

TRANSPORT ENERGY WATER TELECOMMUNICATIONS



infrastructure report card 2010
Northern Territory



ENGINEERS
AUSTRALIA

Communiqué

Infrastructure in the Northern Territory underpins the community's quality of life and economic prosperity. Territorians deserve high quality transportation and communications systems, water and energy supply. These services are essential to support the economic, environmental and social aspirations of its current and future population and to improve Indigenous communities.

In 2005, Engineers Australia took the initiative to raise community awareness about the importance of infrastructure in the 2005 Northern Territory Infrastructure Report Card. The 2005 report gave a strategic overview of various infrastructure sectors and provided an independent assessment of the fitness for purpose of the Territory's key assets. The Report Card found that much of the infrastructure at that time was adequate in terms of being fit for its current purpose.

Five years on, we are again examining the state of the Territory's infrastructure to see what progress has been made and what still needs to occur.

The Territory is highly influenced by global economic conditions. Over the past five years, the Territory's economy has been driven by substantial investment in the mining and energy and construction sectors and major resource projects have been completed or are underway. This economic growth has driven demand for infrastructure services. As well, the Territory has the highest Indigenous population in Australia. Indigenous communities experience considerable disadvantage. The 2008 National Indigenous Reform Agreement addressing the disparities between urban and rural/remote communities is welcomed, as is the Working Future Strategy and other strategies and programs such as the Strategic Indigenous Housing and Infrastructure Program to address disadvantage. These programs and agreements will result in infrastructure improvements, which will improve the economic, environmental and social amenity for these communities and the Territory overall.

Overall, the Territory's infrastructure requires major improvements, with a small number of infrastructure sectors being rated as good. While improvements are planned or underway in all infrastructure sectors, many of these initiatives are either not funded or not expected in the short-term. The adequacy of infrastructure in the future will depend significantly on three key factors: the speed and magnitude of the resource sector's growth; the magnitude and location of population growth; and the ability of the Territory Government and infrastructure owners to access investment funds and invest in anticipation of demand growth.

The Territory faces significant challenges in providing transport due to its low population density, diverse transport needs, vast area and Wet Season impact. As a consequence, most transport services and its supporting infrastructure would be considered inadequate when measured against standards in the rest of the nation.

Given the gap between what is required and funding constraints, it is very important that a strategic approach to transport planning and provision occurs as seen in the *Territory 2030 Strategic Plan*.

There has been increased investment in the National Highway Network and Territory-managed roads and the highways are of a high standard. Improved flood immunity of National highways and Territory-managed roads, and progress in asset management data collection for local roads is supported. Major changes are required for the Territory's road network and there is considerable disparity between road types and between urban and non-urban areas. In particular, there has been a failure to achieve the road safety target established in the road safety strategy, continual Wet Season disruption to many roads and major deficiencies along a number of secondary and local roads.

Rail infrastructure is adequate for the current level of rail traffic and there is an increase in confidence in the future viability of the Darwin to Adelaide railway following its purchase by GWA. Improvements are still required for the future, including the interface with the Port of Darwin and track condition south of Alice Springs. A significant increase in bulk minerals traffic will require additional passing loops and improvements to the track to cope with heavier trains. There have been a number of derailments and level crossing incidents, and rail infrastructure south of Alice Springs is of a lesser quality, which will need to be addressed.

Port infrastructure has seen some improvements, particularly through the development of the *East Arm Wharf Facilities Masterplan 2030*, the upgrade of Port of Darwin's City Wharf facilities including the Frances Bay Mooring Basin and the Fisherman's and Stokes Hill Wharves, the construction of the new passenger ship terminal, and upgrade of several barge landings, support infrastructure and collection of asset information. However, there remains a backlog of maintenance and renewals for some Port of Darwin assets and there is a need for further supporting infrastructure at several barge landings.

Communiqué *continued*

Major airports in the Territory have been upgraded since 2005, but many regional airports have limited infrastructure, which reflects their passenger numbers. Some improvements have been made to the airside infrastructure of some regional airports, but not for land-side infrastructure. Some remote aerodromes are in very poor condition and are unserviceable during the Wet Season.

Potable water infrastructure has improved in a number of urban and remote communities, such as the underway expansion of Darwin's water supply and improvements in disinfection technology. However, there are a few locations where water supplies still do not meet microbiological water quality guidelines and many locations where they do not meet physical and chemical water quality guidelines.

Untreated sewage is still discharged into Darwin Harbour. Upgrading to improve the capacity and performance of the Ludmilla wastewater treatment plant and to extend the East Point outfall is well underway. The Larrakeyah outfall closure is timed for late 2011. The Alice Springs Water Re-use project to recycle wastewater for horticulture and irrigation has been commissioned and was the winner of the Engineers Australia Northern Division's Engineering Excellence Award. Future challenges remain in the provision and asset management of sewerage infrastructure to growing Indigenous communities and maintaining water quality in Darwin Harbour.

Generally, there is an adequate level of service from stormwater systems and appropriate levels of stormwater system operational maintenance, but there is a growing gap between renewals and needs. There has been an increase in gross pollutant traps and other water quality improvement devices and Water Sensitive Urban Design principles have been introduced into land-use and water management policy and practice in the Darwin Region. However, there is still a lack of asset and performance information on stormwater assets, and insufficient collection of stormwater quality and quantity data.

The Territory has seen a significant expansion in electricity generation capacity to address the continual growth in electricity demand, but peak demand has risen faster than energy growth. There have been major power outages in the Darwin-Katherine system due to the lack of maintenance on the aging infrastructure. Challenges facing the electricity sector include raising electricity prices to cost-reflective levels, implementing and maintaining a quality asset maintenance scheme, renewing aging infrastructure, implementing significant demand management measures to constrain

peak growth in demand, delivering the asset investment and maintenance projects on time and budget, and consideration of alternative electricity generation sources.

Since 2005, the source of domestic gas from the Amadeus fields has been replaced with the Blacktip field and there have been improvements to domestic security of supply from the Blacktip field, Amadeus Basin fields, and the Darwin Liquefied Natural Gas plant. The existing transmission pipelines are of a high quality and there is a reliable supply of gas for the next 25 years. Challenges include the vulnerability of loss of supply and the very limited reticulated gas supply.

While there have been some improvements in telecommunications infrastructure, these have been patchy. Construction of a fibre optic backhaul link to Darwin, Katherine, and Tennant Creek is providing competitive backhaul between Darwin and the rest of Australia and there has been incremental improvement in providing broadband to remote communities. Access to broadband is poor away from metropolitan areas, substantial gaps in telecommunication services exist across the Territory and there is limited mobile phone coverage along main highways and remote areas.

Inadequate infrastructure has major economic and social consequences. Engineers Australia remains concerned that:

- Long-term integrated infrastructure planning is patchy, particularly coordination across land use and infrastructure modes, such as between road and rail, and across stakeholders, such as the three levels of government, the private sector and the community.
- Increasing infrastructure needs due to the growth in population and the economy will not be met due to lack of resources, which then inhibits economic expansion.
- The gap between projected and planned renewals for local governments is growing.
- The significant challenges to improving infrastructure in Indigenous communities will be constrained by lack of funding.
- The growing shortages of engineering skills will result in delayed and higher cost projects.

Ratings are given below for the current and past Northern Territory and National Report Cards.

Ratings

Infrastructure Type	NT 2010	NT 2005	National 2005	National 2001
Roads overall	C	Not rated	C	Not rated
National roads	B	B-	C+	C
Territory roads	C-	C (sealed) C- (unsealed)	C	C-
Local roads	D+	C (sealed) D (unsealed)	C-	D
Rail	C+	A	C-	D-
Ports	C+	B+ B- (barge landings)	C+	B
Airports	B-	A- (major airports) B+(community airports) B- (outstation and pastoral airstrips)	B	B
Potable water	C-	B- (metropolitan)	B-	C
Wastewater	C-	C (metropolitan) C (remote communities)	C+	C-
Stormwater	B-	C+	C-	D
Irrigation	Not rated	B	C-	D-
Electricity	C-	B-	C+	B-
Gas	A-	A	C+	C
Telecommunications	C-	Not rated	Not rated	B

Recommendations

Engineers Australia recommends the following to improve the infrastructure of the Northern Territory so as to meet the needs of its community in the future:

1. A coordinated long-term transport infrastructure plan be developed that involves the Australian, Northern Territory and local governments as well as the private sector.
2. The recent increase in road maintenance continue and provision be made for replacing aged road assets.
3. Road, marine and air access to regional and remote communities be progressively upgraded.
4. Local governments build asset management systems for all assets, and the maintenance and renewal information from these systems become a key input into financial allocations to local governments.
5. The Northern Territory Government plays a greater role in facilitating infrastructure expansion by coordinating demand from multiple commercial activities and governments with infrastructure providers.
6. Ports focus on improving their environmental outcomes and the Port of Darwin implements its forward plans to meet and encourage demand.
7. Darwin Airport addresses capacity issues and facilitates airline hubbing and economic growth.
8. The Australian and Northern Territory Governments keep regional and remote airstrips viable.
9. The Power and Water Corporation and the Northern Territory Government implement demand management strategies to reduce potable water consumption, and develop water source expansion plans for areas where water consumption will exceed supply in the medium to long-term.
10. The water quality health issues for all water supplies be addressed.
11. The wastewater upgrade and expansion works be completed to allow the closure of the Larrakeyah outfall that discharges raw sewage into the Darwin Harbour.
12. The Power and Water Corporation implement the remedial asset management program and long-term action plans as recommended in the *Independent Enquiry into Casuarina Substation Events and Substation Maintenance across Darwin* report to improve security of service.
13. Electricity and water/wastewater tariffs be set at a level that will ensure financial sustainability.
14. The Australian and Northern Territory Governments to continue to invest in the development of alternative energy sources such as solar technology and wind generation.
15. Telecommunication shortfalls be addressed by rolling out the National Broadband Network across the Territory and eliminating mobile phone blackspots in urban and fringe areas, and along heavily trafficked roads like highways.

Ratings Summary

Infrastructure Type	Grade	Comment
Roads overall National roads Territory roads Local roads	C B C- D+	<p>These ratings recognise that there is considerable disparity between road types and between urban and non-urban areas and that major changes are required to some of the Territory's road network. National roads have improved, and while localised failures are increasing due to pavement aging, they are being addressed through ongoing intervention programs. The quality of the major Territory roads has slowly improved, but other Territory roads have declined due to increased traffic loads and lack of maintenance. Local road quality has deteriorated in many places outside urban areas, as road maintenance and resealing work have been postponed. There is a significant backlog of sealing/resealing work, and projects to provide all weather access on both Territory and local roads. While urban areas are well served by roads, most remote and some regional communities have roads that are less than adequate.</p>
Rail	C+	<p>This rating recognises that the existing rail infrastructure is adequate for the current level of rail traffic. However, areas for improvement include the interface with the Port of Darwin and the track condition south of Alice Springs. A significant increase in bulk minerals traffic will require additional passing loops and improvements to the track to cope with the heavier bulk minerals trains.</p>
Ports	C+	<p>This rating recognises that while there have been improvements at the Port of Darwin's facilities, its East Arm Wharf facilities face challenges with regard to maintenance, capacity, bulk materials handling and environmental issues. Barge landings and their supporting infrastructure are rudimentary and have not kept up with growing needs.</p>

Infrastructure Type	Grade	Comment
Airports	B-	<p>This rating recognises that both Alice Springs and Darwin airport infrastructure is adequate for existing passenger and freight demand, and both have detailed expansion plans, although funding for developments is uncertain. The regional airports have limited infrastructure, which reflects their passenger numbers, and although airside infrastructure has generally improved, this has not been the case for land-side infrastructure. Some remote aerodromes are in very poor condition and some are unserviceable during the Wet Season. Given the scale of the problems and the limited resources of the NT Government and local governments, the prioritisation approach for upgrading remote aerodromes based on the community's reliance on air travel is appropriate.</p>
Potable water	C-	<p>This rating recognises that there have been significant infrastructure improvements to water supplies at a number of urban and remote communities, as well as the identification of water supply system deficiencies across the Territory. However, there are a few locations where water supplies do not meet microbiological water quality guidelines and many locations where they do not meet physical and chemical water quality guidelines.</p>
Wastewater	C-	<p>This rating recognises that raw sewage is still entering Darwin Harbour and localised problems arise from treated wastewater disposal in Darwin. However, the quality of underground wastewater infrastructure in urban areas across the Territory is generally good, as are most urban wastewater treatment facilities. Wastewater infrastructure in remote communities remains a challenge and is becoming more of a problem as the remote population grows.</p>

Infrastructure Type	Grade	Comment
Stormwater	B-	This rating recognises that in new urban areas, stormwater systems are of a much higher quality, reflecting new design standards. There is a lack of condition information on stormwater assets in all urban areas, and in many areas, a gap is appearing between replacement funding and need. While the benefits of Water Sensitive Urban Design are recognised, there has been very limited application of this to date.
Irrigation	Not rated	
Electricity	C-	This rating recognises that while there has been an improvement in generation capacity for the Darwin-Katherine region, concerns exist about the quality of distribution infrastructure and its asset management. Advances have been made in increasing the capacity and security of electricity supply to Indigenous communities.
Gas	A-	This rating recognises that the gas transmission network remains in good condition and supply security has improved, with gas now being available from three sources.
Telecommunications	C-	This rating recognises that telecommunication services in urban areas are generally adequate. However, broadband blackspots still exist. While several backhaul projects have significantly improved telecommunication services for some remote and regional communities, many non-urban communities do not have adequate telecommunication services. The lack of universal mobile phone services along highways remains a challenge.

Rating Details

The objective of the Report Card is to rate the quality of economic infrastructure at a State and Territory level. Ratings have been based on an assessment of asset condition, asset availability and reliability, asset management, sustainability (including economic, environmental and social issues) and resilience. The rating assesses infrastructure policy, regulation, planning, provision, operation and maintenance.

Ratings are defined in terms of meeting the needs of community, economy and environment in terms of sustainability, effectiveness, efficiency and equity.

Ratings used are comparable with those of past Report Cards and are below.

Grade	Description	Definition
A	Very good	Infrastructure is fit for its current and anticipated future purposes
B	Good	Minor changes required to enable infrastructure to be fit for its current and anticipated future purposes
C	Adequate	Major changes required to enable infrastructure to be fit for its current and anticipated future purposes
D	Poor	Critical changes required to enable infrastructure to be fit for its current and anticipated future purposes
F	Inadequate	Inadequate for current and anticipated future purposes

**Full report at
www.engineersaustralia.org.au/ircnt**



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