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Ms Helen Owens,
Presiding Commissioner,
Progress in Rail Reform Inquiry,
Productivity Commission,
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MELBOURNE, VIC. 8003

Dear Commissioner,

Please accept the attached document as my submission to the Progress in Rail Reform Inquiry. Although originally prepared for presentation at an International Union of Railways seminar held in India in December 1998, it reflects on a number of issues that are germane to the Commission's present deliberations.

Some key points in my paper that I believe the Commission should reflect in its final report are:

That the Commonwealth should take a strong leadership role with the states in developing a national transport vision and strategy based on a well integrated intermodal policy that will facilitate development of each mode in a way that maximises total economic development and efficiency.

To that end, Government policy needs to recognise the important economic benefits of effective intermodalism for freight transport, as well as passenger

UIC MAPS seminar "National Transport Policy " – New Delhi, India – 9-11 December 1998

service. This requires a clear understanding as to how the various transport modes can best be developed and integrated so as to achieve the most effective total transport system. It may also require incentives to encourage maximum collaboration between existing competing modes.

That in developing the foregoing strategy, the Commonwealth generally disregard past Australian rail performance and instead ensure there is proper assessment of what a largely privatised rail industry could deliver by way of national economic benefit, given the right infrastructure and a reasonably competitively neutral environment vis-a-vis alternative modes.

That the Commonwealth also assess the contribution that rail could make to the environment through its increased development as an alternative to heavy long distance road freight transport and to ever increasing motor car use in our cities.

That Governments should actively continue to find ways of facilitating private sector investment in rail, whether through BOOT type schemes, direct privatisation, concessioning or franchising. This should not be based on any particular political philosophy but recognise the reality that privatisation or enforced contestability will often be necessary to ensure that sufficient investment is forthcoming to allow rail to achieve genuine competitive advantage in a tough transport marketplace.

That notwithstanding maximum facilitation of private sector investment in rail, Governments recognise the need for substantial additional on-going public investment in rail infrastructure, justified to the extent of future savings in road expenditure and having regard to the achievable strategic, social, environmental and wider economic benefits of such investments.

I ask that the Commission give due weight to these considerations in framing its final report and recommendations to Government.

Yours sincerely,

John Hearsch

24 May 1999

UIC MAPS seminar “National Transport Policy “ – New Delhi, India – 9-11 December 1998

AUSTRALIA'S RAIL TRANSPORT POLICY – TOWARDS A SUSTAINABLE FUTURE?

By John Hearsch, Director,
John Hearsch Consulting Pty. Ltd.

(recently retired as Group General Manager,
Freight, of Queensland Rail)

ABSTRACT

The paper that follows is a reflection upon the current status of the Australian rail industry and its desired future.

The paper outlines the development of Australia's railways from a historical perspective and particularly in relation to the involvement of successive state and federal governments. Set in this context, the paper describes the current state of rail transport in Australia as it relates to the freight, urban passenger and non-urban passenger sectors.

Several key policy issues are then discussed including the need for a comprehensive land transport planning framework, vision and strategy, the challenge to achieve competitive neutrality between the rail and road sectors (particularly in relation to heavy long distance road freight transport), environmental and social considerations and issues affecting future technological development in the rail industry.

The demand/supply equation for rail is then considered having regard to service extent and quality, the essentials of intermodalism and rail's involvement in total supply chain management, the further application of electronic commerce and information systems and issues surrounding pricing, including pricing for track access.

Major issues surrounding industry structure, privatisation and the need for a new approach to rail infrastructure financing and investment are also discussed.

Finally, the paper points to possible ways ahead for rail in Australia, particularly in relation to policy and planning integration, the extent of future government regulation and subsidy processes, achievement of a "level playing field" with road transport and essential rail infrastructure development.

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AUSTRALIA'S RAILWAYS – A BRIEF HISTORICAL PERSPECTIVE

Australia's first public railway opened in 1854, only 66 years after the continent's first European settlement. Thereafter, as in many parts of the world, an intensive period of railway development occurred until the 1890's depression. In those days Australia consisted of six largely independent colonies, each separately governed, funded and ultimately controlled from England. But unlike early railway development in Britain and the U.S. that spawned numerous railway companies led by entrepreneurs, each of the Australian colonies saw that, with funds available from England, construction of new railways provided very desirable political leverage as well as the catalyst for development of a vast hinterland.

In the heady days before railways faced any form of serious competition, each colonial government therefore clearly saw railway ownership and operation as their own public responsibility. Continued government control of almost all Australian railways then followed as a natural consequence and was largely unquestioned for the best part of a century. Given the vast distances between the colonial centres, it is also unsurprising that the proliferation of government owned railways took place quite independently in each colony, much as though each was a separate country and unlikely to ever have another colony's railway meet at their common borders.

It might be unfair to totally blame our former British colonialists but the lack of foresight evident in the late 19th century certainly laid the basis for Australia's three rail gauges and the almost total lack of equipment, infrastructure and operational uniformity which still impedes our industry today. By the 1890's, however, railways had extended to meet and create transhipment activity at the borders between all mainland states, other than for the 1000 mile (1600 km) east-west gap which still divided the South Australian and Western Australian systems.

By 1900, most Australian states had a complex web of railways but these were built to vastly differing standards and track gauges. Queensland, Western Australia, Tasmania and parts of South Australia had lightly constructed lines in 3'6" narrow gauge, Victoria and the remainder of South Australia utilised the Irish 5'3" broad gauge, whilst only New South Wales (the largest system at that time) built its railways to the 4'8½" standard gauge. Quite extensive suburban railway networks also now existed in the various major cities, particularly Sydney and Melbourne.

Australia's unification as a nation came into being with Federation in 1901 but the new Australian Government failed to assert its potential powers which could have forced the new state governments to standardise the various rail gauges and harmonise other aspects of their operations.

During the next 20 years, numerous works were undertaken, particularly in New South Wales, to improve vertical alignments on the principal main lines so that steam locomotives could haul heavier loads. Paradoxically, these "improvements" eliminated the superior horizontal alignments of the original railway builders in favour of lengthy circuitous deviations, most of which remain in place today and act as a substantial impediment to rail's ability to compete with the superbly aligned freeways which more or less parallel the main rail routes.

Commencing in 1912, and with commendable foresight, the Australian Government funded, constructed to 4'8½" gauge and itself then operated the 1000 mile east-west trans-continental link from 1917 notwithstanding the fact that the movement of passengers and freight across the continent then involved four changes of train or transhipments. Travel was on 5'3" gauge for 610 miles in Victoria and part of South Australia, then 3'6" gauge for 120 miles in South Australia, 4'8½" (standard) gauge on the trans-continental line and finally 3'6" gauge again for the remaining 400 miles in Western Australia. In 1937, the 3'6" gauge in South Australia was replaced by extensions of both the 4'8½" and 5'3" gauge lines to meet at Port Pirie – a station which then became unique in having lines of all three gauges for a further 32 years! Meanwhile, Queensland's capital city of Brisbane was also linked to Sydney by a direct 4'8½" gauge line that was completed in 1930.

In common with other parts of the developed world, the years between World War 1 and the outbreak of World War 2 in 1939 (other than the 1930's depression years) were to prove the steam era heyday of Australia's railways. Heavy road transport and the airlines were still in their infancy whilst car

ownership remained a relative luxury. Rail freight and passenger traffic thus developed largely unchallenged from other modes. And yet the drastic gauge problem remained and became more serious as rail traffic grew, there being no less than 13 break-of-gauge stations involved in transhipping both passengers and freight by 1938.

From 1939, World War 2 imposed unprecedented demands upon Australia's inadequate rail infrastructure and threw the problems of a fractured and uncoordinated network into sharp relief. The dislocation to movements of essential manpower and supplies caused by the multiple gauges and poor quality track were so severe that, under emergency legislation, the Australian Government took over the coordination of all land transport from 1941 for the duration of the war. But by 1942, the continued disruptions caused by the rail's inability to cope had become a major impediment to the conduct of the war in the Pacific. The lessons learnt from this debacle provided a powerful impetus for serious planning of an extensive gauge standardisation program. This commenced in 1944.

In 1946, plans were finalised by the Australian Government for a massive programme of gauge standardisation and rehabilitation but lengthy political argument with the States and post-war funding difficulties delayed final agreement until 1959 and then to a very much reduced scheme! By now, heavy long distance road transport was emerging as a serious competitor to rail freight whilst the airlines were already taking a major share of the long distance passenger market.
Arising from the 1959 agreement, three major standard gauge projects were undertaken as an Australian Government initiative in the 1960's. These finally resulted in the completion of direct 4'8½" rail links between Melbourne and Sydney by 1961 and from Sydney to Perth in 1969.

The 1970's saw the emergence of major bulk coal and mineral hauls on railways in New South Wales, Queensland and Western Australia including the construction of substantial new infrastructure for both government and a few private operators. These developments have continued, albeit at a slower pace, to the point where these bulk commodity movements currently account for some 90% of Australia's overall rail freight traffic task.

Further Australian Government initiatives saw a completely new standard gauge line replace the old 3'6" gauge line to Alice Springs in Central Australia in 1980 and the city of Adelaide in South Australia linked to standard gauge in 1982 by conversion of the 5'3" gauge line from Port Pirie. Finally, in 1995, the Melbourne to Adelaide 5'3" gauge line was converted from broad to standard gauge.

However, by 1990, despite these major gains, Australia's five principal rail networks remained operationally divided, as did their separate ownership by one federal and four state governments. All other transport modes, including rail's major long distance competitors, had long operated on a nationwide basis to service what had essentially become a national and international marketplace.

Rail's increasing lack of competitiveness for long distance general and containerised freight led to the creation of the National Rail Corporation (NRC) in 1993 – a company jointly owned by the Australian, New South Wales and Victorian Governments. NRC was established with a view to providing seamless freight services that could effectively compete with heavy road transport on the long interstate corridors linking Melbourne with Sydney, Brisbane, Adelaide and Perth. The owning governments also saw the establishment of NRC as a way of achieving new industrial relations arrangements, particularly with a view to reducing the number of unions with coverage in the rail industry. The multiplicity of unions had previously complicated the management of change. NRC was also regarded as the best means of tackling the financial losses that had long been incurred in the interstate general freight business.

NRC therefore became Australia's first genuinely national rail operator and set out on a long and difficult journey to regain some competitive advantage for rail. Originally established as an "above rail" operator over other railway's infrastructure, it was envisaged that NRC would ultimately take control of the principal interstate route infrastructure. However, the advent of National Competition Policy in 1994 (see below) resulted in the early abandonment of this concept and NRC has since continued in its original role. NRC did succeed in establishing better industrial relations arrangements, including a reduction in the number of unions represented in its workforce from fourteen to two. It has also achieved a significant improvement in business financial performance, although acceptable levels of profitability are still proving to be illusive.

For the first time, NRC's establishment also powerfully highlighted the problem of diverse standards, procedures, systems and infrastructure encountered by any "above rail" operator whose services traverse routes controlled by different track owners and interact with trains owned by several (now many) other operators. As an example, the five principal Australian track owners currently operate 22 different (although often very similar) safeworking systems, nine radio systems and have trackside signals which, whilst displaying identical indications to drivers, can have completely different meanings. Structure gauges, permissible rolling stock dimensions and many other technical standards vary widely between rail networks.

Sadly, it is only during the past year that the implications of more than 140 years of rail network diversity and minimal national coordination have become widely acknowledged. Meaningful steps have recently been initiated to achieve reasonable levels of nationwide harmonisation and ultimate standardisation of the many aspects of rail operations and infrastructure, but for Australia's rail industry, this will be a long and costly path for many years ahead.

By 1998, five years after NRC's creation, rail has succeeded in achieving limited market place gains for long distance non-bulk hauls and passenger service on some corridors, but has been less successful in others.

Conversely, heavy bulk commodity rail hauls have continued to grow and generally prosper, being largely immune from other modal competition. However, the entire Australian rail industry today operates under rapidly changing institutional arrangements and market conditions, most of which were scarcely contemplated only five short years ago.

THE CURRENT AUSTRALIAN RAIL TRANSPORT SCENE

Freight Transport

Measured on a nett tonne-kilometre basis, the modal shares of all freight moved within Australia's borders are fairly equally divided between coastal shipping, rail and road transport. However, if the movement of major bulk commodities such as coal, iron ore, other minerals and grains are excluded, heavy long distance road transport predominates on all corridors except on the 3400 km east-west haul between Melbourne and Perth. Rail conveys approximately 70% of all freight on this route and has roughly maintained this share over recent years despite intense road and some shipping competition.

Elsewhere, for both interstate and intrastate movements, rail market shares for general and containerised freight vary from as low as 10% to as high as 40% on the 1700 km narrow gauge line from Brisbane to Cairns in North Queensland. Typically, however, rail handles in the range of 15 to 25% of the available general freight over a variety of other corridors ranging from length from 200 to 2000 km. Overall, the rail market share of general freight is continuing to fall by comparison with road transport, notwithstanding a modest increase in absolute rail volumes over recent years.

Why is this so? The reasons can be summarised as:

- Relatively poor rail route infrastructure compared with rapidly increasing road capacity and quality
- Inability for rail to convey double-stacked containers, other than on portion of the east-west corridor
- Faster transit times by road in most areas
- Large increases in permissible heavy road vehicle mass and dimensional limits
- Significant under recovery of attributable long distance heavy road vehicle road construction and maintenance costs
- Rail operator track access charges being approximately five times that of heavy road vehicle road user charges on an equivalent gross tonne-kilometre basis

- Less stringent safety provisions for road transport compared with rail
- Lack of adequate freight train line capacity in some areas, especially the Sydney metropolitan area where curfews apply to freight train movements for four hours each morning and afternoon.
- Inadequacy and inefficiency of some intermodal terminal facilities.

These factors are further analysed later in this paper.

Single car (or wagon) load traffic has largely disappeared from Australia's railways, primarily because of the prohibitive costs of switching and marshalling and because service quality for this type of business cannot compete with an efficient door to door direct road service. Practically all major bulk commodity rail movements now take place in block or unit trains which, in the case of the dedicated iron ore lines in Western Australia, are the world's largest with regular train consists of up to 240 vehicles for a gross mass of some 35,000 tonnes! Queensland Rail (QR) regularly operates narrow gauge unit coal trains with four electric locomotives hauling up to 12,000 tonnes gross mass whilst FreightCorp operates similar sized unit coal trains on the standard gauge Hunter Valley network in New South Wales.

For general freight, rail's response to door to door road competition has been the substantial conversion of this business to a fully containerised operation involving the use of unit container trains operating between dedicated terminals already located or being developed in almost all major centres. A completely seamless intermodal service can thus be provided to end users. This is either arranged by rail based forwarding agents (who effectively engage the rail operator as their sub-contractor) or by the more market-oriented rail operators who act as prime contractor and arrange contract road haulage (drayage) between the intermodal terminals and end origin or destination points. Whilst such intermodal services are yet to achieve their full market potential and almost all continue to battle fierce road competition, they have allowed rail to much more efficiently service the general freight market than was the case with the traditional car load operation.

In 1994, the Australian and all State Governments entered into a far reaching agreement known as the National Competition Policy. Inter alia, this provided for an open access regime to be applied to all "essential infrastructure", that is, all infrastructure with inherent monopoly characteristics and which could not be economically duplicated. Rail lines were generally categorised in this way. The Policy also sought to encourage the structural separation of these so-called "monopoly elements" of a railway from the "above rail" business of operating trains, somewhat along the lines of the British model and European Union Directive 91/440.

In response, the Australian and New South Wales Governments adopted the separation model. This resulted in the creation of infrastructure owning bodies in the form of the Australian Rail Track Corporation (ARTC) to manage the principal interstate standard gauge corridors and the Rail Access Corporation of New South Wales (RAC) to manage the extensive New South Wales standard gauge network. The Victorian Government initially adopted a similar

model with the formation of VicTrack in 1997 but, only 12 months later, decided to re-integrate its rail operation and infrastructure in order to maximise the value of its V/Line Freight Corporation prior to its sale (see below). However, the Western Australian and Queensland Governments, as owners of Westrail and Queensland Rail (QR) respectively, determined that the US vertically integrated model was more appropriate to Australian conditions, notwithstanding their obligation under National Competition Policy to introduce open access regimes.

Consequently, rail infrastructure owners, whether separate "below rail" organisations or still part of traditional vertically integrated railways, have been required to facilitate the emergence of "on rail" competition. In the case of vertically integrated railways, the open access regime must demonstrably avoid discrimination against third party rail operators who seek to compete with the existing railway's own present or prospective business. These arrangements are subject to significant regulatory oversight with heavy fines for non compliance.

Significantly, the first organisations to take advantage of open access were two major rail based forwarding agent companies who, in 1995 and 1996, commenced operation of their own trains on the Melbourne – Perth corridor in direct competition with NRC. At least in part, this development was a result of market dissatisfaction with the services and rates offered at the time by NRC. Two additional operators also now compete with NRC on the Melbourne – Adelaide sector of the east-west corridor, making a total of five rail freight operators (together with one passenger operator) who have sought access to prime time slots on this capacity constrained route. The open access regime has also given birth to several smaller rail companies that are serving niche markets such as short line and terminal switching operations.

The combination of poorer quality rail infrastructure and better roads have tended to depress rates and hence returns on the north-south coastal corridor linking Melbourne with Sydney and Brisbane. With rail market shares hovering below 20% on the Melbourne – Sydney and Melbourne – Brisbane sectors and around 30% (but certain to fall as road improvements come on stream) between Sydney and Brisbane, "on rail" competition has been slower to emerge. However, in recent weeks, two existing rail operators (one Government owned and one private company) have entered the Melbourne – Sydney market with a view to transferring business from road and to compete with NRC. At least one of these operators also plans an early assault on the Sydney – Brisbane market. A new private sector operator has also recently introduced container train services on two intrastate corridors within New South Wales in direct competition with the existing Government owned FreightCorp.

The Australian rail scene is currently dominated by the prospects of early privatisation of many hitherto government owned bodies. The former Australian National Railways (ANR), which itself was formed from an amalgamation of the Commonwealth Railways, South Australian Railways (non-urban network only) and Tasmanian Railways in 1975, was sold by the

Australian Government in 1997. The disposal was in three parcels – a long distance "above rail only" passenger operation (see below), a South Australian freight and a Tasmanian freight operation. The South Australian business, which involved vertically integrated operations on narrow, standard and broad gauge lines, was purchased by Australian Southern Railroad (ASR), a consortium principally owned by the US Genesee and Wyoming Railroad. The Tasmanian railway, which is a vertically integrated narrow gauge network, was purchased by Australian Transport Network (ATN) which is substantially owned by Tranzrail of New Zealand and the US Wisconsin Central Railroad.

The Victorian Government owned broad and standard gauge freight business, V/Line Freight Corporation, is currently being sold together with a long term lease on the Victorian non-urban rail infrastructure. The identity of the short-listed bidders should be known shortly with the sale process scheduled for completion by April 1999. The Western Australian Government has also announced its intention to sell the Westrail freight business and its related non-urban infrastructure by mid-1999. Westrail is a profitable full trainload business that operates on both narrow and standard gauges and is regarded by most observers as Australia's most efficient multi-product railway.

Additionally, the Australian and Victorian Governments announced their intention almost 18 months ago to also dispose of their shares in NRC. However, the sale process has been delayed through disagreement between the shareholding Governments regarding the transfer of certain assets from the states to NRC. Nonetheless, the New South Wales Government is expected to also agree to the sale of NRC and this is expected to take place during the second half of 1999.

By late 1999, it is very likely that the only Australian rail freight businesses left in government ownership will be the New South Wales Government owned FreightCorp and QR. FreightCorp, as an "above rail" operator only, is regarded as a prime candidate for privatisation with its efficient standard gauge trainload business, notably its heavy haul coal operations in the Hunter Valley, some 200 km north of Sydney. QR's vertically integrated 10,000 km network, regarded by many as the "jewel in the crown" for its extensive and profitable narrow gauge trainload coal business, is almost certain to be the last of its kind in Government ownership, at least in the southern hemisphere. But QR's coal and freight businesses are also likely to eventually succumb to the inevitability of private sector ownership. Otherwise, QR will be vulnerable to serious competitive pressures from other rail operators envious to snare some portion of QR's 100 million tonne plus trainload traffic task and who are unencumbered by the non-commercial pressures regularly imposed on management by their politically driven government owners.

Urban Passenger Transport

With populations ranging between 1 million and 4.5 million, Australia's five largest cities all have comprehensive public passenger transport networks comprising bus and rail services together with ferry services in Sydney, Brisbane and Perth, light rail in Melbourne, Adelaide and Sydney and an extensive street tramway network in Melbourne. The most extensive rail networks are in Sydney and Melbourne, both of which are electrified at 1500 volts d.c. whilst smaller and newer but nonetheless significant rail operations are in Brisbane and Perth, both of which are electrified at 25 kv. a.c. The relatively small Adelaide rail network is operated with diesel multiple units (DMU's).

Australia's urban population mostly lives in relatively low density housing with the only exceptions being medium density residential areas in some inner suburbs in both Sydney and Melbourne. Low density lifestyles generally militate against the effective use of public transport and help to entrench car ownership. Changes in social patterns, including the large number of married women who have entered the workforce and often purchase a second family car, have further added to this trend. In fact, in line with the U.S., Australia has one of the highest car ownership ratios in the world with over 10 million registered vehicles for a population of slightly over 18 million. Road networks including freeways (motorways) and major arterial roads have expanded accordingly at vast community cost.

A further factor affecting public transport usage is the change in commuting patterns over the past 30 years or so. This has particularly affected heavy rail systems that were historically configured as radial networks extending from the central business districts of major cities. Fifty years ago, the majority of work places in Australian urban areas including shops, offices and factories, were relatively close to the major city centres whilst most of the urban population resided within 15 km or less from their workplace. All of this has dramatically changed. Residential areas now radiate 50 km or more from city centres whilst large shopping malls, office complexes and all types of industrial plants have moved from inner to middle and outer areas of our sprawling cities.

In Australia, the overwhelming consequence of these trends (which, with the partial exception of Sydney, show little sign of abating) is that the majority of urban passenger trip origin/destination combinations no longer correspond with fixed public transport routes. Therefore, there has been a slow but constant decline in public transport market shares, particularly on trains and trams. Additionally, absolute levels of public transport usage tended to fall steadily during the 1950's and 60's, fall more slowly during the 1970's but have tended to stabilise from the 1980's onwards.

However, in Sydney and parts of Melbourne traffic congestion during peak hours has become an increasingly severe problem, notwithstanding the huge investments made in improved road infrastructure. This was forced some commuters to seek available public transport alternatives and has underscored the need for effective integration between the various public transport modes. In other corridors, commuter single trip distances can

extend to 50 to 80 km or more as home buyers seek cheaper property in the outer suburbs or in other accessible centres. Where these factors are having an impact, patronage has somewhat recovered and is showing signs of modest growth.

There is ample evidence to suggest that well planned and accessible public transport networks can strongly influence overall patterns of urban development. However, state governments in Australia, which have primary responsibility for urban public transport, have mostly shown a marked reluctance over many years to make substantial investments in public transport service or infrastructure, or to effectively integrate transport infrastructure and land use. However, there are exceptions.

In Sydney, public transport usage is relatively higher than other Australian cities because of severe traffic congestion in the inner areas, reasonable quality of the general public transport offering and the benefits derived from various State Government initiatives including:

- Replacement of the entire electric multiple unit (EMU) carriage fleet over a 25 year period which now entirely consists of modern double-deck equipment.
- Extension of high quality electric services to the centres of Wollongong, Port Kembla and Dapto to the south of Sydney, a distance of 94 km.
- Introduction, for the first time in Australia, of a suburban cross-town rail service to link the southern suburbs with Parramatta, a major urban centre to the west of Sydney, following construction of a new connecting line known as the Cumberland Link.
- Construction of another major cross-town line to link Parramatta with Sydney's northern suburbs which is excepted to commence within two years.
- Construction of another completely new underground line linking the central city of Sydney with the major domestic and international airport terminals at Mascot. Work is at an advanced stage and the line is scheduled to open in 1999.
- A new line serving the Olympic Games venues at Homebush which has been constructed and commenced operation earlier this year. (It is noteworthy that Sydney's success in staging the year 2000 Olympics is at least partly attributed to the impressive capacity of its suburban rail system).
- In 1997, the opening of the first stage of a major light rail network with a return to Sydney streets of the first tramway vehicles since its once extensive tramways closed in 1960. A major extension to the network has now been approved.

Melbourne, Australia's second largest city, has suffered more than most from a lack of major public transport investment with successive State Governments being primarily concerned with constraining budget outlays. Nonetheless, three extensions have been added to Melbourne's tramway system and one short extension to the suburban rail system in recent years

whilst two short former suburban rail lines have been converted to light rail operation with positive results. The majority of Melbourne's tramway fleet as well as portion of the EMU fleet had also been replaced with modern equipment by the late 1980's. Melbourne has an excellent multi-modal ticketing system covering all train, tram and bus services, with automated ticket selling facilities recently added. Melbourne's entire public transport network, inclusive of the infrastructure, is currently undergoing total privatisation (see below) – a process which has effectively stalled any long term planning or investment proposals for some time.

The cities of Brisbane and Perth, each with populations approaching 1½ million, introduced high quality electric train services in 1979 and 1991, respectively. These services have been progressively extended and improved, most recently with the opening of the Gold Coast line to Robina, 82 km south of Brisbane. This narrow gauge line features the use of very modern EMU sets with permissible operating speeds of 140 km/h. Further extensions to both city's rail networks are planned.

All urban rail services in Australia are supported by State Government subsidies (CSO's) with fare box revenue typically covering between 20% and 40% of fully allocated costs. Capital contributions for these services are either in the form of interest free grants from State Governments or, in QR's case, an additional CSO payment to cover the annualised cost of its capital charges. Most states are also moving towards a system of explicit service contracts with the various rail operators, associated with performance based bonuses and penalties.

The Victorian Government, with its Melbourne system the first in Australia to be fully privatised, has largely adopted the British franchising model as the basis of its endeavour to minimise future subsidy payments. For this purpose, each of the extensive suburban rail and tramway networks have been geographically sub-divided into two separate vertically integrated companies, ostensibly to increase competition! However, fares and service levels will be subject to continued regulation by the Government. Not surprisingly, British based rail and bus companies appear to be leading the charge to secure these franchise contracts!

Non-urban Passenger Transport

Australia's non-urban rail passenger businesses can be categorised into three broad groupings:

- Long distance services covering routes ranging from around 1000 km to almost 4000 km in length, principally operated as tourist trains for leisure travellers and for a limited amount of point to point travel, including over shorter sectors.

- Medium distance point to point services, typically covering routes between cities and major regional centres between 200 km and 700 km apart and serving the leisure, other discretionary travel and non-discretionary travel markets.
- Short distance intercity services covering routes beyond the defined suburban areas, typically between 70 and 160 km from major cities (mainly Sydney and Melbourne) and operated on an intensive basis to meet daily commuting and other travel needs.

The two major domestic airline companies, Qantas and Ansett, together with several regional airline operators, dominate long distance passenger transport in Australia. Long distance coaches also operate on the principal interstate routes. Except within Queensland and for leisure and tourist travel, rail's role in serving centres more than 1000 km apart had essentially disappeared 30 years ago. Rail still holds a small share of point to point travel between the east coast capital cities, i.e. Brisbane – Sydney (980 km), Sydney – Melbourne (960 km) and Melbourne – Adelaide (800 km) notwithstanding strong competition from airlines and road coaches.

In Queensland, however, point to point rail travel over the 1700 km narrow gauge corridor between Brisbane, Cairns and numerous intermediate centres is still popular, partly due to a significant volume of tourist oriented travel to and from Queensland's tropical North. Other point to point rail services operate weekly between Sydney and Broken Hill (1120 km) and twice weekly on two routes to inland Queensland centres, each of which are approximately 1000 km in length.

Australia's tourist trains have gained a well deserved reputation for comfort and service, the best known being the recently privatised "Indian-Pacific" and "The Ghan". The "Indian-Pacific" operates over the almost 4000 km standard gauge route between Sydney and Perth (thus linking the Pacific and Indian Oceans) whilst "The Ghan" has operated on the standard gauge line from Adelaide to Alice Springs since 1982, with one of its two weekly services having been recently extended to Melbourne. These trains formed part of the Australian Government's disposal of Australian National Railways in 1997, the purchaser being Great Southern Railway (GSR), a consortium including the British train operating company GB Rail and SERCO. Other popular tourist trains include QR's narrow gauge "Queenslander" and "Sunlander" services between Brisbane and Cairns and "The Spirit of the Outback" which operates between Brisbane and Longreach in outback Queensland – a distance of over 1300 km.

A new luxury train to be known as the "Great South Pacific Express" is also being constructed by QR and will commence operation in a joint venture with the Venice Simplon Orient Express Company (VSOE) during 1999 between Sydney and Cairns – a distance of almost 2700 km. The train has been developed to serve the high end of the luxury leisure travel market, similarly to other VSOE products in Europe and South-East Asia. A unique feature of this train is the provision of duplicate sets of narrow and standard gauge bogies with a bogie exchange facility to be provided in Brisbane to interchange the

entire train between the standard gauge in New South Wales and QR's narrow gauge network.

Medium distance point to point passenger services operate over a considerable number of routes, particularly in New South Wales and Victoria and, to a lesser extent, Queensland and Western Australia. A feature of both the New South Wales services operated by Countrylink and by V/Line in Victoria is the extensive use of fully coordinated road coach services (operated by contractors) to smaller locations, including many that had been served by branch line passenger trains in earlier years. These seamless passenger train and coach services typically cover routes between 200 and 700 km. in length.

Countrylink's services are predominantly operated with standard gauge XPT and DMU equipment, the former being a very successful Australianised version of the British High Speed Train (HST). Both types of rolling stock are permitted to operate at up to 160 km/h on suitable track. The Victorian broad gauge services operated by V/Line have been gaining patronage for the past 15 years following a major revamp and re-equipping of the services during the 1980's. This steady gain, albeit from a low base, followed several decades of disinterest and decline. Two of the Victorian services were sold to private franchises in 1993 and the remainder are currently being tendered for sale as a single franchise. Privatisation of all Victorian Government owned passenger services (urban and non-urban) should be finalised by April 1999.

An important innovation introduced last month by QR is the southern hemisphere's first tilt train that now operates daily in each direction over the 640 km narrow gauge corridor between Brisbane and Rockhampton. The EMU tilt sets, which were locally designed and built and utilise Hitachi traction and control equipment, are permitted to operate at 160 km/h on suitably aligned sections of the route.

The most heavily patronised non-urban passenger operations in Australia are intensive intercity services operating on corridors ranging between 70 and 160 km from Sydney and Melbourne but which serve locations beyond the defined suburban system boundaries. The Sydney based standard gauge intercity services operated by the State Rail Authority of New South Wales (SRA) use double-deck EMU sets, supplemented by DMU's on non-electrified routes. These operate to typical service frequencies of between 15 minutes (in peak hours) and 1 hour, extending to 2 hourly on lesser routes. The Melbourne based services operated by V/Line follow a similar pattern except that all operate in non-electrified territory on broad gauge lines and use a combination of locomotive-hauled equipment and DMU's. Both State's intercity services operate at permissible speeds of up to 130 km/h.

The majority of non-urban rail services operate under subsidy payment (CSO) arrangements with the respective State Governments, the only exceptions being the GSR owned long distance interstate services and the QR/VSOE joint venture "Great South Pacific Express". As such, continuation of these services usually relates to the various Government's social and political

objectives. Similar financial arrangements apply to these services as for urban rail services, although cost recovery levels are often lower. This particularly applies to commuter services on the intercity routes where revenue yields have been depressed by specific government policy to keep fares at lower levels than the market would normally bear.

POLICY PERSPECTIVES

Planning Framework and Strategy

The foregoing outline of the current Australian rail scene underscores the historical diversity of operations and infrastructure that originated in the former colonies that became states with the advent of Federation in 1901. With Federation came the Australian Constitution that potentially gave the Australian Government significant influence as well as a number of reserve powers with respect to railways. However, the formal allocation of powers and responsibilities to the Australian Government, inclusive of the few successful constitutional amendments since 1901 were, and still are, generally on an exception basis with the states still having dominant control over many government functions, including transport.

Prior to World War 2, spasmodic efforts were made by individuals within the Australian Government to obtain agreement with the states for partial unification of the rail network and to proceed with certain standard gauge conversion projects. As described above, these efforts met with very limited success with standard gauge works limited to the Sydney – Brisbane corridor in 1930 and extensions in South Australia which were completed in 1937. The states' reluctance to cooperate with these initiatives partly stemmed from a myopic "state rights" view and their insistence that the Australian Government meet the majority of costs involved.

The enormous demands of World War 2 resulted in an agreement for all income tax to be collected by the Australian Government on a uniform basis and this system has remained in place ever since. This has given the Australian Government large financial resources with which it can effectively influence and even coerce the states on many issues. In addition, the Constitution provides that trade and commerce between the states shall be "absolutely free" and, consequent upon a far reaching 1954 court interpretation, enables the Australian Government to exercise effective control over all modes of transport engaged in interstate operations.

The Constitution also provided the Australian Government with the ability to make financial grants to the states for specific purposes together with any conditions that it wished to apply. Such grants have been the basis on which

successive rail and other projects have been initiated by the Australian Government, particularly in more recent years, even though the various states have often been somewhat reluctant recipients of this financial largesse!

Notwithstanding these real and potential powers, the majority of successive Australian Governments have shown a marked disinclination to lay down guidelines or standards for rail inter-operability or to establish clear policies for railways either as part of, or independently of, any overall transport policy framework. The most plausible interpretation of these attitudes is that closer Australian Government involvement in the railway affairs of any state might have lead to a demand for federal funding of various rail initiatives. Given that almost all rail systems required substantial state subsidies over many years, such involvement might also have lead to a request for the Australian Government to assume ownership – a possibility that the Constitution explicitly provides for. Indeed, in 1975, agreement to do so resulted in the takeover of the South Australian and Tasmanian Railways from the respective state governments and the subsequent formation of ANR.

Whilst the Australian federal system of government makes it difficult to achieve a consensus with all states on major policy issues, this has not prevented bilateral agreements on specific projects such as the Melbourne – Adelaide standard gauge conversion project that was completed in 1995. Nor has the Australian federal system prevented strong leadership by the Australian Government that ultimately achieved the implementation of substantially uniform nationwide policies and regulation in relation to aviation, maritime and road transport. The Australian Government also leads a national roads program that fully funds the maintenance and construction of defined national highways and thus strongly facilitates the ongoing growth of inequitable heavy vehicle competition with rail.

Although community and political awareness of rail's potential contribution to Australia's overall economic progress is increasing, there remains an absence of any national policy framework or programs for rail development in our cities, rural areas or for the overall national rail network. Nor does there appear to yet be any clear vision as to the benefits that a well integrated intermodal policy, with each mode maximising its potential contribution to the total task, would bring to Australia as a whole.

Competitive Neutrality

An important element of Australia's National Competition Policy is the requirement to ensure competitive neutrality between the private sector and competing government owned trading enterprises, including railways. Upon implementation of the policy, it was generally agreed that a number of advantages traditionally enjoyed by the public sector should be withdrawn in order to allow equitable competition between the organisations concerned. One effect of these changes was that government owned railways became

subject to legislation that imposes heavy penalties on companies and individuals who engage in anti-competitive behaviour or who indulge in unfair competition by means of predatory pricing or similar market manipulation. However, the present basis on which long distance rail and road modes compete itself indicates a complete lack of competitive neutrality between them.

Moreover, the continuing absence of an overall Australian Government transport strategy and in particular, the lack of any evident clear vision for the future role of rail transport as a component of such a strategy is progressively leading to a significant misallocation of national economic resources. As mentioned above, road transport continues to increase its share of the general freight market at the expense of rail and, given continuation of current policies, this trend will almost certainly continue. This failure to exploit rail's inherent ability to improve total transport efficiency through adoption of a number of straightforward measures will actually ensure that such a forecast becomes a self-fulfilling prophecy!

The rail industry is seeking a "level playing" field on which the modes can compete with a view to maximising the efficiency of Australia's transport resources. A missing element in this debate seems to be an understanding of what rail can achieve given the right infrastructure and a competitively neutral environment. This requires an appreciation of present and potential transport markets and how these would respond were there to be:

- Some reallocation of annual road construction and upgrading funding towards rail infrastructure upgrading.
- Long term rail infrastructure investment programs funded by both the private sector (where justified by commercial considerations) and government to the extent of future savings in road expenditure and the net benefits indicated by wider economic, environmental and social criteria.
- Progressive provision of high quality rail infrastructure linking Australia's capital cities and other major centres with capability for operating long trains at reasonably high average speeds and, on key routes, for container double stacking.
- A road pricing regime for heavy vehicles computed on a similar basis to rail access charges and which seeks to fully recover their attributable road maintenance and upgrading costs through recognition of distance operated and vehicle gross mass.
- More rigorous safety requirements for heavy road vehicles and stronger measures to ensure compliance.

It is estimated that full implementation of these measures would have increased the overall rail market share of Australian long distance general freight to a minimum of 50% which, based on 1995 traffic volumes, would have increased the rail task by approximately 60%. In turn, this would provide sufficient critical mass for several rail operators to compete on each corridor and ensure that service quality is maintained.

Environmental Considerations

The rail industry worldwide has the potential to significantly contribute to the reduction of environmental degradation. Emissions are a pressing problem in most large cities and Australian cities are no exception. For example, it is estimated that if present trends continue, Sydney's greeenhouse emissions will increase by a further 36% by the year 2016.

The rail mode itself has a generally good record in relation to land use and emissions although there is scope for further improvement in rail's relative environmental friendliness through the reduced air and noise emissions that can be achieved by modern rolling stock and infrastructure. However, rail can contribute much more to the global environment through its increased development as an alternative to heavy long distance road freight transport and to ever increasing motor car use in our cities.

Social Considerations and Subsidies

Since their inception, railways have conferred very significant social benefits on a wide range of individuals, communities and industries and therefore to nations as a whole. Historically, railways in Australia were owned and managed as an arm of government and, whilst most had incurred substantial financial deficits over many years, there was little to be gained by drawing a clear distinction between the commercial and social aspects of rail operations or the future benefit of prospective rail projects.

In Australia at least, this has completely changed. The rail industry is subject to intensive modal competition and, whilst many of its worst loss making activities have been restructured or eliminated, governments are faced with hugely competing demands to fund other forms of social welfare including health, education and a wide range of other community services. Governments are thus understandably anxious to reduce or eliminate rail subsidies and, as described above, some see privatisation as a convenient and politically attractive means to that end.

Over recent years, most government railways in Australia have been restructured through a process of corporatisation or commercialisation into government owned corporations with a charter to operate on a commercial basis. Typically, these restructures have been accompanied by the appointment of a commercial Board of Directors to interpose between government (as owner/shareholder) and rail management.

Other changes such as conversion from cash to accrual accounting and attempted "competitive neutrality" with the private sector through the imposition of government taxes and charges (from which government bodies are normally exempt) have also been implemented. In addition, specific government powers such as compulsory land acquisition and regulatory

responsibilities, together with the “shield of the Crown”, have been removed from most rail organisations and the relevant powers transferred to various government departments. Some of these changes have also occurred as a deliberate prelude to future privatisation.

However, the corporatisation or commercialisation processes, or even privatisation of railways that confer social benefits not reflected in their financial performance, make little sense without a related regime which clearly segregates and quantifies the railway’s attributable social costs and benefits by comparison with the financial performance of its pure commercial business. This is hardly a new idea. But it seems to pose particular difficulties for some government bureaucrats and treasuries who wish to pay scant regard to the net social value that the railway does and can generate. Consequently, the social worth of rail service is consistently under-valued and its potential to add future net social benefits is often seriously discounted or totally disregarded. This particularly applies to prospective rail infrastructure investments.

Paradoxically, Australia’s road authorities continue to receive generous funding from the Australian Government to construct and upgrade highways to standards that can accommodate the ever increasing mass and dimensions of heavy vehicles and do so with total reliance upon social benefit/cost analysis to justify their massive investments. However, until recently, most proposed rail investments on main lines which had the potential to achieve competitive advantage for rail by comparison with trucks were required to be justified on a purely commercial basis.

Many models exist worldwide that have addressed the subsidy issue in recognition of social and other non-commercial benefits, both for on-going operations and capital investment. Of course, this issue extends well beyond the realm of rail transport. In the final analysis, however, there is no effective substitute for clear performance based contracts between governments and rail service providers, whether government owned or in the private sector.

Such contracts should specify the required outputs, including prices to users if applicable, in return for a guaranteed funding stream over the life of the contract to cover the net cost of those services that cannot be sustained on a purely commercial basis. Specific requirements that provide a benefit to particular groups in the community, e.g. concession fares for aged persons, should preferably be paid for by the government agency that is best placed to assess the value of that benefit. The type and quantity of inputs (e.g. numbers and locations of rail employees) should remain entirely at the discretion of the service provider, unless the government is prepared to pay an added subsidy to cover the cost of any additional input that it requires. With some exceptions, such arrangements are yet to be satisfactorily finalised for Australia’s railways.

Technological Development and Application

Technological improvement has been an on-going goal for railways since their inception. High profile changes such as the replacement of steam locomotives with diesel and electric traction, the introduction of extensive remote controlled signalling installations and the widespread use of radio communications have long become an integral part of conventional rail technology. Undoubtedly these and the many other technological changes adopted by railways have been a significant factor in achieving improved productivity and in delivering better customer service. But railways still struggle to achieve competitive advantage in an environment where alternative transport modes have tended to be more innovative and faster to respond to competitive pressures.

Why is this so? Several reasons suggest themselves:

- Government ownership and effective control of many railways tends to focus rail management upon a wider range of issues than the commercial fundamentals of meeting customer needs, achieving good financial performance and maximising shareholder value.
- Many railways rely upon scarce government grants for capital investment and therefore tend to concentrate on developments and projects that are thought to have political appeal.
- Other railways operate on slim margins and cannot afford the costs and risks of direct involvement in new technological development.
- Technological innovation on some railways has been fraught with massive delays, cost overruns and a few notable failures, often because of poor project management. This acts as a deterrent to others.
- Technological solutions have often tended to be over-engineered, are thus too costly and not fit for purpose.
- Industrial relations problems, whether real or perceived, have often caused technological change that affects staffing levels to be delayed, sub-optimised or, at worst, abandoned.
- Individual railways have often developed unique home-grown solutions to problems and have therefore unnecessarily “re-invented the wheel” instead of adopting tried and proven solutions from other railways or suppliers. This also impedes future inter-operability between railways.

The critical technological challenge today for most railways, and certainly for Australian railways, is to seek and find solutions which are cost-effective, truly fit for purpose, utilise appropriate technologies and which facilitate inter-operability or information interchange between relevant organisations. Many of the required solutions can now be obtained “off the shelf” from reputable suppliers, thus avoiding the traditional tendency of railways to devise “in house” responses to these needs.

Australian railways nowadays generally possess or have access to good motive power and rolling stock together with reasonable maintenance facilities to support these fleets. However, most track owners have substantial

lengths of inadequate infrastructure including signalling, safeworking and communications systems which are outmoded, costly to maintain and essentially not suitable for today's operational and business needs. Readily available technology (both hardware and software) to support infrastructure maintenance functions has also been slow to achieve widespread acceptance.

Computer systems development to underpin operational and commercial functions on Australia's railways has been patchy and, until recently, has largely failed to adopt standard data protocols and message formats to ensure ease of data interchange between the various rail organisations, their customers and suppliers. Fortunately, Australia's rail industry now widely acknowledges the benefit of overcoming these deficiencies and is moving in this direction as quickly as available resources will allow. Appropriate government policy could strongly facilitate these important developments.

The Demand/Supply Equation

Service Extent and Quality

In order for any transport supplier to maintain relevance in a highly competitive marketplace it is a fundamental prerequisite that the origin/destination points of the service offered must correspond with those required by the user, either wholly or in part. In the Australian context this is rarely a problem for the movement of major bulk commodities as there is usually ample commercial justification for the provision of specialist rail and terminal facilities to meet the specific needs of the movement concerned. As previously outlined, however, intermodal solutions are almost invariably required in order to meet customer needs for the rail movement of general freight, as casual car load movements involving extensive marshalling and the provision of private sidings usually involve unsustainable costs and impede effective utilisation of rolling stock.

A particular problem in Australia is that some of the principal origin/destination nodes for long distance general freight cannot be competitively serviced by rail because the rail network does not directly parallel major highways that link these nodes by the shortest practicable route. A case in point, which helps to explain the sub-20% rail market share of the growing Melbourne – Brisbane corridor is that the current 1930 km circuitous coastal rail route via Sydney is almost 250 km longer and much more congested than the competing inland road corridor. Consequently, effective door to door transit times on the corridor are almost 24 hours longer by rail than by direct road. Moreover, the

present low rail market share is only being maintained because rail freight rates are substantially below the competing road rates. Feasibility studies are presently being undertaken by private interests to determine the financial viability of providing a direct and much more competitive inland route on this corridor.

Similar problems afflict the fixed rail urban networks in most Australian cities, particularly Sydney and Melbourne. As mentioned earlier in this paper, Sydney is taking initial steps to address the problem through the development of Parramatta, some 20 km to the west of central Sydney, as an alternative node for its suburban train operations. However, traffic densities in other cities are unlikely to justify any variation to the traditional city centre based radial rail networks. Therefore, smart intermodal linkages in the form of feeder buses, commuter car parks and efficient interchange facilities provide the only prospect that major patronage gains are achievable by rail based public transport for journeys to other than city centres.

In Sydney, and to a lesser extent Brisbane, freight service quality is also adversely affected by conflicting demands for scarce track capacity between passenger and freight trains. The problem is particularly severe in Sydney where there is a four hour curfew on freight trains in the suburban area morning and afternoon in order to ensure that peak commuter travel is not delayed. Limited measures have been undertaken to alleviate the problem however a complete solution is probably unaffordable in the short to medium term.

Apart from the foregoing, the major determinants of rail transport demand in rail contestable markets are largely related to both the promised quality of service and that which is actually delivered. In Australia, the relevant quality factors naturally vary according to specific expectations of the markets being served but include transit times, schedule adherence, suitability of rolling stock, loss and damage (for freight), comfort and on-board amenities (for passengers), terminal efficiency, user-friendliness of passenger ticketing or freight documentation, suitability of value-added services and the like. The challenge for rail managers is to fully understand the expectations and needs of their various client groups (or of individual large clients) and then deliver cost-effective service packages that can reliably fulfil those expectations and needs at a price which is acceptable to both seller and buyer.

Intermodal / Supply Chain Integration

An increasingly important factor which will determine rail's freight business success in containerised and general freight markets is the ability to extend the provision of seamless intermodal service into the value-adding process of total logistics management. In Australia, some rail operators have been slow to recognise today's prerequisites in order to be the prime contractor,

especially when dealing with major clients in highly competitive markets. The alternative is for forwarding agents or third party operators to be the prime contractor and for the rail sub-contractor to be an intermediary with minimal influence on market outcomes.

Because of the intensity of road competition in Australia's general freight markets, margins are invariably slim at the best of times. However, the direct management of key intermodal interfaces through effective control (but not necessarily ownership) of terminal facilities, road pick-up and delivery (drayage service) and ancillary services such as container storage, repair, servicing and ground power supply for reefer units can add substantially to the revenue stream and improve the business bottom line.

Beyond effective intermodal service however is the increasing demand from many clients for provision of total logistics management of product, in some cases extending along the total supply chain from production line to final consumers. Warehousing and other facilities, or at least land on which such facilities can be provided, are an essential pre-requisite to the delivery of an efficient logistics system. A good example of such facilities is at the Port of Brisbane where a planned and integrated development is taking place within the context of a 50 year plan. This includes modern warehousing and an excellent rail based container terminal served by both narrow and standard gauge lines which is operated by QR under a management contract to the Port of Brisbane Corporation.

Effective logistics management also requires skills that extend beyond those ordinarily possessed by railway people. The alternatives are to recruit specialised staff, undertake in-house training, establish strategic alliances or joint ventures with other service providers or to directly acquire businesses that have competence in this field.

Government policy needs to recognise the important economic benefits of effective intermodalism for freight transport as well as passenger service. In doing so, it needs to develop incentives that will encourage the various transport modes to collaborate and thus facilitate the maximisation of each mode's inherent advantages as each takes its logical place in the overall logistics chain.

Electronic Commerce and Information Systems

The rapid development of electronic data interchange processes and the almost unlimited potential of the Internet provide the rail industry with significant opportunities to improve customer and operational interfaces and to offer a wide range of new value-added services. Electronic commerce and other services can be further enhanced through the provision of effective communication links using radio or other technologies that can readily interface with appropriate computerised systems.

As with many large organisations, the principal Australian railways have developed various large scale mainframe based computer systems to support a variety of business, operational and maintenance needs. Such systems have involved large capital outlays and long lead times for their development and implementation and the on-going need for their adaptation to current market requirements has become an impediment to rail's competitive performance. The processing power and speed of current and prospective personal computers associated with client-server networks and "off the shelf" software should provide better solutions for the information needs of future railway businesses than the traditional mainframe-based approach.

Australia's railways have been slower than some of their competitors to take full advantage of these opportunities, with some major operators yet to even exploit the potential of effective Internet web sites. Fortunately, progress is being made in addressing the need for uniform data transmission protocols and message formats that will facilitate efficient data exchange between rail operators, track owners, customers and suppliers, almost irrespective of the other technological solutions that are chosen. This is yet another aspect of the essential requirement for Australia's rail industry to pursue harmonisation of standards and procedures and for the Australian Government to provide strong encouragement in this regard.

Pricing Considerations

Pricing of rail services to end customers can involve purely commercial considerations of market conditions or, where social or political factors have to be considered, governments are entitled to intervene but should only do so on the basis of explicit contracts with rail service providers. As discussed earlier in this paper, such contracts can include stipulated prices to end users as long as there is recognition that such intervention is unlikely to provide the necessary pricing flexibility that can maximise revenue or overall financial performance. However, commercially based pricing without subsidies should be the preferred option wherever possible.

A major complicating factor introduced as a result of Australia's open access regime has been the need to apply "below rail" access prices to all train operations, irrespective of whether separate track owning organisations or vertically integrated railways are involved. Apart from the transactional costs and complications of rail access pricing, the processes involved in setting and quoting access prices for "above rail" services have so far proved to be time consuming and frustrating for operators who must respond quickly and positively to marketplace demands.

A related issue is a marked difference in pricing philosophy between the various track owners. One approach, favoured by most train operators, is a publicly available schedule of prices for various classes of trains based on a flagfall or fixed rate for each train path plus a variable component per train gross tonne-kilometre. Whilst relatively crude and simple, this approach does

not discriminate between users having regard to “what the market will bear” and hence is unlikely to maximise returns to the track owner. The alternative is to employ “Ramsey Pricing” which involves individual (and secret) negotiations with each operator, having regard to the specific market conditions applying in each case. These differences in approach are very significant for those wishing to operate trains over corridors controlled by more than a single track owner. The recent establishment of the Australian Government owned ARTC with a charter to provide a “one stop shop” for interstate train operators is expected to somewhat alleviate these problems.

Industry Structure and Privatisation

Consequent upon the adoption of Australia’s National Competition Policy and implementation of open access regimes on rail networks, considerable debate has ensued as to the relative merits of structural separation versus continued vertical integration of rail organisations. It is not intended to fully canvass the issue in this paper. However, as five freight and one passenger operators now have services on at least part of the main east-west corridor and three freight and one passenger train operators now co-exist on the north-south corridor between Melbourne and Sydney, it is apparent that the separation of train operations from infrastructure has helped to generate new on-rail competition in areas where sufficient total market potential is felt to exist.

Conversely, it is noted that the Victorian Government has recently re-integrated VicTrack and V/Line Freight into a single company with a view to maximising its sale proceeds from its impending privatisation of the V/Line Freight Corporation. Similarly, decisions of the respective state government owners to retain both Westrail and QR as vertically integrated railways is not unconnected with an intention to maximise the net worth of both railways.

Overall, the decision criteria for separation versus integration should not be influenced by a particular philosophy but should consider the practical potential for productive “on rail” competition on the main corridors concerned, noting that the main game should still be the need for well balanced intermodal competition and coordination. Many parts of the Australian rail network handle single commodity movements and/or involve very light freight flows. In these situations, the total available business can barely support one rail operator and the notion of any form of “on rail” competition has nothing to commend it.

As previously discussed, rail privatisation presently has a high profile in Australia and this is likely to continue for perhaps a further five years. By this time relatively few rail operations will be in public ownership (with the likely exception of some urban passenger services) although most rail infrastructure may remain. Debate on the merits or otherwise of the privatisation of government assets and businesses invariably raises strong passions, usually derived from the political philosophy of the protagonists. Rail privatisation in

Australia is still in its early stages and it is not possible to yet assess its market impact and overall longer term consequences. However, it does seem clear that many of the new private sector operators will be overseas based railway companies, thus belatedly indicating that the rail industry, following the example of all other transport modes is finally becoming part of the globalised economy. At the very least, this development is helping to bring new skills and fresh thinking to a traditionally inbred industry.

Moreover, it is without question that all Australian government railways have historically suffered from long exposure to ad hoc political involvement, often in relation to relatively minor operational or administrative matters. This tends to blur management accountability, causes severe management frustration and sends confusing messages to employees as to the most basic of commercial versus social objectives. Corporatisation and the appointment of "commercial" Boards of Directors has been implemented in some instances with a view to the interface with government being at arm's length. However, experience would suggest that this objective is rarely achieved in practice unless the politicians and bureaucrats concerned exhibit uncharacteristic restraint! By comparison, private sector organisations rarely suffer from such ambivalence and are able to exercise clear commercial judgement when confronted with difficult business or operational issues.

In short, privatisation is the appropriate way forward for rail organisations that can only survive through competitive advantage in a tough marketplace as exemplified by the general freight business throughout Australia. Given that the vast majority of bulk commodities conveyed by rail in Australia are destined for export, intense competition in international commodity markets provides a similar rationale for privatisation of rail freight businesses handling trainload bulk commodities. The argument for privatisation of rail businesses (mainly passenger) which heavily rely on government subsidy support is less clear cut. Much depends upon the rules set by government for the granting of franchises or concessions. Based on the limited experience to date in the United Kingdom and elsewhere, privatisation of public passenger transport cannot be deemed a failure and strong arguments exist for genuine contestability in the provision of such services.

Infrastructure Financing and Investment

Most of Australia's extensive rail network that exists primarily for the export movement of bulk agricultural and mining commodities can generally be classed as fit for purpose, given that capability for handling large trains and moderate to high axle loads are more important for these services than maximum speeds or transit times. However, the achilles heel of rail competitiveness for long distance containerised and general freight in

Australia lies with the relative inadequacy of the fundamental rail infrastructure on specific key corridors by comparison with road.

In particular, the main north-south corridor on Australia's east coast badly suffers from poor vertical and very poor horizontal alignment, short crossing loops and, in Victoria, relatively light track that has speed and axle load restrictions. And, as previously mentioned, the present Melbourne-Brisbane rail corridor is more than 250 km longer than the competing inland highway and suffers from severe capacity constraints and curfews during passenger peak hours in the Sydney suburban area. A direct Melbourne – Brisbane inland rail corridor (presently under evaluation) would reduce the rail distance by around 200 km., at least equal road transit times, potentially allow double-stacking of containers and result in a substantial modal shift from the parallel Newell Highway. Such a corridor can be created through a combination of existing rail infrastructure, some of which would need upgrading, and the construction of "missing links" in New South Wales and Queensland.

By comparison, the heavy road transport industry in Australia operates on an increasingly high quality infrastructure which is being engineered, at very substantial cost, to accept 6-axle semi-trailers which a gross combination mass (GCM) of 45 tonnes and double semi-trailers (known as B-doubles) with a GCM of 65 tonnes. Trials are now taking place with triple semi-trailers (B triples) on selected routes which have a GCM of 88 tonnes whilst road trains, consisting of a semi-trailer hauling either one or two additional trailers with a GCM of up to 115 tonnes, are permitted to operate in most of the more remote areas. A number of special road vehicles engaged in bulk mineral movements with prime movers hauling up to six trailers have also been authorised to operate on designated routes with a GCM of up to 206 tonnes. These massive units are, in effect, trains on rubber wheels!

For illustrative purposes, the major long distance general freight corridors in Australia
are listed below together with their main characteristics:

CITY NODES	RAIL CORRIDOR			ROAD CORRIDOR	
	Length	Gauge	Characteristics	Length	Characteristics

Melbourne - Sydney	960 km.	4'8½"	Poor alignment, Track Inadequate (part) Short crossing loops, Capacity constraints	869 km.	Hume Highway– mainly 4-lane freeway standard
Sydney – Brisbane	987 km.	4'8½"	Very poor alignment, Short crossing loops Track generally good	975 km.	Pacific Highway-some sections poorly aligned. Being lifted to freeway standard
Melbourne – Brisbane	1927 km.	4'8½"	As above <u>plus</u> Severe capacity constraints in Sydney area	1678 km.	Newell Highway – good average standard 2-lane highway
Brisbane – Cairns	1678 km.	3'6"	Poor alignment (part), Track inadequate North of Rockhampton	1710 km.	Bruce Highway – good average standard 2-lane highway
Melbourne - Adelaide	797 km.	4'8½"	Poor alignment in Adelaide Hills Track very poor in Victoria (part)	729 km.	Western/Dukes H'way part 4-lane freeway standard, remainder good 2-lane highway
Sydney - Port Pirie	1532 km.	4'8½"	Poor alignment in N.S.W. (part) Safeworking outmoded	1552 km.	Mitchell/Barrier Hwy-good average standard 2-lane highway
Adelaide – Port Pirie	226 km.	4'8½"	Track generally good Track and alignment generally good OK for double-stacking	214 km.	Stuart Highway-good average standard 2-lane highway
Port Pirie - Perth	2429 km.	4'8½"	Track and alignment generally good Safeworking outmoded OK for double-stacking	2479 km.	Eyre/GreatEastern Hwy very good standard 2-lane highway

From the table it will also be noted that, due principally to the actual course of the rail routes coupled with poor horizontal alignments, both of the major Melbourne – Sydney and Melbourne – Adelaide rail corridors are substantially greater in length than their current road counterparts. Most of the Melbourne – Sydney highway and substantial parts of the Melbourne – Adelaide highway have now been upgraded to four lane freeway standard, during the course of which many "short cut" road deviations were constructed. Over the next few years, the Sydney – Brisbane Pacific Highway is also to be upgraded to full four lane freeway standard with up to 30 kilometres reduction in total length. The present rail alignments in these corridors are already fundamentally uncompetitive except for non-time sensitive freight that is conveyed at the lowest available rates.

For many years, the Australian Government has shown a marked reluctance to invest in main line rail upgrading although no such reluctance has been evident when competing road investments were considered. Fortunately, it has been more enthusiastic in relation to some gauge standardisation projects provided it could secure support from the relevant states. The current Australian Government has agreed to commit very limited funds to assist the ARTC to undertake some of the most immediate upgrading requirements. There is an

apparent expectation that additional funding can be sourced from rail operators through track access payments or borrowed against the prospect of future access revenue. Unless a comparable road pricing regime that also recognises gross tonne-kilometres can be achieved, this is a somewhat heroic assumption given that average track access charges are already some five times that of heavy road transport when assessed on a like for like basis.

Rail infrastructure investments cannot be fairly assessed on a strictly commercial basis unless competing road investments are similarly viewed. Ironically, were this to occur, few road investments would pass any return on investment test. Rail infrastructure investments need to be considered in a broad strategic context but unfortunately such a context in the form of a national land transport or rail strategy is yet to exist.

Prospective rail investments also often fail to gain acceptance because investment analysts within the bureaucracy or consultancies rarely have a deep understanding of specific transport markets or of Australia's rail industry in particular. Small projects are often proposed for adoption because of an inherent assumption that funding for large scale projects would simply be out of the question. But small infrastructure projects, whilst often worthwhile in themselves, usually only produce minor marginal gains and do little to change the big picture. Where large scale projects are occasionally examined, analysts typically fail to sufficiently factor the realistic outcomes of a quantum leap in rail service performance or efficiency into their work. Accordingly, such analyses tend to be highly conservative and thus ensure that further falls in rail market share become a self-fulfilling prophecy.

The future for major rail infrastructure investments should partly lie with the private sector given the substantial interest in prospective projects that already exists. Within the context of a broad strategic plan for rail development, it would be appropriate for the Australian Government, in consultation with relevant states, to seek expressions of interest and indicative bids for major rail upgrading or construction. The bids should also seek the extent to which the developer is willing to fund such projects on a build, own and operate (BOO) or build, own, operate and and transfer (BOOT) basis. The Government's own analysis should follow, rather than precede, such a tendering process. It should take the form of a gap analysis to establish the extent of additional government sourced funding that could be justified having regard to future savings in road expenditure and to strategic, political, social and wider economic considerations and thus whether individual projects appear to be deliverable.

THE WAY AHEAD

The foregoing paper has endeavoured to examine some critical issues for the future of Australia's railways in the context of the industry's historical development and its present day status. Set out below are some condensed thoughts as to how best, as we approach the 21st century, rail can be positioned to maximise its contribution to Australia's future economic development, the environment and to the general benefit of all Australians and visitors to Australia.

Policy and Planning Integration

- It is critical that the Australian Government assume a strong leadership role in the development of a broad vision and strategy for the future of land transport in our cities, rural areas and particularly for the transport links between each of the capital cities as well as to other main population centres.

- An Australian land transport strategic plan should be developed in consultation with the states. This should take an intermodal approach in recognition of the principal attributes of the various transport modes and with an understanding as to how the potential of each mode can best be developed to maximise its relative contribution to the future transport task. Mutual collaboration between modes should be encouraged as an integral part of the plan.

- The total rail system, irrespective of ownership, should be regarded as a national asset. To that end, a clear national transport goal should be to work towards ultimate inter-operability between all linked parts of the rail network through the development and implementation of uniform standards and procedures for rail operations, rolling stock, the infrastructure and for access to the infrastructure.

- The Australian Government should declare the major interstate rail links, possibly together with a limited number of other key rail routes, as being of

national importance and as the rail equivalent of the National Highway System.

- A national railways program should be established with a minimum 10 year horizon to promote and facilitate development of the declared national railway network in collaboration with the states and the private sector.

- A national program of urban public transport project support should be re-introduced to assist the states with rail and other projects that can be shown to produce major net benefits or materially assist with meeting greenhouse emission targets.

Government Intervention – Regulation and Service Contracts

- By means of a Land Transport Commission or Rail Transport Commission, the Australian Government should give effect to the uniform standard and procedures established by the rail industry with a view to their mandatory application on the declared national railway network and for their strongly recommended adoption on other railways.

- Uniform procedures should be introduced for operator accreditation on the National railway network and be strongly recommended for application on other railways.

- As a general principle, rail services requiring on-going government subsidy should be opened to contestability. However, this may not be practicable for large integrated urban rail systems, such as in Sydney, unless complete privatisation of the network is decided upon.

- Where subsidised rail services continue in government ownership, service contracts that specify the required outputs, including prices to users if applicable, should become the standard basis for payment of CSO subsidies. In return, the operator should receive a guaranteed funding stream over the life of the contract to cover the estimated net cost of those services (including capital) which cannot be funded by users. The type and quantity of resources employed to provide the required outputs should be at the discretion of the operator.

The "Level Playing Field"

- Prospective rail investments should be evaluated on the same basis as road investments with full inclusion of all externalities including accidents, pollution, congestion, etc. together with a soundly based assessment of modal transfer potential and consequent savings in future road expenditure.

- The payment methodology principles should apply for access to both road and rail infrastructure for freight transport operators who compete in the same end markets. In particular, heavy road transport vehicles travelling significant annual distances in competition with rail should be required to pay a gross tonne-kilometre based road access charge which covers their attributable road maintenance and upgrading costs.

- More rigorous safety requirements should be introduced for heavy road vehicles travelling significant annual distances together with stronger measures to ensure compliance.

Infrastructure Development

- As part of the proposed 10 year national railways program (see above), the most serious infrastructure deficiencies on the principal interstate corridors should be identified, evaluated and firm programs developed for their resolution. Where appropriate, this should include relaying of track with concrete sleepers and heavier rail, extended or additional crossing loops, replacement of outmoded safeworking and signalling systems with modern transmission based systems and the upgrading of communications facilities.

- The 10 year national railways program should provide for the substantial improvement of horizontal alignment standards on key routes, particularly Melbourne – Sydney and in the Adelaide Hills.

- The land transport strategic plan should give weight to potential new rail corridor development, and in particular an inland rail route between Melbourne and Brisbane to roughly parallel the Newell Highway. Such a corridor would provide for the double-stacking of containers and involve construction of “missing links” in New South Wales and Queensland to join existing rail infrastructure, some of which would also require upgrading.

- Within the context of the land transport strategic plan, the Australian Government, in consultation with the relevant states, should seek expressions of interest and indicative bids from the private sector for major rail upgrading or construction on a BOO or BOOT basis. The Government’s analysis should then determine the viability of each project based on the

additional non-financial benefits that each project can generate together with future savings in road expenditure.

CONCLUSION

Australia's rail industry is at an important crossroads. Today, much of the national rail network is operating well below its potential. Rail can make a very much larger contribution to Australia's economic development and provide substantially greater benefits for Australia as a whole. This is particularly true of general freight moving on rail between the capital cities and other major centres which, despite continuing substantial total market growth, is in relative decline.

Much can and is being done by the rail industry itself to improve its overall performance. The Australian Government is helping to facilitate these changes through its creation of ARTC and other initiatives. However, it is also vital that the Australian Government takes a strong leadership role in creating a broad vision and strategy for the development of land transport. Such a vision and strategy must have a strong intermodal bias with a clear understanding as to how the various transport modes can best be developed and integrated so as to achieve the most effective total transport system.

Significant sections of the interstate rail network are fundamentally uncompetitive because it is trying to compete with long distance heavy road transport that is continually benefiting from an ever- improving infrastructure for which it effectively pays very little. By comparison, the rail industry is paying many times more for access to infrastructure which, on several key corridors, is very poor by comparison. This anomaly must be rectified.

These are some of the pre-conditions for a resurgence of Australia's railways in the 21st century. But they represent challenges that can be overcome. If that is achieved, the coming decades will indeed become "The Age of the Train", to the overwhelming benefit of all Australians.

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