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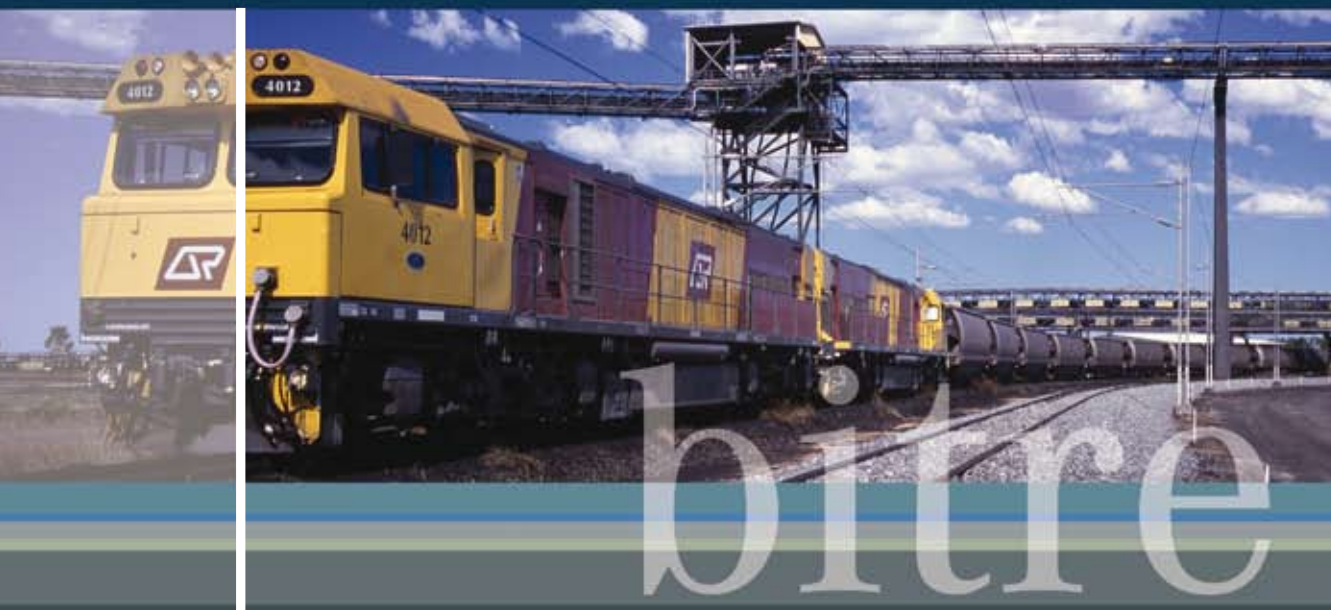

Australian intercapital rail freight performance indicators 2006–07

Information paper 62

Bureau of Infrastructure, Transport and Regional Economics

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Australasian Railway Association and
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Foreword

This information paper is the second in this series and is a result of collaboration between the Australasian Railway Association (ARA) and the Bureau of Infrastructure, Transport and Regional Economics (BITRE).

Results for 2006–07 are reported against a set of 11 railway indicators. These are in three groups: three train indicators, four track indicators and four market indicators.

Members of ARA include all rail operators, private and government, track owners and managers and manufacturers of rolling-stock and components in Australasia. The assistance of ARA members with providing data about the Australian railway industry's performance is gratefully acknowledged. We also acknowledge the assistance of Rhianne Piamsa-Art and Brett Hughes of the ARA in the implementation of this project.

The BITRE report team comprised Godfrey Lubulwa, Rob Bolin, Ben Slatter, David Gargett and Peter Kain.

Bryan Nye
Chief Executive Officer
Australasian Railway Association Inc.
May 2008

Phil Potterton
Executive Director
Bureau of Infrastructure, Transport
and Regional Economics

Key results

Train indicators

- On the North–South corridor, scheduled transit times in 2006–07 were longer than Australian Transport Council (ATC) targets. In comparison with 2005–06 results, Brisbane–Melbourne experienced a 2.5 per cent reduction whilst Sydney–Melbourne experienced an 11 per cent increase.
- Average scheduled transit times on the East–West corridor remained longer than ATC targets, although these remained consistent with the previous year.
- Actual transit times were generally slightly longer than scheduled times. Calculations of average actual transit time on the North–South corridor showed that, for the most part, trains operated close to, or slightly longer than, the scheduled transit times, similar to the pattern observed in 2005–06. The Sydney–Melbourne segment increased its average actual transit time by 12 per cent. In contrast, on the East–West corridor, the Adelaide–Melbourne segment reduced its actual transit time by 14 per cent.
- The highest level of intercity service trains on the national network occurred between Sydney and Melbourne, and between Melbourne and Adelaide. On the North–South corridor, train origin-destinations typically traversed the full Brisbane–Melbourne corridor rather than operate as separate Brisbane–Sydney and Sydney–Melbourne trains, or as non-stop Brisbane–Melbourne trains. The numbers of trains on the Brisbane–Sydney segment fell by 6 per cent in comparison with the previous year; however, Sydney–Melbourne, Melbourne–Adelaide and Crystal Brook–Perth experienced increases in the number of services (11, 12 and 5 per cent respectively).

Track indicators

- Looking at the average track quality on each line segment, the aggregate measure showed mostly unchanged quality over the last few years. Track renewal and enhancements that commenced recently on the North–South corridor are starting to impact positively on track quality.
- In 2006–07, trains on the Sydney–Melbourne line segment increased their dwell times, compared to the previous year (72 per cent). In contrast, trains on the Melbourne–Perth segment reduced their dwell times by an average of 40 per cent over the 2005–06 period.

Market indicators

- An index of real access revenue yield ($/gross tonne-kilometre) decreased by up to 4 per cent between 2003–04 and 2006–07. Over the recent past, the cost per gross tonne-kilometre of accessing the rail network declined to the benefit of train operators, and potentially to customers.
- In the North–South corridor, in 2006–07, the Sydney–Melbourne line segment carried the largest total interstate freight task, estimated at 6.6 billion net tonne-kilometres. In the East–West corridor, the Adelaide–Perth line segment carried the most freight estimated at 15.7 billion net tonne-kilometres, followed by the Melbourne–Adelaide line segment with a task of 6.3 billion net tonne-kilometres.
- Intercapital city line segment share, defined as intercapital rail freight (intermodal and bulk) as a share of total interstate rail freight on a line segment, was highest on the Adelaide–Perth line segment (98.3 per cent), followed by Brisbane–Sydney (97.3 per cent). The intercapital city line segment share was lowest on the Darwin–Tarcoola line segment (61.6 per cent).
- Between 1971–72 and 2005–06, rail's market share, based on net tonne-kilometres hauled of non-bulk freight, rose in the following medium to long distance markets which tend to favour rail:
    - New South Wales–Western Australia from 34 per cent to 53 per cent
    - Victoria–Western Australia from 42 per cent to 68 per cent
    - Queensland–Western Australia from 12 per cent to 47 per cent.

  Over the same period, rail lost market share to road in the following short to medium distance markets:
    - New South Wales–Victoria from 30 per cent to 5 per cent
    - New South Wales–Queensland from 39 per cent to 5 per cent
    - Victoria–South Australia from 55 per cent to 18 per cent.

Contents

Tables

Statistical Annex

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Introduction

This report updates to 2006–07 the data for the following 11 Australian intercapital rail freight performance indicators:

Train indicators

The following three train indicators provide information about intermodal train timetables and services: scheduled intermodal transit time, actual intermodal transit time and the number of weekly intermodal direct city-to-city trains.

Track indicators

The following four track indicators provide information about below-rail infrastructure: train length; double-stacking capability; track quality; and train flow patterns (dwell time, number of stops and average speed).

Market indicators

The first of the four market indicators is an access price indicator.

The next two market indicators measure the size of the intermodal freight market and the railway sector's share in that market: total rail task, by line segment, and Intercapital city line segment share in the total interstate rail task. The fourth market indicator is intermodal state-to-state market shares for road, rail and coastal shipping. This indicator is updated to 2005–06. Data for rail and coastal shipping is available for 2006–07; however, road data is derived from the ABS Survey of Motor Vehicle Use (SMVU). The most recent SMVU relates to 2005–06.

The full set of indicators will be kept under review in light of infrastructure developments, operational changes and stakeholder requirements.

Line segments

Data are reported for three corridors and, a total of 10 line segments:

North–south corridor:

- Brisbane–Sydney
- Sydney–Melbourne
- Brisbane–Melbourne
- Brisbane—Adelaide

East–west corridor:

- Melbourne–Adelaide
- Melbourne–Perth
- Sydney–Adelaide
- Sydney–Perth
- Adelaide–Perth

Central corridor:

- Adelaide–Darwin.

The Adelaide to Darwin and Brisbane to Adelaide line segments are new additions. They do not have specific ATC targets for any of the performance indicators.

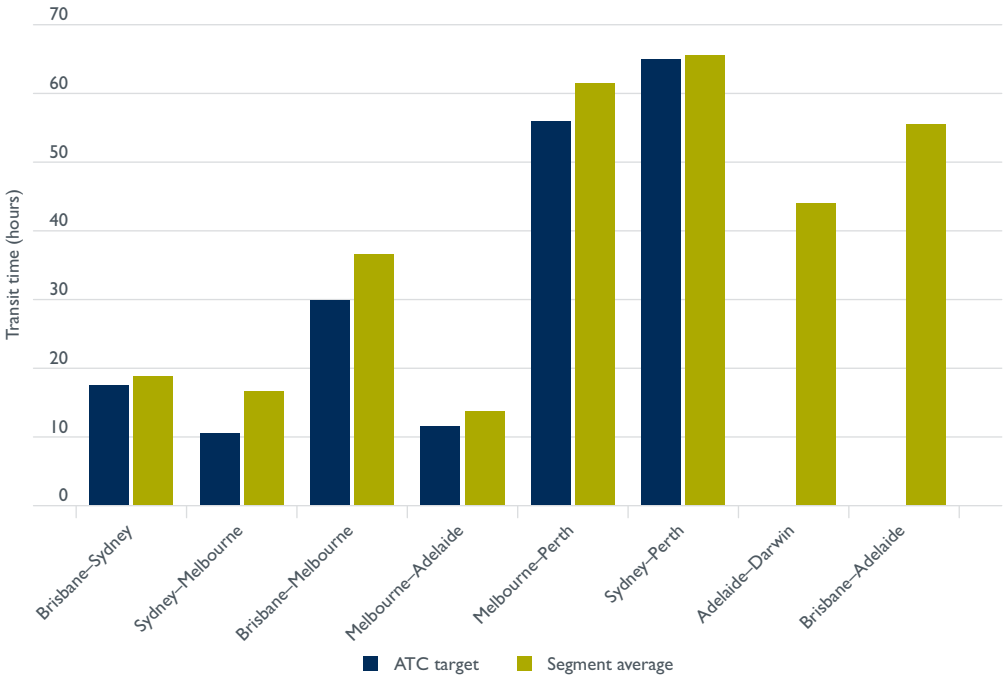
Time series data on the indicators covered in this report are available as Excel spreadsheets on the BITRE website: www.bitre.gov.au

Train indicators

Scheduled intermodal transit time

The scheduled transit time indicator is the average timetabled transit time of intermodal trains scheduled to operate in the last week of June 2007 (scheduled trains were omitted where the train operator reserved, but generally had not used, specific train paths during the two month period around the end of June 2007). Figure 1 presents the ATC target transit time on each specified ATC network line segment along with the average transit time using the timetables. The Sydney–Adelaide and Adelaide–Perth segments were removed from Figure 1 as these segments did not have scheduled trains during the reference period.

Figure 1 Average scheduled transit times relative to ATC transit time targets, by line segment, 2006–07



Note: The ATC target is the average transit time for all trains operating on a line segment in both directions. The figure compares this target with average scheduled transit times for all trains in both directions.

Source: BITRE estimates, based on data provided by infrastructure managers for the last week of June 2007: Australian Rail Track Corporation, FreightLink, RailCorp and WestNet.

Table A1 (column 3) in the statistical annex presents estimates of scheduled intermodal transit times by line segment for both the outward and return journeys. Table A2 (column 3) shows percentage change between 2005–06 and 2006–07.

The average scheduled transit time was influenced by a number of factors including:

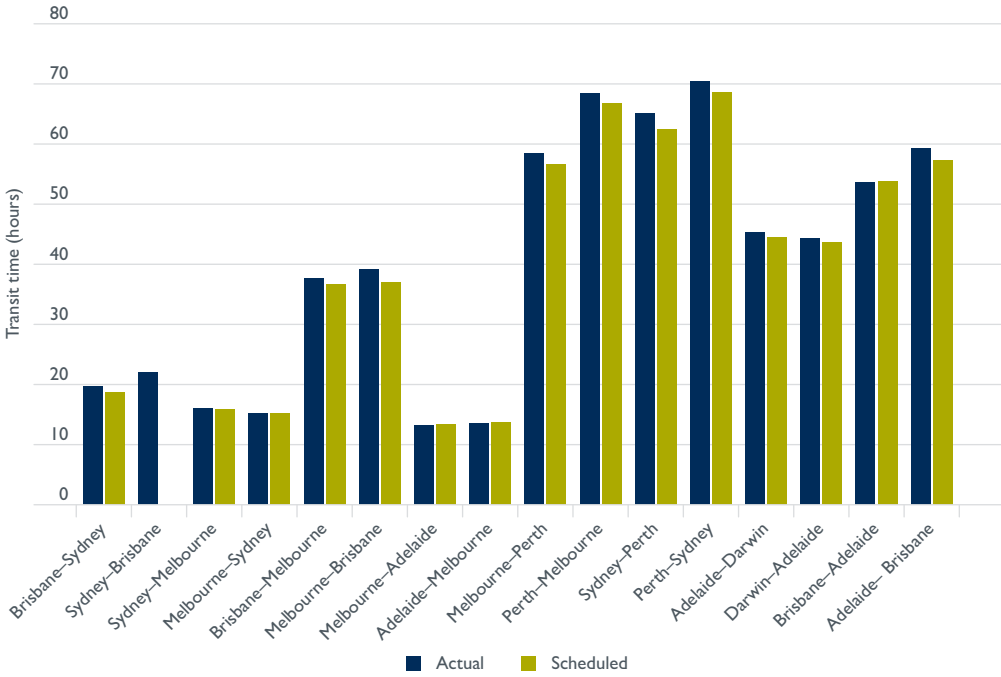
- line speed
- the number of stops en route
- the number of other trains on the line segment
- the mix of trains
- the route used, and
- operator-dependent factors, such as the time spent loading and unloading in intermediate cities.

In 2006–07, scheduled transit times on both the East–West and North–South corridors were generally longer than the ATC targets although the Sydney–Perth average (65.6 hours) was close to the 65 hours ATC target. There are no ATC targets for the Adelaide–Darwin and Brisbane–Adelaide segments.

Actual intermodal transit time

This indicator measures the annual average actual transit time of intermodal trains by line segment. For trains on the North–South corridor, the average actual transit times were close to the average scheduled transit times on Sydney–Melbourne services, but were at least 60 minutes greater on Brisbane–Melbourne services (Figure 2 and Table A1, column 5). Similarly, actual transit times for trains on the East–West corridor were more than 90 minutes longer than the scheduled transit times on services to and from Perth. In contrast, on Melbourne–Adelaide services, actual transit times were seven minutes less than scheduled transit times. The Sydney–Adelaide and Adelaide–Perth segments were removed from Figure 2 as these segments did not have sufficient trains scheduled during 2006–07. Table A2 (column 4) shows the percentage change in actual transit time between 2005–06 and 2006–07.

Figure 2 Scheduled and actual transit times, by line segment, 2006–07



Source: BITRE estimates, based on data provided by infrastructure managers: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Number of weekly intermodal direct city-to-city trains

This indicator reports counts of scheduled weekly intermodal, direct city-to-city train services that originated and terminated in the given city pairs. These counts are summarised in Table A1 (column 6) and Figure 3. Table A2 shows percentage change between 2005–06 and 2006–07.

For the North–South corridor, Figure 3 shows that as of June 2006–07 there was one intermodal train scheduled per week with an origin or destination in Brisbane and Sydney (compared with nine trains per week in 2005–06), and 12 intermodal trains per week with origins or destinations in Sydney and Melbourne (10 trains in 2005–06). Figure 3 also shows that on the same route, there was an additional 36 trains per week with origins or destinations in Brisbane and Melbourne (37 trains in 2005–06). While these trains go through Sydney it is not clear whether they load/unload at Sydney.

For the East–West corridor there were no direct intercity intermodal trains originating from Adelaide. However, there were 46 direct city-to-city, intermodal train services that went through Adelaide (Figure 3), 16 Perth–Sydney (unchanged from 2005–06) and 30 Perth–Melbourne train services (28 trains in 2005–06). There were 34 trains per week with origins or destinations in Melbourne and Adelaide, unchanged from 2005–06.

Brisbane–Melbourne was the line segment with the largest number of weekly direct city-to-city intermodal freight movements. Table A2 (column 5) shows the percentage change in the number of weekly city-to-city trains between 2005–06 and 2006–07.

Figure 3 Number of weekly intercity intermodal trains, by city-to-city pair, June 2007

Source: BITRE estimates, based on data provided by infrastructure managers: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

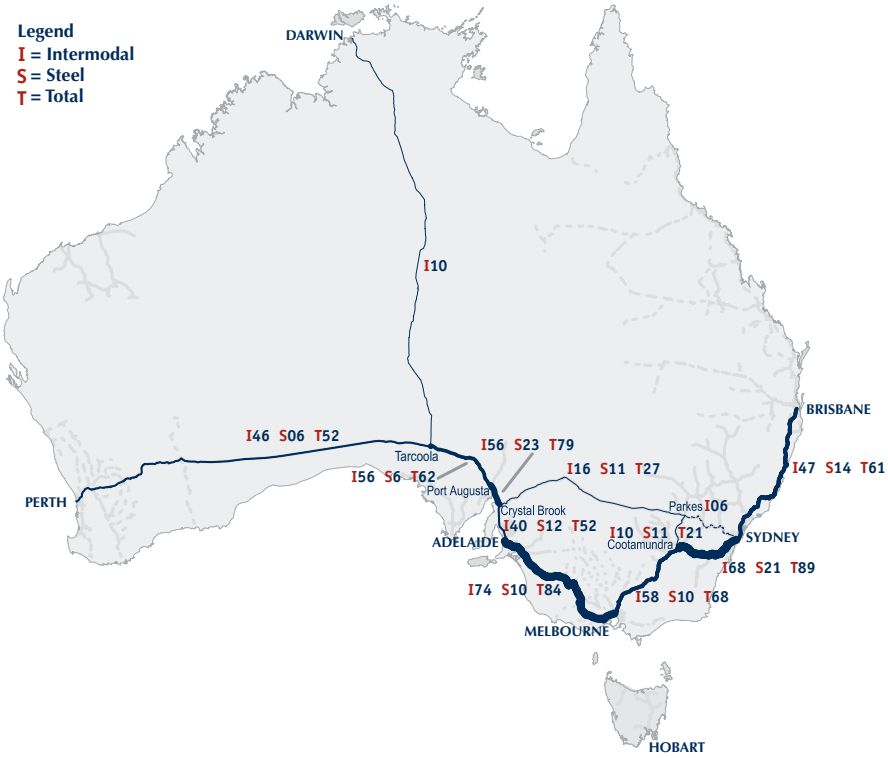
Total number of weekly intermodal trains on a line segment

The count of the number of weekly intermodal direct city-to-city trains understates the density of scheduled intermodal trains operating on each line segment. This supplementary indicator extends the count of intermodal trains to include, in addition to direct city-to-city pair trains, other intermodal trains which operate on a line segment. This indicator measures the intensity of intermodal trains on a line segment and the extent of track utilisation by intermodal trains on a line segment. This information is summarised in Table A3 and Figure 4 by the numbers starting with the letter 'I'. For example, Figure 4 shows that on the Brisbane–Sydney line segment, in addition to the one direct city-to-city train, there were 46 other intermodal trains, i.e. trains moving between Brisbane and Melbourne and Brisbane and Adelaide using the line segment. Table A4 shows percentage change in the number of weekly trains on a line segment between 2005–06 and 2006–07.

Total number of weekly steel trains

The information on counts of scheduled steel trains operating on the rail network is summarised on Figure 4 and Table A3. Table A4 shows the percentage change between 2005–06 and the current period. The totals in Figure 4 and Table A3 illustrate that, in 2006–07, the most intensive intercity movements on the network were on the Crystal Brook–Port Augusta and Sydney–Cootamundra line sections.

Figure 4 Number of weekly intercity and steel trains, by section of track, June 2007



Source: BITRE estimates, based on data provided by infrastructure managers: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Track indicators

Train length

Table A5 and Figure 5 summarise information about the maximum 'unrestricted' and 'restricted' train lengths on each line segment for 2006–07. The data for 2006–07 includes entries for the Darwin to Tarcoola line segment. The 'unrestricted' category is the train length up to which train operators can operate any scheduled service without reference to the track manager. The 'restricted' category is the maximum train length permitted on the line segment.

The maximum train length that is permitted depends on the number of trains and the frequency of the passing loops. For instance, there are passing loops on the single track between Kalgoorlie and Perth that can accommodate 1800 metre trains but eight of the loops can accommodate trains of only 1420 metres in length. Because of these short passing loops, the train operator must obtain approval from the infrastructure manager if the train is longer than 1420 metres—the restricted train length.

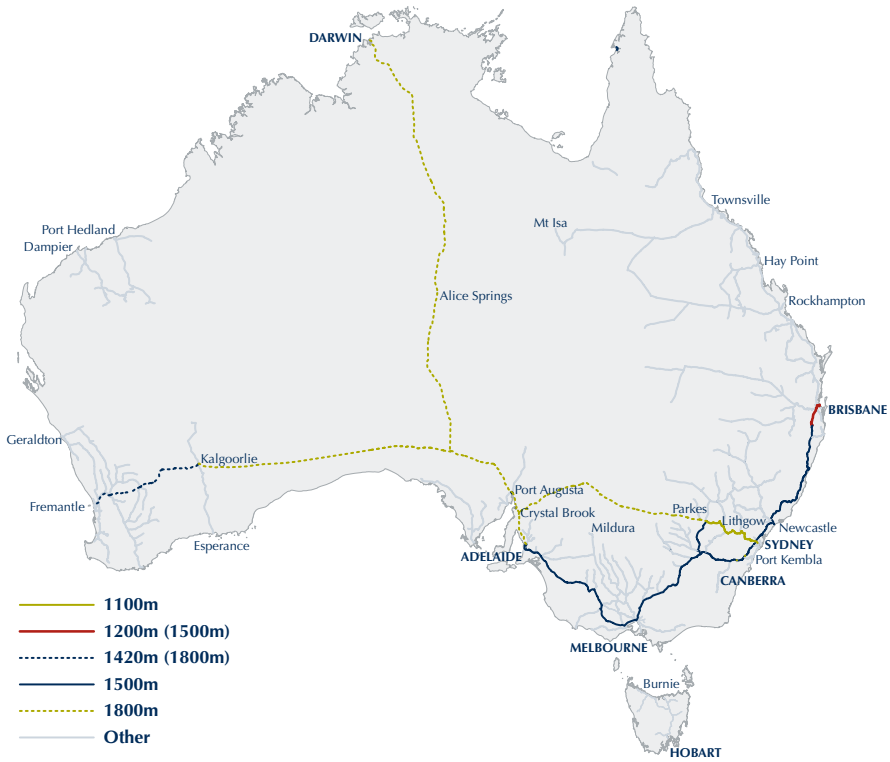
In 2006–07, the Kalgoorlie–Perth section of the East–West corridor was the one part of the East–West corridor that has an unrestricted train length (1420 metres) that did not meet the ATC target of 1800 metres.

Some Sydney–Parkes–Perth trains were routed via Cootamundra, where the 1500 metre unrestricted train length met the ATC target. Other Sydney–Parkes–Perth trains were routed via Lithgow. On this route, the maximum permitted train length was 1100 metres, where these were restricted because of the limits on train braking power in traversing the Blue Mountains.

On the North–South corridor the ATC target is 1500 metres. Insofar as the line south of the Queensland border is concerned, ARTC (the infrastructure manager) considered that the line met the ATC target train length of 1500 metres. Queensland Rail Network Access reported that between Acacia Ridge and the Queensland–New South Wales border:

- the unrestricted train length in 2006–07 was 1200, and
- the restricted train length was 1500 metres.

Figure 5 Unrestricted (and restricted) train lengths, by line segment, 2006–07



Source: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Double-stacking capability

Table A5 and Figure 6 outline the double-stacking capability of each line segment. In the Australian context, the double-stacking capability refers to the ability to stack one hi-cube (9 feet 6 inches, or 2.896 metres high) container on top of another and to convey them within a low-floor (well) wagon. The top of the stack must then be no higher than 6.5 metres above the top of the rail.

The ATC target seeks height clearance to enable double-stacking on the East–West corridor line segments between Parkes–Crystal Brook, and Adelaide–Crystal Brook–Perth. In 2006–07, double-stacking was possible between Adelaide and Perth.

Lower clearance on the Parkes–Crystal Brook line prevented double-stacking of hi-cube containers, although a restricted form of double-stacking could be operated by stacking a shallower (8 feet 6 inches high) container on top of a hi-cube container within the low-floor wagon. ARTC's current investment program includes raising the clearances between Parkes and Crystal Brook, to enable conventional double-stacking.

The ATC has not set targets for double-stacking on the North–South corridor where the loading clearances are restricted to single-stacking of hi-cube containers. Indeed, the clearance is so restricted that the increasingly prevalent higher maxicube (10 feet

6 inches or 3.20 metres) containers cannot be transported using conventional flat wagons; they must be conveyed within the specialised low-floor well wagons. ARTC's investment program includes works to raise the clearances to 4.25 metres. As a result, maxicube containers are likely to be more efficiently transported on conventional flat wagons. Quite apart from any other main line obstacles, the 'low' overhead electrical wires on Sydney passenger railways are a major obstacle to subsequent clearance beyond 4.25 metres.

Figure 6 Double-stacking capability, by line segment, 2006–07

Source: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Track quality

The charts in Figure 7, related to the North–South corridor and Figure 8 related to the East–West corridor, illustrate physical measures of average track condition, using a composite 'track quality index' (TQI). The lower the index value, the better the track quality. In previous years, the indices for some line segments were based on a mixture of data from South Australia, Victoria and New South Wales, which had different TQI calculation methods. The TQI calculation method is now standardised across ARTC and estimates for previous years have been revised. The explanatory notes provide a greater insight into the measurement and reporting of this indicator. The charts should not be used to compare track conditions across line segments managed by different infrastructure managers. This is because track quality is measured and reported differently across the network and reflects different infrastructure and operational environments.

The charts should be used to indicate trends in track condition for a given line segment. In normal, well-managed operating conditions, the track condition of the intercity rail network should not worsen appreciably between one year and the next. Thus, the longer the time series the better for monitoring track performance in typical operating conditions. However, the upgrade of measuring equipment in recent years causes breaks in the data, preventing a longer time series being reported.

The pace of decline in track quality is influenced by a range of factors, including the quality of renewal material and work, the level and type of track usage, climatic and local geographical factors, and skilled and timely ongoing maintenance.

The track condition between the Queensland–New South Wales border and Acacia Ridge, and between Border Loop and Newcastle, has improved since 2004. As a result of the current extensive sleeper renewal program that is underway on the North–South corridor, in future years one should observe significant improvements in the reported track quality.

Figure 7 Track quality indices (TQI) on the North–South corridor, five years to 2006–07

(a) Sydney–Melbourne

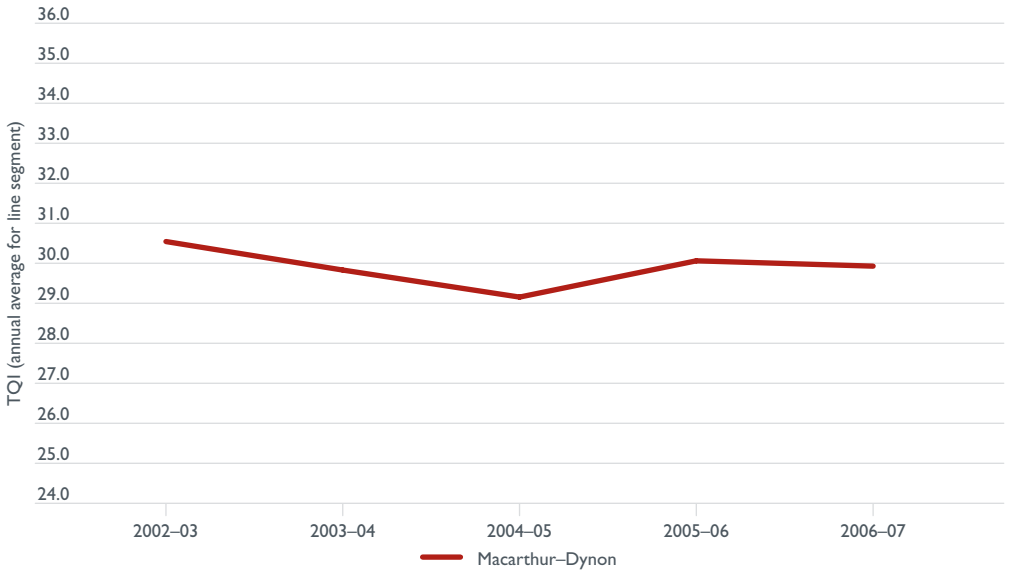
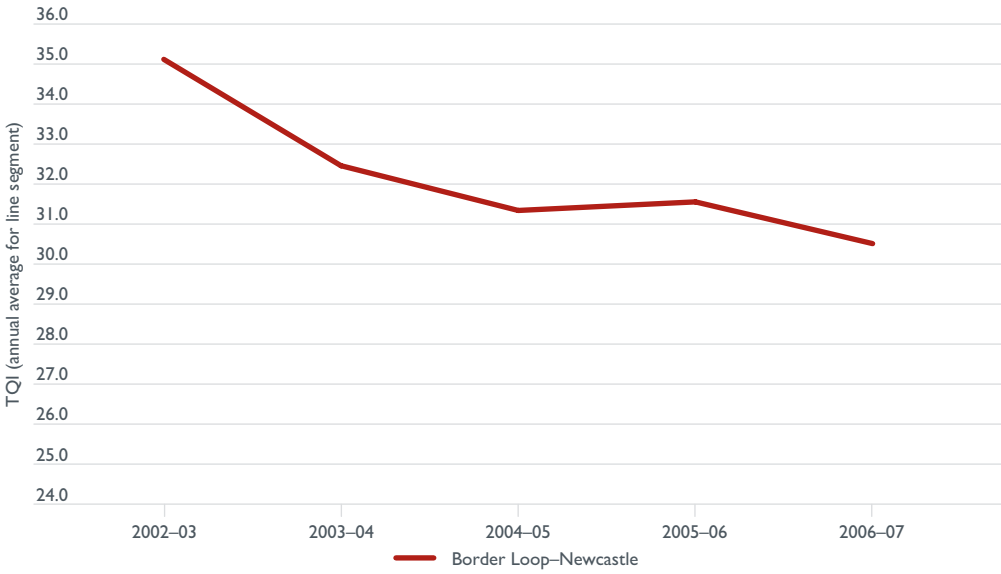
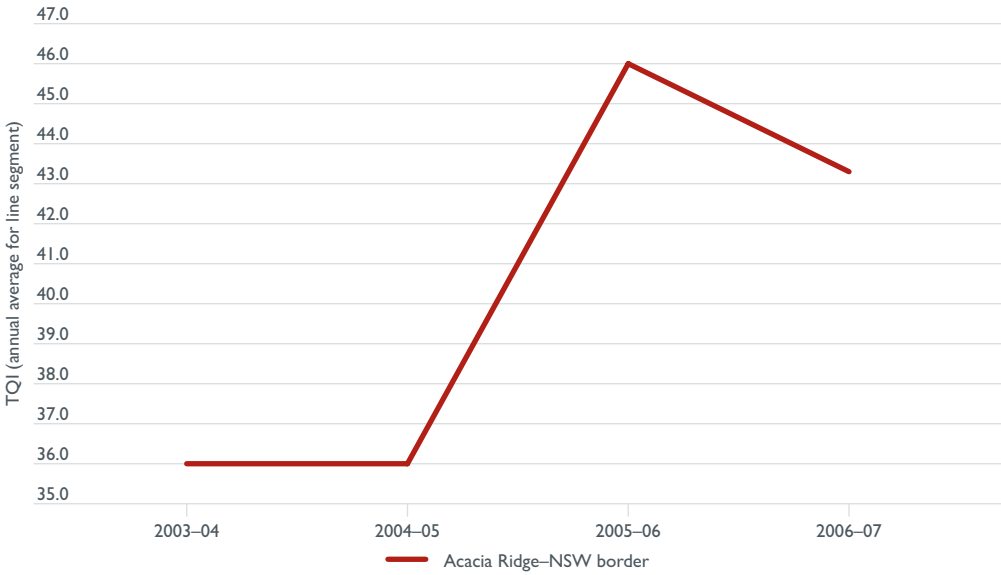


Figure 7 Track quality indices (TQI) on the North–South corridor, five years to 2006–07 (continued)

(b) Brisbane–Sydney



(c) Brisbane–Sydney



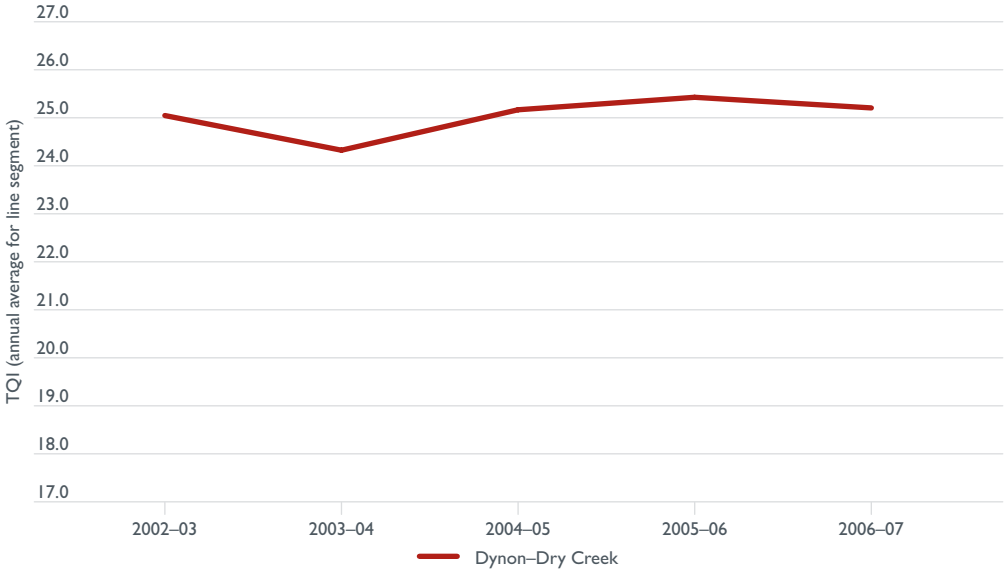
Note 1: The charts should not be used to compare track conditions across line segments managed by different infrastructure managers. This is because track quality is measured and reported differently across the network, and reflects different infrastructure and operational environments.

Note 2: The lower the index value, the better the condition of the track.

Source: Australian Rail Track Corporation and Queensland Rail Network Access.

Figure 8 Track quality indices (TQI) on the East–West corridor, five years to 2006–07

(a) Melbourne–Adelaide



(b) Adelaide–Kalgoorlie

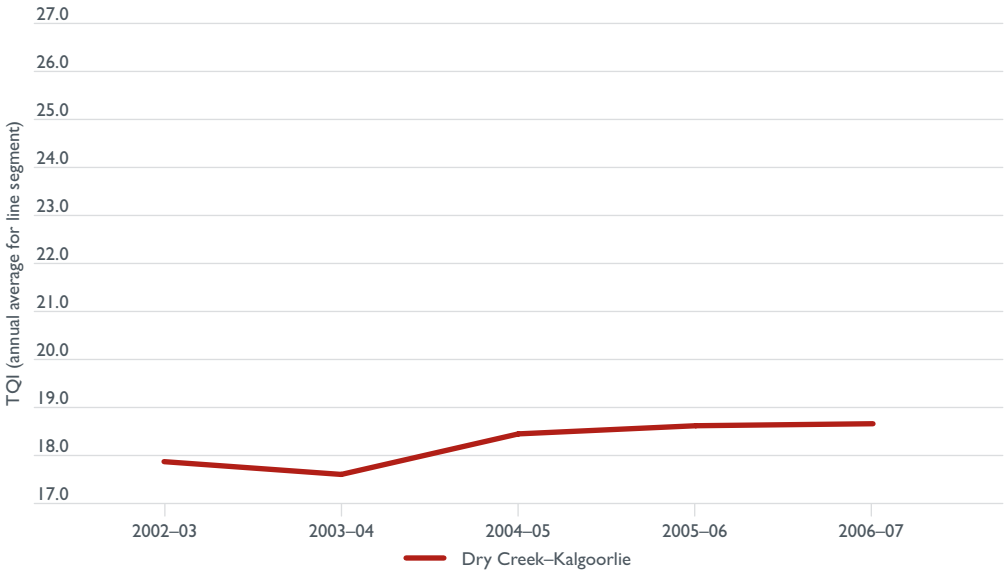
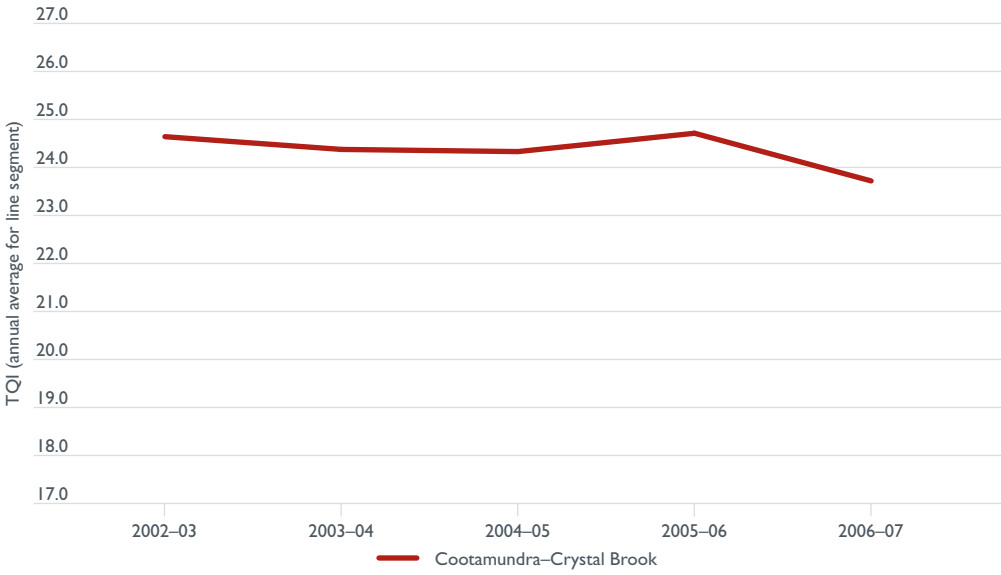


Figure 8 Track quality indices (TQI) on the East–West corridor, five years to 2006–07 (continued)

(c) Kalgoorlie–Perth

(d) Cootamundra–Crystal Brook



Note 1: The charts should not be used to compare track conditions across line segments managed by different infrastructure managers. This is because track quality is measured and reported differently across the network, and reflects different infrastructure and operational environments.

Note 2: The lower the index value, the better the condition of the track.

Source: Australian Rail Track Corporation and WestNet.

Train flow patterns

Table A1 (column 7) shows three related indicators of train flow:

- train dwell time
- the number of train stops
- train speed.

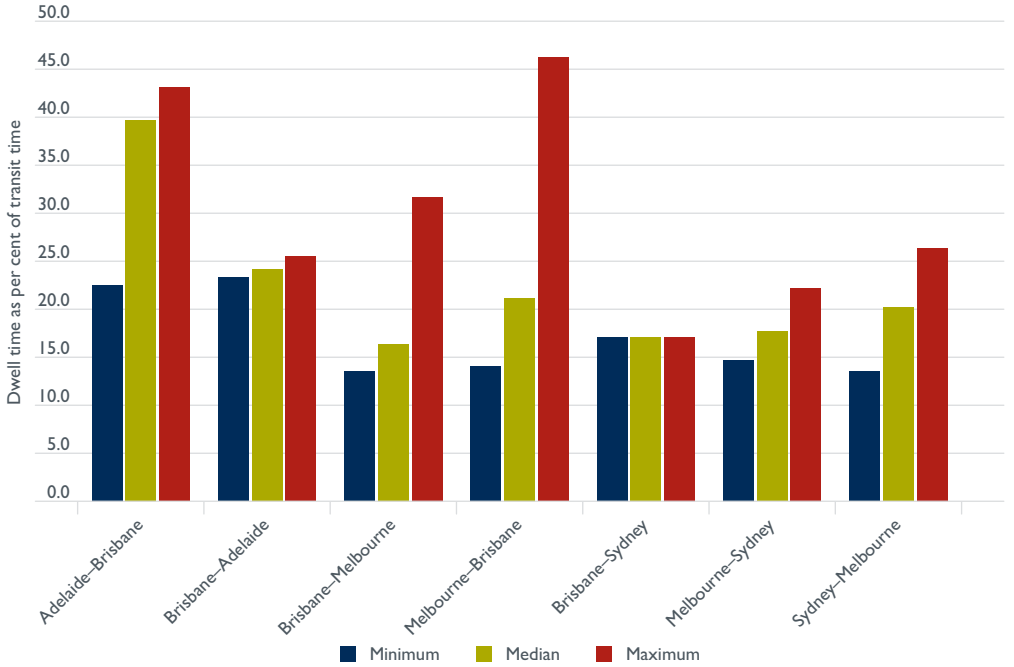
In essence, these indicators describe the pattern of train flows across the network, which is enhanced by infrastructure investment and renewal, such as new or improved signalling, additional long passing loops and passing lanes.

Dwell time

The dwell time indicator measures the percentage of scheduled train transit time that is spent 'dwelling' (stationary) in railway yards and passing loops.

Figure 9 and Table A1 (column 7) present estimates of dwell time on the North–South corridor based on an analysis of the timetables current at the end of June 2007. The figure shows the minimum, median and maximum percentage dwell time (per cent of average scheduled transit time) on each line segment. For instance, on Brisbane to Melbourne trains, the dwell time ranged from 13.5 per cent of total scheduled transit time to nearly 32 per cent; the median was about 16 per cent.

Figure 9 Train dwell times on the North–South corridor, as a percentage of transit times, June 2007



Source: BITRE estimates based on data provided by infrastructure managers: Australian Rail Track Corporation, RailCorp and WestNet.

Percentage change in dwell time between 2005–06 and 2006–07 is shown on Table A2 (column 6).

Factors that contributed to dwell time on the North–South corridor include the single track rail infrastructure and reliance on electric staff signalling. For example, electric staff signalling from Greenbank to the Queensland/New South Wales border required the train crew to physically disembark the train to operate the signalling system. This system will be replaced by a centralised traffic control system by June 2008.

An analysis of the timetables of trains commencing or terminating in or transiting through Sydney revealed that, for some segments, a significant portion of their total journey time was spent within the environs of Sydney (Table 1). For trains travelling between Brisbane and Adelaide, approximately 52 per cent of the total dwell time (on average nearly nine hours) was spent between Islington Junction and Macarthur in the Sydney network. This had an obvious flow-on effect with approximately 18 per cent of the total journey (on average ten hours) being spent in Sydney. As a general rule, trains commencing or terminating in Sydney had little or no dwell time actually in Sydney while trains transiting the city suffered significant periods of dwell time. It is expected that a certain amount of this dwell time is due to the loading or unloading of freight in Sydney; however, this does not appear to account for dwell times of in excess of seven hours.

Figure 10 presents the results of the analysis of dwell time on the East–West and Central corridors in 2006–07, and shows the following:

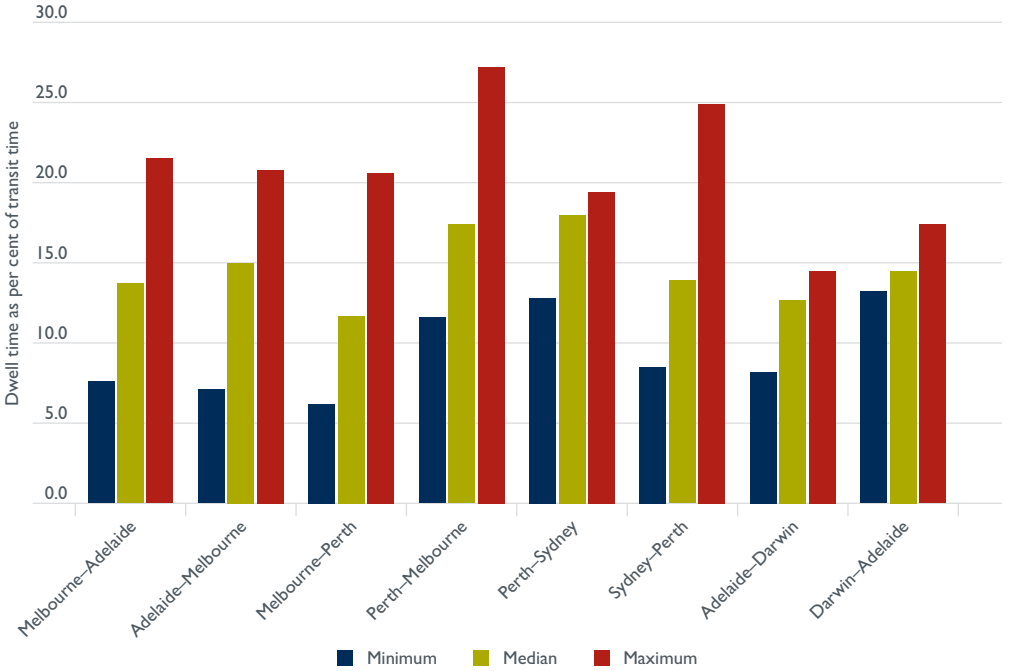
- The line segment with the lowest median proportion of dwell time per train was Melbourne–Perth.
- The proportions of dwell time per train were higher on eastbound trains than on westbound trains.

Table 1 Analysis of dwell and transit times in Sydney

Segment	*Average total dwell (minutes)*	*Average dwell in Sydney (minutes)*	*Proportion of total dwell in Sydney (per cent)*	*Average total duration of journey (hours)*	*Average duration of journey in Sydney (hours)*	*Proportion of total journey in Sydney (per cent)*
Adelaide–Brisbane	1 245	639	49	57:16	9:15	16
Brisbane–Adelaide	789	427	54	53:50	11:02	21
Brisbane–Melbourne	441	116	27	36:45	5:50	16
Brisbane–Sydney	192	53	28	18:46	3:59	21
Melbourne–Brisbane	501	188	32	36:28	5:46	16
Melbourne–Sydney	173	0	0	16:04	0:54	6
Perth–Sydney	727	10	2	70:12	1:15	2
Sydney–Melbourne	209	23	11	17:15	1:52	11
Sydney–Perth	573	1	0	60:56	1:54	3

Source: BITRE estimates, based on data provided by infrastructure managers: Australian Rail Track Corporation, RailCorp and WestNet.

Figure 10 Train dwell times on the East–West and Central corridors, as a percentage of transit times, June 2007



Source: BITRE estimates based on data provided by infrastructure managers: Australian Rail Track Corporation, FreightLink, RailCorp and WestNet.

Dwell time may never be completely eliminated for various train operating reasons, such as crew breaks, change of crew and locomotive refuelling. Further details on this indicator are provided in the explanatory notes at the end of this report.

Number of stops

The infrastructure investments that are underway will reduce the number of stops that trains need to make. Trains can lose much time and energy efficiencies, and in the subsequent gradual acceleration back to the line speed when a loss of momentum occurs.

Table A1 (column 7) presents the average number of intermodal train stops for each line segment. Signalling investments that are underway and planned as well as line capacity enhancements are likely to lead to a reduction in the number of times that trains need to stop.

Average speed

Table A1 (column 7) shows the average train speed for trains on the ten line segments. Trains on the Brisbane–Melbourne line segment had the lowest average speeds with southbound trains averaging only 39 km/h, considerably less than trains on either the Brisbane–Sydney or Sydney–Melbourne line segments.

The speeds of intermodal trains on the Sydney–Perth line segment were the fastest, with westbound trains averaging 70 km/h.

Average train speed is an overall measure of physical railway performance, both train and infrastructure. As with other indicators, average speed is partly determined by train operator factors such as locomotive power and whether the operator picks up and drops off freight en route.

Market indicators

Access revenue yield indicator

Access revenue is the income to an infrastructure manager derived from the infrastructure manager's charges to train operators that access the rail network. The access price has two components: a flag fall charge and a component that varies with a train operator's gross tonne-kilometres. Access revenue yield can be a valuable measure of the performance of rail infrastructure. Movements in this composite indicator may arise through changes in:

- real (inflation-adjusted) access charges
- the train operators' use of existing capacity
- enhancements in rail infrastructure, and
- train operators' uptake of those enhancements.

This indicator changes when price changes or infrastructure changes lead to increased maximum train length or axle loads. For example, given a constant two-part access price, if the operator runs heavier trains then access revenue yield goes down; if the operator runs lighter trains then access revenue yield goes up. As such, access revenue yield is a measure of price change, as well as change in the utilisation of available capacity by the operator.

This report presents results on an index of the maximum access revenue yield, based on ARTC data and analysis.

This indicator measures the changes (relative to the base year) in the maximum access revenue yield per gross tonne-kilometre (GTK). Table 2 shows that compared to the base year, the maximum access revenue yield per gross tonne-kilometre in 2006–07 was around 2.4 per cent lower for the following line segments:

- Tottenham–Albury
- Adelaide–Melbourne
- Adelaide–Kalgoorlie
- Crystal Brook–Broken Hill.

Compared with the base year, the maximum access revenue yield per gross tonne-kilometre in 2006–07 was around 4 per cent lower for the following line segments:

- Newcastle–Borderloop
- MacArthur–Albury
- Broken Hill–Parkes

- Parkes–Stockinbingal
- Stockinbingal–Cootamundra.

The maximum access revenue yield in dollars per GTK differs by line segment in the base year, 2004–05. The differences between line segments depend on a number of factors, including the types and mix of trains operated and the level of access pricing.

Table 2 Index of real maximum access revenue yield ($/GTK), 2003–04 to 2006–07 (2004–05=100)

Line segment	*2003–04*	*2004–05*	*2005–06*	*2006–07*
Newcastle–Borderloop		100.00	97.47	95.82
MacArthur–Albury		100.00	97.45	95.81
Tottenham–Albury	101.26	100.00	98.84	97.16
Adelaide–Melbourne	101.23	100.00	98.84	97.64
Adelaide–Kalgoorlie	101.25	100.00	98.85	97.65
Crystal Brook–Broken Hill	101.24	100.00	98.83	97.63
Broken Hill–Parkes		100.00	97.47	95.82
Parkes–Stockinbingal		100.00	97.46	95.82
Stockinbingal–Cootamundra		100.00	97.45	95.81

Note 1: A blank means no data is available for that period.
Note 2: 2004–05 is when ARTC started managing the following line segments: Newcastle–Borderloop, Macarthur–Albury, Broken Hill–Parkes, Parkes–Stockinbingal, and Stockinbingal–Cootamundra.
Source: Australian Rail Track Corporation.

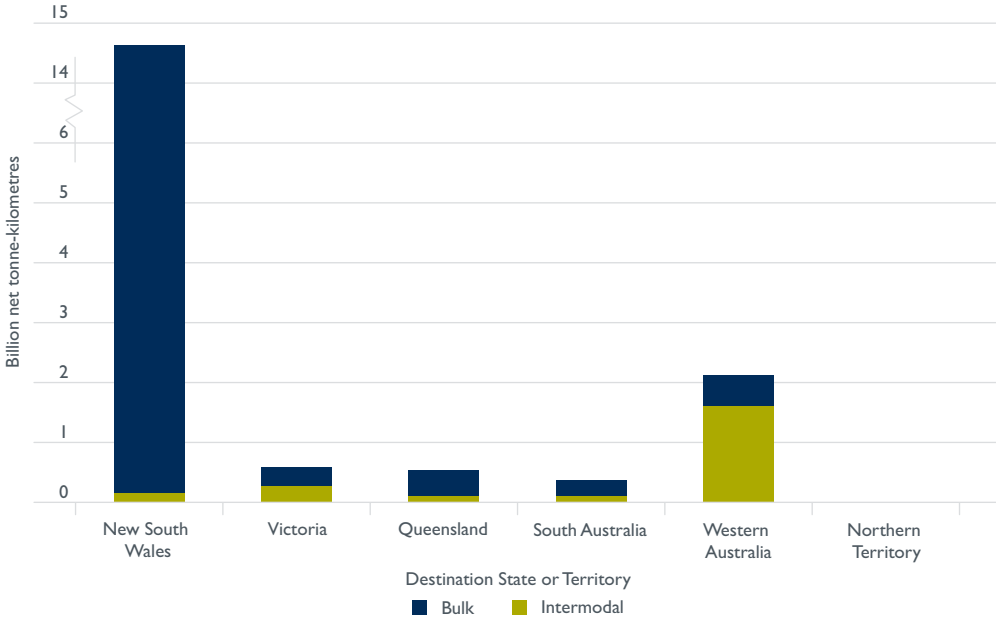
Maximum access revenue yield does not automatically change in response to enhancements in rail infrastructure unless train operators utilise those enhancements. If train operators do not utilise enhancements in rail infrastructure, then the index of maximum access revenue yield in Table 2 would understate the possible impacts of rail investment on rail infrastructure pricing. An index of maximum possible revenue yield could then be used to measure the (unrealised) changes (relative to a base year) in the maximum possible access revenue yield per gross tonne-kilometre that would have occurred if, during the period under review, train operators had increased trailing loads to the maximum permitted, given axle loading and train length constraints.

Total rail task

Table A6 in the statistical annex details the total rail freight task, based on data provided by above-rail train operators. The total rail task amounted to 102 billion net tonne-kilometres in 2006–07, of which 34.4 billion net tonne-kilometres was intermodal freight and 67.6 billion net tonne-kilometres was bulk freight. Table A7 shows that in 2006–07 the intercapital city total rail task totalled 30.5 billion net tonne-kilometres, or 30 per cent of the total rail task. Figures 11–15 show total state-to-state and intrastate rail freight task by origin for 2006–07, based on data provided by above-rail train operators. The state or territory names on the horizontal axes show the destinations for rail freight. When the origin and destination state or territory is the same, the data in the chart relates to intrastate rail freight. Intermodal freight destined for Western Australia formed the largest state-to-state rail task component

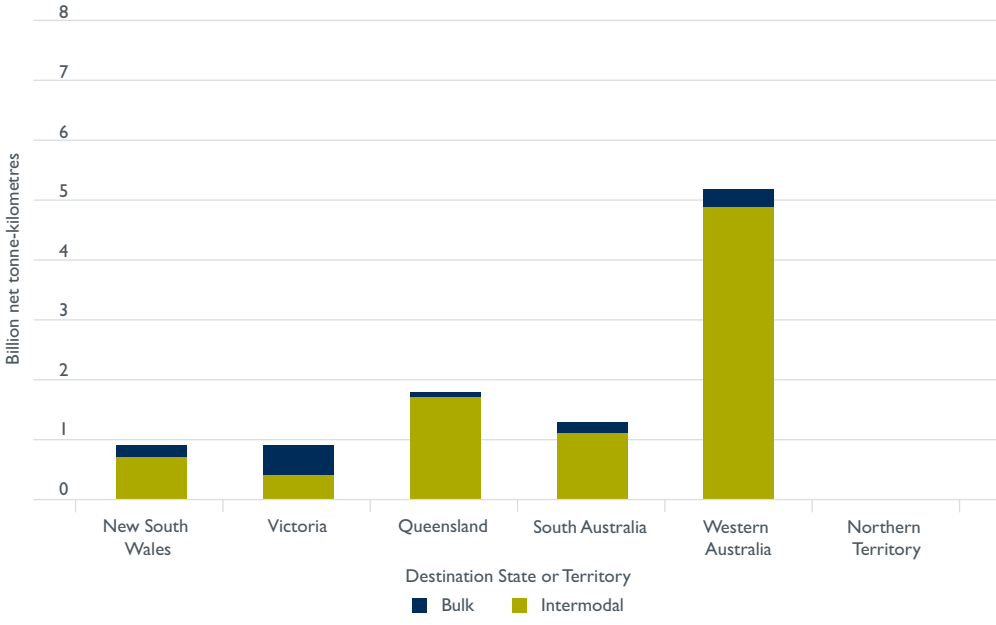
in New South Wales, Victoria and South Australia. Intrastate freight had the largest freight task in New South Wales, Queensland and Western Australia, comprising mostly bulk freight.

Figure 11 Total rail freight task from New South Wales, 2006–07, billion net tonne-kilometres



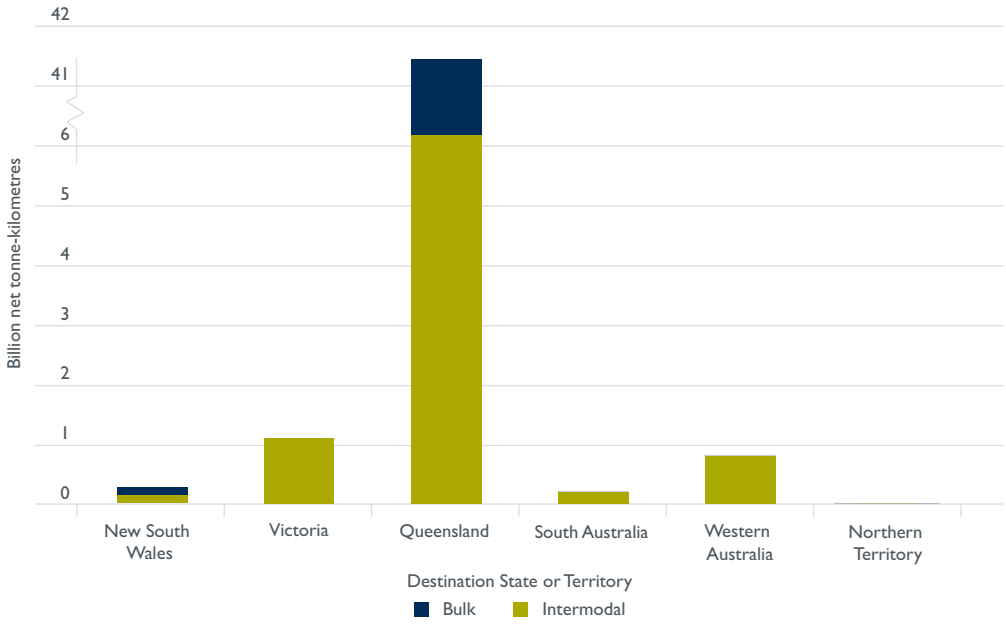
Source: Asciano, Australian Railroad Group, FreightLink, QRNational and SCT Logistics.

Figure 12 Total rail freight task from Victoria, 2006–07, billion net tonne-kilometres



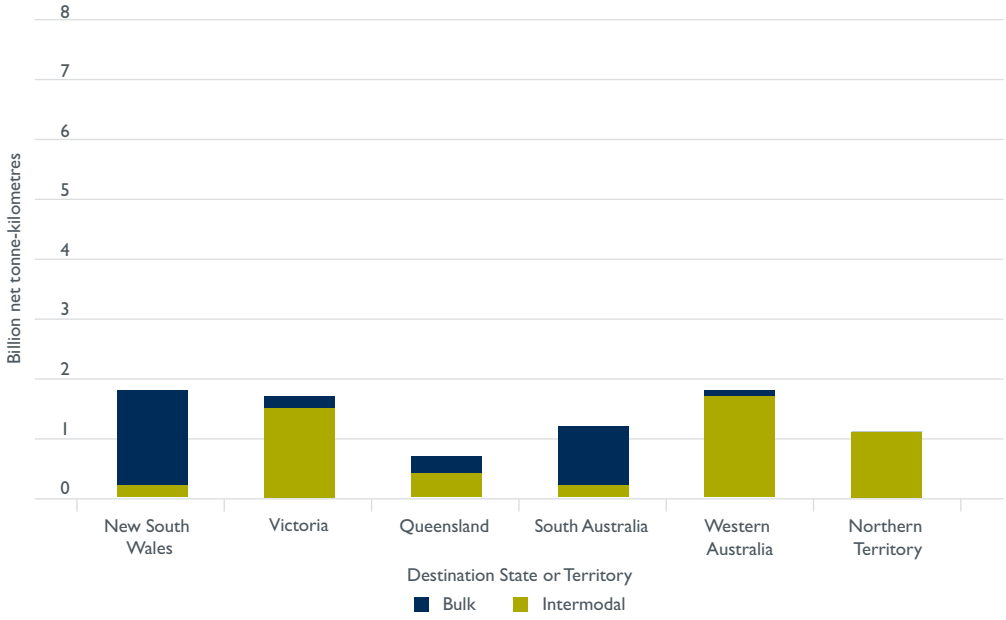
Source: Asciano, Australian Railroad Group, FreightLink, QRNational and SCT Logistics.

Figure 13 Total rail freight task from Queensland, 2006–07, billion net tonne-kilometres



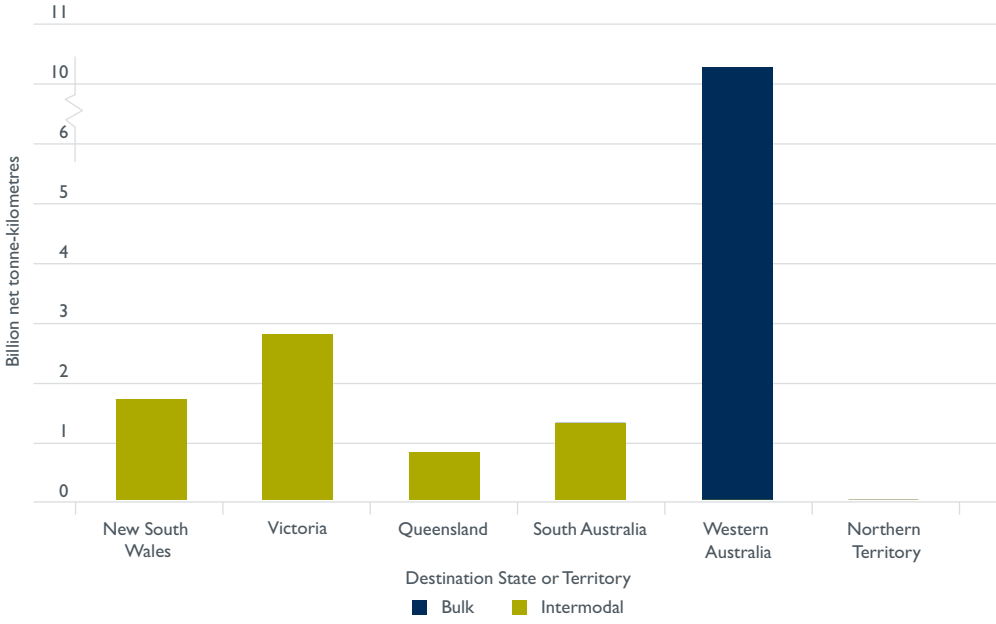
Source: Asciano, Australian Railroad Group, FreightLink, QRNational and SCT Logistics.

Figure 14 Total rail freight task from South Australia, 2006–07, billion net tonne-kilometres



Source: Asciano, Australian Railroad Group, FreightLink, QRNational and SCT Logistics.

Figure 15 Total rail freight task from Western Australia, 2006–07, billion net tonne-kilometres



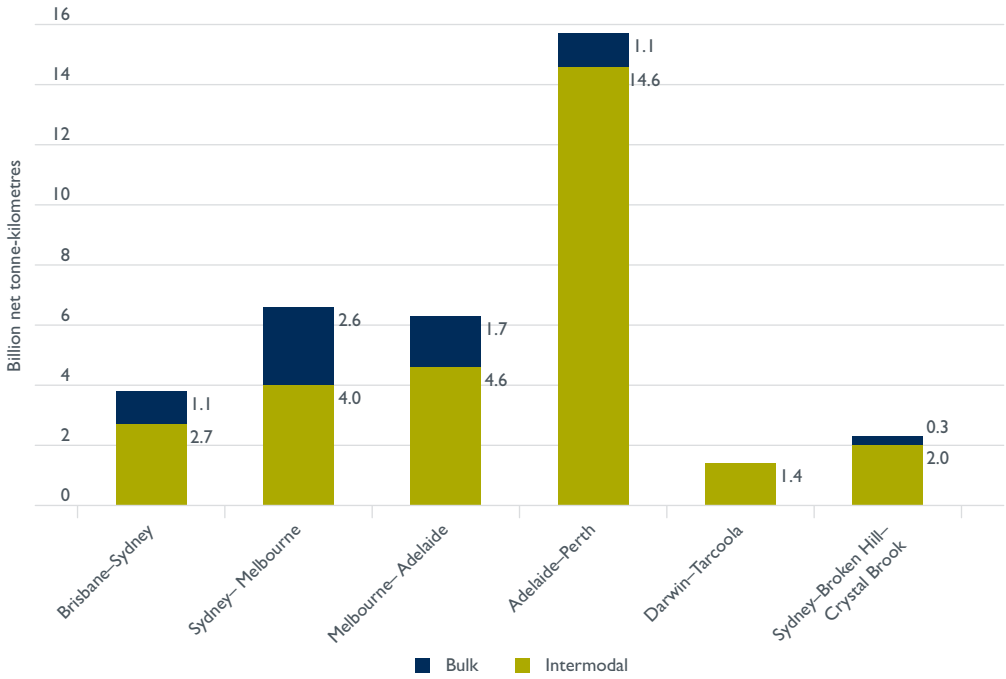
Source: Asciano, Australian Railroad Group, FreightLink, QRNational and SCT Logistics.

Total interstate rail task by line segment

Figure 16 shows the estimates of the total interstate rail freight task by line segment for 2006–07. The explanatory notes provide details on how these estimates were derived.

In 2006–07, in the East–West corridor, the Adelaide–Perth line segment had the largest interstate rail freight task estimated at 15.7 billion net tonne-kilometres, comprising 14.6 billion net tonne-kilometres of intermodal freight and 1.1 billion net tonne-kilometres of non-intermodal freight. In the North–South corridor, the Sydney–Melbourne line segment had the largest interstate rail freight task estimated at 6.6 billion net tonne-kilometres, comprising 4 billion net tonne-kilometres of intermodal freight and 2.6 billion net tonne-kilometres of non-intermodal freight.

Figure 16 Total interstate rail freight task, by line segment, 2006–07, billion net tonne-kilometres



Source: BITRE estimates based on data provided by above-rail operators: Asciano, Australian Railroad Group, FreightLink, QRNational and SCT Logistics.

Intercapital city line segment share in total interstate rail task

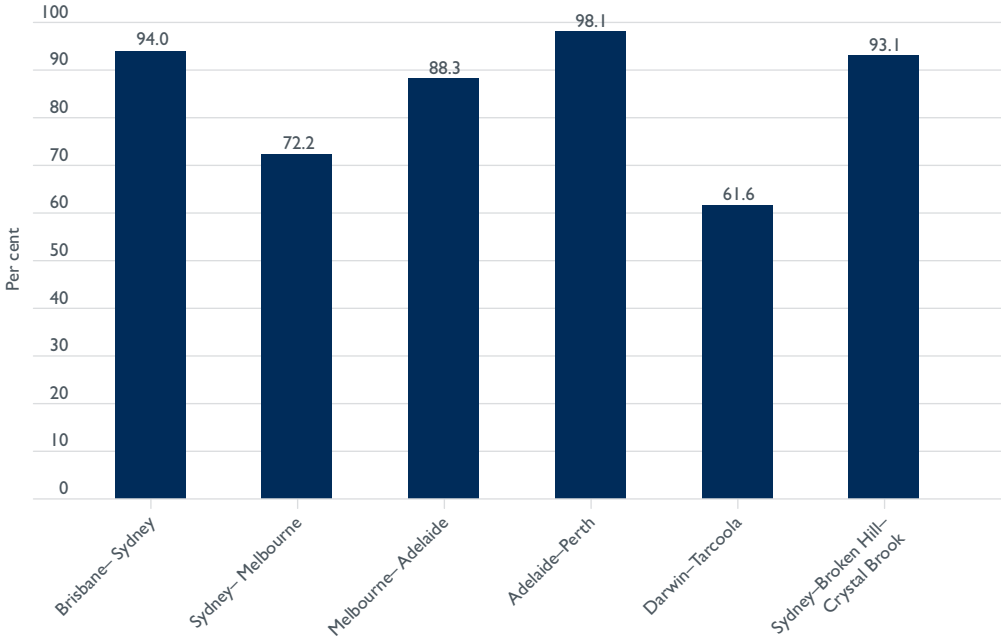
Figure 17 shows for five line segments, the 2006–07 intercapital city line segment share defined as the intercapital rail freight (intermodal and bulk) as a share of total interstate rail freight on a line segment.

In the North–South corridor, the Brisbane–Sydney line segment had the highest intercapital city line segment share at 94 per cent. In the East–West corridor, the intercapital city line segment share was highest on the Adelaide–Perth line segment at 98.3 per cent. In the central corridor, on the Darwin–Tarcoola line segment the intercapital city line segment share was 61.6 per cent.

Intermodal state-to-state market share

To estimate the mode share of rail in the intermodal freight market segment requires, in addition to data on intermodal rail freight, data on road and coastal shipping, the other two modes which compete with rail in this market. Shifts in mode share often occur slowly and significant shifts may require data be gathered over long time periods in order to be identifiable in freight statistics.

Figure 17 Intercapital city line segment share in total interstate rail task, 2006–07



Note: This represents share in total interstate rail task, based on above-rail operators' data. It differs from Figure 15 in BTRE (2007b) which gives a share of total rail task (interstate plus intrastate).

Source: Asciano, Australian Railroad Group, FreightLink, QRNational and SCT Logistics.

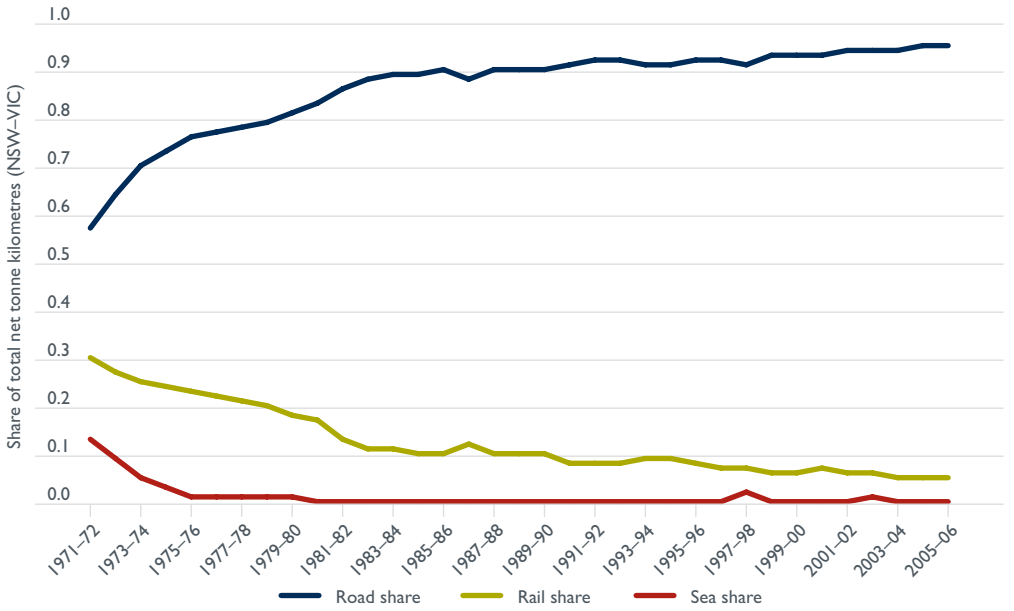
The estimates are based on these sources:

- Rail data from various sources detailed in BTRE (2006b) was used to derive time series on rail non-bulk freight from 1971–72 to 2004–05. For 2005–06, data supplied by the rail industry.
- Coastal shipping data is collected by BITRE using a survey of ports.
- Road data is derived from the ABS Survey of Motor Vehicle Use (SMVU) using a methodology developed by BITRE and published in BTRE (2006).

For a state-to-state market segment, the total interstate freight market is given by the sum of the net tonne-kilometres of intermodal freight transported by each of road, rail, and coastal shipping on the segment. The market share of a mode of transport (e.g. rail) is given by the net tonne-kilometres of freight transported by the mode and then divided by the total interstate freight market for the state-to-state freight market segment.

Figures 18 to 20 illustrate the changes in market share for each of road, rail, and coastal shipping by reference to three important short-to-medium distance interstate freight markets: New South Wales to Victoria, New South Wales to Queensland, and Victoria to South Australia. These show that rail has generally lost mode share to road.

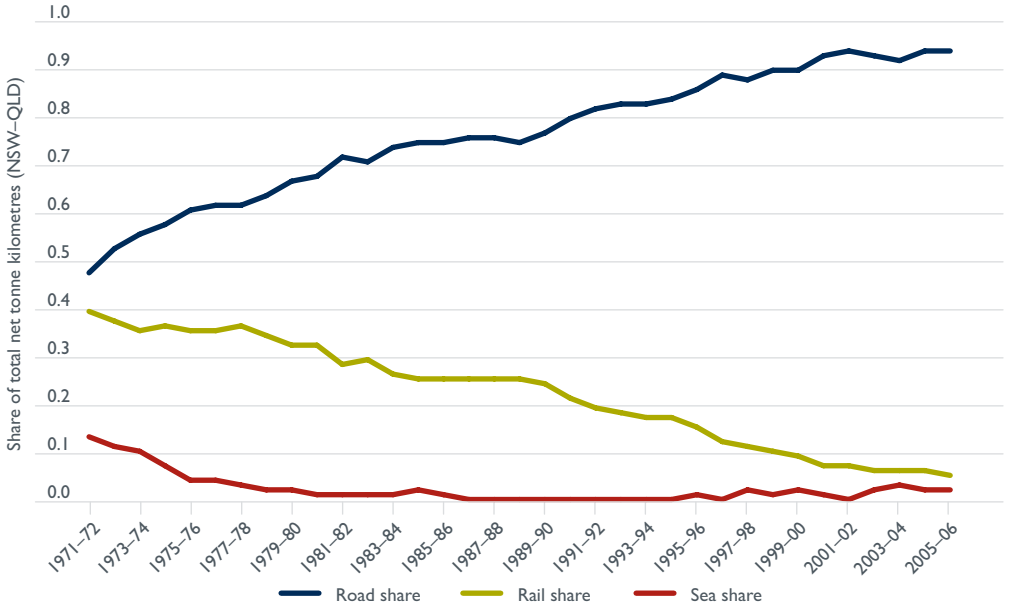
Figure 18 Interstate freight, New South Wales to Victoria, shares of rail, road and coastal shipping, thirty-four years to 2005–06



Note: Total interstate freight from New South Wales to Victoria increased from 1.5 billion net tonne-kilometres in 1971–72 to 9 billion net tonne-kilometres in 2005–06, an average annual increase of 5.5 per cent.

Source: BITRE estimates.

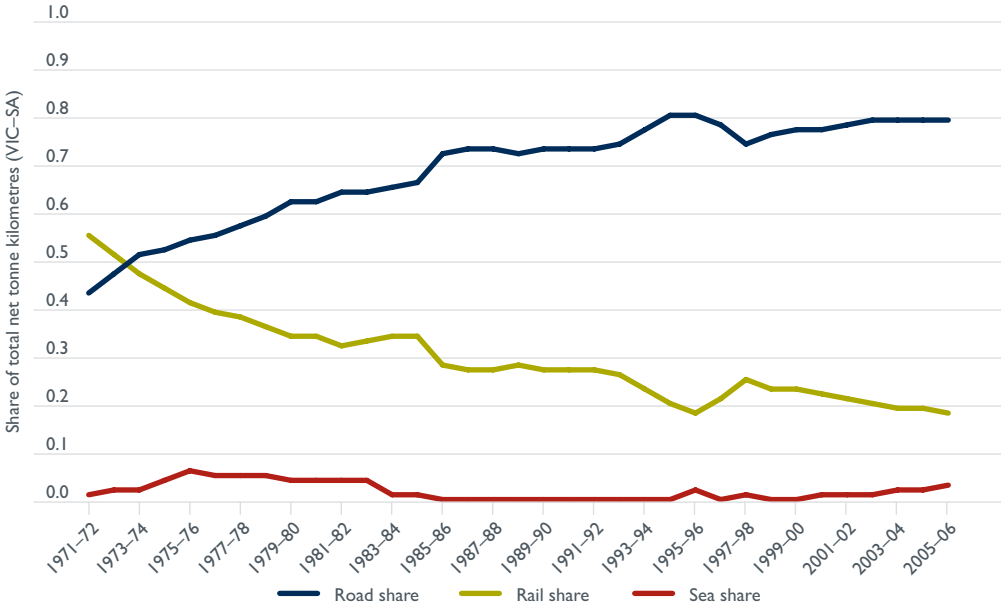
Figure 19 Interstate freight, New South Wales to Queensland, shares of rail, road and coastal shipping, thirty-four years to 2005–06



Note: Total interstate freight from New South Wales to Queensland increased from 1 billion net tonne-kilometres in 1971–72 to 8.6 billion net tonne-kilometres in 2005–06, an average annual increase of 6.6 per cent.

Source: BITRE estimates.

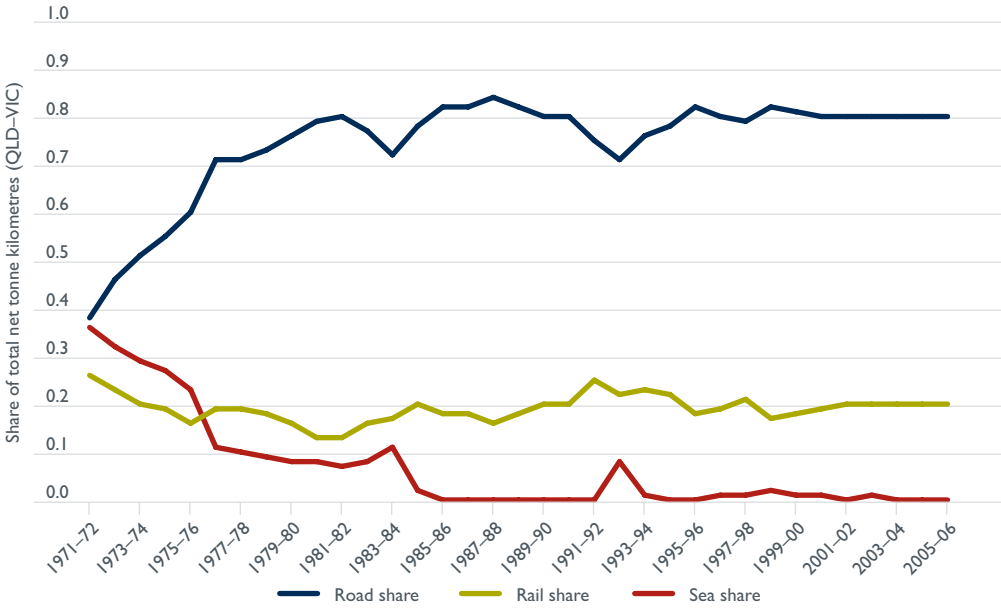
Figure 20 Interstate freight, Victoria to South Australia, shares of rail, road and coastal shipping, thirty-four years to 2005–06



Note: Total interstate freight from Victoria to South Australia increased from 0.5 billion net tonne-kilometres in 1971–72 to 4.4 billion net tonne-kilometres in 2005–06, an average annual increase of 6.5 per cent.

Source: BITRE estimates.

Figure 21 Interstate freight, Queensland to Victoria, shares of rail, road and coastal shipping, thirty-four years to 2005–06

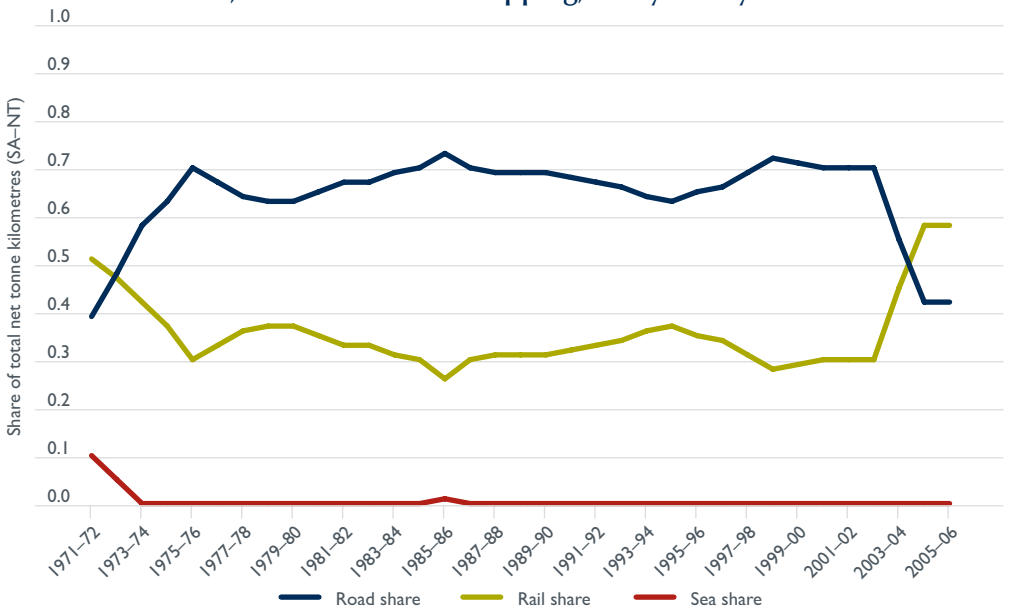


Note: Total interstate freight from Queensland to Victoria increased from 0.3 billion net tonne-kilometres in 1971–72 to 5.4 billion net tonne-kilometres in 2005–06, an average annual increase of 8.7 per cent.

Source: BITRE estimates.

Figures 21 and 22 illustrate the changes in modal share in medium distance freight markets: Queensland to Victoria and South Australia to the Northern Territory. These show that rail has generally maintained its mode share in relation to road.

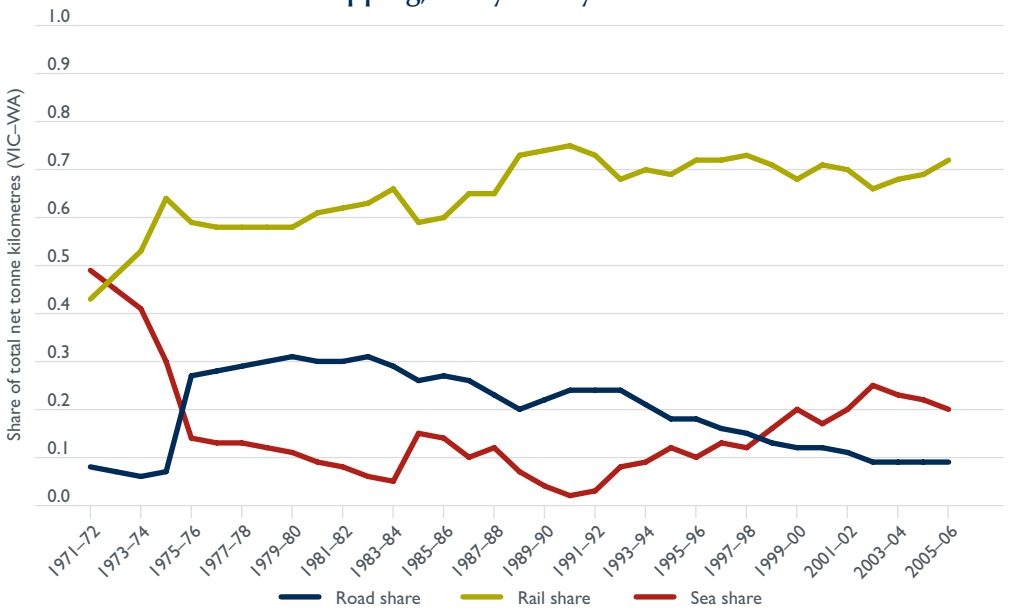
Figure 22 Interstate freight, South Australia to the Northern Territory, shares of rail, road and coastal shipping, thirty-four years to 2005–06



Note: Total interstate freight from South Australia to the Northern Territory increased from 0.2 billion net tonne-kilometres in 1971–72 to 1.1 billion net tonne-kilometres in 2005–06, an average annual increase of 4.6 per cent.

Source: BITRE estimates.

Figure 23 Interstate freight, Victoria to Western Australia, shares of rail, road and coastal shipping, thirty-four years to 2005–06



Note: Total interstate freight from Victoria to Western Australia increased from 1.2 billion net tonne-kilometres in 1971–72 to 3.9 billion net tonne-kilometres in 2005–06, an average annual increase of 3.5 per cent.

Source: BITRE estimates.

Figure 23 illustrates the changes in modal share in a medium to long distance freight market: Victoria to Western Australia. This shows that rail and coastal shipping have generally gained mode share at the expense of road.

Tables A8 and A9 in the statistical annex provide estimates of the intermodal freight task and modal share for each market segment for 2005–06. Tables A10 to A16 in the statistical annex provide detailed time series data that underlie the estimates of modal share. Each of the tables divides the freight from a given state into six or seven market segments depending on the freight destination. For each market segment, the tables provide the following data for each year, from 1971–72 to 2005–06:

- the total freight in million net tonne-kilometres by year
- road market share, as a proportion, in each year
- rail market share, as a proportion, in each year, and
- coastal shipping market share, as a proportion, in each year.

For each year, the market shares across the three modes add up to one.

Explanatory notes

This section provides background on methodology and data issues for specific indicators.

Scheduled intermodal transit time

Scheduled transit time measures transit time for all trains on the line segment, irrespective of ultimate origin or destination.

Actual intermodal transit time

The actual transit time indicator measures average, transit time of intermodal trains operating point-to-point between two cities. It is the elapsed time from the actual departure to the actual arrival (that is, adjusting for GMT standard time and daylight savings) between the two cities that a train operates between. For example, the actual transit time for the Melbourne–Adelaide line segment relates to Melbourne–Adelaide train services only. That is, it excludes trains traversing the line segment but travelling beyond Melbourne or Adelaide, such as Melbourne–Perth trains.

Data were provided by Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet. Origin-destination times were adjusted for time zones and were 'normalised' to a given city origin or destination location. For example, times for trains terminating at Altona (west of Melbourne) were adjusted to the Dynon arrival time using scheduled running times between Altona and Dynon.

The indicator was intended to report the transit time performance of all the intermodal trains over the period 2006–07. In practice, the results reported have had to be based on a subset of the total number of the relevant intermodal trains. This occurred where infrastructure managers did not record train arrivals and departures for all trains or where origin and destination times did not correspond across different infrastructure networks.

Computation of this indicator relies on data on actual transit times for a twelve month period. To enable an appropriate comparison, we use longer time periods to estimate scheduled transit time: twelve months data for all line segments, except for Brisbane–Sydney, Brisbane–Melbourne and Brisbane–Adelaide where we used one month's data. Data for Sydney–Brisbane was not available for 2006–07.

Track quality

For safety, maintenance, planning and regulatory reasons, infrastructure managers regularly measure the condition of their track. In essence, managers measure the

extent to which the railway track deviates from the 'designated' (or 'true') alignment. Infrastructure managers can report a global indicator of track condition on a given line segment. ARTC (2007) publish a 'track quality index' (TQI) as part of their Access Undertaking agreement with the Australian Competition and Consumer Commission. The TQI is a statistical measure calculated from the standard deviations of a number of different track geometry parameters. The TQI for a given line segment is taken as the average of the individual TQI sample readings. The parameters that are measured include:

1. Rail placement measurement

'Gauge' is the distance between the inside edges of the rails. It is generally measured 16 millimetres below the top surface of the rail. On standard gauge track this is a nominal 1435 millimetres.

2. Vertical alignment measurement

'Crosslevel', 'superelevation' or 'cant' are terms used to define the difference in the height of one rail when compared to the other at any point along the track. On curves, the track is usually 'banked' whereas on straight track the rails are at the same height or level. Twist (or 'warp') is the difference of track cants or cross level measured at two points on a given section of track. For instance, at point A, the track may slant to the left and x metres further on, the track may slant to the right. A severe difference in cant between the two points could cause one of the axles to lose contact with the rail and thus risk derailment. A 'short twist' is where the base distance, x, is short; a 'long twist' is where x is long. The twist base measurement x generally relates to distances between axles or between wagon bogies. Vertical profile irregularities (or 'top' or 'surface') measures the irregularities in the vertical alignment of each rail. The test is made independently for each rail.

3. Horizontal alignment measurement

Horizontal alignment irregularities (or 'versine' or 'line') identify sideways irregularities in the alignment of each rail. Infrastructure managers' interest in track geometry measures arises because misalignments affect how a wagon rides on the track. The consequence for the train of a wagon riding poorly—such as swaying badly or erratically—is that the wagon can derail or wagon contents can shift and so be damaged. The wagon's wheels can also face extra wear. The consequence for the track of poor wagon riding is that additional pressure can be placed on the track and this can quickly accelerate track deterioration. To moderate these damaging effects, in the first instance, the manager may reduce the train speed, thereby lengthening transit times. Corrective action may require maintenance or renewal activities. There is a financial trade-off for infrastructure managers in how much alignment deviations the infrastructure manager accepts. Too much precision generates high ongoing maintenance costs and shortens asset life; too little precision degrades train services (lengthened transit time and damaged goods) and shortens asset life. In any case, as the asset ages and

is used, it becomes increasingly difficult to maintain a high standard alignment and this increases the case for asset renewal instead of further maintenance.

On a regular basis on the intercapital city network, infrastructure managers operate a train with a 'track geometry measuring car'. The carriage is equipped with instruments that measure and record a range of different geometric parameters. There is a variety of track geometry measuring cars in Australia and hence a number of different means of measuring and analysing the parameters that make up the TQI. Further, track quality is reported as a composite measure of the different geometric parameters; this can differ between systems depending on the parameters used. The following are the track quality measurements and indicators for the national network:

Queensland standard gauge

- gauge
- twist (short), measured over 3 metres
- vertical rail irregularities ('top') deviation over a 6.5 metre chord, and
- horizontal rail irregularities ('versine') deviation over 10 metres.

NSW standard gauge

- gauge
- twist (short), measured over 2.5 metres
- vertical irregularities ('top'), deviation over a 10 metre chord, and
- horizontal rail irregularities ('versine') averaged over 10 metres.

These are based on average of standard deviations over 100 metre sections.

Standard gauge (east of Kalgoorlie)—Victorian/South Australian

- crosslevel
- twist (long), measured over 14 metres
- vertical rail irregularities ('top'), measured using a 20 metre wavelength inertial output, and
- horizontal rail irregularities ('versine') measured at the midpoint of a 10 metre chord.

These are based on average of standard deviations over 200 metre sections.

New ARTC TQI (Standardised TQI across ARTC network)

This replaces the NSW standard gauge track quality measurements and the standard gauge (east of Kalgoorlie) Victorian and South Australian measurements.

- gauge
- twist (short), measured over 2 metres
- vertical irregularities ('top'), deviation over a 20 metre inertial reading (average of left and right rail), and
- horizontal rail irregularities ('versine'), 5 to 10 metre chord emulation (average of left and right rail).

These are based on average of standard deviations over 100 metre sections.

Western Australian standard gauge (west of Kalgoorlie)

- crosslevel
- twist ('long'), measured over 14 metres or twist ('short') over 2 metres
- vertical rail irregularities ('rail surface'), deviation over a 20 metre chord, and
- horizontal rail irregularities ('versine').

TQI results for different line sections can only be compared when, in their compilation, identical parameters are used. ARTC are now using a standardised measure for track quality across all track under its management.

Train flow patterns

The objective of this indicator is to identify patterns in train movements, showing how trains operate over the network. These patterns are a consequence of both infrastructure capability and train operator requirements. In the latter case, for instance, the time performance of some trains is strongly influenced by the operator's service of uplifting and dropping off freight at intermediate points between the origin and destination.

The benefits of current infrastructure investment and renewal are likely to be that train flow is enhanced. Train flow patterns are likely to change to reflect the infrastructure work that has taken place. The three train flow patterns outlined here have been derived from analysis of data contained in infrastructure managers' Working Timetables.

Dwell time

The dwell time indicator measures the proportion (percentage) of train transit time that is spent 'dwelling' (stationary) in railway yards and passing loops. Given the length of the line segments, dwell times may never be completely eliminated. The time and length of the segments give rise to a range of operational reasons for the train to make stops. These include crew breaks, change of crew, locomotive refuelling and attaching, and detaching wagons in intermediate cities.

The dwell time was calculated by reviewing infrastructure managers' Working Timetables, recording the time that each train was stationary on a given line segment, and then combining this data with previously calculated data on scheduled transit time.

Figures 9 and 10 present maximum, minimum and median dwell times. The median is the middle number in a list of numbers, ordered from smallest to largest. The median dwell time shows the point at which half the services had shorter dwell times and the other half had longer dwell times.

Number of stops

The infrastructure investments that are underway are likely to reduce the number of stops that trains need to make. Trains can lose time and energy efficiencies in lost momentum and due to the gradual acceleration back to the line speed.

There are three primary reasons for freight trains stopping at intermediate points between origin and destination: the trains may pick up or drop off wagons; there may be operational reasons (a need to change crews or refuel the locomotives); or there may be train control reasons (obtaining clearance to move into the next section of track). The investments that are in the pipeline focus on these signalling issues and are likely to reduce the number of times that trains need to stop, either because there will be additional opportunities for passing other trains without stopping (such as passing lanes) or because of the installation of modern signalling that does not require the train driver to stop the train in order to obtain an authority to proceed onto the next section of track.

Average speed

An overall measure of railway performance—both train and infrastructure—is the average train speed. As with other indicators, average speed is partly determined by train operator factors such as locomotive power and whether the operator picks up and drops off freight en route.

In general, a measure of average speed is a function of the infrastructure performance and capacity. The prevailing main line speeds are a function of the standard and age of the track and its geometry; the level and usage of capacity influence the dwell time and, thus, the average speed.

The planned renewals and enhancements to infrastructure and capacity will enable the average train speeds to be raised. The previously discussed capacity enhancements (such as the passing lanes south of Junee and the Southern Sydney Freight Line) may also reduce dwell time. The new signalling system may reduce the number of stops at passing loops. Track upgrading—notably, the installation of concrete sleepers—may permit higher main line running speeds.

Total interstate rail task by line segment[1]

This indicator estimates the total interstate rail freight task measured in net tonne-kilometres of intermodal freight and non-intermodal freight hauled on each line segment.

BITRE's estimates of rail task by line segment started with the state-to-state data summarised in Table A6, which is based on data from above-rail train operators on interstate and intrastate freight hauled.

The data from the state level origin-destination matrix is then assigned to the Australian rail network. The text below gives a summary of the rules used in assigning freight to six line segments.

Brisbane–Sydney: interstate

The rail freight task on this line segment is equal to:

- (NSW–QLD)*1069 km + (QLD–NSW)*915 km + [(VIC–QLD) + (QLD–VIC)+ (SA–QLD) + (QLD–SA)+(QLD–WA) + (WA–QLD)]*972 km, where
- The terms in parenthesis represent tonnes derived from the origin-destination matrix in Table A6. For each term the first listed state is the origin state and the second listed is the destination state, and
- 1069 km, 915 km, and 972 km are estimated average distances that freight is hauled by rail in the corresponding corridors.

Sydney–Melbourne: interstate

The rail freight task on this line segment is equal to:

- (NSW–VIC)*592 km + (VIC–NSW)*665 km + [(NSW–SA) + (SA–NSW) + (QLD–VIC) + (VIC–QLD) + (SA–QLD) + (QLD–SA)]*959 km+[0.75*{(NSW–WA) + (NSW–QLD) + (WA–NSW) + (WA–QLD)}]*430 km, where
- 592 km and 665 km are estimated average distances from Australian Bureau of Statistics Freight Movement Survey
- 959 km is the average distance hauled for freight between the corresponding states, and
- 430 km is the distance between Sydney and Cootamundra; 75 per cent of the freight from the states listed in this part of the equation is hauled through Cootamundra.

1. In the following equations, * denotes multiplication. The term 'State 1–State 2' (e.g. NSW–Vic) denotes tonnes of rail freight transported from State 1 to State 2.

Melbourne–Adelaide: interstate

The rail freight task on this line segment is equal to:

- [(NSW–SA) + (VIC–SA) + (VIC–WA) + (VIC–NT) + (QLD–SA) + (SA–NSW) + (SA–VIC) + (SA–QLD) + (WA–VIC) + (NT–NSW) + (NT–VIC)]*790 km, where
- 790 km is the distance from Melbourne to Adelaide.

Adelaide–Perth: interstate

The rail freight task on this line segment is equal to:

- [(NSW–WA) + (VIC–WA) + (QLD–WA) + (SA–WA) + (WA–NSW) + (WA–VIC) + (WA–QLD) + (WA–SA)]*2970 km + [(NSW–NT) + (VIC–NT) + (SA–NT) + (NT–NSW) + (NT–VIC) + (NT–SA)]*313 km, where
- 313 km is the distance from Crystal Brook to Tarcoola.

Darwin–Tarcoola: interstate

The rail freight task on this line segment is equal to:

- [(NSW–NT) + (NT–NSW) + (VIC–NT) + (NT–VIC) + (QLD–NT) + (NT–QLD) + (SA–NT) + (NT–SA) + (WA–NT) + (NT–WA)]*2250 km, where
- 2250 km is the distance from Darwin to Tarcoola.

Sydney–Broken Hill–Crystal Brook: interstate

The rail freight task on this line segment is equal to:

- [(NSW–WA) + (QLD–WA) + (WA–NSW) + (WA–QLD)]*(1520 km*0.25 + 1271 km*0.75), where
- 1520 km is the distance from Sydney to Crystal Brook via Lithgow, 1271 km is the distance from Crystal Brook to Cootamundra.

The rail freight task by line segment refers to interstate freight only. Intrastate freight is not assigned to a line segment as data from above-rail train operators do not distinguish on which line freight is being hauled.

Intercapital city line segment share in total rail task[2]

The intercapital city line segment share is given by net tonne-kilometres (NTK) of city-pair origin-destination intermodal and non-intermodal freight rail freight divided by the total rail freight task for the line segment.

BITRE's estimates of the intercapital city line segment task started with data summarised in Table A7, which is based on data from below-rail infrastructure managers and above-rail train operators on intercapital city freight hauled.

2. In the following equations, * denotes multiplication. The term 'intercapital' (e.g. Sydney–Melbourne) denotes tonnes of rail freight transported from Capital city 1 to Capital city 2.

Second, the data from the city-city origin-destination matrix is assigned to the Australian rail network. The text below gives a summary of the rules used in assigning freight to six line segments.

Brisbane–Sydney: intercapital city

The rail freight task on this line segment is equal to:

- [(Sydney–Brisbane) + (Brisbane–Sydney) + (Melbourne–Brisbane) + (Brisbane–Melbourne) + (Adelaide–Brisbane) + (Brisbane–Adelaide)+ (Brisbane–Perth) + (Perth–Brisbane)]*972 km, where
- The terms in parenthesis represent tonnes derived from the origin-destination matrix in Table A7. For each term the first listed capital city is the origin capital city and the second listed is the destination capital city, and
- 972 km is the distance from Brisbane to Sydney.

Sydney–Melbourne: intercapital city

The rail freight task on this line segment is equal to:

- [(Sydney–Melbourne) + (Melbourne–Sydney) + (Sydney–Adelaide) + (Adelaide–Sydney) + (Brisbane–Melbourne) + (Melbourne–Brisbane) + (Adelaide–Brisbane) + (Brisbane–Adelaide)]*959 km+[0.75*{(Sydney–Perth) + (Brisbane–Perth) + (Perth–Sydney) + (Perth–Brisbane)}]*430 km, where
- 959 km is the distance from Sydney to Melbourne, and
- 430 km is the distance between Sydney and Cootamundra; 75 per cent of the freight from the capital cities listed in this part of the equation is hauled through Cootamundra.

Melbourne–Adelaide: intercapital city

The rail freight task on this line segment is equal to:

- [(Sydney–Adelaide) + (Melbourne–Adelaide) + (Melbourne–Perth) + (Melbourne–Darwin) + (Brisbane–Adelaide) + (Adelaide–Sydney) + (Sydney–Melbourne) + (Adelaide–Brisbane) + (Perth–Melbourne) + (Darwin–Sydney) + (Darwin–Melbourne)]*790 km, where
- 790 km is the distance from Melbourne to Adelaide.

Adelaide–Perth : intercapital city

The rail freight task on this line segment is equal to:

- [(Sydney–Perth) + (Melbourne–Perth) + (Brisbane–Perth) + (Adelaide–Perth) + (Perth–Sydney) + (Perth–Melbourne) + (Perth–Brisbane) + (Perth–Adelaide)]*2970 km + [(Sydney–Darwin) + (Melbourne–Darwin) + (Adelaide–Darwin) + (Darwin–Sydney) + (Darwin–Melbourne) + (Darwin–Adelaide)]*313 km, where
- 313 km is the distance from Crystal Brook to Tarcoola.

Darwin–Tarcoola: intercapital city

The rail freight task on this line segment is equal to:

- [(Sydney–Darwin) + (Darwin–Sydney) + (Melbourne–Darwin) + (Darwin–Melbourne) + (Brisbane–Darwin) + (Darwin–Brisbane) + (Adelaide–Darwin) + (Darwin–Adelaide) + (Perth–Darwin) + (Darwin–Perth)]*2250 km, where
- 2250 km is the distance from Darwin to Tarcoola.

Sydney–Broken Hill–Crystal Brook: intercapital city

The rail freight task on this line segment is equal to:

- [(Sydney–Perth) + (Brisbane–Perth) + (Perth–Sydney) + (Perth–Brisbane)]* (1520 km*0.25 + 1271 km*0.75), where
- 1520 km is the distance from Sydney to Crystal Brook via Lithgow, 1271 km is the distance from Crystal Brook to Cootamundra.

Intermodal state-to-state market share

Rail

The rail data in this report, for the years from 1971–72 to 2004–05 is based on the following sources:

- data provided by infrastructure managers and rail operators to BTRE for 2006 and 2007
- rail data collected by an Australian private company called FDF for the years 1987, 1989, 1993, 1996, 1999 and 2004
- data from Australian Bureau of Statistics for 2001 (ABS catalogue number 9220.0)
- data series from Australian Bureau of Statistics for the period June 1994 to March 1997 (ABS Catalogue No. 9217.0)
- data series from the Australian Bureau of Statistics for the years 1981 to 1992–Interstate freight movement series (ABS catalogue number 9212.0)
- unpublished data on intersystem rail freight movements in 1984–85 from train operators, and
- data from BTE (1976, 1979, 1983).

Coastal Shipping

Data is collected annually from ports and the coastal shipping industry by way of a questionnaire.

Road

The main data source for road is the annual ABS Survey of Motor Vehicle Use (SMVU). This data requires adjustment, as discussed in BTRE (2006, 2007).

The state-to-state rail mode shares differ from the intercapital estimates provided in BTRE (2006, chapter 6) and in earlier BTRE publications. Estimates of state-to-state road freight are in some cases significantly higher than the corresponding estimates of intercapital road freight, with the result that state-to-state rail freight mode share estimates are accordingly lower.

Statistical annex

Table A1 Intercapital intermodal train indicators, by line segment, 2006–07

(1)	(2)	(3)	(4)	(5)	(6)	(7)		
						Train flow patterns		
Line segment	Direction	Scheduled transit time (†)	ATC target	Actual transit time (†)	Number of weekly intercity trains (*)	Average dwell time (per cent of scheduled transit time)	Average number of stops	Average speed (km/h)
North–South								
Brisbane–Sydney	Brisbane to Sydney	18 hrs 46 min	17.5 hrs	19 hrs 39 min	1	17	11	52
	Sydney to Brisbane	na		22 hrs 2 min	0	na	na	na
Sydney–Melbourne	Sydney to Melbourne	17 hrs 15 min	10.5 hrs	16 hrs 3 min	6	20	9	56
	Melbourne to Sydney	16 hrs 4 min		15 hrs 10 min	6	18	7	60
Brisbane–Melbourne	Brisbane to Melbourne	36 hrs 45 min	29.5 hrs	37 hrs 43 min	18	20	21	53
	Melbourne to Brisbane	36 hrs 28 min		39 hrs 14 min	18	23	21	53
Brisbane–Adelaide	Brisbane to Adelaide	53 hrs 50 min	na	53 hrs 34 min	5	24	23	50
	Adelaide to Brisbane	57 hrs 16 min		59 hrs 21 min	5	36	30	47
East–West								
Melbourne–Adelaide	Melbourne to Adelaide	13 hrs 36 min	11.5 hrs	13 hrs 18 min	17	13	6	58
	Adelaide to Melbourne	13 hrs 44 min		13 hrs 34 min	17	15	8	58
Melbourne–Perth	Melbourne to Perth	54 hrs 57 min.	56 hrs	58 hrs 31 min	15	13	20	68
	Perth to Melbourne	68 hrs 09 min		68 hrs 29 min	15	17	24	55
Sydney–Adelaide	Sydney to Adelaide	na	26 hrs	na	0	na	na	na
	Adelaide to Sydney	na		na	0	na	na	na
Sydney–Perth	Sydney to Perth	60 hrs 56 min	65 hrs	65 hrs 09 min	8	15	21	70
	Perth to Sydney	70 hrs 12 min		70 hrs 28 min	8	17	25	61
Adelaide–Perth	Adelaide to Perth	na	41 hrs	na	0	na	na	na
	Perth to Adelaide	na		na	0	na	na	na

(continued)

Table A1 Intercapital intermodal train indicators, by line segment, 2006–07 (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)		
						Train flow patterns		
Line segment	Direction	Scheduled transit time (†)	ATC target	Actual transit time (†)	Number of weekly intercity trains (*)	Average dwell time (per cent of scheduled transit time)	Average number of stops	Average speed (km/h)
Central								
Adelaide–Darwin	Adelaide to Darwin	43 hrs 0 min	na	45 hrs 14 min	5	12	7	64
	Darwin to Adelaide	44 hrs 54 min		44 hrs 24 min	5	15	9	61

na: not applicable
†: The average transit time reported here is for all intermodal services, both express and stopping services.
*: The numbers in this column show the number of trains originating and terminating in the given city pairs, e.g., there was one train per week originating in Brisbane and terminating in Sydney. These numbers contrast with those presented in Table A3.
Note 1: The data in this table relates to intermodal trains, with axle loads up to and including 21 tones and a maximum speed of 115 kph.
Note 2: Transit times are the elapsed times between origin and destination terminals as extracted from infrastructure managers' scheduled Working Timetables. The explanatory notes describe how these times were adjusted prior to estimating the transit times. The average transit time has been calculated from the transit times for all intermodal trains scheduled to operate in the last week of June 2007.
Source: BITRE estimates based on data provided by infrastructure managers: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Table A2 Percentage change in intercapital intermodal train indicators, by line segment, 2005-06 to 2006–07

Line segment	Direction	Scheduled transit time	Actual transit time	Number of weekly intercity trains	Average dwell time (per cent of scheduled transit time)
North–South					
Brisbane–Sydney	Brisbane to Sydney	–7	ne	–75	–26
	Sydney to Brisbane	ne	ne	ne	ne
Sydney–Melbourne	Sydney to Melbourne	14	11	50	81
	Melbourne to Sydney	9	13	0	63
Brisbane–Melbourne	Brisbane to Melbourne	–1	–3	–5	–7
	Melbourne to Brisbane	–4	1	0	–6
Brisbane–Adelaide	Brisbane to Adelaide	ne	ne	150	ne
	Adelaide to Brisbane	ne	ne	150	ne
East–West					
Melbourne–Adelaide	Melbourne to Adelaide	4	–2	0	–4
	Adelaide to Melbourne	–3	–14	0	–19
Melbourne–Perth	Melbourne to Perth	–3	–1	7	–40
	Perth to Melbourne	5	0	7	–40
Sydney–Adelaide	Sydney to Adelaide	ne	ne	ne	ne
	Adelaide to Sydney	ne	ne	ne	ne
Sydney–Perth	Sydney to Perth	–4	–3	0	–28
	Perth to Sydney	5	–3	0	–19
Adelaide–Perth	Adelaide to Perth	ne	ne	ne	ne
	Perth to Adelaide	ne	ne	ne	ne
Central					
Adelaide–Darwin	Adelaide to Darwin	ne	ne	ne	ne
	Darwin to Adelaide	ne	ne	ne	ne

ne: not estimated for either 2005–06 or 2006–07, therefore the percentage change can not be calculated.
Source: BITRE estimates based on data provided by infrastructure managers: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Table A3 Scheduled weekly intercapital city freight trains, by line segment, June 2007

Line segment	*Number of weekly freight trains*		
	Total intermodal	*Steel trains*	*Total*
North–South corridor			
1. Brisbane–Sydney	47	14	61
2. Sydney–Melbourne			
• Sydney–Cootamundra	68	21	89
• Cootamundra–Melbourne	58	10	68
East–West corridor			
3. Sydney–Crystal Brook via Broken Hill			
• Sydney–Parkes via Lithgow	6	0	6
• Cootamundra–Parkes	10	11	21
• Parkes–Crystal Brook	16	11	27
4. Melbourne–Crystal Brook			
• Melbourne–Adelaide	74	10	84
• Adelaide–Crystal Brook	40	12	52
5. Crystal Brook–Perth			
• Crystal Brook–Spencer Junction	56	23	79
• Spencer Junction–Tarcoola	56	6	62
• Tarcoola–Perth	46	6	52
Central corridor			
6. Darwin–Tarcoola	10	0	10

Note: Total intermodal is the total of direct city-to-city and trains passing through a city.

Source: BITRE estimates based on data provided by infrastructure managers: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Table A4 Percentage change in scheduled weekly intercapital city freight trains, by line segment, June 2006 to June 2007

Line segment	*Total intermodal*	*Steel trains*	*Total*
North–South corridor			
1. Brisbane–Sydney	–6	27	0
2. Sydney–Melbourne			
• Sydney–Cootamundra	11	–9	6
• Cootamundra–Melbourne	14	–17	8
East–West corridor			
3. Sydney–Crystal Brook via Broken Hill			
• Sydney–Parkes via Lithgow	0	0	0
• Cootamundra–Parkes	0	0	0
• Parkes–Crystal Brook	0	0	0
4. Melbourne–Crystal Brook			
• Melbourne–Adelaide	12	–17	8
• Adelaide–Crystal Brook	43	-8	27
5. Crystal Brook–Perth			
• Crystal Brook–Spencer Junction	27	–4	16
• Spencer Junction–Tarcoola	ne	ne	ne
• Tarcoola–Perth	5	0	4
Central corridor			
6. Darwin–Tarcoola	ne	ne	ne

ne. not estimated in 2005-06, therefore the percentage change can not be calculated.

Source: BITRE estimates based on data provided by infrastructure managers: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Table A5 Infrastructure provision: train length and double-stacking capability, 2006–07

		Train length			Double-stack (conventional containers)		
Corridor	Segment	ATC target	2006–07		ATC target	2006–07	
			Unrestricted §	Restricted §		Unrestricted §§	Restricted §§
North–South	Acacia Ridge (Loadstone) to NSW Border	1 500	1 200	1 500	None	No (4.03 m)	No
	NSW Border to Sydney	1 500	1 500		None	No (4.03 m)	No
	Sydney–Melbourne	1 500	1 500		None	No (4.03 m)	No
East–West	Melbourne–Adelaide	1 500	1 500		None	No	No
	Sydney–Parkes						
	– via Cootamundra	1 500	1 500		None	No (4.03 m)	No
	– via Lithgow	1 500	1 100		None	No (4.03 m)	No
	Parkes–Crystal Brook	1 800	1 800		Yes	No (4.03 m)	No
	Crystal Brook–Adelaide	1 800	1 800		Yes	Yes (6.5 m)	Yes (5.9m)
	Crystal Brook–Kalgoorlie	1 800	1 800	1 800	Yes	Yes (6.5m)	
	Kalgoorlie–Perth	1 800	1 420	1 800	Yes	Yes (6.5m)	
Central	Darwin to Tarcoola	None	1 800		None	Yes (6.5 m)	

§ The 'unrestricted' train length is the train length up to which train operators can operate any scheduled service without reference to the track manager. The 'restricted' train length is the maximum train length permitted on the line segment. The unrestricted train length is a function of the frequency of the length of the longest passing loops on single-tracked line sections.

§§ Unrestricted double-stacking capability refers to the ability to stack one hi-cube (9 feet 6 inches, or 2.896 metres high) container on top of another hi-cube container and to convey them within a low-floor (well) wagon. Restricted double stacking can be operated by stacking a shallower (8 feet 6 inches high) container on top of a hi-cube container within the low-floor wagon.

Source: Australian Rail Track Corporation, FreightLink, Queensland Rail Network Access, RailCorp and WestNet.

Table A6 Total rail freight task, 2006–07

State/territory of origin	State/territory of destination								
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
	(million net tonne-kilometres)								
Intermodal									
NSW	341	540	247	237	3 050	–	–	–	4 415
VIC	675	387	1 748	1 059	4 927	–	–	–	8 795
QLD	169	1 110	6 159	249	837	–	–	–	8 525
SA	224	1 524	386	193	1 725	–	1 126	–	5 178
WA	1 726	2 751	830	1 262	0	–	–	–	6 570
TAS	–	–	–	–	–	–	–	–	421
NT	–	–	–	454	–	–	83	–	537
ACT	–	–	–	–	–	–	–	–	–
Sub Total	3 136	6 312	9 370	3 455	10 539	421	1 209	–	34 442
Bulk									
NSW	13 986	625	754	481	953	–	–	–	16 799
VIC	196	508	119	150	270	–	–	–	1 244
QLD	196	1	35 321	0	2	–	–	–	35 520
SA	1 583	250	253	977	131	–	31	–	3 224
WA	10	9	1	1	10 370	–	–	–	10 392
TAS	–	–	–	–	–	60	–	–	60
NT	–	–	–	–	–	–	330	–	330
ACT	–	–	–	–	–	–	–	–	–
Sub Total	15 972	1 394	36 448	1 609	11 725	60	361	–	67 569
Total Freight									
NSW	14 327	1 165	1 001	718	4 003	–	–	–	21 214
VIC	871	895	1 867	1 210	5 196	–	–	–	10 039
QLD	366	1 111	41 480	249	839	–	–	–	44 045
SA	1 807	1 774	639	1 170	1 855	–	1 156	–	8 402
WA	1 736	2 760	831	1 264	10 370	–	–	–	16 962
TAS	–	–	–	–	–	482	–	–	482
NT	–	–	–	454	–	–	413	–	868
ACT	–	–	–	–	–	–	–	–	–
Total	19 108	7 705	45 818	5 064	22 264	482	1 570	–	102 011

– not applicable or no data.

Note: The entries of '0' in the table mean that volumes are small and less than one million net tonne-kilometres.

Source: Asciano, Australian Railroad Group, FreightLink, QRNational, SCT Logistics and WestNet.

Table A7 Total intercapital city rail freight task, 2006–07

Capital city of origin	Capital city of destination								
	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Total
	(million net tonne-kilometres)								
Intermodal									
Sydney	–	337	297	237	2 736	–	–	–	3 607
Melbourne	345	–	1 644	1 059	4 927	–	–	–	7 975
Brisbane	226	1 083	–	246	830	–	–	–	2 385
Adelaide	224	1 524	364	–	1 725	–	864	–	4 701
Perth	1 657	2 751	790	1 262	–	–	–	–	6 460
Hobart	–	–	–	–	–	–	–	–	–
Darwin	–	–	–	300	–	–	–	–	300
Canberra	–	–	–	–	–	–	–	–	–
Subtotal	2 452	5 695	3 095	3 105	10 217	–	864	–	25 428
Bulk									
Sydney	–	485	754	109	953	–	–	–	2 301
Melbourne	131	–	119	122	270	–	–	–	642
Brisbane	1	1	–	0	2	–	–	–	4
Adelaide	1 539	222	253	–	131	–	–	–	2 145
Perth	2	1	1	1	–	–	–	–	5
Hobart	–	–	–	–	–	–	–	–	–
Darwin	–	–	–	–	–	–	–	–	–
Canberra	–	–	–	–	–	–	–	–	–
Subtotal	1 673	709	1 127	233	1 355	–	–	–	5 097
Total freight									
Sydney	–	822	1 050	346	3 689	–	–	–	5 907
Melbourne	476	–	1 764	1 182	5 196	–	–	–	8 618
Brisbane	227	1 084	–	246	831	–	–	–	2 389
Adelaide	1 763	1 746	617	–	1 855	–	864	–	6 846
Perth	1 659	2 752	791	1 264	–	–	–	–	6 465
Hobart	–	–	–	–	–	–	–	–	–
Darwin	–	–	–	300	–	–	–	–	300
Canberra	–	–	–	–	–	–	–	–	–
Total	4 125	6 404	4 222	3 338	11 572	–	864	–	30 524

– not applicable or no data.

Note: The entries of '0' in the table mean that volumes are small and less than one million net tonne-kilometres.

Source: Asciano, Australian Railroad Group, FreightLink, QRNational, SCT Logistics and WestNet.

Table A8 Intermodal state–to–state freight task by road, rail and coastal shipping, 2005–06

State/territory of origin	State/territory of destination								
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
	(million net tonne-kilometres)								
NSW	na	8 978	8 586	2 257	3 532	63	444	636	24 496
VIC	8 827	na	4 969	4 359	3 868	818	34	40	22 915
QLD	7 156	5 431	na	1 054	1 070	na	738	1	15 450
SA	2 562	3 626	1 094	na	2 918	2	1 148	1	11 351
WA	2 806	2 369	1 321	2 976	na	21	424	2	9 919
TAS	15	1 124	9	na	470	na	6	na	1 624
NT	76	80	434	814	294	5	na	2	1 705
ACT	175	29	1	1	2	na	2	na	210
Total	21 617	21 637	16 414	11 461	12 154	909	2 796	682	87 670

na: not applicable.
Source: BITRE estimates.

Table A9 Intermodal state–to–state total freight task, market shares of road, rail and coastal shipping, 2005–06

State/territory of origin		State/territory of destination								
		NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
NSW	Road share	na	0.95	0.93	0.92	0.16	0.00	0.97	1.00	0.83
	Rail share	na	0.05	0.05	0.07	0.54	0.00	0.02	0.00	0.12
	Coastal shipping share	na	0.00	0.02	0.01	0.29	1.00	0.01	0.00	0.05
VIC	Road share	0.96	na	0.56	0.79	0.11	0.00	0.00	1.00	0.66
	Rail share	0.04	na	0.35	0.18	0.69	0.00	1.00	0.00	0.24
	Coastal shipping share	0.00	na	0.09	0.03	0.19	1.00	0.00	0.00	0.09
QLD	Road share	0.94	0.80	na	0.83	0.27	0.00	0.88	1.00	0.83
	Rail share	0.06	0.20	na	0.15	0.49	0.00	0.00	0.00	0.14
	Coastal shipping share	0.00	0.00	na	0.02	0.23	1.00	0.12	0.00	0.02
SA	Road share	0.88	0.88	0.77	na	0.50	0.00	0.42	1.00	0.73
	Rail share	0.12	0.12	0.23	na	0.50	0.00	0.58	0.00	0.27
	Coastal shipping share	0.00	0.00	0.00	na	0.01	1.00	0.00	0.00	0.00
WA	Road share	0.26	0.12	0.22	0.49	na	0.00	0.96	1.00	0.32
	Rail share	0.72	0.86	0.77	0.50	na	0.00	0.00	0.00	0.66
	Coastal shipping share	0.02	0.02	0.00	0.00	na	1.00	0.04	0.00	0.01
TAS	Road share	0.00	0.00	0.00	0.00	0.00	na	0.00	na	0.00
	Rail share	0.00	0.00	0.00	0.00	0.00	na	0.00	na	0.00
	Coastal shipping share	1.00	1.00	1.00	1.00	1.00	na	1.00	na	1.00
NT	Road share	0.95	0.90	1.00	0.67	0.98	0.00	na	1.00	0.83
	Rail share	0.05	0.10	0.00	0.33	0.00	0.00	na	0.00	0.16
	Coastal shipping share	0.00	0.00	0.00	0.00	0.02	1.00	na	0.00	0.01
ACT	Road share	1.00	1.00	1.00	1.00	1.00	na	1.00	na	1.00
	Rail share	0.00	0.00	0.00	0.00	0.00	na	0.00	na	0.00
	Coastal shipping share	0.00	0.00	0.00	0.00	0.00	na	0.00	na	0.00
Total	Road share	0.85	0.76	0.75	0.73	0.25	0.00	0.71	1.00	0.70
	Rail share	0.14	0.19	0.21	0.25	0.54	0.00	0.25	0.00	0.24
	Coastal shipping share	0.00	0.05	0.04	0.02	0.21	1.00	0.04	0.00	0.06

na: not applicable.
Source: BITRE estimates.

Table A10 Intermodal state-to-state total freight, million net tonne-kilometres, and market shares of road, rail and coastal shipping in transporting freight originating from New South Wales, 1971–72 to 2005–06

	NSW–VIC				NSW–QLD				NSW–SA				NSW–WA			
		Shares				Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	1 453	0.57	0.30	0.13	977	0.47	0.39	0.13	289	0.90	0.07	0.02	873	0.04	0.35	0.62
1972–73	1 574	0.64	0.27	0.09	1 135	0.52	0.37	0.11	341	0.92	0.06	0.02	941	0.05	0.42	0.53
1973–74	1 679	0.70	0.25	0.05	1 287	0.55	0.35	0.10	387	0.93	0.06	0.02	1 011	0.06	0.48	0.46
1974–75	1 728	0.73	0.24	0.03	1 345	0.57	0.36	0.07	408	0.93	0.06	0.02	1 036	0.07	0.56	0.37
1975–76	1 859	0.76	0.23	0.01	1 467	0.60	0.35	0.04	451	0.93	0.05	0.01	1 037	0.06	0.64	0.30
1976–77	1 927	0.77	0.22	0.01	1 537	0.61	0.35	0.04	474	0.93	0.06	0.01	1 067	0.06	0.66	0.28
1977–78	1 944	0.78	0.21	0.01	1 567	0.61	0.36	0.03	484	0.92	0.06	0.01	1 093	0.06	0.67	0.27
1978–79	2 082	0.79	0.20	0.01	1 693	0.63	0.34	0.02	526	0.92	0.07	0.01	1 131	0.07	0.67	0.25
1979–80	2 276	0.81	0.18	0.01	1 867	0.66	0.32	0.02	582	0.92	0.07	0.01	1 177	0.09	0.68	0.24
1980–81	2 405	0.83	0.17	0.00	2 012	0.67	0.32	0.01	614	0.93	0.06	0.01	1 170	0.10	0.67	0.23
1981–82	2 453	0.86	0.13	0.00	2 060	0.71	0.28	0.01	645	0.94	0.05	0.01	1 115	0.12	0.64	0.24
1982–83	2 177	0.88	0.11	0.00	1 839	0.70	0.29	0.01	607	0.91	0.05	0.03	1 015	0.11	0.63	0.25
1983–84	2 635	0.89	0.11	0.00	2 247	0.73	0.26	0.01	700	0.94	0.05	0.00	1 346	0.13	0.56	0.31
1984–85	2 697	0.89	0.10	0.00	2 311	0.74	0.25	0.02	719	0.94	0.06	0.00	1 432	0.13	0.52	0.35
1985–86	2 974	0.90	0.10	0.00	2 610	0.74	0.25	0.01	776	0.96	0.04	0.00	1 632	0.14	0.54	0.33
1986–87	3 081	0.88	0.12	0.00	2 643	0.75	0.25	0.00	812	0.93	0.07	0.00	1 431	0.16	0.64	0.20
1987–88	3 360	0.90	0.10	0.00	2 987	0.75	0.25	0.00	898	0.92	0.08	0.00	1 694	0.17	0.83	0.00
1988–89	3 683	0.90	0.10	0.00	3 372	0.74	0.25	0.00	977	0.92	0.08	0.00	1 971	0.18	0.79	0.04
1989–90	3 833	0.90	0.10	0.00	3 483	0.76	0.24	0.00	1 037	0.90	0.09	0.01	1 722	0.22	0.78	0.00
1990–91	3 832	0.91	0.08	0.00	3 408	0.79	0.21	0.00	1 039	0.91	0.08	0.01	1 672	0.23	0.75	0.01
1991–92	3 870	0.92	0.08	0.00	3 394	0.81	0.19	0.00	1 022	0.94	0.06	0.00	1 834	0.22	0.75	0.03
1992–93	4 182	0.92	0.08	0.00	3 676	0.82	0.18	0.00	1 130	0.91	0.08	0.01	1 999	0.25	0.73	0.02
1993–94	4 449	0.91	0.09	0.00	3 923	0.82	0.17	0.00	1 176	0.92	0.08	0.01	2 156	0.24	0.72	0.04
1994–95	4 718	0.91	0.09	0.00	4 167	0.83	0.17	0.00	1 255	0.90	0.09	0.01	2 447	0.24	0.67	0.10
1995–96	5 146	0.92	0.08	0.00	4 590	0.85	0.15	0.01	1 374	0.90	0.09	0.01	2 454	0.25	0.67	0.08
1996–97	5 504	0.92	0.07	0.00	4 862	0.88	0.12	0.00	1 460	0.90	0.10	0.00	2 570	0.23	0.67	0.09
1997–98	5 975	0.91	0.07	0.02	5 313	0.87	0.11	0.02	1 538	0.91	0.09	0.00	2 652	0.23	0.67	0.10
1998–99	6 328	0.93	0.06	0.00	5 750	0.89	0.10	0.01	1 650	0.91	0.09	0.00	2 370	0.24	0.76	0.00
1999–00	6 784	0.93	0.06	0.00	6 205	0.89	0.09	0.02	1 745	0.92	0.08	0.00	2 850	0.19	0.63	0.18
2000–01	7 010	0.93	0.07	0.00	6 300	0.92	0.07	0.01	1 847	0.89	0.08	0.03	2 909	0.17	0.63	0.20
2001–02	7 381	0.94	0.06	0.00	6 689	0.93	0.07	0.00	1 886	0.92	0.08	0.00	2 995	0.16	0.62	0.22
2002–03	7 837	0.94	0.06	0.01	7 248	0.92	0.06	0.02	1 999	0.91	0.07	0.01	3 140	0.15	0.59	0.25
2003–04	8 208	0.94	0.05	0.00	7 798	0.91	0.06	0.03	2 078	0.92	0.07	0.00	3 156	0.16	0.59	0.24
2004–05	8 578	0.95	0.05	0.00	8 138	0.93	0.06	0.02	2 167	0.92	0.07	0.01	3 186	0.17	0.59	0.23
2005–06	8 978	0.95	0.05	0.00	8 586	0.93	0.05	0.02	2 257	0.92	0.07	0.01	3 532	0.16	0.54	0.29
Annual growth rate (per cent)																
2000–01 to 2005–06	5.1				6.4				4.1				4.0			
1995–96 to 2005–06	5.7				6.5				5.1				3.7			
1971–72 to 2005–06	5.5				6.6				6.2				4.2			

	NSW–ACT				NSW–NT				NSW–TAS			
		Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	128	0.51	0.49	0.00	173	0.27	0.04	0.68	168	0.00	0.00	1.00
1972–73	129	0.62	0.38	0.00	173	0.33	0.04	0.63	175	0.00	0.00	1.00
1973–74	129	0.71	0.29	0.00	173	0.38	0.04	0.57	182	0.00	0.00	1.00
1974–75	125	0.79	0.21	0.00	168	0.42	0.04	0.54	192	0.00	0.00	1.00
1975–76	127	0.87	0.13	0.00	167	0.47	0.04	0.48	203	0.00	0.00	1.00
1976–77	131	0.89	0.11	0.00	162	0.51	0.04	0.44	186	0.00	0.00	1.00
1977–78	131	0.90	0.10	0.00	154	0.54	0.05	0.41	169	0.00	0.00	1.00
1978–79	140	0.92	0.08	0.00	153	0.60	0.05	0.35	153	0.00	0.00	1.00
1979–80	153	0.94	0.06	0.00	154	0.66	0.05	0.29	136	0.00	0.00	1.00
1980–81	161	0.96	0.04	0.00	152	0.72	0.05	0.24	119	0.00	0.00	1.00
1981–82	169	0.97	0.03	0.00	150	0.77	0.05	0.18	102	0.00	0.00	1.00
1982–83	153	0.98	0.02	0.00	131	0.81	0.06	0.14	86	0.00	0.00	1.00
1983–84	183	0.98	0.02	0.00	139	0.92	0.05	0.03	121	0.00	0.00	1.00
1984–85	187	0.99	0.01	0.00	138	0.95	0.05	0.00	117	0.00	0.00	1.00
1985–86	206	1.00	0.00	0.00	152	0.95	0.05	0.00	139	0.00	0.00	1.00
1986–87	209	1.00	0.00	0.00	153	0.95	0.05	0.00	129	0.00	0.00	1.00
1987–88	232	1.00	0.00	0.00	169	0.96	0.04	0.00	120	0.00	0.00	1.00
1988–89	253	1.00	0.00	0.00	183	0.96	0.04	0.00	105	0.00	0.00	1.00
1989–90	265	1.00	0.00	0.00	191	0.96	0.04	0.00	97	0.00	0.00	1.00
1990–91	268	1.00	0.00	0.00	193	0.96	0.04	0.00	101	0.00	0.00	1.00
1991–92	271	1.00	0.00	0.00	196	0.96	0.04	0.00	147	0.00	0.00	1.00
1992–93	292	1.00	0.00	0.00	210	0.97	0.03	0.00	97	0.00	0.00	1.00
1993–94	309	1.00	0.00	0.00	239	0.89	0.03	0.08	107	0.00	0.00	1.00
1994–95	327	1.00	0.00	0.00	233	0.97	0.03	0.00	76	0.00	0.00	1.00
1995–96	359	1.00	0.00	0.00	259	0.96	0.03	0.02	44	0.00	0.00	1.00
1996–97	385	1.00	0.00	0.00	331	0.80	0.02	0.18	2	0.00	0.00	1.00
1997–98	412	1.00	0.00	0.00	315	0.90	0.02	0.08	14	0.00	0.00	1.00
1998–99	444	1.00	0.00	0.00	326	0.93	0.02	0.04	14	0.00	0.00	1.00
1999–00	476	1.00	0.00	0.00	428	0.76	0.02	0.22	36	0.00	0.00	1.00
2000–01	492	1.00	0.00	0.00	360	0.93	0.02	0.05	44	0.00	0.00	1.00
2001–02	519	1.00	0.00	0.00	367	0.97	0.02	0.01	34	0.00	0.00	1.00
2002–03	551	1.00	0.00	0.00	414	0.91	0.02	0.08	27	0.00	0.00	1.00
2003–04	580	1.00	0.00	0.00	424	0.93	0.02	0.05	33	0.00	0.00	1.00
2004–05	607	1.00	0.00	0.00	435	0.95	0.02	0.04	41	0.00	0.00	1.00
2005–06	636	1.00	0.00	0.00	444	0.97	0.02	0.01	63	0.00	0.00	1.00
Annual growth rate (per cent)												
2000–01 to 2005–06	5.3				4.3				7.2			
1995–96 to 2005–06	5.9				5.5				3.7			
1971–72 to 2005–06	4.8				2.8				–2.9			

Source: BITRE estimates.

Table A11 Intermodal state-to-state total freight, million net tonne-kilometres, and market shares of road, rail and coastal shipping in transporting freight originating from Victoria, 1971–72 to 2005–06

	VIC–NSW				VIC–QLD				VIC–SA				VIC–WA			
		Shares				Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	1 549	0.69	0.28	0.03	1 153	0.31	0.26	0.43	509	0.43	0.55	0.01	1 212	0.08	0.43	0.49
1972–73	1 721	0.70	0.25	0.05	1 298	0.43	0.25	0.32	546	0.47	0.51	0.02	1 366	0.10	0.47	0.43
1973–74	1 881	0.71	0.23	0.07	1 443	0.52	0.25	0.23	582	0.51	0.47	0.02	1 521	0.13	0.49	0.38
1974–75	1 957	0.72	0.21	0.07	1 431	0.55	0.26	0.19	615	0.52	0.44	0.04	1 487	0.15	0.58	0.27
1975–76	2 078	0.74	0.20	0.06	1 568	0.62	0.26	0.13	663	0.54	0.41	0.06	1 378	0.13	0.70	0.17
1976–77	2 089	0.77	0.20	0.03	1 579	0.62	0.27	0.11	688	0.55	0.39	0.05	1 330	0.15	0.69	0.16
1977–78	2 152	0.78	0.20	0.03	1 494	0.60	0.31	0.10	706	0.57	0.38	0.05	1 270	0.16	0.69	0.15
1978–79	2 279	0.79	0.19	0.02	1 614	0.62	0.30	0.07	744	0.59	0.36	0.05	1 246	0.19	0.67	0.14
1979–80	2 426	0.80	0.17	0.02	1 831	0.67	0.28	0.05	793	0.62	0.34	0.04	1 245	0.25	0.63	0.12
1980–81	2 547	0.81	0.16	0.02	1 878	0.69	0.27	0.04	856	0.62	0.34	0.04	1 365	0.26	0.65	0.10
1981–82	2 669	0.82	0.15	0.02	1 846	0.74	0.24	0.02	900	0.64	0.32	0.04	1 377	0.29	0.63	0.08
1982–83	2 633	0.82	0.15	0.02	1 287	0.70	0.29	0.01	891	0.64	0.33	0.04	1 264	0.25	0.68	0.07
1983–84	2 860	0.85	0.14	0.00	1 816	0.76	0.23	0.01	1 021	0.65	0.34	0.01	1 429	0.31	0.64	0.05
1984–85	3 009	0.85	0.15	0.00	1 736	0.76	0.24	0.01	1 067	0.66	0.34	0.01	1 612	0.28	0.58	0.15
1985–86	3 168	0.87	0.13	0.00	2 027	0.77	0.23	0.00	1 084	0.72	0.28	0.00	1 620	0.32	0.55	0.13
1986–87	3 285	0.87	0.13	0.00	1 817	0.77	0.22	0.00	1 116	0.73	0.27	0.00	1 662	0.31	0.60	0.09
1987–88	3 585	0.86	0.14	0.00	2 164	0.77	0.23	0.00	1 243	0.73	0.27	0.00	1 912	0.31	0.58	0.10
1988–89	3 881	0.86	0.14	0.00	2 506	0.75	0.25	0.00	1 384	0.72	0.28	0.00	2 169	0.31	0.63	0.06
1989–90	4 005	0.87	0.13	0.00	2 494	0.75	0.25	0.00	1 464	0.73	0.27	0.00	2 034	0.34	0.63	0.03
1990–91	4 113	0.88	0.12	0.00	2 390	0.71	0.29	0.00	1 537	0.73	0.27	0.00	1 876	0.34	0.64	0.02
1991–92	4 105	0.91	0.09	0.00	2 522	0.61	0.39	0.00	1 607	0.73	0.27	0.00	1 834	0.34	0.63	0.03
1992–93	4 381	0.91	0.09	0.00	2 719	0.61	0.38	0.01	1 716	0.74	0.26	0.00	1 902	0.37	0.57	0.07
1993–94	4 661	0.91	0.08	0.01	2 849	0.60	0.39	0.01	1 782	0.77	0.23	0.00	2 059	0.32	0.60	0.08
1994–95	4 917	0.91	0.09	0.00	2 946	0.60	0.39	0.00	1 850	0.80	0.20	0.00	2 312	0.29	0.60	0.11
1995–96	5 208	0.92	0.07	0.01	3 147	0.64	0.34	0.01	2 041	0.80	0.18	0.02	2 290	0.27	0.64	0.09
1996–97	5 479	0.94	0.06	0.00	3 435	0.64	0.35	0.01	2 261	0.78	0.21	0.00	2 410	0.22	0.66	0.12
1997–98	5 859	0.93	0.06	0.01	3 657	0.64	0.33	0.03	2 602	0.74	0.25	0.01	2 462	0.19	0.70	0.12
1998–99	6 158	0.94	0.05	0.00	4 196	0.60	0.38	0.01	2 754	0.76	0.23	0.00	2 681	0.16	0.69	0.15
1999–00	6 561	0.94	0.05	0.01	4 512	0.60	0.36	0.04	2 955	0.77	0.23	0.00	2 925	0.14	0.67	0.19
2000–01	6 837	0.95	0.05	0.00	4 332	0.60	0.38	0.02	3 129	0.77	0.22	0.01	2 953	0.13	0.71	0.17
2001–02	7 179	0.95	0.05	0.00	4 496	0.59	0.37	0.04	3 358	0.78	0.21	0.01	3 189	0.11	0.69	0.19
2002–03	7 595	0.95	0.04	0.00	4 741	0.58	0.35	0.06	3 576	0.79	0.20	0.01	3 569	0.10	0.65	0.25
2003–04	7 994	0.96	0.04	0.00	5 047	0.56	0.34	0.11	3 825	0.79	0.19	0.02	3 638	0.11	0.67	0.22
2004–05	8 408	0.96	0.04	0.00	5 038	0.56	0.34	0.10	4 074	0.79	0.19	0.02	3 811	0.11	0.67	0.22
2005–06	8 827	0.96	0.04	0.00	4 969	0.56	0.35	0.09	4 359	0.79	0.18	0.03	3 868	0.11	0.69	0.19
Annual growth rate (per cent)																
2000–01 to 2005–06	5.2				2.8				6.9				5.5			
1995–96 to 2005–06	5.4				4.7				7.9				5.4			
1971–72 to 2005–06	5.3				4.4				6.5				3.5			

	VIC–ACT				VIC–NT				VIC–TAS			
		Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	85	0.93	0.07	0.00	71	0.00	0.14	0.86	675	0.00	0.00	1.00
1972–73	85	0.92	0.08	0.00	66	0.00	0.16	0.84	576	0.00	0.00	1.00
1973–74	84	0.92	0.08	0.00	62	0.00	0.19	0.81	477	0.00	0.00	1.00
1974–75	84	0.91	0.09	0.00	66	0.00	0.19	0.81	520	0.00	0.00	1.00
1975–76	83	0.90	0.10	0.00	70	0.00	0.19	0.81	563	0.00	0.00	1.00
1976–77	83	0.89	0.11	0.00	74	0.00	0.19	0.81	519	0.00	0.00	1.00
1977–78	82	0.88	0.12	0.00	79	0.00	0.19	0.81	475	0.00	0.00	1.00
1978–79	82	0.87	0.13	0.00	83	0.00	0.20	0.80	432	0.00	0.00	1.00
1979–80	81	0.86	0.14	0.00	87	0.00	0.20	0.80	388	0.00	0.00	1.00
1980–81	81	0.85	0.15	0.00	91	0.00	0.20	0.80	344	0.00	0.00	1.00
1981–82	80	0.85	0.15	0.00	95	0.00	0.19	0.81	301	0.00	0.00	1.00
1982–83	79	0.84	0.16	0.00	99	0.00	0.19	0.81	262	0.00	0.00	1.00
1983–84	81	0.81	0.19	0.00	33	0.00	0.69	0.31	307	0.00	0.00	1.00
1984–85	80	0.80	0.20	0.00	24	0.00	1.00	0.00	323	0.00	0.00	1.00
1985–86	77	0.82	0.18	0.00	21	0.00	1.00	0.00	354	0.00	0.00	1.00
1986–87	74	0.84	0.16	0.00	24	0.00	1.00	0.00	419	0.00	0.00	1.00
1987–88	71	0.86	0.14	0.00	27	0.00	1.00	0.00	430	0.00	0.00	1.00
1988–89	69	0.87	0.13	0.00	29	0.00	1.00	0.00	524	0.00	0.00	1.00
1989–90	67	0.87	0.13	0.00	29	0.00	1.00	0.00	544	0.00	0.00	1.00
1990–91	65	0.88	0.12	0.00	32	0.00	1.00	0.00	479	0.00	0.00	1.00
1991–92	63	0.89	0.11	0.00	32	0.00	1.00	0.00	513	0.00	0.00	1.00
1992–93	55	1.00	0.00	0.00	35	0.00	1.00	0.00	536	0.00	0.00	1.00
1993–94	54	1.00	0.00	0.00	38	0.00	1.00	0.00	558	0.00	0.00	1.00
1994–95	53	1.00	0.00	0.00	41	0.00	1.00	0.00	615	0.00	0.00	1.00
1995–96	51	1.00	0.00	0.00	44	0.00	1.00	0.00	400	0.00	0.00	1.00
1996–97	50	1.00	0.00	0.00	42	0.00	1.00	0.00	705	0.00	0.00	1.00
1997–98	49	1.00	0.00	0.00	39	0.00	1.00	0.00	405	0.00	0.00	1.00
1998–99	48	1.00	0.00	0.00	49	0.00	1.00	0.00	712	0.00	0.00	1.00
1999–00	47	1.00	0.00	0.00	42	0.00	1.00	0.00	762	0.00	0.00	1.00
2000–01	45	1.00	0.00	0.00	34	0.00	1.00	0.00	645	0.00	0.00	1.00
2001–02	44	1.00	0.00	0.00	34	0.00	1.00	0.00	539	0.00	0.00	1.00
2002–03	43	1.00	0.00	0.00	34	0.00	1.00	0.00	626	0.00	0.00	1.00
2003–04	42	1.00	0.00	0.00	34	0.00	1.00	0.00	726	0.00	0.00	1.00
2004–05	41	1.00	0.00	0.00	34	0.00	1.00	0.00	800	0.00	0.00	1.00
2005–06	40	1.00	0.00	0.00	34	0.00	1.00	0.00	818	0.00	0.00	1.00
Annual growth rate (per cent)												
2000–01 to 2005–06	–2.7				0.0				4.8			
1995–96 to 2005–06	–2.6				–2.5				7.4			
1971–72 to 2005–06	–2.2				–2.1				0.6			

Source: BITRE estimates.

Table A12 Intermodal state-to-state total freight, million net tonne-kilometres, and market shares of road, rail and coastal shipping in transporting freight originating from Queensland, 1971–72 to 2005–06

	QLD–NSW				QLD–VIC				QLD–SA				QLD–WA			
		Shares				Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	756	0.56	0.35	0.09	315	0.38	0.26	0.36	121	0.60	0.29	0.11	271	0.06	0.12	0.82
1972–73	871	0.61	0.31	0.08	351	0.46	0.23	0.32	137	0.66	0.25	0.10	260	0.09	0.12	0.79
1973–74	979	0.66	0.28	0.07	387	0.51	0.20	0.29	152	0.70	0.22	0.09	250	0.13	0.12	0.75
1974–75	1 019	0.68	0.27	0.05	398	0.55	0.19	0.27	152	0.74	0.21	0.05	198	0.19	0.14	0.67
1975–76	1 116	0.71	0.25	0.03	430	0.60	0.16	0.23	159	0.81	0.19	0.00	135	0.22	0.20	0.59
1976–77	1 187	0.71	0.25	0.04	399	0.71	0.19	0.11	164	0.83	0.17	0.00	73	0.44	0.43	0.12
1977–78	1 225	0.70	0.25	0.05	412	0.71	0.19	0.10	164	0.84	0.16	0.00	79	0.42	0.47	0.11
1978–79	1 345	0.71	0.24	0.05	457	0.73	0.18	0.09	175	0.86	0.14	0.00	92	0.44	0.46	0.10
1979–80	1 506	0.73	0.22	0.05	521	0.76	0.16	0.08	193	0.89	0.11	0.00	107	0.47	0.44	0.08
1980–81	1 593	0.75	0.20	0.05	556	0.79	0.13	0.08	206	0.89	0.11	0.00	99	0.59	0.32	0.09
1981–82	1 725	0.75	0.20	0.05	608	0.80	0.13	0.07	210	0.94	0.06	0.00	104	0.66	0.25	0.08
1982–83	1 625	0.71	0.23	0.06	564	0.77	0.16	0.08	186	0.96	0.02	0.02	87	0.65	0.24	0.10
1983–84	1 847	0.79	0.17	0.04	793	0.72	0.17	0.11	239	0.92	0.08	0.00	110	0.77	0.19	0.04
1984–85	1 881	0.80	0.19	0.01	772	0.78	0.20	0.02	285	0.80	0.08	0.12	106	0.85	0.15	0.00
1985–86	2 198	0.78	0.22	0.00	858	0.82	0.18	0.00	280	0.91	0.09	0.00	123	0.91	0.09	0.00
1986–87	2 263	0.77	0.23	0.00	886	0.82	0.18	0.00	296	0.87	0.13	0.00	126	0.92	0.08	0.00
1987–88	2 459	0.80	0.20	0.00	1 010	0.84	0.16	0.00	355	0.81	0.17	0.02	197	0.73	0.27	0.00
1988–89	2 687	0.81	0.19	0.00	1 185	0.82	0.18	0.00	424	0.75	0.25	0.00	224	0.77	0.19	0.04
1989–90	2 838	0.82	0.18	0.00	1 297	0.80	0.20	0.00	532	0.63	0.30	0.08	217	0.88	0.12	0.00
1990–91	2 807	0.84	0.16	0.00	1 350	0.80	0.20	0.00	508	0.66	0.34	0.00	267	0.72	0.28	0.00
1991–92	2 855	0.83	0.16	0.00	1 468	0.75	0.25	0.00	480	0.71	0.29	0.00	339	0.60	0.39	0.01
1992–93	3 068	0.85	0.15	0.00	1 760	0.71	0.22	0.08	556	0.67	0.24	0.10	447	0.56	0.43	0.01
1993–94	3 245	0.86	0.14	0.00	1 785	0.76	0.23	0.01	533	0.74	0.24	0.02	572	0.45	0.45	0.10
1994–95	3 433	0.87	0.12	0.00	1 924	0.78	0.22	0.00	540	0.78	0.22	0.00	653	0.45	0.49	0.07
1995–96	3 758	0.89	0.11	0.00	2 089	0.82	0.18	0.00	568	0.82	0.18	0.00	783	0.38	0.60	0.01
1996–97	4 040	0.90	0.09	0.00	2 397	0.80	0.19	0.01	625	0.80	0.20	0.00	815	0.37	0.60	0.03
1997–98	4 500	0.88	0.11	0.01	2 719	0.79	0.21	0.01	668	0.81	0.19	0.00	876	0.35	0.53	0.12
1998–99	4 755	0.92	0.08	0.00	2 940	0.82	0.17	0.02	669	0.88	0.12	0.00	911	0.31	0.52	0.17
1999–00	5 162	0.92	0.08	0.00	3 285	0.81	0.18	0.01	749	0.85	0.14	0.01	875	0.31	0.55	0.14
2000–01	5 352	0.92	0.08	0.00	3 526	0.80	0.19	0.01	796	0.82	0.17	0.00	874	0.29	0.56	0.15
2001–02	5 678	0.93	0.07	0.00	3 863	0.80	0.20	0.00	838	0.83	0.17	0.00	923	0.26	0.54	0.20
2002–03	6 079	0.93	0.07	0.00	4 268	0.80	0.20	0.01	889	0.84	0.16	0.00	1 063	0.23	0.48	0.30
2003–04	6 439	0.94	0.06	0.00	4 644	0.80	0.20	0.00	936	0.84	0.16	0.00	1 007	0.25	0.51	0.24
2004–05	6 779	0.94	0.06	0.00	5 014	0.80	0.20	0.00	983	0.84	0.16	0.00	991	0.28	0.53	0.20
2005–06	7 156	0.94	0.06	0.00	5 431	0.80	0.20	0.00	1 054	0.83	0.15	0.02	1 070	0.27	0.49	0.23
Annual growth rate (per cent)																
2000–01 to 2005–06	6.0				9.0				5.8				4.1			
1995–96 to 2005–06	6.7				10.0				6.4				3.2			
1971–72 to 2005–06	6.8				8.7				6.6				4.1			

	QLD–ACT				QLD–NT				QLD–TAS			
		Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	1	1.00	0.00	0.00	113	0.63	0.00	0.37	36	0.00	0.00	1.00
1972–73	1	1.00	0.00	0.00	150	0.57	0.00	0.43	18	0.00	0.00	1.00
1973–74	1	1.00	0.00	0.00	186	0.54	0.00	0.46	1	0.00	0.00	1.00
1974–75	1	1.00	0.00	0.00	180	0.59	0.00	0.41	4	0.00	0.00	1.00
1975–76	1	1.00	0.00	0.00	181	0.65	0.00	0.35	6	0.00	0.00	1.00
1976–77	1	1.00	0.00	0.00	187	0.66	0.00	0.34	8	0.00	0.00	1.00
1977–78	1	1.00	0.00	0.00	189	0.67	0.00	0.33	10	0.00	0.00	1.00
1978–79	1	1.00	0.00	0.00	200	0.69	0.00	0.31	12	0.00	0.00	1.00
1979–80	1	1.00	0.00	0.00	216	0.71	0.00	0.29	14	0.00	0.00	1.00
1980–81	1	1.00	0.00	0.00	226	0.72	0.00	0.28	16	0.00	0.00	1.00
1981–82	1	1.00	0.00	0.00	236	0.73	0.00	0.27	18	0.00	0.00	1.00
1982–83	1	1.00	0.00	0.00	222	0.71	0.00	0.29	21	0.00	0.00	1.00
1983–84	1	1.00	0.00	0.00	292	0.65	0.00	0.35	26	0.00	0.00	1.00
1984–85	1	1.00	0.00	0.00	220	0.89	0.00	0.11	2	0.00	0.00	1.00
1985–86	1	1.00	0.00	0.00	240	0.90	0.00	0.10	17	0.00	0.00	1.00
1986–87	1	1.00	0.00	0.00	240	0.92	0.00	0.08	28	0.00	0.00	1.00
1987–88	1	1.00	0.00	0.00	253	0.96	0.00	0.04	2	0.00	0.00	1.00
1988–89	1	1.00	0.00	0.00	264	1.00	0.00	0.00	9	0.00	0.00	1.00
1989–90	1	1.00	0.00	0.00	279	0.99	0.00	0.01	2	0.00	0.00	1.00
1990–91	1	1.00	0.00	0.00	279	1.00	0.00	0.00	2	0.00	0.00	1.00
1991–92	1	1.00	0.00	0.00	282	1.00	0.00	0.00	2	0.00	0.00	1.00
1992–93	1	1.00	0.00	0.00	307	0.99	0.00	0.01	7	0.00	0.00	1.00
1993–94	1	1.00	0.00	0.00	321	1.00	0.00	0.00	5	0.00	0.00	1.00
1994–95	1	1.00	0.00	0.00	346	0.98	0.00	0.02	12	0.00	0.00	1.00
1995–96	1	1.00	0.00	0.00	409	0.91	0.00	0.09	3	0.00	0.00	1.00
1996–97	1	1.00	0.00	0.00	485	0.82	0.00	0.18	3	0.00	0.00	1.00
1997–98	1	1.00	0.00	0.00	530	0.80	0.00	0.20	1	0.00	0.00	1.00
1998–99	1	1.00	0.00	0.00	496	0.92	0.00	0.08	3	0.00	0.00	1.00
1999–00	1	1.00	0.00	0.00	501	0.97	0.00	0.03	1	0.00	0.00	1.00
2000–01	1	1.00	0.00	0.00	599	0.84	0.00	0.16	15	0.00	0.00	1.00
2001–02	1	1.00	0.00	0.00	627	0.85	0.00	0.15	1	0.00	0.00	1.00
2002–03	1	1.00	0.00	0.00	658	0.85	0.00	0.15	11	0.00	0.00	1.00
2003–04	1	1.00	0.00	0.00	696	0.85	0.00	0.15	2	0.00	0.00	1.00
2004–05	1	1.00	0.00	0.00	706	0.88	0.00	0.12	1	0.00	0.00	1.00
2005–06	1	1.00	0.00	0.00	738	0.88	0.00	0.12	0	0.00	0.00	1.00
Annual growth rate (per cent)												
2000–01 to 2005–06	0.0				4.3				–50.2			
1995–96 to 2005–06	0.0				6.1				–17.0			
1971–72 to 2005–06	0.0				5.7				–12.1			

Source: BITRE estimates.

Table A13 Intermodal state-to-state total freight, million net tonne-kilometres, and market shares of road, rail and coastal shipping in transporting freight originating from South Australia, 1971–72 to 2005–06

	SA–NSW				SA–VIC				SA–QLD				SA–WA			
		Shares				Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	494	0.57	0.43	0.01	506	0.32	0.64	0.04	267	0.62	0.38	0.00	483	0.03	0.93	0.03
1972–73	548	0.61	0.38	0.01	545	0.38	0.58	0.04	285	0.68	0.32	0.00	590	0.04	0.94	0.02
1973–74	597	0.64	0.35	0.01	581	0.44	0.53	0.04	299	0.73	0.27	0.01	693	0.05	0.94	0.01
1974–75	615	0.66	0.34	0.00	583	0.47	0.51	0.02	298	0.76	0.23	0.01	790	0.05	0.94	0.01
1975–76	661	0.68	0.32	0.00	609	0.53	0.47	0.00	308	0.81	0.19	0.00	871	0.03	0.95	0.01
1976–77	715	0.66	0.34	0.00	637	0.54	0.46	0.00	345	0.75	0.25	0.00	859	0.04	0.96	0.00
1977–78	754	0.63	0.37	0.00	649	0.54	0.46	0.00	377	0.68	0.32	0.00	855	0.04	0.96	0.00
1978–79	827	0.63	0.37	0.00	696	0.56	0.44	0.00	426	0.65	0.35	0.00	856	0.05	0.95	0.00
1979–80	916	0.63	0.37	0.00	761	0.60	0.40	0.00	482	0.62	0.38	0.00	860	0.06	0.94	0.00
1980–81	980	0.63	0.37	0.00	813	0.61	0.39	0.00	459	0.69	0.31	0.00	802	0.07	0.93	0.00
1981–82	984	0.66	0.34	0.00	817	0.66	0.34	0.00	460	0.72	0.28	0.00	730	0.09	0.91	0.00
1982–83	927	0.64	0.33	0.03	723	0.66	0.34	0.01	419	0.72	0.28	0.00	653	0.11	0.89	0.00
1983–84	1 070	0.66	0.34	0.00	890	0.69	0.31	0.00	493	0.71	0.29	0.00	802	0.16	0.84	0.00
1984–85	1 078	0.68	0.32	0.00	893	0.71	0.29	0.00	500	0.72	0.28	0.01	786	0.20	0.80	0.00
1985–86	1 115	0.72	0.28	0.00	970	0.75	0.23	0.02	509	0.76	0.24	0.00	782	0.29	0.71	0.00
1986–87	1 126	0.72	0.28	0.00	990	0.75	0.25	0.00	513	0.75	0.25	0.00	1 068	0.24	0.76	0.00
1987–88	1 302	0.69	0.31	0.00	1 137	0.75	0.25	0.00	585	0.72	0.28	0.00	1 220	0.30	0.70	0.00
1988–89	1 444	0.67	0.30	0.03	1 269	0.75	0.25	0.00	663	0.68	0.32	0.00	1 414	0.34	0.66	0.00
1989–90	1 453	0.69	0.31	0.00	1 280	0.79	0.20	0.01	733	0.63	0.37	0.00	1 670	0.34	0.66	0.00
1990–91	1 368	0.75	0.25	0.00	1 271	0.81	0.19	0.00	690	0.67	0.33	0.00	1 602	0.39	0.61	0.00
1991–92	1 404	0.73	0.27	0.00	1 303	0.80	0.20	0.00	704	0.66	0.34	0.00	1 674	0.42	0.57	0.01
1992–93	1 548	0.71	0.29	0.00	1 444	0.79	0.21	0.00	763	0.64	0.36	0.00	1 955	0.48	0.51	0.01
1993–94	1 636	0.71	0.29	0.00	1 573	0.79	0.21	0.00	817	0.62	0.38	0.00	2 030	0.51	0.49	0.00
1994–95	1 724	0.71	0.29	0.00	1 697	0.78	0.22	0.00	870	0.61	0.39	0.00	2 230	0.56	0.44	0.01
1995–96	1 753	0.76	0.24	0.00	1 875	0.80	0.20	0.00	869	0.65	0.35	0.00	2 449	0.55	0.44	0.00
1996–97	1 777	0.80	0.20	0.00	1 981	0.83	0.17	0.00	902	0.66	0.34	0.00	2 528	0.57	0.43	0.00
1997–98	1 842	0.82	0.17	0.00	2 182	0.83	0.17	0.00	934	0.67	0.33	0.00	2 629	0.58	0.41	0.01
1998–99	1 926	0.84	0.16	0.00	2 289	0.87	0.13	0.00	998	0.66	0.34	0.00	2 530	0.56	0.43	0.01
1999–00	2 086	0.83	0.14	0.03	2 497	0.87	0.13	0.00	1 022	0.68	0.32	0.00	2 504	0.53	0.46	0.01
2000–01	2 092	0.85	0.14	0.00	2 678	0.85	0.13	0.02	1 032	0.69	0.31	0.01	2 509	0.50	0.47	0.03
2001–02	2 210	0.85	0.14	0.02	2 801	0.87	0.13	0.00	1 040	0.71	0.29	0.00	2 486	0.49	0.50	0.01
2002–03	2 283	0.87	0.13	0.00	3 018	0.87	0.13	0.00	1 058	0.72	0.28	0.00	2 556	0.47	0.51	0.02
2003–04	2 378	0.87	0.13	0.00	3 225	0.88	0.12	0.00	1 071	0.74	0.26	0.00	2 658	0.48	0.51	0.01
2004–05	2 466	0.88	0.12	0.00	3 415	0.88	0.12	0.00	1 082	0.75	0.25	0.00	2 831	0.49	0.49	0.02
2005–06	2 562	0.88	0.12	0.00	3 626	0.88	0.12	0.00	1 094	0.77	0.23	0.00	2 918	0.50	0.50	0.01
Annual growth rate (per cent)																
2000–01 to 2005–06	4.1				6.3				1.2				3.1			
1995–96 to 2005–06	3.9				6.8				2.3				1.8			
1971–72 to 2005–06	5.0				6.0				4.2				5.4			

	SA–ACT				SA–NT				SA–TAS			
		Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	1	0.00	1.00	0.00	245	0.39	0.51	0.10	97	0.00	0.00	1.00
1972–73	2	0.00	1.00	0.00	238	0.48	0.47	0.05	81	0.00	0.00	1.00
1973–74	2	0.00	1.00	0.00	230	0.58	0.42	0.00	66	0.00	0.00	1.00
1974–75	2	0.00	1.00	0.00	223	0.63	0.37	0.00	88	0.00	0.00	1.00
1975–76	3	0.00	1.00	0.00	226	0.70	0.30	0.00	110	0.00	0.00	1.00
1976–77	3	0.00	1.00	0.00	247	0.67	0.33	0.00	100	0.00	0.00	1.00
1977–78	3	0.00	1.00	0.00	263	0.64	0.36	0.00	89	0.00	0.00	1.00
1978–79	3	0.00	1.00	0.00	291	0.63	0.37	0.00	79	0.00	0.00	1.00
1979–80	3	0.00	1.00	0.00	326	0.63	0.37	0.00	68	0.00	0.00	1.00
1980–81	3	0.00	1.00	0.00	337	0.65	0.35	0.00	58	0.00	0.00	1.00
1981–82	3	0.00	1.00	0.00	343	0.67	0.33	0.00	47	0.00	0.00	1.00
1982–83	2	0.00	1.00	0.00	317	0.67	0.33	0.00	38	0.00	0.00	1.00
1983–84	3	0.00	1.00	0.00	370	0.69	0.31	0.00	113	0.00	0.00	1.00
1984–85	2	0.00	1.00	0.00	373	0.70	0.30	0.00	94	0.00	0.00	1.00
1985–86	2	0.00	1.00	0.00	396	0.73	0.26	0.01	72	0.00	0.00	1.00
1986–87	2	0.00	1.00	0.00	417	0.70	0.30	0.00	62	0.00	0.00	1.00
1987–88	1	0.00	1.00	0.00	472	0.69	0.31	0.00	62	0.00	0.00	1.00
1988–89	1	0.00	1.00	0.00	509	0.69	0.31	0.00	2	0.00	0.00	1.00
1989–90	1	0.00	1.00	0.00	534	0.69	0.31	0.00	2	0.00	0.00	1.00
1990–91	1	0.00	1.00	0.00	547	0.68	0.32	0.00	2	0.00	0.00	1.00
1991–92	1	0.00	1.00	0.00	560	0.67	0.33	0.00	2	0.00	0.00	1.00
1992–93	1	1.00	0.00	0.00	616	0.66	0.34	0.00	2	0.00	0.00	1.00
1993–94	1	1.00	0.00	0.00	666	0.64	0.36	0.00	2	0.00	0.00	1.00
1994–95	1	1.00	0.00	0.00	717	0.63	0.37	0.00	2	0.00	0.00	1.00
1995–96	1	1.00	0.00	0.00	766	0.65	0.35	0.00	2	0.00	0.00	1.00
1996–97	1	1.00	0.00	0.00	799	0.66	0.34	0.00	2	0.00	0.00	1.00
1997–98	1	1.00	0.00	0.00	816	0.69	0.31	0.00	0	0.00	0.00	1.00
1998–99	1	1.00	0.00	0.00	849	0.72	0.28	0.00	1	0.00	0.00	1.00
1999–00	1	1.00	0.00	0.00	912	0.71	0.29	0.00	0	0.00	0.00	1.00
2000–01	1	1.00	0.00	0.00	955	0.70	0.30	0.00	2	0.00	0.00	1.00
2001–02	1	1.00	0.00	0.00	1 013	0.70	0.30	0.00	4	0.00	0.00	1.00
2002–03	1	1.00	0.00	0.00	1 076	0.70	0.30	0.00	0	0.00	0.00	1.00
2003–04	1	1.00	0.00	0.00	1 085	0.55	0.45	0.00	2	0.00	0.00	1.00
2004–05	1	1.00	0.00	0.00	1 092	0.42	0.58	0.00	0	0.00	0.00	1.00
2005–06	1	1.00	0.00	0.00	1 148	0.42	0.58	0.00	2	0.00	0.00	1.00
Annual growth rate (per cent)												
2000–01 to 2005–06	0.0				3.8				–1.0			
1995–96 to 2005–06	0.0				4.1				0.0			
1971–72 to 2005–06	–0.3				4.6				–11.2			

Source: BITRE estimates.

Table A14 Intermodal state-to-state total freight, million net tonne-kilometres, and market shares of road, rail and coastal shipping in transporting freight originating from Western Australia, 1971–72 to 2005–06

	WA–NSW				WA-VIC				WA–QLD				WA–SA			
		Shares				Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	754	0.08	0.06	0.85	553	0.09	0.05	0.86	81	0.20	0.06	0.74	293	0.11	0.69	0.20
1972–73	726	0.13	0.20	0.67	608	0.12	0.12	0.77	119	0.20	0.39	0.41	284	0.17	0.72	0.11
1973–74	701	0.19	0.34	0.47	665	0.15	0.17	0.68	156	0.21	0.56	0.23	276	0.24	0.75	0.01
1974–75	729	0.20	0.46	0.33	578	0.19	0.27	0.54	188	0.20	0.68	0.12	286	0.26	0.73	0.01
1975–76	707	0.17	0.62	0.22	455	0.20	0.43	0.37	209	0.14	0.81	0.05	271	0.22	0.78	0.00
1976–77	528	0.25	0.75	0.00	316	0.31	0.66	0.03	173	0.19	0.75	0.06	279	0.24	0.76	0.00
1977–78	493	0.27	0.73	0.00	331	0.31	0.67	0.03	135	0.25	0.68	0.07	283	0.24	0.76	0.00
1978–79	482	0.34	0.66	0.00	364	0.34	0.64	0.02	103	0.40	0.52	0.08	299	0.27	0.73	0.00
1979–80	486	0.42	0.58	0.00	407	0.38	0.60	0.02	74	0.69	0.21	0.10	323	0.32	0.68	0.00
1980–81	522	0.46	0.54	0.00	519	0.34	0.64	0.02	87	0.69	0.24	0.08	406	0.29	0.71	0.00
1981–82	660	0.41	0.59	0.00	618	0.33	0.66	0.01	107	0.63	0.31	0.06	412	0.33	0.67	0.00
1982–83	717	0.31	0.69	0.00	655	0.26	0.73	0.01	107	0.52	0.43	0.05	377	0.30	0.70	0.00
1983–84	762	0.44	0.46	0.10	709	0.35	0.59	0.06	155	0.54	0.46	0.00	484	0.34	0.65	0.01
1984–85	835	0.42	0.43	0.14	661	0.40	0.52	0.08	160	0.55	0.45	0.00	544	0.32	0.68	0.00
1985–86	898	0.48	0.50	0.03	675	0.46	0.51	0.03	217	0.51	0.49	0.00	680	0.36	0.64	0.00
1986–87	848	0.50	0.50	0.00	755	0.40	0.57	0.02	246	0.46	0.54	0.00	688	0.41	0.59	0.00
1987–88	924	0.56	0.44	0.00	796	0.45	0.54	0.01	311	0.46	0.54	0.00	784	0.49	0.51	0.00
1988–89	1 052	0.58	0.40	0.02	902	0.45	0.53	0.01	401	0.43	0.53	0.04	965	0.52	0.47	0.01
1989–90	1 090	0.59	0.41	0.00	894	0.47	0.53	0.00	301	0.63	0.37	0.00	1 033	0.58	0.42	0.00
1990–91	1 037	0.61	0.39	0.00	907	0.44	0.56	0.01	421	0.45	0.53	0.01	1 050	0.62	0.38	0.00
1991–92	1 119	0.57	0.42	0.01	1 004	0.39	0.61	0.00	675	0.30	0.40	0.30	1 144	0.64	0.32	0.05
1992–93	1 342	0.57	0.42	0.01	1 119	0.39	0.60	0.01	558	0.44	0.56	0.00	1 371	0.70	0.30	0.01
1993–94	1 436	0.53	0.46	0.00	1 143	0.37	0.63	0.00	608	0.43	0.57	0.00	1 491	0.71	0.29	0.00
1994–95	1 613	0.52	0.47	0.01	1 212	0.35	0.64	0.01	686	0.43	0.57	0.01	1 772	0.71	0.26	0.03
1995–96	1 329	0.62	0.37	0.00	1 061	0.37	0.63	0.00	788	0.38	0.62	0.00	1 834	0.75	0.25	0.00
1996–97	1 526	0.52	0.47	0.01	1 016	0.35	0.65	0.01	848	0.36	0.64	0.00	1 833	0.79	0.21	0.00
1997–98	1 693	0.45	0.54	0.00	1 126	0.27	0.71	0.02	944	0.33	0.51	0.17	1 931	0.80	0.20	0.01
1998–99	1 974	0.37	0.61	0.02	1 180	0.24	0.75	0.01	869	0.33	0.60	0.07	1 974	0.73	0.26	0.01
1999–00	2 080	0.32	0.56	0.12	1 335	0.20	0.79	0.01	824	0.33	0.66	0.01	2 098	0.64	0.32	0.04
2000–01	1 876	0.34	0.60	0.07	1 517	0.17	0.80	0.03	829	0.30	0.69	0.01	2 080	0.61	0.38	0.01
2001–02	2 292	0.27	0.57	0.16	1 768	0.14	0.78	0.08	930	0.26	0.71	0.02	2 195	0.56	0.43	0.01
2002–03	2 706	0.22	0.55	0.23	2 054	0.12	0.75	0.13	1 106	0.22	0.68	0.10	2 337	0.52	0.46	0.02
2003–04	2 342	0.27	0.71	0.01	2 006	0.13	0.85	0.02	1 115	0.23	0.75	0.01	2 529	0.51	0.48	0.01
2004–05	2 677	0.26	0.69	0.05	2 238	0.12	0.84	0.04	1 217	0.23	0.77	0.00	2 793	0.50	0.49	0.01
2005–06	2 806	0.26	0.72	0.02	2 369	0.12	0.86	0.02	1 321	0.22	0.77	0.00	2 976	0.49	0.50	0.00
Annual growth rate (per cent)																
2000–01 to 2005–06	8.4				9.3				9.8				7.4			
1995–96 to 2005–06	7.8				8.4				5.3				5.0			
1971–72 to 2005–06	3.9				4.4				8.6				7.1			

	WA–ACT				WA–NT				WA–TAS			
		Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	4	0.00	1.00	0.00	97	0.29	0.00	0.71	3	0.00	0.00	1.00
1972–73	6	0.00	1.00	0.00	104	0.34	0.00	0.66	3	0.00	0.00	1.00
1973–74	8	0.00	1.00	0.00	110	0.38	0.00	0.62	3	0.00	0.00	1.00
1974–75	10	0.00	1.00	0.00	112	0.40	0.00	0.60	3	0.00	0.00	1.00
1975–76	13	0.00	1.00	0.00	117	0.44	0.00	0.56	3	0.00	0.00	1.00
1976–77	12	0.00	1.00	0.00	120	0.46	0.00	0.54	3	0.00	0.00	1.00
1977–78	10	0.00	1.00	0.00	120	0.47	0.00	0.53	3	0.00	0.00	1.00
1978–79	9	0.00	1.00	0.00	125	0.50	0.00	0.50	3	0.00	0.00	1.00
1979–80	8	0.00	1.00	0.00	133	0.53	0.00	0.47	3	0.00	0.00	1.00
1980–81	8	0.00	1.00	0.00	138	0.56	0.00	0.44	3	0.00	0.00	1.00
1981–82	7	0.00	1.00	0.00	142	0.58	0.00	0.42	3	0.00	0.00	1.00
1982–83	7	0.00	1.00	0.00	133	0.56	0.00	0.44	29	0.00	0.00	1.00
1983–84	8	0.00	1.00	0.00	158	0.58	0.00	0.42	58	0.00	0.00	1.00
1984–85	10	0.00	1.00	0.00	155	0.62	0.00	0.38	71	0.00	0.00	1.00
1985–86	12	0.00	1.00	0.00	184	0.59	0.00	0.41	61	0.00	0.00	1.00
1986–87	8	0.00	1.00	0.00	186	0.59	0.00	0.41	74	0.00	0.00	1.00
1987–88	4	0.00	1.00	0.00	183	0.68	0.00	0.32	125	0.00	0.00	1.00
1988–89	4	0.00	1.00	0.00	203	0.68	0.00	0.32	116	0.00	0.00	1.00
1989–90	4	0.00	1.00	0.00	242	0.60	0.00	0.40	132	0.00	0.00	1.00
1990–91	4	0.00	1.00	0.00	178	0.82	0.00	0.18	67	0.00	0.00	1.00
1991–92	4	0.00	1.00	0.00	183	0.81	0.00	0.19	39	0.00	0.00	1.00
1992–93	2	1.00	0.00	0.00	200	0.81	0.00	0.19	3	0.00	0.00	1.00
1993–94	2	1.00	0.00	0.00	247	0.70	0.00	0.30	22	0.00	0.00	1.00
1994–95	2	1.00	0.00	0.00	248	0.75	0.00	0.25	42	0.00	0.00	1.00
1995–96	2	1.00	0.00	0.00	257	0.80	0.00	0.20	18	0.00	0.00	1.00
1996–97	2	1.00	0.00	0.00	275	0.82	0.00	0.18	37	0.00	0.00	1.00
1997–98	2	1.00	0.00	0.00	286	0.85	0.00	0.15	110	0.00	0.00	1.00
1998–99	2	1.00	0.00	0.00	311	0.86	0.00	0.14	58	0.00	0.00	1.00
1999–00	2	1.00	0.00	0.00	325	0.89	0.00	0.11	41	0.00	0.00	1.00
2000–01	2	1.00	0.00	0.00	339	0.88	0.00	0.12	21	0.00	0.00	1.00
2001–02	2	1.00	0.00	0.00	355	0.90	0.00	0.10	1 005	0.00	0.00	1.00
2002–03	2	1.00	0.00	0.00	385	0.89	0.00	0.11	30	0.00	0.00	1.00
2003–04	2	1.00	0.00	0.00	413	0.88	0.00	0.12	15	0.00	0.00	1.00
2004–05	2	1.00	0.00	0.00	401	0.96	0.00	0.04	25	0.00	0.00	1.00
2005–06	2	1.00	0.00	0.00	424	0.96	0.00	0.04	21	0.00	0.00	1.00
Annual growth rate (per cent)												
2000–01 to 2005–06	0.0				4.6				0.3			
1995–96 to 2005–06	0.0				5.1				1.3			
1971–72 to 2005–06	-2.1				4.4				5.7			

Source: BITRE estimates.

Table A15 Intermodal state-to-state total freight, million net tonne-kilometres, and market shares of road, rail and coastal shipping in transporting freight originating from Tasmania, 1971–72 to 2005–06

	TAS–NSW				TAS–VIC				TAS–QLD			
		Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	255	0.00	0.00	1.00	744	0.00	0.00	1.00	10	0.00	0.00	1.00
1972–73	171	0.00	0.00	1.00	491	0.00	0.00	1.00	13	0.00	0.00	1.00
1973–74	87	0.00	0.00	1.00	239	0.00	0.00	1.00	16	0.00	0.00	1.00
1974–75	75	0.00	0.00	1.00	205	0.00	0.00	1.00	17	0.00	0.00	1.00
1975–76	63	0.00	0.00	1.00	172	0.00	0.00	1.00	18	0.00	0.00	1.00
1976–77	94	0.00	0.00	1.00	202	0.00	0.00	1.00	35	0.00	0.00	1.00
1977–78	125	0.00	0.00	1.00	232	0.00	0.00	1.00	53	0.00	0.00	1.00
1978–79	156	0.00	0.00	1.00	263	0.00	0.00	1.00	71	0.00	0.00	1.00
1979–80	187	0.00	0.00	1.00	293	0.00	0.00	1.00	89	0.00	0.00	1.00
1980–81	218	0.00	0.00	1.00	323	0.00	0.00	1.00	107	0.00	0.00	1.00
1981–82	249	0.00	0.00	1.00	353	0.00	0.00	1.00	125	0.00	0.00	1.00
1982–83	281	0.00	0.00	1.00	383	0.00	0.00	1.00	143	0.00	0.00	1.00
1983–84	331	0.00	0.00	1.00	450	0.00	0.00	1.00	140	0.00	0.00	1.00
1984–85	318	0.00	0.00	1.00	443	0.00	0.00	1.00	125	0.00	0.00	1.00
1985–86	271	0.00	0.00	1.00	440	0.00	0.00	1.00	120	0.00	0.00	1.00
1986–87	341	0.00	0.00	1.00	583	0.00	0.00	1.00	155	0.00	0.00	1.00
1987–88	190	0.00	0.00	1.00	572	0.00	0.00	1.00	68	0.00	0.00	1.00
1988–89	306	0.00	0.00	1.00	656	0.00	0.00	1.00	10	0.00	0.00	1.00
1989–90	147	0.00	0.00	1.00	712	0.00	0.00	1.00	28	0.00	0.00	1.00
1990–91	170	0.00	0.00	1.00	788	0.00	0.00	1.00	3	0.00	0.00	1.00
1991–92	210	0.00	0.00	1.00	692	0.00	0.00	1.00	3	0.00	0.00	1.00
1992–93	186	0.00	0.00	1.00	682	0.00	0.00	1.00	5	0.00	0.00	1.00
1993–94	147	0.00	0.00	1.00	816	0.00	0.00	1.00	3	0.00	0.00	1.00
1994–95	206	0.00	0.00	1.00	783	0.00	0.00	1.00	3	0.00	0.00	1.00
1995–96	87	0.00	0.00	1.00	429	0.00	0.00	1.00	0	0.00	0.00	1.00
1996–97	0	0.00	0.00	1.00	589	0.00	0.00	1.00	2	0.00	0.00	1.00
1997–98	10	0.00	0.00	1.00	430	0.00	0.00	1.00	0	0.00	0.00	1.00
1998–99	3	0.00	0.00	1.00	812	0.00	0.00	1.00	10	0.00	0.00	1.00
1999–00	174	0.00	0.00	1.00	713	0.00	0.00	1.00	0	0.00	0.00	1.00
2000–01	22	0.00	0.00	1.00	654	0.00	0.00	1.00	4	0.00	0.00	1.00
2001–02	1	0.00	0.00	1.00	560	0.00	0.00	1.00	3	0.00	0.00	1.00
2002–03	6	0.00	0.00	1.00	945	0.00	0.00	1.00	8	0.00	0.00	1.00
2003–04	3	0.00	0.00	1.00	921	0.00	0.00	1.00	7	0.00	0.00	1.00
2004–05	320	0.00	0.00	1.00	1136	0.00	0.00	1.00	7	0.00	0.00	1.00
2005–06	15	0.00	0.00	1.00	1124	0.00	0.00	1.00	9	0.00	0.00	1.00
Annual growth rate (per cent)												
2000–01 to 2005–06	–7.9				11.4				19.3			
1995–96 to 2005–06	–16.3				10.1				50.6			
1971–72 to 2005–06	–8.0				1.2				–0.3			

	TAS–SA				TAS–WA				TAS–NT			
		Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	65	0.00	0.00	1.00	24	0.00	0.00	1.00	6	0.00	0.00	1.00
1972–73	42	0.00	0.00	1.00	24	0.00	0.00	1.00	6	0.00	0.00	1.00
1973–74	19	0.00	0.00	1.00	24	0.00	0.00	1.00	6	0.00	0.00	1.00
1974–75	25	0.00	0.00	1.00	17	0.00	0.00	1.00	6	0.00	0.00	1.00
1975–76	31	0.00	0.00	1.00	10	0.00	0.00	1.00	6	0.00	0.00	1.00
1976–77	41	0.00	0.00	1.00	3	0.00	0.00	1.00	6	0.00	0.00	1.00
1977–78	50	0.00	0.00	1.00	3	0.00	0.00	1.00	6	0.00	0.00	1.00
1978–79	60	0.00	0.00	1.00	3	0.00	0.00	1.00	6	0.00	0.00	1.00
1979–80	70	0.00	0.00	1.00	3	0.00	0.00	1.00	6	0.00	0.00	1.00
1980–81	80	0.00	0.00	1.00	3	0.00	0.00	1.00	6	0.00	0.00	1.00
1981–82	90	0.00	0.00	1.00	3	0.00	0.00	1.00	6	0.00	0.00	1.00
1982–83	101	0.00	0.00	1.00	177	0.00	0.00	1.00	6	0.00	0.00	1.00
1983–84	94	0.00	0.00	1.00	184	0.00	0.00	1.00	17	0.00	0.00	1.00
1984–85	40	0.00	0.00	1.00	243	0.00	0.00	1.00	6	0.00	0.00	1.00
1985–86	2	0.00	0.00	1.00	205	0.00	0.00	1.00	6	0.00	0.00	1.00
1986–87	40	0.00	0.00	1.00	243	0.00	0.00	1.00	6	0.00	0.00	1.00
1987–88	47	0.00	0.00	1.00	205	0.00	0.00	1.00	6	0.00	0.00	1.00
1988–89	28	0.00	0.00	1.00	191	0.00	0.00	1.00	6	0.00	0.00	1.00
1989–90	2	0.00	0.00	1.00	163	0.00	0.00	1.00	6	0.00	0.00	1.00
1990–91	7	0.00	0.00	1.00	156	0.00	0.00	1.00	6	0.00	0.00	1.00
1991–92	28	0.00	0.00	1.00	62	0.00	0.00	1.00	6	0.00	0.00	1.00
1992–93	21	0.00	0.00	1.00	104	0.00	0.00	1.00	6	0.00	0.00	1.00
1993–94	3	0.00	0.00	1.00	87	0.00	0.00	1.00	6	0.00	0.00	1.00
1994–95	30	0.00	0.00	1.00	80	0.00	0.00	1.00	6	0.00	0.00	1.00
1995–96	0	0.00	0.00	1.00	163	0.00	0.00	1.00	6	0.00	0.00	1.00
1996–97	1	0.00	0.00	1.00	193	0.00	0.00	1.00	6	0.00	0.00	1.00
1997–98	1	0.00	0.00	1.00	64	0.00	0.00	1.00	6	0.00	0.00	1.00
1998–99	8	0.00	0.00	1.00	380	0.00	0.00	1.00	6	0.00	0.00	1.00
1999–00	3	0.00	0.00	1.00	208	0.00	0.00	1.00	12	0.00	0.00	1.00
2000–01	2	0.00	0.00	1.00	41	0.00	0.00	1.00	6	0.00	0.00	1.00
2001–02	20	0.00	0.00	1.00	608	0.00	0.00	1.00	6	0.00	0.00	1.00
2002–03	1	0.00	0.00	1.00	895	0.00	0.00	1.00	6	0.00	0.00	1.00
2003–04	10	0.00	0.00	1.00	1367	0.00	0.00	1.00	6	0.00	0.00	1.00
2004–05	6	0.00	0.00	1.00	40	0.00	0.00	1.00	6	0.00	0.00	1.00
2005–06	0	0.00	0.00	1.00	470	0.00	0.00	1.00	6	0.00	0.00	1.00
Annual growth rate (per cent)												
2000–01 to 2005–06	–31.9				62.7				0.0			
1995–96 to 2005–06	12.5				11.2				0.0			
1971–72 to 2005–06	–15.3				9.1				0.0			

Source: BITRE estimates.

Table A16 Intermodal state-to-state total freight, million net tonne-kilometres, and market shares of road, rail and coastal shipping in transporting freight originating from the Northern Territory, 1971–72 to 2005–06

	NT–NSW				NT–VIC				NT–QLD				NT–SA			
		Shares				Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	22	0.45	0.00	0.55	50	0.20	0.00	0.80	59	1.00	0.00	0.00	152	0.59	0.41	0.00
1972–73	25	0.47	0.04	0.49	49	0.24	0.00	0.76	70	1.00	0.00	0.00	163	0.65	0.35	0.00
1973–74	28	0.49	0.07	0.45	48	0.28	0.00	0.72	80	1.00	0.00	0.00	172	0.70	0.30	0.00
1974–75	25	0.56	0.11	0.33	47	0.30	0.00	0.70	85	1.00	0.00	0.00	172	0.74	0.26	0.00
1975–76	24	0.66	0.16	0.17	46	0.34	0.00	0.66	94	1.00	0.00	0.00	180	0.78	0.22	0.00
1976–77	20	0.81	0.19	0.00	43	0.38	0.00	0.62	98	1.00	0.00	0.00	192	0.76	0.24	0.00
1977–78	20	0.81	0.19	0.00	41	0.40	0.00	0.60	99	1.00	0.00	0.00	200	0.74	0.26	0.00
1978–79	22	0.82	0.18	0.00	39	0.45	0.00	0.55	107	1.00	0.00	0.00	218	0.74	0.26	0.00
1979–80	23	0.84	0.16	0.00	38	0.51	0.00	0.49	118	1.00	0.00	0.00	241	0.74	0.26	0.00
1980–81	25	0.85	0.15	0.00	37	0.57	0.00	0.43	125	1.00	0.00	0.00	252	0.75	0.25	0.00
1981–82	26	0.85	0.15	0.00	35	0.63	0.00	0.37	132	1.00	0.00	0.00	257	0.77	0.23	0.00
1982–83	23	0.90	0.10	0.00	30	0.67	0.00	0.33	154	0.79	0.00	0.21	236	0.78	0.22	0.00
1983–84	27	0.90	0.10	0.00	29	0.83	0.00	0.17	214	0.67	0.00	0.33	279	0.77	0.23	0.00
1984–85	27	0.90	0.10	0.00	25	1.00	0.00	0.00	148	1.00	0.00	0.00	282	0.79	0.21	0.00
1985–86	29	0.92	0.08	0.00	27	1.00	0.00	0.00	170	0.95	0.00	0.05	297	0.82	0.18	0.00
1986–87	30	0.90	0.10	0.00	30	0.91	0.09	0.00	164	1.00	0.00	0.00	311	0.79	0.21	0.00
1987–88	34	0.89	0.11	0.00	35	0.85	0.15	0.00	179	1.00	0.00	0.00	344	0.78	0.22	0.00
1988–89	36	0.89	0.11	0.00	38	0.86	0.14	0.00	193	1.00	0.00	0.00	371	0.78	0.22	0.00
1989–90	37	0.90	0.10	0.00	39	0.86	0.14	0.00	201	1.00	0.00	0.00	387	0.78	0.22	0.00
1990–91	38	0.90	0.10	0.00	39	0.86	0.14	0.00	203	1.00	0.00	0.00	396	0.77	0.23	0.00
1991–92	38	0.90	0.10	0.00	40	0.87	0.13	0.00	205	1.00	0.00	0.00	404	0.76	0.24	0.00
1992–93	40	0.91	0.09	0.00	45	0.82	0.18	0.00	219	1.00	0.00	0.00	432	0.76	0.24	0.00
1993–94	46	0.83	0.08	0.09	47	0.81	0.19	0.00	233	0.99	0.00	0.01	456	0.76	0.24	0.00
1994–95	48	0.84	0.08	0.08	50	0.81	0.19	0.00	242	1.00	0.00	0.00	479	0.76	0.24	0.00
1995–96	49	0.89	0.08	0.03	54	0.80	0.20	0.00	263	1.00	0.00	0.00	516	0.76	0.24	0.00
1996–97	51	0.92	0.07	0.01	55	0.85	0.15	0.00	279	1.00	0.00	0.00	527	0.80	0.20	0.00
1997–98	54	0.92	0.07	0.01	49	1.00	0.00	0.00	297	1.00	0.00	0.00	591	0.75	0.25	0.00
1998–99	60	0.88	0.06	0.05	58	0.91	0.09	0.00	317	1.00	0.00	0.00	604	0.79	0.21	0.00
1999–00	60	0.94	0.06	0.00	63	0.89	0.11	0.00	338	0.99	0.00	0.01	648	0.78	0.22	0.00
2000–01	62	0.94	0.06	0.00	66	0.87	0.12	0.01	355	0.98	0.00	0.02	677	0.77	0.23	0.00
2001–02	64	0.94	0.06	0.00	68	0.88	0.12	0.00	363	1.00	0.00	0.00	718	0.76	0.24	0.00
2002–03	68	0.94	0.06	0.00	72	0.89	0.11	0.00	382	1.00	0.00	0.00	761	0.75	0.25	0.00
2003–04	71	0.94	0.05	0.00	75	0.89	0.11	0.00	422	0.95	0.00	0.05	786	0.71	0.29	0.00
2004–05	73	0.95	0.05	0.00	77	0.90	0.10	0.00	416	1.00	0.00	0.00	792	0.67	0.33	0.00
2005–06	76	0.95	0.05	0.00	80	0.90	0.10	0.00	434	1.00	0.00	0.00	814	0.67	0.33	0.00
Annual growth rate (per cent)																
2000–01 to 2005–06	4.3				4.0				4.1				3.7			
1995–96 to 2005–06	4.5				4.0				5.1				4.7			
1971–72 to 2005–06	3.7				1.4				6.0				5.1			

	NT–WA				NT–ACT				NT–TAS			
		Shares				Shares				Shares		
Year	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping	Total freight	Road	Rail	Coastal shipping
1971–72	74	0.15	0.00	0.85	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1972–73	83	0.18	0.10	0.72	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1973–74	91	0.20	0.19	0.61	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1974–75	108	0.19	0.24	0.58	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1975–76	126	0.19	0.27	0.54	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1976–77	123	0.21	0.27	0.53	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1977–78	118	0.22	0.26	0.52	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1978–79	116	0.25	0.26	0.49	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1979–80	116	0.30	0.25	0.46	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1980–81	113	0.34	0.23	0.43	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1981–82	110	0.38	0.21	0.41	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1982–83	98	0.37	0.21	0.42	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1983–84	82	0.58	0.35	0.07	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1984–85	80	0.62	0.30	0.07	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1985–86	88	0.65	0.25	0.10	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1986–87	87	0.68	0.26	0.07	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1987–88	97	0.70	0.23	0.06	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1988–89	109	0.71	0.21	0.08	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1989–90	105	0.78	0.16	0.06	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1990–91	109	0.76	0.16	0.08	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1991–92	120	0.71	0.14	0.15	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1992–93	123	0.77	0.14	0.10	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1993–94	135	0.76	0.13	0.11	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1994–95	137	0.81	0.12	0.06	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1995–96	150	0.85	0.11	0.04	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1996–97	142	0.99	0.00	0.01	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1997–98	157	0.99	0.00	0.01	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1998–99	184	0.94	0.00	0.06	2	1.00	0.00	0.00	5	0.00	0.00	1.00
1999–00	196	0.97	0.00	0.03	2	1.00	0.00	0.00	5	0.00	0.00	1.00
2000–01	208	0.96	0.00	0.04	2	1.00	0.00	0.00	5	0.00	0.00	1.00
2001–02	216	1.00	0.00	0.00	2	1.00	0.00	0.00	5	0.00	0.00	1.00
2002–03	240	0.98	0.00	0.02	2	1.00	0.00	0.00	5	0.00	0.00	1.00
2003–04	296	0.85	0.00	0.15	2	1.00	0.00	0.00	5	0.00	0.00	1.00
2004–05	273	0.99	0.00	0.01	2	1.00	0.00	0.00	5	0.00	0.00	1.00
2005–06	294	0.98	0.00	0.02	2	1.00	0.00	0.00	5	0.00	0.00	1.00
Annual growth rate (per cent)												
2000–01 to 2005–06	7.2				0.0				0.0			
1995–96 to 2005–06	6.9				0.0				0.0			
1971–72 to 2005–06	4.1				0.0				0.0			

Source: BITRE estimates.

Table A17 Selected significant railway events, 1991–2007

Date	Description of event
July 1991	The Federal Government and the State Governments of Queensland, New South Wales, Victoria and Western Australia agreed that National Rail Corporation would take over from the states the operation of interstate rail services.
April 1993	National Rail began third party access freight operations on interstate track.
1995	The Port of Brisbane was connected to the standard gauge network.
1995	Traffic on Trans Australia Railway disrupted for six weeks due to flooding.
June 1995	Completion of the standardisation of Melbourne–Adelaide broad gauge with the new standard gauge line through Geelong and conversion of North Geelong–Cressy–Ararat–Adelaide line to standard gauge.
July 1995	SCT Logistics, an Australian shipping company, commenced first private train service, Melbourne–Perth.
June 1996	TNT (later Toll), a multi-national freight forwarding company, began operating freight trains, Melbourne–Perth.
July 1996	State Rail Authority was split four ways: Rail Access Corporation started managing infrastructure; Rail Services Australia undertook track maintenance; FreightCorp operated freight trains; and residual State Rail Authority operated passenger trains.
July 1996	Intergovernmental Agreement was reached to legislate the terms for national safety and accreditation processes.
October 1996	The first of 120 of National Rail Corporation's new 400 0 horse power locomotives entered service.
May 1997	Patrick Corporation commenced land bridging container train service between Port Adelaide and the Port of Melbourne.
October 1997	Great Southern Railway consortium purchased Pax Rail, the Australian National Railways' passenger business.
November 1997	Australian Transport Network consortium purchased Tasrail, the Australian National Railways' Tasmanian operations.
November 1997	Genesee & Wyoming purchased SA Rail, the Australian National Railways' SA intrastate network.
July 1998	ARTC commenced management of Australian National's infrastructure (assets of Australian National's Track Access Unit) and took up a lease of Victorian interstate rail network from the South Australia border through Melbourne to Albury.
February 1999	V/Line freight business was sold, and intrastate country track leased for 45 years, to RailAmerica, trading as Freight Australia.
Mid–1999	Victorian passenger rail and tram services were franchised to National Express, Connex and Yarra Trams.
December 1999	There was a passenger train collision at Glenbrook, New South Wales.
December 2000	Consortium of Wesfarmers and Genesee & Wyoming purchased Westrail.
January 2002	Consortium of Patrick and Toll purchased National Rail and FreightCorp, forming Pacific National.
December 2002	National Express stopped providing services specified in V/Line Passenger and Melbourne passenger contracts.
January 2003	There was a passenger train derailment at Waterfall, NSW.
January 2004	Darwin line opened and first freight train arrived in Darwin.

(continued)

Table A17 Selected significant railway events, 1991–2007 (continued)

Date	Description of event
February 2004	Pacific National purchased Australian Transport Network-Tasrail.
May 2004	In the May budget, under Auslink 1, the Australian Government made a $540 million one-off grant to the ARTC for track straightening and other works to improve the performance and capacity of the Sydney to Brisbane rail corridor.
June 2004	Release of the Auslink White Paper describing the Australian Government's move towards more cooperative transport planning and funding by federal and state and territory jurisdictions.
September 2004	Pacific National purchased Freight Australia.
September 2004	ARTC commenced 60 year lease of interstate rail network in New South Wales and a management contract of country rail network.
September 2005	Pacific National announced that it intended to withdraw most of its rail freight services in Tasmania, leaving only two bulk haul operations.
February 2006	In a complex sale, Queensland Rail purchased ARG's WA freight business; Babcock & Brown purchased ARG's WestNet infrastructure; and Genesee & Wyoming took full control of ARG's SA operations.
March 2006	Australian Competition and Consumer Commission (ACCC) approved Toll takeover of Patrick.
October 2006	SCT Logistics commenced freight service between Parkes and Perth.
November 2006	Opening of main line flyover of coal lines, to enable unimpeded movement of coal trains, between Hunter Valley and Kooragang Island.
December 2006	Pacific National wins a contract extension with Bluescope Steel and OneSteel for seven years, to shift steel products around the country.
January 2007	Tasmanian government resumes financial responsibility for the state's commercial railways; day-to-day infrastructure management remains with Pacific National.
January 2007	New Wagga Wagga bridge opened. The construction is a first major milestone in the $1.8 billion North–South Corridor upgrade.
February 2007	CRT ceased its Altona North–Port of Melbourne shuttle.
February 2007	ACCC approved SCT Logistics' purchase of train assets (including 9 locomotives) from Pacific National, as part of Toll's takeover of Patrick.
March 2007	Australian Government announced $78 funding of remedial work on AusLink section of the Tasmanian railway system with $40 million more from the Tasmanian Government and a commitment by Pacific National to spend $38 million on locomotive and wagon upgrades.
April 2007	ACCC approves the split of Toll Holdings, with new company Asciano Ltd, which will include Pacific National and Patrick Portlink assets.
April 2007	Victorian government bought back leased intrastate track from Pacific National giving control of the network to V/Line Passenger, the State's regional rail operator.
April 2007	Toll announces split of Toll Holdings, with Asciano Ltd controlling Patrick and Pacific National assets.
October 2007	58 km Lang Hancock Railway opens between Hope Downs and existing Rio Tinto railway.
November 2007	QRNational commences new thrice weekly Melbourne–Perth service, incorporating the weekday P&O Melbourne–Adelaide train.
November 2007	Asciano Ltd announces end of grain and intrastate intermodal services in Tasmania, Victoria and NSW, to take effect from early 2008.

Source: Compiled by BITRE.

Abbreviations

ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
ARA	Australasian Railway Association
ARG	Australian Railroad Group
ARTC	Australian Rail Track Corporation
ATC	Australian Transport Council
BITRE	Bureau of Infrastructure, Transport and Regional Economics
BTE	Bureau of Transport Economics
BTRE	Bureau of Transport and Regional Economics
FDF	A name of private company that provides freight data services
GTK	Gross tonne-kilometre
NTK	Net tonne-kilometre
SCOT	Standing Committee on Transport
SMVU	Survey of Motor Vehicle Use
TNT	A name of a multinational freight forwarding company
TQI	Track quality index

References

Australian Bureau of Statistics, 2007, *Survey of Motor Vehicle Use, Australia, 12 months ended 31 October 2006*, catalogue number 9208.0, ABS, Canberra.

Australian Bureau of Statistics 2002, *Freight movements*, catalogue number 9220.0, ABS, Canberra.

Australian Bureau of Statistics 1994–1997, *Experimental estimates of freight movements*, catalogue number 9217.0, ABS, Canberra.

ARTC—See Australian Rail Track Corporation.

Australian Bureau of Statistics 1981–1992, *Interstate freight movement series*, catalogue number 9212.0, ABS, Canberra.

Australian Rail Track Corporation (2007), *Track quality index (TQI)*, viewed December 2007 at: http://www.artc.com.au/Content.aspx?p=105.

BTE—see Bureau of Transport Economics.

BTRE—see Bureau of Transport and Regional Economics.

Bureau of Transport and Regional Economics 2007a, *Interstate Freight in Australia, 1979–80*, Paper presented to 30th Australasian Transport Research Forum, Melbourne.

Bureau of Transport and Regional Economics 2007b, Australian rail freight performance indicators 2005–06, Information paper 59, BTRE, Canberra.

Bureau of Transport and Regional Economics 2006, *Freight measurement and modelling in Australia*, Report 112, BTRE, Canberra.

Bureau of Transport Economics 1983, *Australian rail freight movements 1979–80*, BTE, Canberra.

Bureau of Transport Economics 1976, *Estimates of Australian interregional freight movements for 1971–72*, BTE, Canberra.

Bureau of Transport Economics 1979, *Australian freight movements for 1975–77*, BTE, Canberra.