

DEPARTMENT OF TRANSPORT AND REGIONAL SERVICES

**SUBMISSION TO THE HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON TRANSPORT AND REGIONAL
SERVICES**

**INQUIRY INTO THE INTEGRATION OF REGIONAL
RAIL AND ROAD FREIGHT TRANSPORT
AND THEIR INTERFACE WITH PORTS**

June 2005

INTRODUCTION

The transport sector has a substantial impact on Australia's international trade, economic growth and living standards. It also affects the mobility of individuals and the amenity of Australia's towns and cities. In addition, the transport sector is a major source of employment, accounting for 4.5 per cent of total employment in Australia.

The total impact of transport includes its broader role as an enabler or facilitator of economic activity. Transport is an indispensable input for the operation of all other industries. It is a key component of logistics activities, which have been conservatively estimated to account for 9 per cent of Australia's GDP.

An efficient and responsive transport sector is critical for regional areas, which can be broadly defined as inland and coastal areas that are located outside major metropolitan areas. Transport provides access to goods and services that are produced outside a region and also carries a region's output to external markets, thereby underpinning local income and jobs. It typically has a major impact on regional competitiveness and economic growth.

Regional freight transport involves road, rail, sea and air services. In tonnage terms, road and rail transport are the major modes for most regions. Sea transport is important for some coastal areas, particularly where bulk commodities are produced and/or exported. Air transport plays a key role in regions that do not have adequate surface transport (on a permanent or seasonal basis) and for urgent or high-value freight.

The carriage of freight by the most appropriate transport mode is a key step in achieving efficient and responsive transport services. Decisions about modal allocations should take into account the full costs of each mode (i.e. private costs plus other community impacts such as effects on the environment and safety) as well as relevant aspects of performance (e.g. efficiency, reliability, transit times).

The best outcome from a national (and regional) viewpoint will be obtained when transport services (particularly rail and road) are well-integrated. A high level of integration is most likely to be achieved if:

- transport planning is undertaken on a coordinated basis (e.g. unnecessary duplication of facilities is avoided);
- the most suitable mode is used for each transport task; and
- transfers of freight between modes (e.g. at intermodal terminals) are handled efficiently.

Efficient connections to ports are of critical importance to regions that use sea transport to obtain inputs, move their output to other regions and/or service export markets. Exports are a key source of economic activity for many regions.

TRANSPORT TASK

Australia's international freight (exports and imports) totalled 623 million tonnes, with a value of \$249 billion, in 2003-04. In tonnage terms, 99.9 per cent of the freight was carried by sea, with the remainder using air transport. On a value basis, the proportions were 74 per cent for sea transport and 26 per cent for air transport.

Exports totalled 559 million tonnes, with a value of \$114 billion, in 2003-04. On a tonnage basis, they mainly comprised commodities produced in regional areas. Major examples of export commodities from regional areas included:

- coal (220 million tonnes, \$11.0 billion);
- iron ore (208 million tonnes, \$5.3 billion);
- grain (21 million tonnes, \$5.1 billion)
- bauxite and alumina (14 million tonnes, \$3.7 billion);
- woodchips (10 million tonnes, \$0.8 billion);
- salt (10 million tonnes, \$0.2 billion);
- meat (1 million tonnes, \$5.7 billion); and
- gold (insignificant tonnage, \$5.7 billion).

The share of regional output would be lower in value terms, as most exports from regional areas are bulk commodities which have relatively low unit values. However, the value-based share would still be substantial. In addition, many exports produced in metropolitan areas include significant inputs from regional areas (e.g. coal and iron ore for steel).

Australia's domestic freight transport task totalled 2.3 billion tonnes in 2001-02. The predominant modes on a tonnage basis were road (73 per cent), rail (25 per cent) and sea (2 per cent). The shares of rail (38 per cent) and sea (27 per cent) were higher on a tonne-kilometre basis, as a result of longer average travel distances than road (35 per cent). In tonnage terms, the major freight corridors involved movements of bulk commodities from regional areas, with examples such as:

- Pilbara region to Dampier, Port Hedland and Port Walcott (iron ore);
- Hunter Valley to Newcastle (coal);
- Bowen Basin to Gladstone (coal);
- Weipa to Gladstone (bauxite); and
- Southeast Western Australia to Kwinana (grain).

Substantial tonnages of non-bulk freight are transported on domestic routes, particularly by road transport. As a result of the concentration of population and service activities in major metropolitan areas, the majority of non-bulk traffic (in terms of tonne-kilometres) is moved along inter-city corridors.

Over the last 20 years, Australia's domestic freight task has grown at a compound rate of 2.5 per cent per annum in tonnage terms (2.8 per cent per annum in tonne-kilometres). On international routes (outbound and inbound), the growth rate for freight has been 5.0 per cent per annum. There has been substantial variation in traffic growth rates on individual routes to and from regional areas.

These traffic increases have been accompanied by changes in the nature of the transport task that have arisen from factors such as the deregulation of domestic markets (e.g. grain). For example, there has been a significant increase in road transport's share of non-bulk traffic, as well as a transfer of grain from rail to road, on many regional routes. The transport sector has been affected by the economy-wide process of microeconomic reform and by sector-based reforms in transport.

TRANSPORT SYSTEM

Government was traditionally responsible for the development, regulation and operation of most transport infrastructure in Australia. It is still the largest single provider of roads, rail track and port infrastructure. However, the process of microeconomic reform, particularly the privatisation of transport operators and deregulation (e.g. removal of requirements to transport grain by rail), has contributed to greater private sector involvement in transport operations and infrastructure.

Major infrastructure provided by the private sector includes port facilities for certain bulk commodities, rail facilities for iron ore, container terminals, airports and intermodal facilities. Public-private partnerships have facilitated greater private sector involvement in several areas of transport infrastructure such as motorways, road tunnels and rail links (especially to airports). The private sector continues to be virtually the sole provider of road transport services.

The Australian Government has not been directly involved in the decision-making process for the development of ports or intermodal terminals. Port infrastructure is owned and operated by state and territory governments and, in the case of many bulk ports, by private operators. The states have also been involved in the development of some intermodal terminals.

Rail

The role of regional rail in Australia is predominantly the movement of bulk commodities from the point of production to export ports and, to a more limited extent, to major domestic markets. Different bulk products have different supply chain approaches. The two major mineral commodities moved by rail are iron ore and coal.

The export of iron ore from the Pilbara region is dependent on the transport of the ore from the mine to the port by rail. Some of the world's longest and heaviest trains are currently being used, and rail operations are generally incorporated by the producer into an integrated supply chain approach.

The rail lines connecting the iron ore mines to the ports and the port loading facilities are privately owned and operated by the mining companies. They are vertically integrated railways operated as part of the internal operations of the companies and operate on dedicated rail track. So far the mining industry has been able to own and operate these lines and services effectively, and the rail industry regards the Pilbara rail operations as up with world's best practice.

The movement of coal by rail in NSW and Queensland to export ports occurs on track that is also used by other rail users. This is particularly an issue in the Hunter Valley, with the coal trains needing to work in with both passenger and grain haulage services and the NSW Government having a passenger priority access regime. The movement of coal is further complicated by the relatively large number of production sites (over 30 mines in the Hunter Valley alone) compared to the small number of mine sites producing iron ore.

The rail lines serving the coal industry in Queensland have been purpose built and are dedicated to the transport of coal. They generally do not have the major interface issues with other rail users that are experienced in the Hunter Valley. Box 1 provides additional information on coal supply chains in New South Wales and Queensland.

BOX 1 COAL SUPPLY CHAINS

Substantial capacity expansions are currently planned for major rail and port infrastructure serving key coal-producing areas in NSW and Queensland. In addition to this investment, it is vitally important to improve the coordination and planning of future operations, capacity utilisation and expansion projects within these coal supply chains. The process of improvement has already commenced in the Hunter Valley.

New South Wales

In the Hunter Valley, below-rail operations have been provided by the Australian Rail Track Corporation (ARTC) since September 2004 as part of its 60-year lease of the NSW interstate and Hunter Valley rail networks. The ARTC is a company wholly-owned by the Australian Government. The above-rail operations (ie the trains) are provided by Pacific National (a private company) and Queensland Rail (owned by the Queensland Government).

The loading facilities at Newcastle (Port Waratah) are provided by a separate company that is owned by some of the mining companies.

These more complex ownership structures of the different elements of production and transport require more sophisticated management arrangements to ensure efficient operations. In the Hunter Valley a cooperative arrangement, the Hunter Valley Coal Chain Logistics Team has been established by all the transport parties involved to maximise the throughput of the existing infrastructure and to help better plan future system development.

There is also a need for coordination of investment in all parts of the logistics chain to increase output. The announcements by stakeholders in the Hunter Valley during the first half of 2005 concerning investments to increase capacity suggest that this coordination of investment decisions is happening.

The ARTC has announced a \$270 million capital expenditure programme over the next five years to significantly increase rail track capacity in the Hunter Valley to meet future export demand. The operator of loading facilities at Port Waratah has also announced a major capacity expansion programme, and the NSW Government is currently examining tenders for an additional coal loading facility at Newcastle.

Queensland

The Queensland coal mining industry is geographically more wide-spread than the NSW industry. It exports coal through three major ports (Abbott Point, Hay Point and Gladstone) and one smaller port (Brisbane).

The rail lines serving the coal industry in Queensland do not have the major interface issues with other rail users that are experienced in the Hunter Valley. The construction and operation of the rail system is funded through fees and access charges largely from the coal industry, making the industry a major customer of Queensland Rail

The below-rail operations in Queensland are provided by an arm of Queensland Rail. While there is open access to the rail system in Queensland, no operator other than Queensland Rail currently operates a train service. It should be noted that the narrow gauge track used in Queensland is different from the standard gauge track used in NSW.

The ship loading facilities in Queensland are a mixture of Queensland Government and privately-owned facilities. The Queensland Government and Prime Infrastructure (the operator of the major coal loader at Dalrymple Bay) have recently announced major capital expenditure programmes for rail and port infrastructure aimed at addressing future coal demand.

Although they have the same basic objective of moving a bulk product from the point of production to the export port, the rail networks for grain operate on a fundamentally different basis from the iron ore and coal networks. Traffic on the grain lines is highly seasonal and variable between seasons compared to other bulk commodities.

Australia's regional rail networks servicing grain-growing areas were constructed during the second half of the 19th century and the early part of the 20th century. Consistent with the engineering standards and capabilities of the time, large parts of the networks are poorly aligned and built for much lighter axle loads than those of modern-day requirements. As the networks were built on a state-centric basis to link the primary-producing hinterland areas with capital cities and major export ports, they are very extensive compared to the iron and coal networks.

The ownership and management arrangements for grain lines and grain train operations are complex and vary widely between states (see table 1).

Much of the grain network has been starved of adequate investment and maintenance funds over recent decades and is in poor condition. The low volumes on many of the lines mean that the private operators are unable to achieve the revenue stream to address the maintenance deficiencies, resulting in a downward spiral of the condition of the track. In NSW the track is still owned by the NSW Government, and there has been limited and non-ongoing funding from the Government to support the non-economic lines.

Road

There have been major changes in approaches to regulation in Australian transport, particularly for road transport. A cooperative reform process between the Australian and state/territory governments since 1991 has achieved uniform or consistent national regulatory arrangements for many aspects of road transport. Areas where reforms have been implemented include heavy vehicle charges, vehicle mass and load limits, and driver licensing. These changes have contributed to greater flexibility and improved efficiency in road transport.

TABLE 1 ARRANGEMENTS FOR GRAIN LINES AND GRAIN TRAIN OPERATIONS

<i>State</i>	<i>Arrangements</i>
New South Wales	Track is owned by NSW but managed on its behalf by ARTC. Train services are predominately provided by Pacific National under a contractual arrangement that ends in November 2007. There are also some trains operated by the Australian Wheat Board. Standard gauge track.
Victoria	Track is under a long-term lease to Pacific National which also provides the train services. Predominantly broad gauge with some standard gauge track.
Queensland	Queensland Rail owns the track and provides train services. Narrow gauge track.
Western Australia	ARG owns the track and provides train services. Narrow and standard gauge tracks.
South Australia	ARG owns the track and provides train services. Narrow, broad and standard gauge tracks.

Intermodal terminals

Intermodal terminals play an important role in the movement of freight between regions and to/from ports. A preliminary survey by Meyrick & Associates (2002) identified 93 intermodal sites in Australia—76 terminals and 17 transfer points¹—with most of the sites providing road/rail or road/rail/sea transfers. A further 17 terminals had been proposed at the time the survey was undertaken.

Annual revenue of the 93 intermodal sites was estimated at \$200 million in 2002. However, the strategic importance of the intermodal terminals sector far exceeds its share of revenue in total logistics activities. Rail's relatively low share of non-bulk freight traffic has been identified as one of the factors behind the push to develop new intermodal facilities.

Meyrick concluded that the intermodal terminals sector in Australia is somewhat fragmented. However, major users and the activities of the major logistics operators are driving greater integration and better specialisation in some circumstances.

PERFORMANCE

The performance of the Australian economy has been substantially strengthened by a process of microeconomic reform that commenced in the 1980s. Improved performance in transport has resulted from the general process of reform (e.g. workplace relations) and from sector-based reforms in transport.

The broad outcomes of transport reform have included greater efficiency, prices that better reflect underlying costs, new price-quality combinations, greater responsiveness to users, and improved safety. Many of these changes have also affected regional transport services. However, there have been other developments in some regional areas such as rationalisation of transport facilities, withdrawal of non-bulk rail services and modal shifts.

Links to ports

Urban road and rail links are a critical component of the transport system linking regional areas with major ports. Some of these links (e.g. rail through metropolitan Sydney) currently have insufficient capacity and suffer from congestion and delays. These performance issues can have adverse effects on transit times and reliability of transport services, thereby reducing the efficiency of transport between regional areas and ports.

There are also limitations in land transport access to, and facilities at, some regional ports. These limitations have particularly affected several major bulk ports following the recent large increases in shipments of coal and iron ore to China and other export markets.

Governments and private operators have recently completed, or are currently planning, major upgrades of land transport access at several of these ports. For example, the recently-constructed Gladstone Port Access Road, which was jointly funded by the Australian and Queensland Governments, enables road and rail

¹ Meyrick defined a surface-based intermodal facility as 'any site or facility along the supply chain that contributes to an intermodal movement by providing seamless transfer of goods from one mode of transport to another'. Such a facility could be either a terminal (purpose-built or developed to provide seamless intermodal transfer) or a transfer point (providing less than the full range of services).

transport to provide integrated access to the port and removes around 500 vehicles a day from Gladstone's central business district.

Road transport

The introduction of larger vehicles, such as B-Doubles and various road-train configurations, has contributed to efficiency improvements in road transport. Increases in vehicle specifications have been facilitated by improved technology (e.g. road-friendly suspension systems) and more flexible regulatory arrangements.

The larger vehicles have been used to transport grain and for inter-regional movements of non-bulk freight. The introduction of these vehicles, and the poor condition of rail branch lines in some areas, have facilitated the diversion of traffic (particularly grain) from rail to road transport.

Increased use of road transport raises some important issues, such as impacts on safety and pavement damage in regional areas. This move to larger vehicles may be attractive to private operators and shippers, but may not be optimal from a community viewpoint when broader social impacts (e.g. pavement damage) are considered.

Supply chains

Initiatives to strengthen major supply chains have also affected the performance of the transport sector. For example, grain handling organisations have attempted to improve the coordination of grain movement from the farm to regional storage to loading facilities at the port. Improved integration of the supply chain requires participation by growers, grain handling organisations, grain marketers, road and rail transport operators, and operators of port facilities.

Despite these initiatives, there are still substantial concerns about the transport of grain. Key issues include the current condition and potential deterioration of regional rail lines, and the possible impacts on the road system if an increasing share of the grain harvest is moved by road rather than rail.

In some sectors, improved integration and efficiency are facilitated by the involvement of only a few operators in major parts of the supply chain. This is particularly evident in iron ore where mining, rail transport and loading at the port may be undertaken by the same company.

Australia's iron ore and coal industries operate in a highly competitive international environment where the mine-to-port rail network has to be effectively operated as if it is an integral part of the mine's production line for the export of the product. These industries are currently operating at the full capacity of their rail and port systems. They are generally capable of fully funding their infrastructure needs on a commercial basis. This proposition is supported by Xstrata Coal's submission to the recent Infrastructure Taskforce, where it claimed:

There is no need for government investment support as capacity restrictions do not result from a difficulty in obtaining private sector funding².

Intermodal terminals

The performance of intermodal terminals is reportedly lower in Australia than in other countries (Meyrick & Associates 2002). Overall performance has been assessed as

² Xstrata Coal Submission to the Infrastructure Taskforce, April 2005

fair to good from a user's perspective, and as good to excellent from an operator's perspective. The terminals experiencing performance problems particularly involve city and urban port-related facilities. As a result of these problems, major freight-generating companies are sometimes loathe to commit to a multi-user system. This leads to additional costs, limited scope for rationalisation, and slower development of intermodal terminals.

The AusLink White Paper, which was released in June 2002, acknowledged industry and government concerns about the intermodal terminals sector. The location of intermodal freight facilities, in both urban and regional areas, was seen as largely ad hoc. It was concluded that all levels of government and industry would benefit from a better framework for planning and promoting intermodal terminals.³

A better framework would facilitate increased efficiency by identifying the most appropriate locations and improving land transport access for new terminals. In addition, a more predictable planning process might encourage increased investment in existing and new facilities.

CHALLENGES FACING REGIONAL TRANSPORT

Forecast increases in freight traffic will place longer-term pressures on Australia's transport infrastructure. The Bureau of Transport and Regional Economics has forecast that the interstate non-bulk freight task (in tonne-kilometres) will increase by around 80 per cent over the next 15 years.

Expected growth in passenger traffic may also have a major impact on regional freight transport, as passengers and freight often share some transport infrastructure (particularly roads and rail track in urban areas). Passenger traffic (in terms of the number of trips) on the 10 major inter-capital routes is expected to grow by around 40 per cent over the next 15 years.

Traffic growth will add to current pressure points on the network, especially in regions experiencing strong growth and along major transport corridors.

The pressures on transport infrastructure may be intensified by significant changes in the structure of the transport sector. If past trends continue, road transport will grow more rapidly than competing modes and increase its share of the domestic freight transport task. In the absence of effective responses, this growth in road transport is likely to increase congestion in parts of the transport network, such as connections through urban areas to ports.

An alternative scenario involves growth in rail traffic on some routes. Several state governments have set targets to increase the rail share of the landside movement of containers to and from capital city ports. Similarly, there are moves to increase the proportion of freight carried by rail on the Melbourne—Sydney—Brisbane route. Shifts from road to rail transport may also be encouraged by other factors such as higher fuel prices, road congestion and environmental considerations. In most cases, investment in new or expanded infrastructure would be necessary to handle a significant increase in rail traffic.

Some regions may be affected by ongoing restructuring of the grain and rail industries. The privatisation of grain handling and rail freight operations in most

³This is a specific recommendation of the Industry Steering Committee of the Freight Transport Logistics Industry Action Agenda (2002, p. 83).

states has resulted in a more commercial approach to transport decisions. Continued transfer of grain traffic from rail to road is one possible outcome, although this could potentially involve greater costs for the community due to increased damage of local roads.

In both Victoria and New South Wales, there is a prospect of rail branch lines closing, with the result that the option of moving grain by rail may no longer be available in significant areas of Australia. Issues to be considered include:

- the physical rundown of regional branch lines;
- the price that growers are prepared to pay to retain rail services; and
- recognition and reaction by local governments to the potential cost and safety impacts of significantly increased numbers of large vehicles on their roads.

There may be a significant incentive for the states to not address these issues if they expect that the costs will ultimately be borne by the Australian Government through its funding of regional and local roads.

Forecasting of future traffic levels and transport patterns involves significant uncertainties, which complicate the planning process. For example, Australia is currently experiencing strong growth in shipments of commodity exports such as iron ore and coal. Future trends in these shipments will be affected by a variety of factors such as the state of the global economy, economic growth in China, competition from overseas suppliers and restructuring of the Australian economy.

The challenges facing the transport sector are multi-faceted and interrelated. For example, Meyrick and Associates (2002) commented that the factors contributing to performance problems at intermodal terminals include inappropriate infrastructure (e.g. rail access limited by freight/passenger service conflicts), land use conflict (which is heightening community backlash) and environmental issues (e.g. dust, noise and light). Other challenges identified by Meyrick include:

- poor reliability of rail services, leading to higher costs in terms of inventory, storage and handling/damage;
- competencies/training, with a limited ability to employ skilled administrative staff and an inability to adapt to new technology particularly affecting smaller operators;
- IT capability and data sharing, with an inability to interface with customer systems leading to loss of business and additional costs;
- infrastructure constraints, with a recurring industry theme of government failure to respond to the needs of developing terminals and facilitate sound planning; and
- financing, with capital availability for smaller, regional facilities being problematic.

Operators of intermodal terminals are reportedly addressing performance issues with both hard and soft infrastructure investments, particularly in response to pressures from major users. There is also a need to plan access to accommodate traffic growth around small to medium regional facilities.

RESPONDING TO THE CHALLENGES

Traffic growth, modal shifts and changes in the nature of the transport task will place additional pressures on regional transport and connections to ports. Appropriate

responses to these challenges will be required to ensure efficient and responsive transport services that facilitate economic growth and prosperity in regional areas.

These responses can be considered in terms of transport infrastructure (AusLink and private investment), intermodal terminals, intelligent transport systems, regulation, supply chain integration and freight councils.

Auslink

If infrastructure planning is not improved, the traffic growth forecast for Australia will result in more congestion, higher costs, poorer access to services and increased emissions. Therefore, in June 2004, the Minister for Transport and Regional Services, released *AusLink: Building Our National Transport Future*. This document contains the Australian Government's vision for land transport infrastructure policy.

The Australian Government has backed AusLink with a \$12.5 billion investment over the five years to 2008-09. The focus of the funding is primarily on the defined AusLink National Network, but it also includes substantial funding for local and regional transport links under the Roads to Recovery programme and its new strategic component.

AusLink will provide an integrated, long-term approach to land transport infrastructure planning in Australia. Road and rail systems, which were formerly considered on a separate basis, are now part of a single National Network. This allows for greater integration of the two modes as well as intermodal transfer facilities, and provides a sound basis for developing long-term investment priorities. Key components of AusLink are outlined in Box 2.

The Australian Government defined the AusLink National Network after consulting all levels of government, the community and industry. An initial National Network was proposed in the AusLink Green Paper. In the light of subsequent consultations and submissions, additional corridors and links were incorporated in the National Network on the basis of an assessment of:

- interregional freight volumes and passenger flows;
- the population and economic significance of centres proposed to be linked; and
- the strategic trading importance of individual links and export gateways.

The AusLink National Network includes the most nationally significant regional arterial links (see figure 1). Table 2 shows freight and passenger flows on selected AusLink corridors.

Urban road and rail links to capital city ports have been included in the National Network. Upgrading of these links will significantly improve port access for many regional areas. Key rail/intermodal projects under the first National Plan (2004-05 to 2008-09) include:

- \$110 million to improve links between the Dynon intermodal precinct and the Port of Melbourne;
- \$110 million to improve Sydney's Port Botany rail links and the northern rail line;
- \$80 million for the Port River Expressway road and rail upgrades to Port Adelaide;
- \$14 million for a new rail loop to the Port of Fremantle and new road access to improve links between the Kewdale intermodal terminal and the port; and

- \$14 million for improved access to facilities at East Arm in the Port of Darwin.

AusLink will also improve access to other ports through direct connections or as a result of the proximity of these ports to the National Network. Table 3 lists the ports that will be better connected to regional area as a result of projects under AusLink.

BOX 2 KEY COMPONENTS OF AUSLINK

AusLink encompasses a new approach to the way the Australian Government will plan, make decisions about, and invest in national land transport infrastructure:

- It takes a multi-modal approach that incorporates a combined pool of funds for road projects and rail projects. The focus is on the transport corridor and the best way to address a transport need.
- Funding decisions will be made on the basis of the best solution, whether it is a road construction project, a rail enhancement project or a technology approach. The assessment framework requires consideration of all options to solve a transport problem—thinking outside the square.
- The Government’s investment will be based on the new AusLink National Network. This goes beyond the old National Highway system, and includes the key links of national strategic importance. Investment on these links will be focused on projects of highest priority—those that provide the greatest economic and social benefits from a national perspective.
- Consistent with a much broader and more extensive National Network which includes key urban links, the Australian Government will share funding responsibility with the states and territories. This will mean a new way of working with states and territories to achieve results that will benefit all Australians.
- For the first time, transport infrastructure funding will be guided and underpinned by a five-year National Plan with a 20-year horizon. This provides the longer time-frames and certainty to ensure strategic investment, which is so important in the planning and construction of major infrastructure works.
- The AusLink framework maximises the potential for private sector involvement. The new shared funding arrangements will encourage state and territory governments to seek private sector involvement, in appropriate circumstances. The longer planning and investment horizon is more conducive to private sector planning timeframes.
- A rigorous, comprehensive planning and project appraisal framework has been developed. It includes the development of corridor strategies to identify priorities for infrastructure investment.

Corridor strategies will be used to assist the Australian Government’s decisions on future investment priorities on the National Network. These strategies will identify priority infrastructure needs along the major freight and passenger routes. They will articulate the shared objectives of the Australian and state/territory governments for the long-term development of the National Network. The corridor planning process will:

- Identify major current and future bottlenecks, deficiencies and other problems in the corridor.
- Examine how each corridor needs to perform to meet future demands safely and effectively.
- Take a multi-modal approach.
- Provide the information needed to set objectives and performance measures.

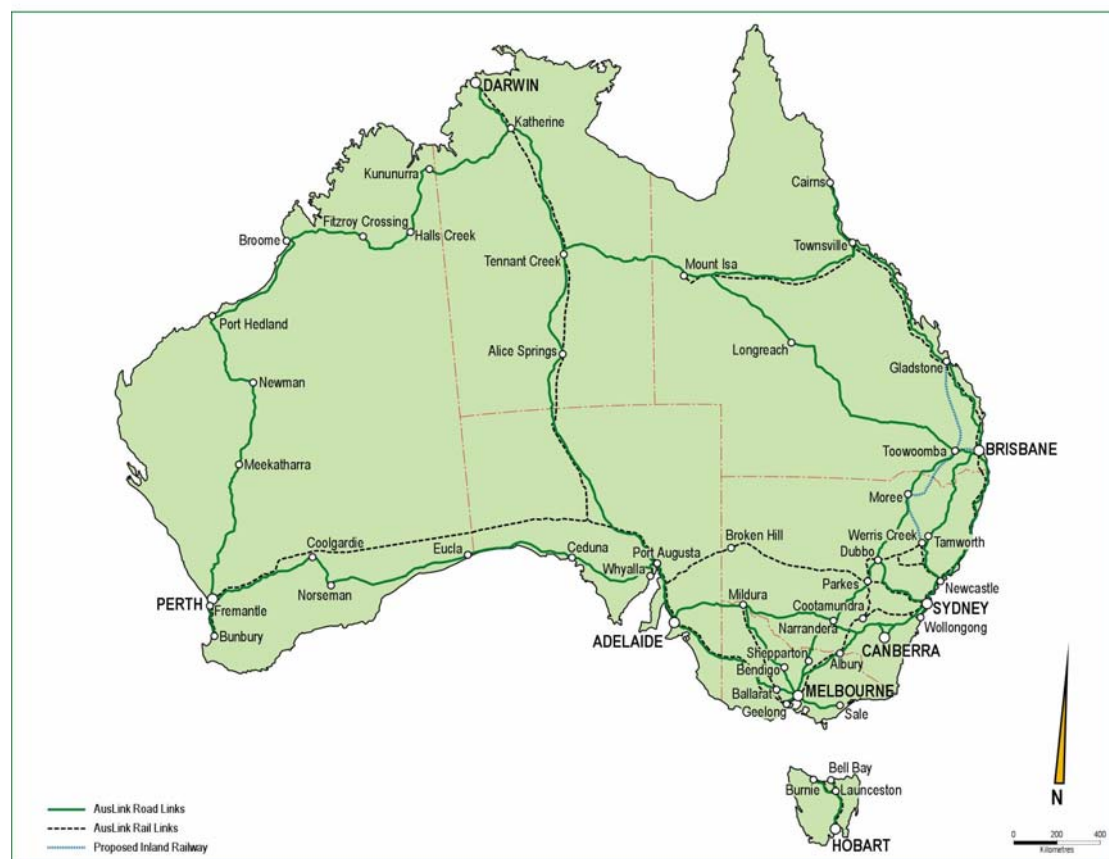
In addition to the National Network, AusLink is also concerned with improving local and regional links that support connectivity with the broader transport system. It specifically incorporates programmes for regional infrastructure located off the National Network. Local government receives funding through Financial Assistance Grants, the National Black Spot Programme and the Roads to Recovery Programme.

The National Black Spot Programme provides \$90 million per year until 2008 to address national road safety black spots. Half of this funding will be spent in regional Australia, targeting funding to where the needs are greatest.

The current Roads to Recovery Programme provides funding for local roads until June 2009, with the funding to be paid in two funding streams. The aim is to provide a balance between the immediate need to reduce the backlog of local roads work and a forward-looking agenda to help build sustainable regional economies and communities. Funding includes:

- \$1.2 billion based on the current Roads to Recovery Programme, with fixed allocations for each council to spend on works of their own choosing;
- \$120 million for land transport infrastructure projects of strategic regional importance, with the programme being accelerated and over \$93 million towards strategic regional projects already being announced; and
- a further \$30 million for road projects that are located in unincorporated areas where there are no councils and State and Territory Governments provide local government services.

AusLink National Network



Private investment

AusLink will facilitate greater private sector involvement in the planning, financing, construction and operation of land transport infrastructure. This greater involvement will include aspects of infrastructure that have traditionally been provided by government in Australia.

As noted earlier, the private sector already has a significant role in land transport of freight in regional areas and to ports. Examples include ports and rail operations for iron ore and loading terminals for bulk cargoes such as coal, bauxite and grain.

TABLE 2 ESTIMATED TRAFFIC FLOWS (BULK AND NON-BULK) BY SELECTED AUSLINK CORRIDOR

<i>Corridor</i>	<i>Road freight 2000–01^a</i>	<i>Rail freight 1998–99^b</i>	<i>Intercapital rail freight 2000–01^c</i>	<i>Road passengers 1999^d</i>
	<i>(million tonnes)</i>			<i>(million passengers)</i>
Sydney–Melbourne	19.2	4.2	2.8 ^e	8.7
Sydney–Brisbane (Coastal)	11.1	4.4	2.2	10.3
Sydney–Brisbane (Inland)	3.3	1.8
Melbourne–Brisbane	5.5	..	1.0 ^f	1.8
Sydney–Adelaide	4.9	2.3	0.4 ^e	2.1
Melbourne–Adelaide	7.0	2.7	2.4 ^e	4.5
Adelaide–Perth	2.4	3.2	2.0	1.1
Canberra connectors ^g	2.2	0.2	0.1	6.0
Adelaide–Darwin	1.3	0.5 ^h	..	0.4
Perth–Darwin	0.6	0.6
Brisbane–Cairns	3.5	4.3	na	2.8
Hobart–Launceston–Burnie	1.9	0.8	..	2.7
Brisbane–Darwin	0.7	1.1
Townsville–Mt Isa	0.6	4.3	na	0.1
Sydney–Wollongong	14.1	12.3	na	17.1
Melbourne–Geelong	8.5	..	na	13.3
Sydney–Dubbo	2.2	0.4	na	3.5
Perth–Bunbury	4.6	5.5	na	4.3
Melbourne–Mildura	1.7	0.7	na	2.2
Melbourne–Sale	5.2	0.4	na	9.3

.. not applicable.

na not available.

a. Distance weighted average road freight travelling within the corridor. Obtained from ABS (2001).

b. Distance weighted average rail freight travelling within the corridor. Obtained from FDF Management (2001).

c. Intercapital rail freight movements. Obtained from ABS (2001).

d. Distance weighted average of inter-regional one-way road (car and bus) passenger journeys within the corridor. Obtained from BTR (1999). Excludes journeys that are part of a regular commuting trip and journeys by children aged 14 years or younger.

e. Assumes two-thirds of freight between Adelaide or Perth, and Sydney or Brisbane travels via Melbourne. The other one-third travels via Broken Hill.

f. Melbourne-Brisbane O–D rail traffic only.

g. Barton and Federal Highways.

h. Tarcoola–Alice Springs.

Source: BTRE unpublished estimates.

Private operators are currently undertaking infrastructure projects to handle forecast increases in traffic that often include exports from regional areas. Examples include:

- rail and loading facilities for iron ore in northwest Western Australia;
- coal terminals at Newcastle, Gladstone, Hay Point and Abbot Point; and
- container terminals at several major capital city ports.

Intermodal terminals

In their 2002 study, Meyrick concluded that there is an opportunity to adopt a properly planned system where intermodal terminals develop around a few major confluences of highways and rail lines. Strategic development of suitable sites would ensure maximum returns for both public sector funding and private sector investment. It would also allow the planned development of sites away from major infrastructure, community and environmental conflicts.

Meyrick described government's role in the strategic development of intermodal terminals as critical. Key aspects include:

- leading the industry through sound planning processes;
- bringing together state and federal governments in joint initiatives;
- ensuring that land is available for development;
- achieving a consistent access and regulatory environment for rail; and
- committing funds alongside commercial operators and developers.

Meyrick noted that the role for industry in developing intermodal terminals for surface transport is well defined. The main task might entail a less fragmented

TABLE 3 PORTS WITH BETTER CONNECTIONS UNDER AUSLINK

<i>State</i>	<i>Ports directly connected to National Network</i>	<i>Ports adjacent, but not connected, to National Network</i>
Queensland	Brisbane (road/rail) Townsville (rail) Gladstone (road)	Cairns, Mourilyan, Lucinda, Abbott Point, Mackay, Dalrymple Bay, Rockhampton, Bundaberg
NSW	Port Botany (road/rail) Newcastle (rail) Pt Kembla (rail)	Yamba, Catherine Hill Bay
Victoria	Melbourne (road/rail) Geelong (rail)	Hastings
Tasmania	Bell Bay (road/rail) Hobart (rail) Burnie (rail)	
South Australia	Adelaide (road/rail) Whyalla (rail)	Cape Jervis, Port Stanvac, Klein Point, Port Giles, Wallaroo, Port Pirie, Port Bonython, Port Augusta
Western Australia	Fremantle (road/rail) Bunbury (rail)	Port Hedland, Broome, Derby
Northern Territory	Darwin (road/rail)	

approach by users (i.e. companies working together rather than in isolation). Challenges for the rail sector include the need to provide an effective link between railhead and wharf.

In response to concerns about intermodal terminals, the AusLink White Paper announced a study of these facilities. DOTARS is currently undertaking an analysis of major current and likely future intermodal facilities (road-rail, including port connections) in metropolitan and regional areas.

Information about the location and role of intermodal terminals on key freight corridors, and issues affecting their development and integration with the National Network, will contribute to better corridor strategies. The research is to assist in improving modal integration and efficiency and to better inform land use and transport planning and investment in intermodal facilities and related land transport.

Improved performance of the intermodal terminals sector will also require actions by state/territory and local governments (e.g. land use planning and locations for new terminals) and industry (e.g. increased use of multi-user terminals). It is also important to note that, on the basis of efficiency and financial sustainability, not every town or regional city should or can be a national intermodal freight hub.

Intelligent transport systems

ITS is the application of computing, information and communications technologies to transport vehicles and networks. Uses of ITS include:

- safety and security (e.g. dynamic speed management, vehicle location);
- efficiency and productivity (e.g. weigh-in-motion and automatic pass systems);
- tracking of freight through the transport system to improve turnaround at transfer points, incorporating improved communication and signalling systems;
- mobility and access (e.g. better integration of services through traveller information);
- transport pricing (e.g. electronic toll collection, road pricing); and
- environment (e.g. improved emissions controls, reduced congestion).

Many of the innovative technologies that are used in the transport sector incorporate an ITS component.

The application and further development of ITS will potentially facilitate better integration of regional road and rail operations, and improve access to ports. For example, traffic management systems can improve the efficiency of road-based transport (including urban links to ports) through better traffic signal control.

ITS can also facilitate the effective implementation of regulatory requirements by, for example, improving the monitoring of regulated activities (e.g. the Intelligent Access Project, Safe-T-Cam). In addition, it can potentially support new regulatory approaches (e.g. Performance-Based Standards) which in turn facilitate increased efficiency in the transport sector.

Regulation

The efficiency of transport operations on regional routes and port connections is affected by regulatory requirements. Key components of these requirements include

maximum allowable specifications for vehicles consistent with environmental and safety requirements.

Several current initiatives are expected to facilitate improved performance in road transport. The adoption of Performance-Based Standards will encourage the development of heavy vehicles that perform optimally without increasing wear and tear on land transport infrastructure. The Intelligent Access Project will enable regulators to monitor freight vehicles remotely using satellite-based, telematic services and thereby assist them to identify whether operators are complying with their agreed conditions of operation (e.g. speed, location, mass).

Operators and governments have also identified a need to harmonise regulatory arrangements in rail transport. Increased consistency and reduction of duplication will potentially contribute to greater efficiency and flexibility in rail operations.

It is important to note that broader regulatory arrangements will impact on transport services. The Exports and Infrastructure Taskforce recently concluded that Australia's export infrastructure is experiencing some localised bottlenecks as a result of an unexpected spike in world demand for coal (Commonwealth of Australia, 2005). It noted that, in the longer term, the problems will become more widespread if the structure and administration of the current economic regulatory framework are not reformed.

The Taskforce recommended that the Council of Australian Governments (COAG) should explore the scope for simplifying and streamlining the regulatory process in relation to export-oriented infrastructure. Other recommendations covered improvements where more heavy-handed regulation was warranted and declaration of a service. Transport-specific recommendations included:

- a renewed commitment by COAG to harmonising road and rail regulations;
- expediting the planning process under AusLink;
- facilitation by DOTARS of the establishment of groups for the coordination of logistics chains of national importance; and
- extension of AusLink to include ports of national significance and their associated shipping channels.

On 3 June 2005, COAG considered the Taskforce report and took several decisions for future action. It agreed, in principle, to a simpler and consistent national system of regulation for ports and export-related infrastructure, and that this be considered in the COAG Review of National Competition Policy (NCP) to report in December 2005. COAG also agreed in principle to:

- hasten the long-term planning being undertaken under AusLink;
- extend AusLink planning and coordination to ports and associated shipping channels;
- each jurisdiction providing a report to COAG every five years on infrastructure;
- the Commonwealth facilitating the establishment of groups to coordinate logistics chains of national importance;
- reinvigorate the agenda for harmonising road and rail regulations; and
- establish 'one-stop shops' in each jurisdiction for project facilitation and approvals.

COAG further agreed that Senior Officials advise, by the end of August 2005, on the implementation of the agreed measures.

In view of the predominance of regional output in export tonnages, these decisions have significant implications for regional areas.

Supply chain concept

A ‘whole of supply chain approach’ can contribute to ensuring that the best use is made of existing transport networks and to targeting areas for investment and improvement.

The essence of effective chain management is integration—combining individual activities into a whole (the chain) that functions seamlessly and provides good performance (e.g. transit times). It is particularly important to ensure that the activities within each chain are well-coordinated. Effective integration requires:

- adequate infrastructure;
- good information flows between service providers, between service providers and users of logistics services, and between users;
- effective coordination mechanisms (e.g. contracts, regular consultation) and dispute resolution procedures; and
- incentives for each service provider to promote the performance of the total chain.

Market forces provide some incentives to coordinate activities along and between supply chains. Options to promote integration include in-house provision of services, single providers of multiple services, partnerships and alliances, chain leaders, and collaboration/voluntary cooperation.

The Hunter Valley Coal Chain Logistics Team provides a good example of the practical benefits of a supply chain approach (see Box 3). Key aspects include the capacity to enhance the efficient use of existing investments and operations, and to some extent identify and act on new expenditure at points within the chain.

Grain highlights some additional considerations in the operation of major supply chains. Key issues include the interaction between road and rail transport, historic investments in transport and storage infrastructure, and the policy/funding/institutional framework within which the industry operates.

Grain transport should be examined in the context of an overall transport policy framework rather than in the narrow terms of a particular aspect or manifestation of the problem facing one sector or part of the transport chain. There is a tendency for the transport price facing the producer to be seen as the only, or principal, issue in considering transport efficiency. However, supply chain issues extend well beyond interactions between the grower and the carrier or receiver of the grain. All parties with interests and responsibilities in the grain supply chain need to establish a dialogue on how to achieve the best approach to transport services.

Freight councils

The Australian Government and the states jointly fund the Australian freight councils, which operate in each state to improve Australia's logistics chain performance.

Several freight councils have recently completed projects that relate to land transport access to ports, predominantly based on the movement of containers. Projects include:

BOX 3 HUNTER VALLEY COAL CHAIN LOGISTICS TEAM

The Hunter Valley Coal Chain Logistics Team (HVCCLT) was established as a formal independent entity to provide planning and logistical services to all of its members consistent with the System Rules. Membership is open to all infrastructure owners and operators servicing the coal industry in the Hunter Valley.

The HVCCLT combines the previously separate coal chain planning functions from the various organisations that it represents. It is tasked with developing plans, managing systems and looking at opportunities to maximise coal chain throughput to the Port of Newcastle through the efficient planning of coal movement along the coal chain from load points to vessels, as well as identifying and accelerating expansions in infrastructure capacity⁴.

The structure of the HVCCLT was formalised at the beginning of 2004, under a memorandum of intent that provides a single independent coal chain planning system. The Team is able to make its own plans under one manager and has the responsibility to act in the interest of the entire coal chain.

The Team responds as one manager to improve transport chain efficiency by improving scheduling practices and train productivity, optimising the rail network and maximising stockpiles and throughput at the export ports. It is guided by one representative from each of Pacific National, Port Waratah Coal Services (PWCS), Rail Corp, Queensland Rail (QR), the Australian Rail Track Corporation (ARTC) and the Newcastle Port Corporation. The Team runs the daily operation of the Hunter Valley coal chain.

The HVCCLT has developed an Integrated Planning System which looks at the whole chain and presents all known constraints to deliver one common coal chain plan to all participants. Different parts of the chain have had to accept that their assets will be controlled for the good of the whole chain. An initial short-term (4-year capacity plan) strategy focused on:

- Increasing load point capacity and performance;
- Increasing vessel management planning and scheduling;
- Kooragang process improvement—rail receipt and ship loading capacity;
- Improving live run performance; and
- Accelerating major rail infrastructure upgrades.

Users are able to input to logistics decision-making through the Capacity Management Forum, the Industry Reference Group and the Rules Committee. However, the absence of direct membership by the coal industry is seen by some coal producers to result in users of the infrastructure having limited input into the day-to-day operations and future planning of coal chain capacity.

While coal producers do not own the transport infrastructure assets that the HVCCLT manages, users and operators have complementary interests in maximising throughput. Nevertheless, there is a view by service providers that excluding the coal producers from having direct membership on the logistics team ensures an appropriate level of independence and “operating for the common good of the Hunter Valley Coal Industry”.

The HVCCLT is developing computerised systems that will provide a better understanding of how to optimise the overall performance of the coal chain, automate the day-to-day scheduling tasks and help plan expansions in the coal supply chain. Automated systems will become increasingly important in handling the multitude of day-to-day decisions which need to keep pace with capacity expansions. It could be that such systems will play a vital role in redressing the diseconomies that anecdotal evidence suggests may cut in for coal chains exceeding 80-90 million tonnes per annum. They also will play an important role in identifying solutions that are not necessarily intuitive.

⁴ PWCS applications for authorisation of a Medium Term Capacity Distribution System.

- Desk Top Study—Freight Corridors (SA Freight Council);
- Regional Intermodal Terminals (Sea Freight Council of NSW);
- Port of Melbourne Container Origin Destination Study (Victorian Freight and Logistics Council);
- NSW Import Export Container Mapping Study (Sea Freight Council of NSW);
- Fremantle Inner Harbour—Container Movement Study (Sea Freight Council of WA);
- Freight Supply Chain—Coordination of Working Arrangements (Mismatch of Hours) (Sea Freight Council of NSW); and
- Landside Infrastructure Capability—International Containers (Sea Freight Council of NSW).

This work has assisted both industry and government understanding of issues in relation to policies and measures that are necessary to achieve greater efficiency in the transport network. In particular, issues being considered by the Standing Committee in relation to port and intermodal infrastructure have been, or are being, addressed through the joint activities of industry and government.

CONCLUSIONS

Integration of regional road and rail services is a key step in achieving efficient and responsive transport for regional areas. Integration requires coordinated planning, use of the most suitable mode for each transport task, and efficient intermodal terminals. Efficient connections to ports are of critical importance to many regions, which generate substantial income and employment through exports.

Bulk commodities produced in regional areas account for a large proportion of domestic freight traffic in tonnage terms. These commodities are typically moved to export ports by road or rail transport. Non-bulk freight (particularly inputs and consumer goods) is also of major importance to regional areas, although the majority of this freight probably moves along inter-city corridors.

Microeconomic reform and technological change have contributed to improved performance in the transport sector, with flow-on effects to regions. There are still issues of concern to regional communities, such as the adequacy of infrastructure—e.g. the condition of branch lines in grain-growing areas and congestion on urban land transport links to some capital city ports.

Regional rail and road transport, and connections to ports, will be affected by forecast increases in freight traffic. Expected growth in passenger traffic will also have an impact, as passengers and freight often share transport infrastructure (particularly in urban areas). Other factors that may place additional pressures on regional transport services and port connections include modal shifts, changes in the nature of the transport task, and the performance of intermodal terminals.

Responding to the challenges

Appropriate responses to these challenges will be required to ensure efficient and responsive transport services in regional areas. These responses will involve both government and private sector actions.

AusLink encompasses a new approach to, and increased funding for, national land transport infrastructure. It will facilitate greater integration of road and rail transport

as well as intermodal transfer facilities, based on corridor strategies. Access to ports will be improved by upgrading of urban road and rail links to capital city ports and, in the case of other ports, through direct connections or proximity to the National Network. AusLink specifically incorporates programmes for local and regional transport links.

AusLink will also encourage greater private sector involvement in land transport infrastructure. The private sector will continue to provide substantial funding for key areas of the transport system, particularly rail, terminals and bulk ports.

Action by industry and all levels of government is required to underpin improved performance and continued expansion of the intermodal terminals sector. This sector potentially has a key role in the integration of regional road and rail transport, and in facilitating efficient access through urban areas to major ports.

ITS facilitates improved performance in the transport sector through initiatives such as sophisticated traffic management which reduces congestion in urban areas. It can also contribute to transport performance indirectly by, for example, underpinning better regulatory arrangements or improved information flows along supply chains.

The potential impact of regulatory arrangements on export infrastructure has been highlighted in the report by the Exports and Infrastructure Taskforce. Continued development of transport regulation, particularly for road transport, can potentially facilitate greater efficiency and better integration of regional transport services.

The concept of supply chains provides a powerful framework for fostering the competitiveness of producers in regional areas. While this approach incorporates many logistics functions outside transport, it also facilitates the consideration of important aspects of transport (e.g. on-farm or farm-gate to silo) that may not have a high priority within a national planning framework. Freight councils provide a mechanism for improving industry and government understanding of supply chain issues including transport.

Iron ore, coal and grain issues

DOTARS is confident that, with the correct pricing arrangements and planning frameworks in place, the iron ore and coal industries will undertake the necessary investments to maintain their international competitiveness.

However, it is concerned that the condition, and potential for further deterioration, of regional grain lines may impact on the export competitiveness of Australia's grain producers. A further concern is the possible impact on the road system and the costs that this would impose if an increasing share of the grain harvest is moved by road rather than rail.

The Australian Government has stated that it wishes to see an increasing proportion of freight being moved by rail, and so any shift of grain from rail to road would make that objective harder to achieve. It is also debatable that the road transport industry could actually handle the grain freight task given the high degree of seasonality of grain production.

The grain lines need to be viewed as part of an overall logistics chain that reflects current technologies in grain production, storage, loading and unloading, transport and marketing arrangements. DOTARS is concerned about the poor coordination of

the grain logistics chain compared to that of, for example, the coal chain in the Hunter Valley or meat exports.

DOTARS' view is that there is a need to rationalise the handling of grain, from the farm gate to the loading onto ships, in light of current technologies. This requires decisions about rail track, development of new or upgraded silo facilities and ship loading facilities. Much of the infrastructure in place at present has reached the end of its practical and economic life. In DOTARS' view, the time has now come for a coordinated approach, led by industry but potentially initially facilitated by governments, to achieve a better grain supply chain approach.

Role of government

Government has made a major contribution to the development of Australia's transport sector through infrastructure provision, funding, operation of services, regulation and other activities. The process of microeconomic reform has significantly changed the form and level of government involvement in many parts of transport. However, government still has a key role to play in situations where there is market failure. Examples of appropriate activities by government, that can improve the performance of the transport sector, include:

- planning and coordinating transport systems, particularly activities involving powers (e.g. planning, land access) that are reserved to governments;
- coordination of activities to achieve outcomes desired by broader industry or community interests when there are insufficient incentives for agreement by private interests alone (e.g. improvement of supply chain performance);
- regulation of drivers and vehicles to achieve broader community objectives (e.g. a reduction of road traffic deaths and injuries);
- regulation of transport activities to ensure that full community impacts are considered by private operators (e.g. pavement damage by road transport);
- direct provision, or support for private-sector provision, of services that are warranted on social grounds but are unattractive to private operators (e.g. urban passenger services);
- funding of infrastructure that will not be provided by private operators (e.g. local roads);
- appropriate upgrading of transport infrastructure that is only provided by government (e.g. certain ports and rail track); and
- regulation of access to private infrastructure to ensure timely and economic access by exporters to essential facilities.

These activities indicate that there is still a multi-faceted role for government to ensure that transport meets the broader needs of regional communities and the nation.

REFERENCES

ABS 2001, *Freight Movements Survey, Australia, Year ended 31 March 2001*, Australian Bureau of Statistics, Canberra.

BTR 1999, *National Visitor Survey and International Visitor Survey 1999*, Bureau of Tourism Research, Canberra.

Commonwealth of Australia 2005, *Australia's Export Infrastructure*, Report to the Prime Minister by the Exports and Infrastructure Task Force, Canberra, May.

FDF Management 2001, *FreightInfo99 Database of National Freight Flows*.

Industry Steering Committee of the Freight Transport Logistics Industry Action Agenda 2002, *Freight logistics in Australia: an agenda for action*, Department of Transport and Regional Services, Canberra.

Meyrick & Associates 2002, *Intermodal Terminals Sector in Australia, Volume 1: Review of Intermodal Terminals*, Report prepared for Bureau of Transport and Regional Economics, Canberra.