

Chapter 16 Transport and Communication Infrastructure

Key Points

- » With a small, widely dispersed Territory population and small local market relative to major markets in southern Australia, good transport and communication links are critical to ongoing development in the Territory.
- » Rail remains an important transport link providing regular passenger services between Darwin and Adelaide. Volumes of freight continue to grow, with further opportunity for regional development particularly in the movement of bulk mineral ores.
- » The Territory's road network continues to be improved with upgrade work to infrastructure, bridges and flood mitigation.
- » Air transport provides Darwin with links to international, interstate and intrastate destinations for passenger movement and freight transfer.
- » Access to information and communications technology to the large percentage of Territorians living in remote areas remains a priority.

The transport and storage industry includes all entities mainly engaged in providing passenger or freight transport by road, rail, water or air; terminal facilities for passengers or freight; services related to transport such as car parking, stevedoring, harbour services, navigation services, airport operation; booking, travel, freight forwarding, crating or customs agency services; and storage facilities. It also includes entities mainly engaged in operating pipelines for the transportation of oil or gas, on a contract or fee basis.

The communications industry covers telecommunications, postal and courier services. Also discussed in this chapter are television, radio broadcasting and media services, which are counted by the Australian Bureau of Statistics (ABS) as part of the cultural and recreation industry. Newspaper publishing and other news dissemination, often thought to form part of the communications industry, are included by the ABS as part of the manufacturing industry.

As the Territory economy continues to grow, so too does the need for transport and storage, and communication infrastructure. Transport and storage contributed 4.1 per cent to the Territory's gross state product (GSP) in 2006-07. The communications industry (as defined by ABS) contributed 2.0 per cent to the Territory's GSP in 2006-07.

Table 16.1: Transport and Communications Production as a Proportion of GSP/GDP, 2006-07

	Transport %	Communication ¹ %	Total %
New South Wales	4.2	2.6	6.8
Victoria	4.5	3.2	7.7
Queensland	5.6	2.3	7.9
South Australia	4.3	2.3	6.6
Western Australia	5.1	1.9	7.0
Tasmania	4.8	2.2	7.0
Northern Territory	4.1	2.0	6.1
Australian Capital Territory	1.9	2.4	4.3
Australia	4.6	2.5	7.1

¹ As defined by ABS, being Telecommunications and Postal
Source: ABS Cat. No. 5220.0

Transport

Remoteness, geographical size and dispersed population mean long distance transportation and storage become increasingly important as the Territory economy and population continue to grow.

Growth in the mining sector, along with increased freight volumes and tourist numbers passing through the Territory, continues to develop and contribute to the Territory economy. Transport and storage activity accounted for around \$554 million or 4.1 per cent of the Territory's GSP in 2006-07, up from 3.7 per cent in 2005-06. This growth contributed 0.2 percentage points to the total GSP growth of the Territory economy

Four main components of the Territory's transport industry are road, rail, sea and air. Each sector facilitates the movement of people, goods and services to, from and around the Territory.

Road The Territory is served by three national highways which provide links to Queensland (Barkly Highway), South Australia (Stuart Highway) and Western Australia (Victoria Highway). The national highway network is the backbone of the road network system across the Territory and provides the only sealed road links between the Territory and the rest of Australia.

The Territory road network consists of more than 36 000 kilometres of road. About 22 000 kilometres are managed by the Territory Government, including 12 per cent classified as national highways, 19 per cent classified as arterial roads and 69 per cent classified as secondary or local roads. The remaining approximately 14 000 kilometres of roads, primarily for distributing traffic within local areas, are administered by local governments.

In 2007-08, AusLink expenditure on roads in the Territory is estimated at \$46 million. Along with maintenance and widening activities, this includes major works to overcome flooding problems on the Victoria and Stuart highways, including bridge works. Upgrading blackspot locations on roads servicing the pastoral, tourism and mining industries and improving access for remote communities are also being conducted.

Improvements to the Victoria Highway include pavement strengthening and lifting at the Victoria River Floodplain through high level bridges at Victoria River, Joe Creek, Lost Creek and Sandy Creek and should result in reduced road closures caused by

flooding. Improving of community and mining roads such as the Port Keats Road and Tanami Road remains a priority. In 2007-08, Northern Territory Government expenditure on roads will be approximately \$77 million.

In April 2008, it was announced that the Territory Government, in partnership with the Commonwealth, would allocate \$110 million to extend Tiger Brennan Drive. When complete, the work will include a flyover and a 7 kilometre road extension to the Stuart Highway. The \$6.5 million stage one extension of Tiger Brennan Drive is scheduled for completion by the end of 2008. Stage one will upgrade a section of Berrimah Road to dual lane to address congestion experienced during peak hours and reduce commuting time between Darwin, Palmerston and rural areas. Extending Tiger Brennan Drive is an important infrastructure project that will build on the economic opportunities of East Arm Port, providing better access for trucks and trains to deal with increased transport and freight volumes.

Rail The Adelaide to Darwin railway was completed in January 2004. Freightlink, the railway operator, began rail transport operations with five freight services a week capturing 85 per cent of the competitive interstate freight market within three months of starting up. Freightlink continues to provide the primary linehaul service along Australia's central freight corridor connecting Darwin with freight services in Adelaide and other states.

The value of the railway to the development of the Northern Territory economy continues to be demonstrated by results, with a surge to record levels of both bulk and general freight in 2006-07. The railway continues to demonstrate its long-term potential to the economic development of both South Australia and the Northern Territory. The net tonnage carried increased 67 per cent from 668 081 tonnes in 2005-06 to 1 112 885 tonnes in 2006-07.

The railway has acted as a catalyst for the development of the resources sector throughout the Northern Territory and South Australia by offering an alternative cost-effective way to move large quantities of bulk ore and materials for shipment to overseas markets. Through its subsidiary, OM Manganese Ltd (OMM), OM Holdings Ltd (OMH) operates the Bootu Creek manganese mine, located 110 kilometres north of Tennant Creek. Bootu Creek manganese is mined exclusively for OMH Group's wholly-owned Qinzhou smelter, in south-west China. OMM was the first mine to enter into a contract to haul manganese by rail from the Bootu Creek operation to the Port of Darwin and is expected to produce 550 000 tonnes of ore annually.

Territory Resources Ltd's Frances Creek mine near Pine Creek commenced operations in July 2007, with FreightLink carrying iron ore to the Port of Darwin bulk minerals discharge facility. The first shipment of 65 000 tonnes of iron ore was loaded on 28 September 2007 destined for China. Another mining company, Oxiana, has announced plans to transport copper concentrate by rail from its Prominent Hill mine, south-east of Coober Pedy, to the Port of Darwin, commencing in 2008.

The table below shows there is potential for more mining operations in the Northern Territory and South Australia to use rail to move their product to the Port of Darwin.

Table 16.2: Potential for Rail to Support Mining Operations

Company	Project	Location	Product
GBS Gold	Union Reefs	Pine Creek	Gold ore
Territory Iron	Frances Creek	Pine Creek	Gold ore
OM Holdings	Bootu Creek	Tennant Creek	Manganese
Territory Iron	Warrego	Tennant Creek	Magnetite
Peko Rehab	Peko Tailings	Tennant Creek	Magnetite
Arafura Resources	Nolans Bore	Alice Springs	Rare earths
Olympia Resources	Harts Range	Alice Springs	Garnet sands
Altona Resources	Arkaringa	Arkaringa SA	Coal
Goldstream	Cairn Hill	Cooper Pedy SA	Magnetite/copper/gold
Goldstream	Peculiar Knob	Cooper Pedy SA	Iron ore
BHP Billiton	Olympic Dam	Roxby Downs SA	Copper/uranium/gold

Freightlink plans to invest around \$8 million in 2007 and 2008 to provide additional track infrastructure along the corridor and in Darwin, with additional leased rolling stock (defined as engines and wagons) to support the expansion of the minerals business.

Linking southern markets with international markets, the railway has proven its ability to move large quantities of bulk commodities between Darwin and Adelaide in less time than by sea. This capacity was increased in early 2006, with the introduction of wagons capable of carrying road fuel tankers and wagons with the ability to double-stack containers. The Adelaide to Darwin railway is making steady progress toward achieving its objective of converting users of road freight transport to rail freight transport, especially with Coles and Woolworths now major users of rail on this corridor.

Expansion of Australian Defence Force (ADF) activities in the Northern Territory and South Australia has seen an increase in military equipment movement on this corridor. In early 2008, the ADF expects to have rolling stock available to carry heavy equipment, including Abrams tanks, to and from Darwin.

Great Southern Rail operates the Ghan passenger train service between Adelaide and Darwin. The service consists of a twice weekly return trip from Adelaide to Darwin, with scheduled stops of several hours duration at Alice Springs and Katherine. About 63 000 passengers were carried in 2007. Expansion of the Ghan passenger train service is planned for 2008 to emulate the world's most luxurious railway journeys in a bid to appeal to the high end of the tourism market. Platinum cabins will have all the modern comforts with 24-hour room service. The cabins will have a distinctly Australian character in timber finishes, colours and fabrics.

Sea The Port of Darwin is a naturally occurring deep water port located in the Top End of the Northern Territory. Geographically, it is Australia's closest port to the Association of South East Asian Nations (ASEAN) markets, making it Australia's northern gateway port. This strategic geographic location is fundamental to the high volume of trade flowing through the port in recent times and will play a significant role in growth into the future.

The port facilities at East Arm are connected to the national rail network through the Adelaide to Darwin railway to allow seamless movement of goods, including bulk mineral and bulk liquid trades. Integration of port facilities with the railway supports the Territory Government's vision of establishing Darwin as a regional transport and logistics centre and an integral part of the AustralAsia trade route.

The original Port of Darwin concept was primarily geared towards a container focus. However, with the increased demand for energy and resources, particularly from China, there has been a significant shift toward creating a multipurpose facility, an example being the construction of a \$24 million bulk minerals ship loader. The expanding gas and mineral industries rely heavily on the high quality, efficient and congestion free infrastructure that is now in place at the East Arm Port.

Darwin Port is well equipped to handle container and general cargo, bulk mineral and bulk liquids including petroleum, live cattle, and offshore oil and gas rig services. The Darwin Port Corporation also operates facilities for non-trading vessels. These include cruise, naval, fishing and pearling vessels. The port plays a significant role as a supply, service and distribution base supporting research and exploration of the oil and gas reserves in the nearby Timor Sea.

Total trade across the Port of Darwin's wharf facilities for 2006-07 increased by 384 000 tonnes or 35.6 per cent on 2005-06 total tonnage. The port is the location of the Darwin Liquefied Natural Gas (LNG) facility. LNG production in the region is responsible for 3.5 million tonnes of export trade annually. There were 52 LNG carrier calls completed during 2006-07 at the Port of Darwin's LNG facility, making it Australia's second major LNG hub.

A growing number of mining projects are benefiting from the installation of a \$24 million bulk materials export facility at East Arm Wharf. The first wagons of bulk iron ore from Territory Resources were delivered in June 2007. Territory Resources expects to export 750 000 tonnes of iron ore during 2007-08.

OMM exported 383 245 metric tonnes of bulk manganese during the year and forecast its 2007-08 tonnage to increase to 650 000 tonnes per annum on the back of dry bulk exports, mainly from the Bootu Creek mine near Tennant Creek.

The first shipments of bulk sulphuric acid were delivered during May 2007, the start of a new 171 000 tonne per annum trade. The sulphuric acid is imported by Orica and stored at the port in a purpose-built facility by Vopak. Sulphuric acid is used in a leaching process for the treatment of ore.

Darwin has been nominated by Oxiana Limited as the preferred export port for copper concentrate from its Prominent Hill mine in South Australia. Securing the Oxiana business was an important milestone for the Port of Darwin and it is expected that around 240 000 tonnes will pass through the port each year. The Port of Darwin is also Australia's number one port for live cattle exports.

Petroleum products remain the dominant import cargo, accounting for 71 per cent of the port's import tonnage. Petroleum product imports increased by 4.4 per cent in 2006-07, in line with increased economic activity in the Territory.

Air Air transport continues to be an important enabler of economic growth in the Northern Territory. Major airports capable of jet aircraft operations are Darwin, Alice Springs, Ayers Rock and Nhulunbuy. Darwin airport is an international gateway and capable of handling the largest aircraft currently in operation. Alice Springs airport receives international charter flights from Japan on a seasonal basis.

Airports are critical infrastructure and play a key role in generating economic growth. Airport Development Group (ADG) owns and operates three airports in the Northern Territory – Darwin International, Alice Springs and Tennant Creek airports, with more than 60 full-time staff. In total, the on-airport and off-airport businesses employed more than 1600 people in 2006-07.

During 2006-07, ADG reported an increase in revenue of 32 per cent. The strong performance was driven by growth in revenue across all airports, a result substantially underpinned by 16 per cent growth in the Darwin domestic market, 11 per cent growth in international traffic and a 3 per cent growth in the Alice Springs market. Growth was also supported by the opening of the Bagot Road commercial precinct. Construction of the Osgood Drive and Bagot Road intersection provides easy access to a Bunnings warehouse retail store.

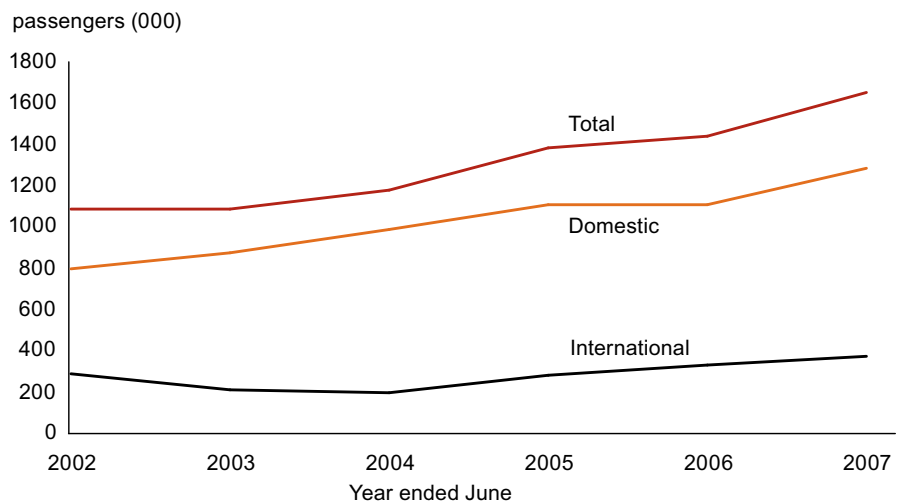
ADG funded \$31 million of capital projects during 2006-07. Security upgrades and enhancements continued in line with Commonwealth regulations, including the introduction of LAGS (Liquids, Aerosols and Gels Screening) for all international passengers and the implementation of 100 per cent CBS (Checked Bags Screening) at Alice Springs airport, operational since August 2007. This project and its ancillary works at Alice Springs airport cost about \$7 million and bring the total associated capital investment by ADG in aviation security alone to about \$20 million.

Total international passengers to Darwin for the six months to December 2007 were 214 300, a 7 per cent increase over the same period in 2006. Scheduled international services are provided by Jetstar, Tiger Airways, Garuda and Air North and fly to Singapore, Bali, Dili and Kupang. Royal Brunei Airlines ceased international services to and from Darwin in January 2008.

Total domestic passengers for 2007 were 724 700, a 6 per cent increase over 2006. Domestic services are operated to all Australian capital cities and some regional centres by Airnorth, Vincent Aviation, Skywest, Virgin Blue, Jetstar, Qantas and Tiger Airways. Tiger Airways Australia is a low cost airline which commenced services in the Australian domestic airline market in November 2007. Alice Springs received Tiger Australia flights from Melbourne from March 2008, a welcome boost for tourism in central Australia.

Darwin airport has reported good growth in passenger numbers due mainly to increased flights by Jetstar and Tiger Airways as shown in Chart 16.1.

Chart 16.1: Airline Passenger Numbers, Darwin



Source: Airport Development Group (ADG), Annual Report, 2006-07

Scheduled services to remote communities have been in decline in recent times as they are not commercially viable. Aboriginal Air Services, for example, ceased operations in September 2006 for financial reasons.

Conversely, the charter segment of the industry has reported growth mainly from increased mining activity and, to a lesser extent, the 2007 Commonwealth Northern Territory Emergency Response. Most communities depend on charter aircraft for carriage of passengers and freight.

The Territory Government ensures emergencies are catered for through aero-medical evacuations and through the Northern Territory Police Airwing. The Government maintains a strategic network of 72 regional airports and airstrips servicing all major communities in the Territory, and currently spends around \$3 million a year maintaining and progressively upgrading these facilities.

Pipelines

Pipelines are the fastest and safest method of transporting large volumes of natural gas over long distances. In the Northern Territory, they provide a vital energy link for power generation and industry.

The Bayu-Undan field, located in the Joint Petroleum Development Area (JPDA) in the Timor Sea, approximately 500 kilometres north of Darwin and 250 kilometres south of Timor-Leste, currently produces more than 100 000 barrels of liquids per day. The gas product is sent through a 502 kilometre sub-sea pipeline to the Darwin LNG plant where it is processed into LNG to be shipped by specially built transport tankers to Japan for the Tokyo Electric and Tokyo Gas companies.

NT Gas Pty Limited, in its capacity as trustee of the Amadeus Gas Trust, operates and manages over 2000 kilometres of high pressure natural gas pipeline and facilities in the Northern Territory.

Envestra Limited, Australia's largest distributor of natural gas, owns 8800 kilometres of pipeline distribution networks in South Australia, Queensland and the Northern Territory. Envestra operates the natural gas transmission pipeline that connects the Palm Valley gas field to Alice Springs. The 200 millimetre diameter pipeline supplies gas to the Northern Territory's Power and Water Corporation for power generation in Alice Springs.

Communications

The communication sector is one of the smallest sectors of the Northern Territory economy and accounts for about \$273 million or 2 per cent of Territory GSP in 2006-07, and about 1 per cent of total Territory employment. Despite significant investment and ongoing improvement, the gap between the Territory and other jurisdictions in access and delivery of information and communication technology (ICT) based services remains large, particularly in remote areas. Although television, radio broadcasting and media services are included for discussion in this chapter, their contribution to Territory GSP is not captured in the communication industry, as they are part of the ABS' cultural and recreation industry category.

Postal and Courier Services

Despite the increasing use of technology such as email, web mail and the internet, postal mail remains a highly effective way for businesses to communicate with their customers. The Territory is serviced by reliable, cost-effective postal and courier services providing a complete range of competitive, customer-focused mail and speciality services for all Territorians. Postal and courier services link with freight forwarding companies including Australian Air Express and Star Track Express to provide time critical air and linehaul parcel and mail delivery services.

Telecommunications

In 2005, the Commonwealth announced the Connect Australia program, a \$1.1 billion package aimed at improving remote and regional telecommunications within Australia. The four components of the program were focused on the delivery of equitable broadband services, rolling out broadband networks to carry applications aimed at improving delivery of health, education and other essential services, extending terrestrial mobile phone coverage, and delivering vital communication services to remote Indigenous communities.

Remote areas of the Territory have benefited from technology developments and improved access has reduced the isolation faced by many Territorians. Increased access to information technology has enabled the delivery of a wider range of mainstream services to remote areas, however low volume network traffic and lack of competition mean that the unit costs for electronic services remain high.

In 2006, Telstra began rolling out the NextG mobile network to replace the ageing Code Division Multiple Access (CDMA) network. The planned January 2008 closure of the regional CDMA mobile network was deferred until April 2008, to address network coverage concerns and offer rural phone users more time to make the transition to the new service. Mobile phones are the product of choice for telephony in remote Indigenous communities. NextG provides broadband mobile connectivity to 49 Territory locations, 41 of them in remote areas.

In 2007, the scale and scope of the broadband delivery component of Connect Australia was extended when the Commonwealth announced the Australian Broadband Guarantee. This program aims to ensure all Australians are able to access broadband services regardless of where they live. Benefits to the large proportion of the Territory population living in remote areas will emerge over coming years.

The Territory Government continues to liaise with the Commonwealth to ensure the specific needs of the Territory are addressed. These needs are broadband and mobile access in remote areas and a second fibre-optic cable from Adelaide to Darwin to improve wholesale telecommunications competition.

Northern Territory Government

In June 2005, Telstra was awarded the contract to provide the Territory Government with telecommunications services for five years. Under the contract, bandwidth was increased, resulting in improved response times for services such as data transfer, intranet and internet services. Included in the contract were industry and community development initiatives estimated at \$65 million.

In August 2005, Telstra opened its National Indigenous Directorate in Darwin, which coordinates the delivery of telecommunications services to remote Indigenous communities nationally. Later in 2006, Telstra expanded its 100-staff call centre in Darwin to 150 staff and upgraded the facility to a national call centre.

Under the Telstra contract two significant Department of Employment, Education and Training (DEET) programs continue to provide improved ICT service delivery and access in schools.

- Learning and Technology in Schools (LATIS) delivers high volume bandwidth ICT services to 155 Territory schools.
- The two-way radio system used by the School of the Air has been replaced by Interactive Distance Learning (IDL), using satellite technology to deliver interactive specialist tuition to 200 remote homesteads, schools and training centres in the Territory. The technology is used for secondary school tuition, but may in the future be applied to other training needs, including vocational education and training.

The contract with Telstra is expected to deliver a cost saving to Government of about \$4 million over four years.

Television Darwin is served by the ABC, SBS, Channel Nine and Southern Cross Television (SCTV – formerly Channel 7) networks. Additionally, iTV64 broadcasts tourist oriented information in Darwin via the free-to-air and pay television networks. Other major centres receive a combination of Imparja, Central Queensland Satellite Television (Channel 10), the ABC and SBS. Austar pay television is available via cable and satellite in Darwin, and via satellite in Alice Springs and other parts of the Territory.

Standard definition digital free to air television broadcasts are available in Darwin, Batchelor, Katherine and Alice Springs. SBS and ABC television transmit high definition digital broadcasts as well as standard definition channels, namely ABC National, ABC2 and SBS news services from around the world. Channel 9 and SCTV also transmit high definition broadcasts.

The Australian Communications and Media Authority (ACMA) allocated a new commercial television broadcasting licence in May 2007, to provide a digital only service for Darwin. The licence was allocated to Darwin Digital Television Pty Ltd, a joint-venture company owned by the two existing commercial television broadcasting licensees in the Darwin television licence area, Regional Television Pty Ltd (Southern Cross Darwin) and Territory Television Pty Ltd (NTD Nine). The new service will join the four digital television services already operating in Darwin, improving the quantity and diversity of programming available to viewers. Due to licensing provisions, the channel's service must officially launch before May 2008.

Radio Darwin, Alice Springs and other urban centres in the Territory are serviced by a number of radio stations, including the ABC, commercial and community-based stations. Operations such as the Top End Aboriginal Bush Broadcasting Association (TEABBA) and the Central Australian Aboriginal Media Association (CAAMA) link more than 30 Indigenous community radio stations using broadcasting equipment provided by the Commonwealth under the Remote Indigenous Broadcasting Services (RIBS) program.

Outlook

Transport The Territory transport industry continues to grow and shows no sign of slowing. With new road projects totalling almost \$130 million and further investment in air, rail and sea infrastructure projects, the outlook is positive.

Continued expansion of and upgrades to, the road network, including bridges, means that more of the Territory is open all year round. The ongoing goal of connecting regional communities with sealed roads means that the Territory is becoming more accessible to the transport industry.

The outlook for domestic and international air services is positive, with Darwin emerging as a regional hub for low cost carriers. Tiger Airways Singapore flights connect with Tiger Australia domestic flights to Melbourne. Jetstar have announced similar hubbing through Darwin from April 2008 with a doubling of services to both Singapore and Melbourne from seven to fourteen per week. Jetstar is also considering basing a number of aircraft in Darwin for hubbing to a range of Asian destinations. Darwin is expected to gain from the competitive pressures between these two operators. In the short term Darwin may also benefit from the delays Boeing is having with the delivery of the new B787 aircraft. Jetstar plan to use these aircraft to mount direct flights to Asia and southern Europe from Australia's east coast.

Indonesia Air Asia announced in January 2008 that they intend to establish a hub in Bali with plans to connect to Perth and Darwin by October 2008. This would provide Darwin with a fourth connection to South East Asia.

Communications

The Territory Government is continuing to explore communication technology solutions for improved access to information and technology to the large percentage of Territorians living in remote areas.