver's time, as well as the value of the freight while it is in transit.

In addition to quantifying the value of time savings to freight due to infrastructure upgrades, the value of changes in vehicle passenger hours resulting from a reduction in congestion caused by freight was measured. Just as different values are assumed for different kinds of freight, trip purpose and vehicle occupancy affects the unit value assigned to passenger vehicle time.

Deloitte was engaged to undertake a study of various infrastructure upgrades, taking non-price costs into account. The results of this study showed that the contribution of costs resulting from lost time could potentially be quite significant. In the scenario involving the most upgrades (that is, the scenario expected to decrease road congestion the most) the expected 2021 non-price value of time savings from reduced freight and passenger travel was $346 million, compared to the $225 million saved with the fewest infrastructure upgrades.

By recognising that reducing congestion caused by freight has non-price savings, a more complete view of the costs and benefits resulting from different infrastructure investment scenarios was developed.

abatement program uses infrastructure, such as noise walls and low noise pavements, to reduce the impacts of freight transport on communities.

Other approaches include:

- Ensuring road noise is considered in planning processes
- Implementing standards for quieter vehicles
- Facilitating the introduction of electric and other low noise vehicles, through programs such as the Green Truck Partnership
- Strengthening the ongoing education and enforcement program which focuses on addressing the worst emitters of brake noise.

In comparison, there is considerable work to be done in the management of rail noise.

Significant upgrades are being made to rail infrastructure to improve rail freight efficiency, which will increase rail's share of the transport task. This will result in a greater number of services and longer trains. However, rail noise is already an issue with communities living near rail corridors. Proposed increases in rail traffic are exacerbating these concerns. Unusually loud locomotives or freight wagons are considered by the community to create an unnecessary impact.

A comprehensive approach to managing the impacts of rail noise combines the efforts of local councils, infrastructure owners, developers, train operators, train manufacturers, and the community. It will minimise and mitigate avoidable noise at its source by:

- Reducing wheel squeal on curves through the use of lubrication technology at the wheel rail interface
- Investigating means of accelerating the take up of quieter locomotive technology, including considering moving to electrical traction for dedicated freight rail lines and restricting access to some areas unless rolling stock noise standards are met
- Working with operators on the standards for, and maintenance of, rolling stock.
- Implementing a noise abatement program to help mitigate impacts in areas already affected by rail noise. This may include the construction of noise barriers and treatments for houses.

In addition, a compressive approach will seek to minimise the development of new locations acutely affected by noise, by supporting the implementation of planning controls and building regulations.

Targeted outcome

Through the development and implementation of new freight noise reduction programs and the continuation of existing measures, communities living near freight corridors will experience a substantial reduction in unnecessary noise generated by road and rail freight.

Task 3B-3 Mitigate emissions from freight operations

Transport for NSW will manage and reduce the emission of greenhouse gases, fine particles and nitrous oxide from freight transport.

Greenhouse emissions from freight transport are expected to increase by over 50 per cent from 2010 to 2030.

Signs currently in place across NSW urge noise consideration for residents, particularly when entering densely populated urban areas.

Some actions to increase the efficiency of freight transport will also help to reduce the emission of greenhouse gases. These include:

- Shifting freight movements to off-peak periods (see Action 1B)
- Promoting the use of high productivity vehicles (see Action 1D).

More specifically, Transport for NSW will also:

- Promote the use of low emission technologies and fuels and programs, such as through the Green Truck Partnership
- Optimise freight network management, for example through the Green Freight Program.

Despite increases in traffic volumes, total fine particle and nitrous oxide emissions from the NSW diesel fleet have been reducing for some time. This trend will continue as new vehicles enter the fleet.

To provide ongoing management of this problem, Transport for NSW will:

- Promote the use of low emission vehicle technologies and fuels, by implementing the Green Truck Partnership
- Continue to support the retrofit program, at a cost of $8.5 million over three years to subsidise the fitting of particle traps to older vehicles. The program will improve air quality in the vicinity of the M5 East Tunnel by targeting older container trucks travelling to Port Botany.
- Continue to monitor air quality in the M5 East Tunnel and publish in-tunnel air quality data on the RMS website. Smoky vehicle cameras will also continue to identify trucks with excessive emissions for inclusion in the retrofit program.
- Consider the implementation of low emission zones, such as at Port Botany, as has been done in the United States around some ports.

Targeted outcome

The key outcome of the above listed initiatives will be the reduction in emissions from the freight transport network. The key challenge is to ensure that the most suitable freight transport modes and technology are adopted for the specific freight requirements. This will require the careful balancing of economic and sustainability considerations.

NSW FREIGHT EMISSIONS CONTEXT

Air pollution

Most freight vehicles in NSW, both road and rail, are powered by diesel engines that produce emissions of fine particles and nitrous oxides. In Sydney, diesel road vehicles contribute 15 per cent of total nitrous oxide and five per cent of particulate emissions.

The reduction in truck emissions is a direct result of tougher emission and fuel standards. The rate of reduction has been slowed by the large ‘legacy’ fleet, of trucks that did not have to meet emission standards when new and are likely to continue to operate in urban areas for a considerable time. Accelerated modernisation of the truck fleet would improve the rate of emission reduction.

The contribution from diesel locomotives to fine particle and nitrous oxide emissions is minor. However, increasing concerns about the effect of these pollutants renders it an issue of concern near freight corridors.

Emission standards have been introduced in Europe and the United States for diesel freight locomotives. These standards do not apply in Australia. Diesel locomotives in Australia have an average age of around 35 years. Age is important as it reflects the engine technology, which has a significant bearing on pollutant emissions and fuel consumption and greenhouse emissions.

Greenhouse gas emissions

Despite an increase in total greenhouse emissions from road freight over the last 35 years, as the road freight task has increased, the emissions intensity of this sector has improved in terms of emissions per tonne kilometre. This is a result of advances in engine efficiency and a doubling of the average

load per vehicle, achieved largely through a shift from single trailers to B-doubles. This trend has begun to slow in recent years and without further reforms, average loads per vehicle are likely to grow by less than five per cent between 2010 and 2030.

Although freight train greenhouse emissions are about one third of those from road transport for an equivalent task, road transport performs most of the freight task due to its flexibility, convenience and reliability. The road transport share of the freight task is increasing, with the exception of bulk products, such as coal.

Future outlook including carbon tax impact

The freight industry faces significant challenges. These include volatility in fuel prices and the future impact of the carbon tax and energy supply on fuel prices.

Under the Carbon Tax, heavy vehicles will not be affected by carbon pricing until 2014. In the short term, this will mean that heavy vehicles will become the more competitive mode. In the longer term, it is likely that heavy vehicle transport will face higher carbon price commitments due to higher emissions. To ensure that the two year period does not adversely impact on the rail industry's development, the NSW Government will support the industry in other ways, for example increasing the imperative to provide improved rail infrastructure.

Efforts to de-carbonise the economy will continue, with pricing signals such as the carbon tax, and non-economic signals such as purchasing policies and corporate strategies driving a move away from carbon intensive goods.

The link between objectives to reduce greenhouse emissions and the commercial challenges facing freight operators is that these emissions are directly related to the amount of fuel used. There is therefore an economic impetus to adopt fuel saving strategies and to consider alternatives to diesel fuel to manage the commercial risks arising from energy availability and affordability.

Green Freight Program

Effective action to reduce freight emissions requires recognition that all elements of the industry need to be engaged around an emissions reduction program that is linked to improved business efficiency. Transport for NSW therefore proposes to establish an overarching program, the Green Freight Program, which will help bring these elements together.

The Green Freight Program will facilitate the transfer of freight from road to rail, where it can be shown to reduce emissions and provide complementary benefits such as reductions in road congestion, deferral of additional road expenditure, improved road safety, continued employment in regional communities and reduced transport costs to industries such as agriculture, manufacturing and heavy industry.

Opportunities are being created for the rail industry through the construction of new rail infrastructure such as the Southern Sydney Freight Line and the Northern Sydney Freight Corridor. These developments are designed to improve the competitiveness of rail. To take advantage of these opportunities the rail industry needs to demonstrate that it can effectively compete with road freight in all aspects, including noise. This includes taking advantage of technological advancements.

ACTION 3C Prioritise safety of freight transport

Improving safety of freight transport

Problem description

The function of the transport network involves people, freight, machinery, vehicles, and material handling equipment. The operation of the network occurs day and night in all weather and in all parts of the State. It is a fundamentally dangerous activity and as the majority of the network is shared and part of the built environment, it involves not only freight industry participants but the wider public.

Freight transport needs and demands constant safety vigilance and oversight to protect the community.

Impact

The industry requires ongoing monitoring and management to improve safety while increasing mobility and efficiency across the transport networks.

Task 3C-1 Support National Rail Safety Regulation

Transport for NSW will contribute to the development of National Rail Safety Regulations.

As a result of recent incidents on the NSW rail network a number of initiatives have been implemented with the key parts to rail safety management now specified in the requirements of relevant rail safety legislation. Beyond this, there are further measures which can be taken to develop safety management.

NSW is party to an Inter Governmental Agreement to transition to a national rail safety regime from 1 January 2013. Transport for NSW will work with the Australian Government to liaise with other jurisdictions and network owners to develop nationally consistent standards and codes of practice for the rail industry. The work is being coordinated by industry.

Targeted outcome

Support of national regulators through the transition to a national rail safety regime will result in consistency in the development and application of regulations, standards and codes of practice which currently vary between network owners and between states.

Task 3C-2 Improve heavy vehicle safety

Transport for NSW will work with government and industry to implement initiatives from the NSW Road Safety Strategy.

The NSW Government has recently prepared a Road Safety Strategy 2012-2021, which takes a holistic view of the road safety system. This Strategy recognises that all components of the road system, including vehicles, users and the roads themselves, have a role to play in helping to keep road users safe.

Key initiatives in the Road Safety Strategy focusing on heavy vehicle safety include:

- Supporting the transition to a nationally consistent regulation framework and the National Heavy Vehicle Regulator
- Developing enforcement and education programs targeting speed
- Developing compliance and accreditation regimes for the management of heavy vehicle driver fatigue
- Developing programs for the testing of drivers for the use of illicit substances
- Developing education and awareness programs on the use of seatbelts for heavy vehicle drivers.

Transport for NSW, in conjunction with the road transport industry, will also investigate the feasibility of implementing a Five Star Trucking Safety Rating System designed to encourage best driving practice and reward those operators who foster safe driving.

Truck rest areas are important in managing driver fatigue as well as providing facilities for load adjustment or addressing maintenance issues that can arise on route. Transport for NSW will continue to identify and develop rest areas at strategic locations on major freight routes.

Targeted outcome

The outcome of managing heavy vehicle safety will be the reduction in the number of fatalities and injuries caused due to freight network accidents. As outlined in the NSW Road Safety Strategy, target fatalities should be reduced to 4.3 fatalities per 100,000 populations by 2016, compared with 5.1 (provisional) in 2011.

Task 3C-3 Enhance port safety

Transport for NSW, with government and other key stakeholders, will continue to improve the safety of NSW ports by undertaking regular risk assessments of port and shipping activity.

The safety elements of the shipping task are continually evolving with the changes in types and numbers of ships visiting ports.

A 2010 review concluded that the current Port Safety Operating Licence model requires an update so as to be brought closer to contemporary practice. The model was put into place in 1995 and sets out performance standards for marine safety and environmental protection in each port.

Targeted outcome

Transport for NSW will explore options for developing a more contemporary model for delivery of port safety in NSW, which will include a less prescriptive format and a greater focus on risk management. This will lead to enhanced port safety outcomes.

Task 3C-4 Manage the transport and storage of dangerous goods

Transport for NSW, in conjunction with other regulatory authorities and industry, will review dangerous goods routes, including the restrictions on using tunnels for some products.

This review should also include the utilisation of road trains in regional areas, such as Newcastle, for distribution of dangerous goods to mines.

There are some goods which are vital for the sustainability of NSW industry and everyday life, but present particular challenges for their safe transport and storage. For example, there are regulations which prohibit the transport of dangerous goods along certain routes. These routes include some tunnels, bridges or other areas which are considered to present a higher than normal risk when used for the transportation of dangerous goods. These restrictions force trucks to travel on limited routes and may contribute to road congestion, impacting on productivity and efficiency of transport, and increasing the costs for all users of dangerous goods.

Targeted outcome

Carrying out a risk based review of dangerous goods routes will better align the current restrictions with the expected level of risk associated with transporting dangerous goods. Reviewing existing regulations in greater detail could better align the requirements with individual product risks and ensure maximum efficiency of the supply chain. The review may also identify opportunities for the movement of dangerous goods within accepted safety requirements that are not currently used by industry.

ACTION 3D Build and retain the transport and logistics workforce

Develop and maintain sustainable labour practices

Problem description

Many rural based industries, including the transport and logistics industry, face a range of challenges in attracting and retaining skilled labour. These challenges include increased competition from lucrative mining related activities and an ageing workforce.

Impact

The freight and logistics industry faces a scarcity of skilled workers resulting in increased costs and challenges to the viability of businesses.

Task 3D-1 Attract and retain skilled workers

Transport for NSW will work with government and industry groups to understand and address skills shortages.

An initial task will be to quantify the scale of skill shortages in the transport and logistics industry, including identifying the regions which are most greatly impacted.

The industry can then target entry level workers for education and training, working with community colleges and tertiary institutions such as TAFE.

Government and industry groups can also work together to promote initiatives such as Green Light Day. This is a NSW based awareness day, which attempts to increase the attractiveness of a career in the transport and logistics industry. Further details about the Green Light Day are provided in Case Study 18.

Targeted outcome

Workforce initiatives in the freight and logistics industry will result in development of the required employment profile. It will also encourage people to enter the sector and make them aware of the available occupations and career progression.

In addition to this, such initiatives will provide the ability to quantify the scale of the skill shortage in the industry and identify the occupations which are most in need. This will assist in future planning and targeting of initiatives to fill skills gaps in the industry.

Improvements in transport technology will create more attractive job opportunities in the future. The industry is working hard to attract a younger, more diverse workforce as more experienced employees reach retirement age.

CASE STUDY 18: GREEN LIGHT DAY

The inaugural 'Green Light Day' was held in August 2011 and aimed to support and promote careers in the transport and logistics industry. The day saw over 230 students from 23 schools participating in four events across Sydney. The launch event at the MLC Centre in Martin Place saw attendance by enthusiastic students, teachers, government and industry representatives from 25 state, national and international organisations coming together to celebrate the importance of the transport and logistics industry.

Concurrent with these events, open days were held at Axima Logistics in Smithfield, RAAF Base at Richmond and Qantas Centre of Service Excellence at Alexandria with the support of local MPs, TAFE and the Australian Trucking Association. The events exposed students to potential careers in transport and logistics and provided them with an opportunity to gain valuable insight from industry members.

The second Green Light Day took place in August 2012 and consisted of events and open days featuring selected secondary students from metropolitan Sydney in 'meet and greet' and mentoring sessions with industry leaders. Through these interactive and informative sessions, students learnt about the diverse opportunities that a career in the transport and logistics industry can provide.

6 IMPLEMENTING THE NSW FREIGHT AND PORTS STRATEGY

"asciano has had an ongoing concern that there are not sufficient performance related incentives in place to drive efficient behaviours ..."

asciano submission to the Queensland Competition Authority, August 2012

6.1 Measuring and reporting on network performance

The NSW transport network is arguably the most valuable asset in the State. TfNSW manages a transport network portfolio with a value in excess of $95 billion. This figure does not capture the additional value created by businesses using the network.

Part of the function of Transport for NSW is the management of the transport network assets and operations. This requires careful performance monitoring to ensure a return is delivered to the people of NSW.

To ensure network users create value and provide a tangible return on the investment of public funds, a performance management regime is required. Access to the network requires, and will continue to require, permission or payment. As an example, access to State roads requires users to operate vehicles that are registered and compliant with a range of regulations. Users of State roads also provide payments through fees, tolls or taxes. Similarly, access to ports and rail network infrastructure requires users to meet set standards and pay a range of fees and charges.

An aspect that is currently missing in the management of the freight network is the enforcement of comprehensive performance standards that directly relate to efficiency and effectiveness. Performance standards of this type are in use in parts of the network.

As an example, leases of container terminals at Port Botany now include performance measures relating to productivity. The result is a series of incentives that drive efficiency and effectiveness for the commercial gain of the lease holders. The wider NSW transport network also gains, as assets are efficiently utilised and capacity is maximised.

KPIs are part of the fabric of both business and government. Action 1A includes a specific task that relates to KPIs and sets out to provide network performance management tools.

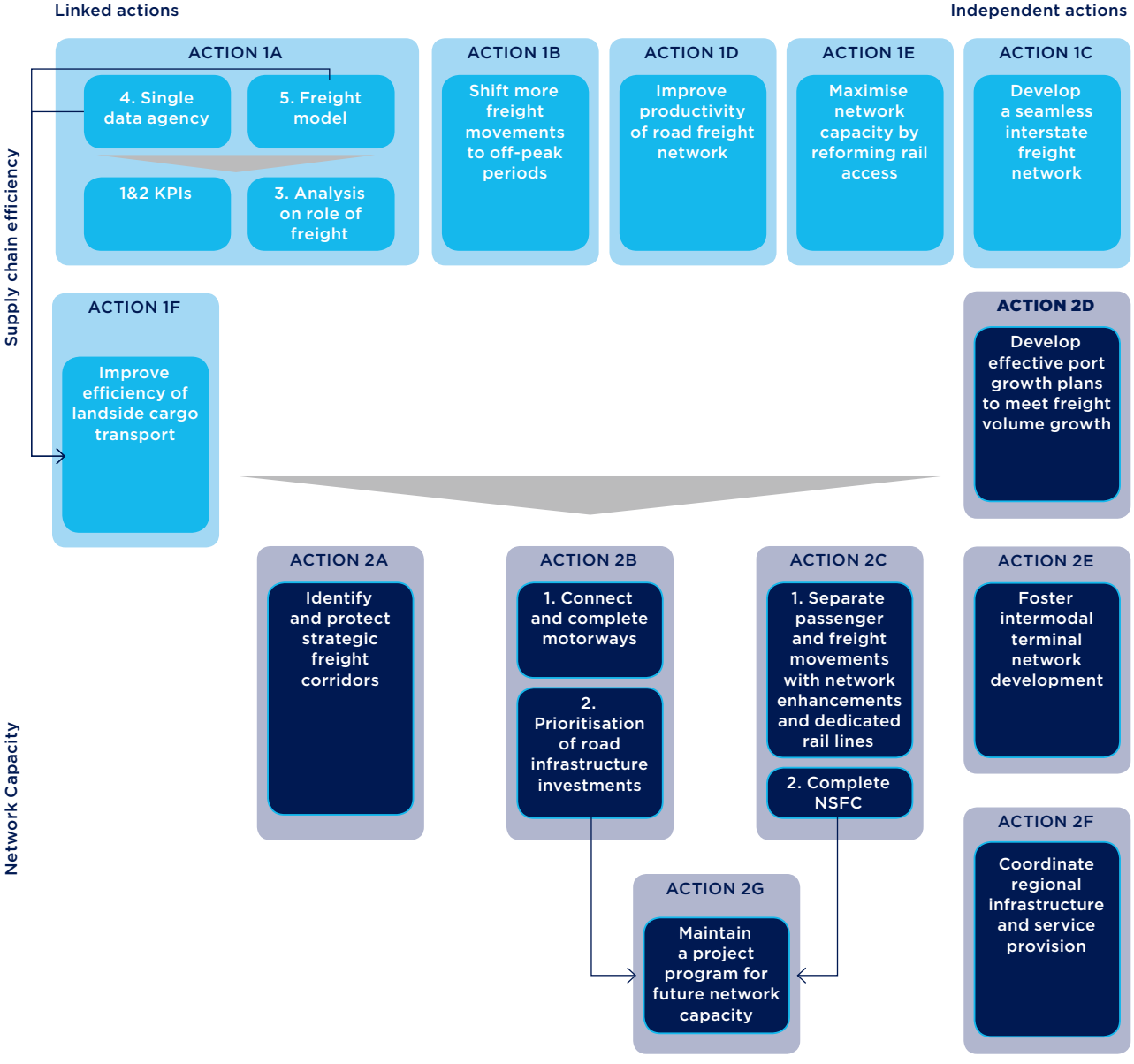
Transport for NSW will monitor the KPIs and publish quarterly reports. These reports will provide the community with transparent indicators of performance. They will also inform network management agencies on the use of network assets, so that use of the network can be optimised.

6.2 **Prioritisation**

This document has divided actions and tasks into three strategic action areas. There are many linkages and dependencies between actions and tasks, particularly in Strategic Action Areas 1 and 2. These interrelationships are illustrated in Figure 33.

The tasks in Action 1A are prerequisites for a large number of other actions and tasks. In particular, Task 4 (establish a single agency for streamlined data collection and strategic analysis) and Task 5 (create the Sydney metropolitan freight model) should be a first priority, as they are essential to:

Figure 33 The connecting relationships between tasks in the NSW Freight and Ports Strategy



- Action 1A – Task 1 and Task 2 (establish and measure KPI): the agency is required to manage the KPI measurement process, and the freight model will help inform the selection of appropriate KPI
- Action 1A – Task 3 (conduct analysis on role of freight transport in the NSW economy): the agency is best placed to conduct this analysis, and the freight model will provide important base data for the analysis
- Action 1F (improve efficiency of landside cargo transport): the holistic view of NSW freight from the freight model will help inform operational efficiency and capacity management activities, and the NSW Cargo Movement Coordinator will benefit from working with the BFS for reporting, collection and analysis of data

The tasks in Action 1B (shift more freight movements to off-peak periods), Action 1D (improve productivity of road freight network) and Action 1E (maximise network capacity by reforming rail access) are also important prerequisites. In combination with the tasks in Action 1A, these tasks will be important to the following:

- Action 2A (identify and protect strategic freight corridors): projections of future demand in an efficient system are required to make network wide decisions about long term capacity requirements
- Action 2B (develop and maintain capacity for freight on the road network): road's share of the freight task in an efficient system needs to be understood to make road infrastructure investment decisions
- Action 2C (enable separation of passenger and freight flows on rail network): rail's share of the freight task in an efficient system needs to be understood to make rail infrastructure investment decisions

Finally, Task 2 of Action 2B (prioritise road infrastructure investments) and Task 2 of Action 2C (identify infrastructure enhancements to improve freight operations on the shared network) will both form important inputs to Action 2G (maintain a project pipeline for future network capacity).

These linkages and dependencies have been considered as part of the task prioritisation process to maximise efficiency in the implementation of the Strategy.

Figure 33 illustrates the work plan for Transport for NSW over the next five years. Tasks which do not commence immediately require further development and bidding for resources before they can be undertaken.

Figure 34 An initial work plan with the projected tasks for Transport for NSW to 2017

	Action		Year 1 FY13	Year 2 FY14	Year 3 FY15	Year 4 FY16	Year 5 FY17
Network Efficiency	1A	Identify freight movements and demand for network capacity					
		Task 1 – Establish and manage freight network key performance indicators		Design	Development		
		Task 2 – Analyse the role of freight transport in the NSW economy		Conduct	Review		
		Task 3 – Maintain a single agency for streamlined data collection and strategic analysis	Establishment	Development			
		Task 4 – Develop the Sydney Metropolitan Cargo Movement Model	Design	Development			
		Task 5 – Promote efficient movement of general road freight					
	1B	Shift more freight movements to off-peak periods					
		Task 1 – Build the case for off-peak freight handling for planning purposes		Conduct	Review		
		Task 2 – Support the growth of off-peak freight					
		Task 3 – Identify the infrastructure requirements for off-peak freight handling					
	1C	Develop a seamless interstate freight network					
		Task 1 – Support national regulators and harmonise transport safety regulations					
		Task 2 – Continue working nationally to expand the National Road Freight Network					
	1D	Improve productivity of road freight network					
		Task 1 – Streamline and reform road funding					
		Task 2 – Provide necessary infrastructure to support HPV access					
		Task 3 – Improve the RAV approval process					
		Task 4 – Incorporate freight considerations into managed motorway access decisions					
		Task 5 – Review the productivity and efficient usage of arterial roads					
	1E	Maximise network capacity by reforming rail access					
		Task 1 – Conduct NSW Rail Access Review	Design				
	1F	Improve efficiency of landside cargo transport					
		Task 1 – Establish a NSW Cargo Movement Coordinator	Design	Development			
Network Capacity	2A	Identify and protect strategic freight corridors					
		Task 1 – Establish corridors to meet long term freight needs of NSW					
	2B	Develop and maintain capacity for freight on the road network					
		Task 1 – Connect and complete Sydney's motorway network					
		Task 2 – Prioritisation of road infrastructure investments					
		Task 3 – Develop a Newell Highway Corridor Strategy to support greater use of high productivity vehicles					
	2C	Enable separation of passenger and freight flows on the rail network					
		Task 1 – Separate passenger and freight movements with network enhancements and rail alignments					
		Task 2 – Complete the Northern Sydney Freight Corridor					
	2D	Develop effective port growth plans to meet freight volume growth					
		Task 1 – Develop a Port Botany growth plan					
		Task 2 – Develop a Port of Newcastle growth plan					
		Task 3 – Develop a Port Kembla growth plan					
	2E	Foster intermodal terminal network development					
		Task 1 – Foster intermodal terminals in Metropolitan areas					
		Task 2 – Regional intermodal terminals					
	2F	Coordinate regional infrastructure and service provision					
		Task 1 – Adopt a best practice reform model for regional infrastructure					
	2G	Develop a project program to support network capacity					
		Task 1 Evaluate freight infrastructure through the investment framework					
		Task 2 – Maintain a program of projects for freight investment					
		Task 3 – Fund the infrastructure program					
Network Sustainability	3A	Embed freight requirements in planning schemes					
		Task 1 – Integrate land use planning and freight logistics					
		Task 2 – Enable efficient freight access					
	3B	Manage congestion, noise and emission impacts of freight transport					
		Task 1 – Recognise costs of congestion					
		Task 2 – Mitigate noise from freight operations					
		Task 3 – Mitigate emissions from freight operations					
	3C	Prioritise safety of freight transport					
		Task 1 – Support National Rail Safety Regulation					
		Task 2 – Improve heavy vehicle safety					
		Task 3 – Enhance port safety					
		Task 4 – Manage the transport and storage of dangerous goods					
	3D	Build and retain the transport and logistics workforce					
		Task 1 – Attract and retain skilled workers					

"The greater the certainty that the NSW Government can provide, the more likely it will be for industry to identify areas for complementary investment."

John Mullen, CEO Asciano

6.3 Funding and financing

Projects that enhance the efficiency and capacity of the freight transport network all require significant investment in the identification, planning and delivery or construction phases.

The Freight Infrastructure Program (see Action 2G and detailed in Appendix F) contains the priority projects identified for the next 10 years. In addition the tasks and projects associated with planning, design and systems development will be incorporated into the overall work plan. The physical infrastructure projects are complemented by the less obvious but equally essential efforts of all freight sector participants. Arranging the funding and financing of these projects is an ongoing task for Transport for NSW, the role of which is to:

- Determine demand and potential revenue
- Determine network needs
- Develop projects to the definitive feasibility stage
- Identify funding and financing options
- Implement projects through delivery agencies.

Funding for projects and ongoing operation of the transport network is the critical issue facing Transport for NSW.

Public sector funding

All public sector funding for infrastructure ultimately comes from the taxpayer. When funding infrastructure, government effectively operates no differently to commercial businesses. Most projects to improve the efficiency of the transport network are high cost.

The use of public sector funding for freight infrastructure is appropriate where forecasting shows there will be wide economic benefit to the NSW economy, rather than just a particular firm or activity.

Potential sources of funding for infrastructure include the Australian and NSW Governments and private investment. This includes:

- Co-investment with the private sector
- Leases and concessions
- User charges or value capture
- Commonwealth Nation Building Program
- Commonwealth Regional Infrastructure Fund
- Restart NSW (seeded with capital from the sale and lease of state assets such as the long term lease of Port Botany and Port Kembla)
- Heavy Vehicle Safety and Productivity Program

The use of public funds for the development of transport network infrastructure should be restricted to projects that are not in conflict with commercial development proposals. The use of public funds can create market distortion and encourage inefficient work practices and network use.

A recent example of the inefficient use of public funds in freight network infrastructure is the proposed $14.5 million grant to develop the Riverina Intermodal Freight and Logistics Hub. This grant, if commensurate private sector commitment is made, will be provided by the Australian Government's Regional Infrastructure Fund. The total cost of the Riverina project is forecast to be $57.4 million. The grant will comprise 25 per cent of the planned capital expenditure and this funding has enabled project to commence.

However, an intermodal facility at nearby Harefield is already in operation and another is also under consideration for development at nearby Cootamundra. The Cootamundra facility with a planned capital expenditure of $12 million is to be financed entirely by the private sector, but the project is now under commercial review and may not occur. Where commercial planning and development is already underway, and there is a sufficient appetite for risk, market intervention using public funds undermines investment decisions.

Private sector financing

Private sector financing is an alternate means of paying for transport infrastructure. This is an ideal method of providing infrastructure, particularly where there is firm forecast demand and a clear means of getting a return on investment from increased productivity. Importantly a revenue stream to pay for the infrastructure must be identified.

Financing for freight infrastructure from non-government sources can include:

CASE STUDY 19: SURAT BASIN

A current example of private sector financing of freight infrastructure is underway in Queensland.

The Surat Basin Rail (SBR) project proposes the construction of a 204 kilometre railway between Wandoan and Banana to enable large-scale mining and export of thermal coal from the Surat Basin to the Port of Gladstone.

A private consortium consisting of the ATEC Rail Group, QR National and Xstrata Coal (as equal partners) has been granted an exclusive mandate by the Queensland Government to progress the SBR project to financial close. Under the terms of the exclusive mandate, the railway must be an open access, multi-freight rail system, developed at no cost or risk to the State.

Private sector development of the $1 billion railway will deliver significant benefits for Queensland, including coal royalties to the State, employment opportunities during construction and operation, and growth in local and regional economies.

The SBR will form a critical component of the Surat Basin coal supply chain, along with expansion of the Wiggins Island Coal Export Terminal and upgrades to the QR National Moura rail system.

Future construction of the SBR will depend on the private investment decisions of the miners who will be the SBR's customers and the consortium's capacity to secure project finance.

If the SBR project achieves financial close, the SBR model has the potential to deliver critical freight infrastructure to Queensland without the need for significant government investment or assumption of risk in the construction and operation of the railway.

- Co-investment with the private sector
- Leases and concessions of parts of the transport network
- Creation of Infrastructure Bonds or similar instruments for specific projects
- Unsolicited proposals
- Other methods.

As an example, a freight-only lane or on/off ramp on a motorway could be funded from 'user pays' toll revenue. This would require firm demand forecasts or user commitments. The financing parties could then use the forecasts or commitments to assess the risks and develop a finance model for the project.

This scenario is similar to the financing arrangements for the container terminal being developed by Hutchison Ports Australia at Port Botany, as well as for the Patrick operational enhancement project that is introducing automation to the existing terminal.

6.4 Next steps

Release for comment

The next phase in the development of the NSW Freight and Ports Strategy will commence with the release of this draft document.

The draft Strategy will be used as the basis for further stakeholder engagement. This will include forums with industry reference groups, the NSW Freight Advisory Council and mode oriented Freight Industry Groups.

These forums, together with engagement with peak bodies and transport and logistics businesses, will contribute to the preparation of contemporary freight and port development plans.

Updating

The NSW Freight and Ports Strategy will be updated every two years, with the first update due for publication in early 2015. This update will report on progress of the 41 tasks that form the basis of this Strategy.

The draft NSW Freight and Ports Strategy is available at http://freightandportsstrategy.transport.nsw.gov.au

Comments are due by Monday 11 February 2013.

Comments can be provided by:

Emailing
freight@transport.nsw.gov.au

Phone
1800 22 11 70

Writing to
NSW Freight and Ports Strategy Team
Transport for NSW
GPO Box K659
Haymarket NSW 1240

Following us on Twitter @nswfreight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