Far North Queensland Infrastructure Plan 2009–2031

Regionally significant infrastructure projects that support the Far North Queensland Regional Plan 2009–2031

February 2009

Queensland **the Smart State**

Queensland Government
Department of Infrastructure and Planning

Far North Queensland Infrastructure Plan 2009–2031

Prepared by:
The Honourable Paul Lucas MP, Deputy Premier and Minister for Infrastructure and Planning.

With assistance from:
Department of Infrastructure and Planning

Published by:

Queensland Government
Department of Infrastructure and Planning

February 2009
ISBN: 978-0-9804831-1-6

Release notes

The *Far North Queensland Infrastructure Plan 2009–2031 (2009)* is released by the regional planning Minister to complement and progress implementation of the *Far North Queensland Regional Plan 2009–2031 (2009)*.

The regional plan represents an agreed Queensland Government position on the future of FNQ. Any plans, policies and codes being prepared or amended by state agencies or local governments must reflect and align with the regional plan.

The regional plan does not commit or pertain to commit any government, industry or community organisation to implement, fund or otherwise resource specific activities or programs.

Maps indicated as being for information only are intended to represent general concepts for the purpose of broad-scale regional planning. These maps do not and are not intended to identify or give attributes or rights, including land use or development rights, to specific land parcels.

The information on the maps is not intended for reference to specific parcels of land, and should be treated as indicative only and subject to ongoing refinement. In some parts of the mapping one layer obscures another, this is not meant to imply any order of importance or priority.

The Department of Infrastructure and Planning, does not guarantee or make any representations as to the accuracy or completeness of the information shown on this map, nor does it accept any responsibility or liability for any loss or damage arising from its use.

Data Sources include: Department of Infrastructure and Planning
Department of Main Roads
Department of Natural Resources and Water
Department of Transport
Department of Mines and Energy
Geoscience Australia
Ergon Energy
Powerlink
Mapinfo Roads

The *Far North Queensland Regional Plan 2009–2031 State Planning Regulatory Provisions (FNQ Regulatory Provisions or regulatory provisions)* and associated FNQ regulatory maps form a standalone document to support the regional plan and should be read in conjunction with it. The regulatory provisions and the regulatory maps have effect from the date of gazettal of the FNQ Regulatory Provisions. Any development applications that were lodged between 9 May 2008 and the date that the FNQ Regulatory Provisions were gazetted, will be subject to the draft State Planning Regulatory Provisions (Regional Plans) May 2008.

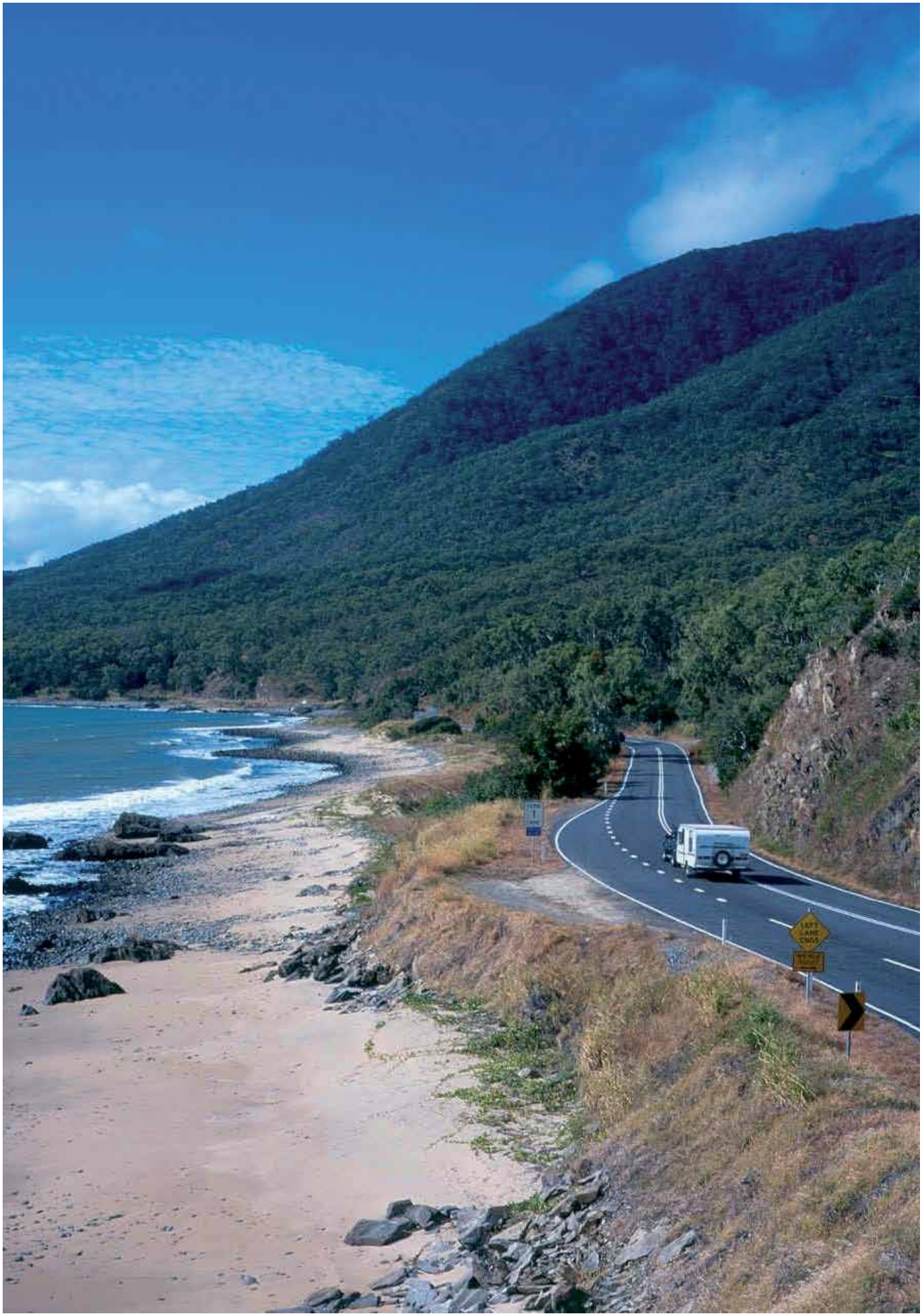
For more information on the regional plan and regulatory provisions contact:
Department of **Infrastructure and Planning**
Planning Group Northern Region
post PO Box 5194 Cairns Qld 4870 Australia
visit Level 2 Orchid Plaza
79-87 Abbott Street Cairns
tel 1300 721 194
fax +61 7 4039 8866
FNQRegionalPlan@dip.qld.gov.au
www.dip.qld.gov.au

Copies of the regional plan and regulatory provisions (including the regulatory maps) are available:
online www.dip.qld.gov.au
for viewing at most council chambers, libraries and customer service centres within the local government areas covered by the regional plan
for free on CD-ROM or in hard copy by contacting Department of Infrastructure and Planning offices in Cairns and Brisbane
by phoning 1300 721 194
by emailing FNQRegionalPlan@dip.qld.gov.au
Department of Infrastructure and Planning offices:
Level 2 Orchid Plaza 79-87 Abbott Street Cairns
Level 1 63 George Street Brisbane

Far North Queensland Infrastructure Plan 2009–2031

Regionally significant infrastructure projects that support the Far North Queensland Regional Plan 2009–2031

February 2009



Foreword

The Far North Queensland infrastructure plan (FNQIP) is a significant achievement for regional Queensland. This is the first time the Queensland Government has released an infrastructure plan outside of South East Queensland (SEQ).

FNQIP is a vital part of the Queensland Government's commitment to managing regional growth. The plan identifies current and future needs of the region, infrastructure required to support desired growth in an efficient manner, and build resilience to the impacts of climate change and peak oil.

This infrastructure plan will be reviewed regularly to report on completed projects, reflect the outcomes of planning studies and report on new funding allocations.

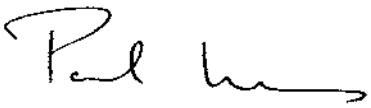
This government's ongoing commitment to infrastructure is vital in providing certainty to the Australian Government, state agencies, local government, business and the general community about major infrastructure planning and investment in Far North Queensland. This level of certainty will ensure infrastructure in the region is better planned and coordinated to achieve the maximum impact for the least cost.

The initial Queensland Government economic investment identified in the infrastructure plan is approximately $2 billion over four years. This includes approximately $570 million in road, rail and public transport projects, more than $1 billion in social and community infrastructure, $230 million in water infrastructure and $170 million in energy infrastructure. Expenditure on maintenance of existing infrastructure or non-fixed assets is in addition to these amounts. The total economic investment will increase over time as funds are made available.

FNQIP does not operate in isolation. It is a key component of the regional planning process for FNQ. The *Far North Queensland Regional Plan 2009–2031* (FNQ Regional Plan) will manage growth in the region over the next 20 years.

The regional plan will help maintain and improve the lifestyle, economic opportunities, environment and other aspects of the region that are valued by the community. It will ensure the region remains an attractive place to live and work, with good access to services and facilities. The infrastructure plan is integral to ensuring the FNQ regional plan delivers these outcomes.

FNQIP and the FNQ Regional Plan support the Queensland Government's *Toward Q2: Tomorrow's Queensland* vision for the future. The five ambitions for communities in every Queensland region is to be strong, green, smart, healthy and fair. This means developing a diverse economy powered by bright ideas, protecting our lifestyle and environment, delivering world-class education and training, making Queenslanders Australia's healthiest people and supporting a safe and caring community.



The Honourable Paul Lucas MP
Deputy Premier and Minister for Infrastructure and Planning

Contents

PART A—Context

1.1 About the Far North Queensland Infrastructure Plan 2009–2031

The Far North Queensland Infrastructure Plan (FNQIP) identifies regionally significant infrastructure projects and planning activities that support the Far North Queensland Regional Plan 2009–2031 (FNQ Regional Plan).

The FNQ Regional Plan provides a statutory framework to guide and manage growth over the next 20 years. This includes identifying desired regional outcomes and priorities that inform Queensland Government budget processes and promotes effective coordination of state agencies and government-owned corporations in the planning and provision of infrastructure.

FNQIP outlines challenges and responses for key infrastructure classes for the long-term. It also provides a review of Queensland Government infrastructure projects, planning and funding activities, and their alignment with the FNQ Regional Plan. The emphasis is on infrastructure projects of regional significance. As well, FNQIP provides an outline of key initiatives and strategies such as demand management. Strategic investigations and corridor projects are also identified.

The strategic investigation and corridor identification projects are indicative only and are subject to future determination including detailed needs analysis, levels of service, business cases, sequencing, funding allocation and in some cases environmental impact assessment.

1.1.1 How to read the Far North Queensland Infrastructure Plan

FNQIP outlines regionally significant infrastructure projects to support the FNQ Regional Plan and should be read in the context of the regional plan. It is organised into the following parts:

Part A—Context explains what FNQIP is, sources of funding, how to read this document and the importance of partnerships.

Part B—Infrastructure classes outline funded projects by asset class. The asset classes identified in Part C includes transport, water, energy, health, education, training and the arts, justice, police and corrective services, emergency services, regional sport and recreation, information communication technology and government service delivery.

Schedule 1 identifies infrastructure projects, planning studies and related initiatives completed during the preparation of the FNQ Regional Plan.

Schedule 2 provides details of regionally significant infrastructure projects that support the FNQ Regional Plan, their indicative delivery timeframe and an estimated total cost for projects with approved funding.

Schedule 3 indicates regionally significant infrastructure projects spatially on maps.

Schedule 4 provides details of useful websites with links to project mentioned in this infrastructure plan.

1.2 Funding infrastructure

FNQIP is linked to the state budget and other funding processes but is not a funding mechanism in its own right. It will be updated regularly as planning activities are finalised and funding is secured.

The Queensland Government is committed to sound fiscal management and responsible borrowings.

1.2.1 State budget

The state budget process is the principal mechanism for identifying, prioritising and delivering infrastructure projects in FNQ. It also assists with the coordination of infrastructure and services owned by state agencies, government-owned corporations, local government and the private sector. Queensland government-owned corporations and their business planning processes feed directly into the planning cycle leading up to the annual state budget.

1.2.2 Roads Implementation Program

The Roads Implementation Program is the Department of Main Roads capital investment plan for infrastructure assets. It is developed annually to guide the expenditure of state road funds, in line with Queensland and Australian Government budgets. Confirmed government road improvements are clearly identified over the first two years, with the last three years being indicative for planning purposes.

1.2.3 Local government funding

The Queensland Government, through the Department of Local Government, Sport and Recreation (DLGSR), contributes funds to assist local governments to build infrastructure that meets identified community needs. A range of funding programs are available for water and sewerage infrastructure, roads and drainage, stormwater, flood mitigation, landfill rehabilitation, sport and recreation and community facilities.

The Department of Main Roads subsidises local government road projects through the Transport Infrastructure Development Scheme. The Australian Government also provides funding to local government authorities for local roads.

1.2.4 State infrastructure agreements

In some instances, expenditure on infrastructure will be used to lead development in order to achieve specific outcomes. This will provide clear benefits to some sections of the community. In these instances, the Queensland Government considers it reasonable for beneficiaries to bear some of the cost of this additional infrastructure provision.

Where the Queensland Government is providing major new infrastructure, land owners and developers of new areas, who stand to benefit significantly, may be required to contribute to infrastructure provision through a state infrastructure agreement. Structure plans for new greenfield areas may involve state infrastructure agreements that detail private contributions towards priority state infrastructure.

1.2.5 Infrastructure Australia

The Australian Government has announced a new, national approach to planning, funding and implementing the nation's future infrastructure needs. Infrastructure Australia will develop a strategic blueprint for our nation's future infrastructure needs, in partnership with the states, territories, local government and the private sector, to facilitate the efficient delivery of national infrastructure investment.

1.2.6 Private sector funding

The private sector is a significant partner in the provision of funds, land and infrastructure that supports growth and meet community needs.

1.3 Partnerships

There are numerous challenges in providing infrastructure, including affordability, deliverability, agency and industry capacity, periodic shortages of materials and skills and rising construction costs, community impacts and sequencing. Fluctuating economic conditions and financial markets also pose risks of delay.

It is important that all levels of government and industry work together to provide innovation in delivery models and procurement for infrastructure projects within Far North Queensland. The Queensland Government is open to a range of options and modes of infrastructure delivery.

The Queensland Government is a participant in a variety of partnership arrangements with other levels of government, government-owned corporations and the private sector in delivering infrastructure. Contributions for funding projects come from all three levels of government, with various projects having subregional, regional or national interest. There are significant opportunities for the private sector to work with the Queensland Government to deliver infrastructure projects.

In partnership with other levels of government and the private sector, the Queensland Government is committed to improving the quality of life, equality of opportunity and fulfilment of the diverse aspirations of Aboriginal and Torres Strait Islander Queenslanders.

The State Government Building and Construction Contracts Structured Training Policy requires that a minimum of 10 per cent of the total labour hours on any Queensland Government building or civil construction project must be undertaken by Indigenous workers or used for the upskilling of existing employees.

The Indigenous Employment Policy for Queensland Government Building and Civil Construction Projects requires that a minimum 20 per cent of total labour hours for Queensland government infrastructure projects, in designated Indigenous communities and shires, be dedicated to employing and training local Indigenous people. This policy applies to Yarrabah and Wujal Wujal Aboriginal Shire Councils in FNQ.

1.4 Strategic outcomes

The FNQ Regional Plan defines the regional land use pattern and desired regional outcomes and is the basis on which priorities for infrastructure investment across Far North Queensland are established. The following strategic outcomes are derived from the FNQ Regional Plan.

1.4.1 Infrastructure alignment with growth patterns

The FNQ Regional Plan specifies that the staged provision of infrastructure occurs in sequence with the preferred pattern of development. This includes supplying infrastructure in an efficient way, including encouraging urban development in areas where adequate infrastructure exists, or can be provided efficiently.

Providing infrastructure to achieve the population density, self-containment and transport targets set out in the FNQ Regional Plan for the Mount Peter Master Planned Area is integral to its success. This requires a combination of integrated land and transport planning and new and enhanced transport networks for increased opportunities for walking, cycling, public transport and motor vehicle movements and transit hubs.

1.4.2 Efficient resource use

The FNQ Regional Plan recognises the importance of Far North Queensland's natural resources and their contribution to the regional economy. This includes maximising the use of existing infrastructure and ensuring associated planning, development and operation of new projects minimise the demand they make on resources—particularly water, energy supplies, minerals and aggregates. Projects will also maximise system integration and reduce the waste they generate, including carbon emissions, and their impacts on natural areas. The design, location and prioritisation of infrastructure will also consider the effects of climate change.

1.4.3 Liveability and community wellbeing

Safe, healthy, smart and fair communities are underpinned by well-planned and well-serviced infrastructure. This goal is supported by the timely and adequate provision of infrastructure and services relative to the social needs of the region. This includes education, health, emergency services, corrective services and other community facilities.

1.4.4 Economic growth

The provision of infrastructure to support diverse economic and employment opportunities in priority industries and regional activity centres is central to the promotion of regional economic activity. This includes sustaining employment opportunities for local people.

Local job opportunities will be sustained through large scale infrastructure investment in Far North Queensland. The investment detailed in this infrastructure plan means approximately 3,900 full time equivalent jobs will be sustained in Far North Queensland for four years.

1.4.5 Environmental wellbeing

The FNQ Regional Plan recognises the importance of the region's rich and diverse natural environment and its contribution to the regional economy and the liveability of the region. This includes protection of ecological processes and natural systems at local, regional and state levels. The region includes the Wet Tropics World Heritage Area and the Great Barrier Reef World Heritage Area.

Ecological processes

Infrastructure corridors can contribute to the fragmentation of habitat and disruption of ecological processes that underpin the biodiversity values of the surrounding land. Infrastructure projects within FNQ seek to:

- manage ecologically significant sites and conserve the habitat of endangered flora and fauna
- reduce impacts on flora, fauna and dependent ecosystems through appropriate and practical measures, including minimising vegetation clearance for infrastructure works and undertaking revegetation and restoration works
- where practicable, undertake works to enhance wildlife connectivity
- take effective measures to protect water quality in receiving waters
- support research and education in matters related to ecology and the implications for responsible infrastructure design, construction, operation and maintenance.

PART B—Infrastructure classes

2.1 Transport

Planning and investing in the region's transport system will facilitate development of the preferred pattern of development and is a key driver for regional and state economic development. This includes improvements to road, cycle, walking and public transport networks. A range of policy and travel behaviour measures are also necessary to ensure the efficient use of existing infrastructure.

This infrastructure plan identifies a number of initiatives that support the FNQ Regional Plan. These include improving the movement of people and goods in the future. In addition, various studies are underway to ensure transport networks will adequately cater for the increase in population and freight demand.

This is about getting planning right and detailing the future corridors to deal with growth that is anticipated in major centres. This will ensure roads flow freely for trips that require road transport and will make sustainable transport options more widely available.

Key outcomes for transport system in FNQ include:

- safer transport to support safer communities
- efficient and effective transport to support industry competitiveness and growth
- fair access and amenity to support liveable communities
- environmental management to support environmental conservation
- a mode share consistent with sustainable outcomes.

2.1.1 Challenges

The region's transport system, particularly the road network in and to Cairns, will face increasing pressure due to rapid population growth leading to congestion. Other emerging issues such as fluctuating markets, climate change, oil vulnerability and increased construction and maintenance costs also drive the need for adaptation and changes to the transport system in the long-term.

The major challenges for transport in the region include:

- supporting regional development, industry competitiveness and growth by upgrading key freight and passenger routes
- achieving affordable short and long-term improvements in road and rail safety
- managing congestion resulting from rapid population growth, increasing private vehicle use and growing freight movements, particularly in larger centres
- improving quality of life for remote and rural communities through projects that enhance travelling conditions and access to Indigenous training and employment
- responding to the environmental biodiversity and sensitivity with sustainable planning and construction practices
- managing peaks and troughs in freight demand resulting from market fluctuations, particularly for mining and agriculture.

The North East Minerals Province extends over the western part of FNQ and is rich in minerals deposits. Following the recent minerals boom, exploration has been stimulated in this area and production of mineral ore and concentrate is expected to grow over time, subject to market fluctuations. The roads in the area are generally not designed for this level of freight. Appropriate planning to meet future demand is important. The planning should consider options for integrating the entire haul operation in the most efficient and affordable manner between road and rail modes.

2.1.2 Responses

The strategic responses of the FNQ Regional Plan include:

- planning ahead so that transport infrastructure keeps pace with growth and is provided in the right place, at the right time and at the right price
- preserving corridors for future and enhanced transport infrastructure so that they are efficient and affordable
- planning the Cairns Transit Network ahead of development to identify and protect corridors for a future bus rapid transit network and transit oriented communities
- incorporating appropriate integration of all transport modes and land use in planning and delivering transport infrastructure
- providing the right transport choices for people and freight to access and use, including road, air, sea, rail, public transport, cycling and walking
- achieving the targets in the FNQ Regional Plan and related transport performance for priority growth areas, particularly the Mount Peter Master Planned Area, to avoid congestion and transferral of growth pressures to other areas
- providing infrastructure that enables the desired regional outcome for transport and the supporting policies in FNQ Regional Plan to be met
- promoting active transport, such as walking and cycling to achieve sustainable travel and healthy lifestyles
- involving transport agencies in strategic planning and development assessment processes to influence outcomes such as self-containment, good urban design, transit oriented communities and accessible sub-divisions.

2.1.3 Cycling and walking

The *Queensland Cycle Strategy* sets a high-priority, short-term goal of developing principal cycle network plans for regional areas in order to increase cycling rates. A principal cycle network plan for Far North Queensland that identifies principal routes and iconic recreation routes is scheduled for release in 2009. The plan includes network maps, concept designs and an implementation plan to deliver a safe and connected principal cycle network.

Queensland Government funding of $6.1 million has been announced for the top priority route between Cairns central business district to the Aeroglen bikeway. The 6.5 kilometre bikeway will be built with 75 per cent state government funding and a 25 per cent contribution from the Cairns Regional Council. Detailed design commenced in November 2008 and the project is expected to be completed by late 2009.

This is the first of many projects to be delivered in cooperation with local government to implement the principal cycle network plan for Far North Queensland. The ten highest priorities include routes in Cairns City, Cairns northern beaches, Mount Peter, Innisfail, Mission Beach, Atherton, Tolga, Mareeba, Mossman and Port Douglas.

Queensland Transport and the former Atherton and Eacham Shire councils (now part of the Tablelands Regional Council) jointly funded a feasibility study for rail trail development on the Atherton Tablelands. The Atherton Tablelands rail trail feasibility study evaluates the economic feasibility of developing disused rail corridors as recreational rail trails for walking, cycling and horse riding. Three corridors investigated in the study include Mareeba to Atherton, Atherton to Yungaburra (via Kairi) and Atherton to Ravenshoe.

Integrating cycling and pedestrian considerations at a strategic and policy level across government can facilitate positive initiatives for cycling and walking within current budgets and work programs. For example, the Department of Main Roads has a policy of providing for cycling in road upgrades.

Local governments and other organisations also play an important role in delivering the benefits of cycling and walking to their local communities. The private sector also plays a valuable role by incorporating cycling and walking infrastructure in new developments.

2.1.4 Public transport

The 2005 *Cairns Integrated Public Transport Plan*, which came out of the previous *Far North Queensland Regional Plan* (2000), recommended that a network of dedicated bus spines be planned to ensure Cairns keeps moving. The Cairns Transit Network is also a key component of the FNQ Regional Plan.

Planning for the Cairns transit network commenced in November 2008 and includes identifying a network to deliver dedicated public transport spines on northern, western and southern corridors. The network will extend from Palm Cove to Gordonvale and west to Redlynch.

The network will improve public transport in Cairns by giving buses priority either in separate transit lanes or on dedicated bus-only roads. It will help make public transport an attractive alternative to the car. The transit network will help make trips fast, safe, frequent and reliable.

The immediate priority is to develop a network plan that outlines policy, infrastructure needs and service upgrades. The long-term vision for the future of Cairns is to develop an affordable rapid transit system comprising transit priority, transit lanes and transit stations in staged delivery, as required. A high priority of the future Cairns transit network is the construction of a dedicated Cairns central business district bus station. Staging options for the rest of the network will be investigated as planning progresses.

2.1.5 Roads

Road infrastructure is critical for managing regional growth. There are a number of initiatives underway to respond to the challenges for moving freight and people. Meeting the demands of the key growth areas in the region is critical.

Matching road upgrades and infrastructure provision to regional transport demand from freight, tourism and passenger trips will be important in the road corridors including:

- Cairns southern urban growth corridor, including the Bruce Highway
- Cairns western and northern urban growth corridors, including Captain Cook Highway and Cairns western arterial road
- Cairns to the Northern Tablelands—Smithfield to Mareeba
- northern areas of the Atherton Tablelands
- north-south across the Atherton Tablelands—Mareeba to Mourilyan
- south-western areas through the Atherton Tablelands to coastal areas—Mt Garnet to the Port of Mourilyan
- Atherton Tablelands to western areas such as Chillagoe
- Cairns to Port Douglas and Mossman
- remote areas and rural communities, including Aboriginal communities such as Wujal Wujal and Yarrabah.

Funding has been provided by the Australian Government for the accelerated Bruce Highway upgrade package (Townsville to Cairns). This includes a number of initiatives including fixing many of the more flood prone sections of the Bruce Highway, including south of Tully, and construction of a new, high-level bridge over the Mulgrave River south of Gordonvale.

The Australian and Queensland governments recognise the Cardwell Range upgrade as a priority. At the 2007 federal election, $90 million was committed to the project as part of the Auslink 2 program. This is in addition to $6.9 million previously allocated to planning work on the range. Planning is now completed and design is well advanced to upgrade this section of the highway, including the provision of a road overpass of the rail line to replace the existing crossing. The timing of construction depends on the release of funding by the federal government.

Australian and Queensland governments have embarked on a major planning study for the Bruce Highway as part of a $150 million upgrade planned for the existing southern corridor. The $5 million planning study covers the Bruce Highway from south of Edmonton to Draper Street, near the Cairns city centre. The study is investigating a total transport solution, using the existing southern transport corridor, to meet the needs of residents and freight in coming decades. This is vital to identify options for interchanges, service roads, public transport facilities, pedestrian crossings and cyclist facilities. The planning is part of the Australian Government's $23 million commitment to tackle urban congestion.

The Department of Main Roads also intends to investigate, identify and preserve options for transport corridors. Additional corridors may be very expensive and involve social and environmental impacts. The land use and transport strategies of the FNQ Regional Plan need to be fully implemented, so additional corridors are delayed for as long as possible.

The Department of Main Roads is also planning for and preserving bypasses around towns in Far North Queensland including Edmonton, Innisfail, Atherton, Mareeba, Smithfield, Yungaburra, Cardwell and Tully. It is important that urban development is managed to avoid encroachment that would compromise these future corridors.

An action from the previous *Far North Queensland Regional Plan* (2000) was to investigate improving the road link between Cairns and the northern Tablelands, along Kuranda Range Road. In response, the Department of Main Roads:

- conducted extensive investigations, planning and community consultations to determine viable options
- identified a four lane surface route with extensive bridging as the best solution
- obtained necessary environmental approvals
- prepared revised cost estimates based on this option
- determined that the option was unaffordable in the short to medium-term.

In the short-term, efforts will be made to improve the safety and efficiency of the existing route. Upgrades to Kuranda Range Road are being rolled out, with more than $4 million allocated to various works and initiatives between 2008 and 2010. The corridor identified for a four lane upgrade is also being preserved and investigations are continuing for ways to improve the link and plan for the longer-term.

The Queensland Government will accelerate extra works totalling $10 million on the important road link between Charters Towers and Mount Garnet. This is a key north-south freight route for the North East minerals province and is suitable for type—two road trains transporting cattle and general goods. Upgrading this important freight route will improve safety and driving conditions for all road users and provide an alternative route between Townsville and Cairns. This additional funding will increase the total five-year funding package for this route to $65 million. Funding will be used to widen a further 12 kilometres of single lane bitumen between Harvey's Range Road and Greenvale to two sealed lanes.

Improving quality of life for remote and rural communities through projects that improve travelling conditions, access and Indigenous training, employment and development is also important. $1.2 million has been allocated at Wujal Wujal for an upgrade south of the Bloomfield River causeway. $1.9 has been allocated for improvements to the Range Road near Yarrabah. The Mossman to Daintree and Cape Tribulation corridor requires special consideration, due to possible impacts on areas of high ecological value and growth pressures before any upgrades may occur.

Planning and delivery also needs to occur at the local level to cater for shorter trips. Unnecessary local trips on state-controlled roads reduce their efficiency for regional transport. In order to better manage local trips, Cairns City has already developed a transport network plan. A network plan is also being developed for the Tablelands Regional Council and another is being scoped for the Cassowary Coast Regional Council. The Far North Queensland Regional Organisation of Councils and Department of Main Roads have identified local roads of regional significance and are working together to better manage these roads.

2.1.6 Aviation

In 2008, the Queensland Government sold a 99-year lease on the Cairns International Airport for $530 million which will be spent in the region (see health). The airport provides international and domestic air services. The lease structure for Cairns airport maintains government ownership over the airport land and infrastructure. The state government also retains planning control over future airport development.

Significant infrastructure work had commenced prior to the granting of the lease, including development of a common-user domestic terminal to meet traffic growth forecasts for the next 15 years. The $192 million project will include docking of new generation aircraft and compliance with federally mandated legislation requiring 100 per cent screening of checked baggage. An upgrade to the international terminal is planned with the exact timing being dependant on future demand.

2.1.7 Ports and marine

Major seaport facilities at Cairns and Mourilyan are managed by the Cairns Port Authority and Ports Corporation Queensland Limited. With increasing pressure for urban expansion, seaports need to be carefully planned to provide for increased port and harbour activities. The planning and development of the seaport area also needs to consider and balance environmental constraints with the provision of facilities for passengers and port activities.

The Cairns cruise ship terminal will receive a $11.2 million upgrade as part of the state government's efforts to support tourism in Far North Queensland. Facilities will be moved to the redeveloped wharf shed Number 3 at Trinity Inlet, while wharf shed Number 2, where the terminal is currently based, is being refurbished. The upgrade is an important contribution to meeting the anticipated increase in cruise ship visits to Cairns over the next 15 years and is expected to be completed in 2009.

Cairns is home to Queensland's only naval base, HMAS *Cairns*. The base is undergoing a federally funded $76.3 million dollar redevelopment to upgrade existing infrastructure and facilities and is expected to be completed in 2010.

Port Douglas harbour is home to a large marine tourism fleet. To facilitate the ongoing operation of the harbour, $6.4 million has been provided for the construction of a new disposal area for dredged materials.

2.1.8 Rail

The North Coast Line is the principal freight and passenger line within the Queensland rail network, running the length of Coastal Queensland between Brisbane in the south and Cairns in the north, a distance of 1680 km. The system caters for all traffic tasks including containerised freight services, high speed Tilt Trains, commuter services, heavy haul single commodity trains of sugar, grain or minerals, and cattle trains.

Queensland Rail (QR) has allocated $10 million for a program of targeted safety works on priority level crossings in Far North Queensland. This is in addition to the existing $33 million long-term funding program for safety works at level crossings involving QR, Queensland Transport, Main Roads and local authorities.

Work will start immediately on eight priority level crossings between Mackay and Cairns identified by a QR task force. Priorities for the Far North Queensland region are crossings on the Bruce Highway at Rungoo, Conn and Aerodrome Road, near Cardwell, and on Mundoo and Garradunga roads near Innisfail. Expanded community education campaigns will also target driver behaviour at level crossings. Almost $20 million has been spent to date including installation of active protection, such as flashing lights or boom gates at 10 crossings, including two at Tully.

The Queensland Government will continue to assess current and emerging demands for freight rail infrastructure in the Cairns to Forsyth rail corridor in the North East mineral province. Where feasible, the government will pursue opportunities for partnerships and alliances across government, industry and the community to adequately respond to that demand in a measured and effective manner.

The existing Cairns to Forsayth rail corridor is only actively used for rail freight transport (primarily syrups) between Cairns and Arriga. The segment of the rail corridor between Arriga Junction and Almaden is solely used for the limited movement of a single motorised tourist rail motor, operated by Cairns Kuranda Steam. It is not fit for the movement of freight trains beyond Arriga.

If the rail were to be refurbished, there remains the potential for congestion on the rail corridor segment within the Kuranda Range, particularly during the sugar harvesting season, if the number of trains operated becomes significant. Additional passing loops may then be required.

2.2. Water

Water is a valuable and finite regional resource that is essential for both human and environmental needs. The FNQ Regional Plan identifies an integrated approach to water cycle management as a key principle underpinning sustainability. This means managing the total water available from all sources to achieve a more ecologically sustainable system.

2.2.1 Challenges

Rural activities and land clearing are a major source of nutrients, sediments and other pollutants impacting on riverine, estuarine and coastal water quality. Similarly, groundwater aquifers are increasingly affected by human activities including unsustainable extraction, and contamination from saline water inflows and septic tanks. Lowering of water table levels can result in acid sulphate soil exposure. The potential impact of degraded water quality on the region's waterways and the Great Barrier Reef lagoon system has been identified as a significant issue. Reticulated sewerage infrastructure is generally provided only in major urban centres. The majority of smaller centres have historically relied on onsite disposal systems such as septic tanks. The region's reticulated sewerage systems all provide at least secondary level of treatment, with treated effluent discharged to local waterways or coastal waters. It will be necessary to upgrade existing systems and provide reticulated sewerage and treatment plants in some locations to support the preferred pattern of development for the region.

The Far North Queensland regional water supply strategy identifies potential water supply shortfalls in the long-term, and the opportunities and constraints for new or augmented supply sources. In particular, climate change creates risks to yield and the reliability of water supplies in parts of the region[1]. The primary challenges for water supply are:

- increased demand on limited water resources
- various supply sources are approaching usage capacity or are fully committed
- the potential impact of extended drier weather conditions on the yield and reliability of water supplies in the region
- dependency on run-of-river flows for secure supplies to urban centres
- a higher average population growth compared to the national growth rate
- additional pressure on supplies due to growth in domestic and international tourism
- understanding urban, rural and industrial water requirements
- movement from the drier areas in Australia to areas of higher rainfall such as Far North Queensland
- the ability of small communities to adequately access water supply solutions

[1] The Far North Queensland water supply strategy region only includes Cairns Regional Council, and the eastern parts of Tablelands Regional Council. It will include Cassowary Coast Regional Council in the future.

- maintaining essential environmental flows, for example by ensuring wetland and waterway values are maintained.

The impacts of climate change on water supply infrastructure also present further uncertainty. Increased temperatures, more frequent extreme weather events, and the mitigation of greenhouse gas emissions will be essential considerations when developing and delivering specific water supply solutions.

2.2.2 Responses

Existing water infrastructure is sufficient to meet present demands of the region. Additional urban and industrial water supplies will be required to meet the future needs of the region. These supplies will be gained through better use of existing available water, demand management, recycling, alternative sources and, where necessary, through the development of new dams and weirs. Supply options will need to consider future climate change projections and support greenhouse gas emission reductions.

The Queensland Government is responsible for regulating water service providers, allocating and managing water resources, and facilitating strategic water supply infrastructure. Provision of most other water infrastructure—including operating and managing water storages, potable water treatment, distribution and reticulation networks and wastewater treatment and recycling schemes—rests with local government or service providers such as SunWater.

Regional councils are currently investing in water and sewerage infrastructure. This will be financed from a number of sources including state subsidies, water and sewerage charges, infrastructure charges on developments and borrowings. The Queensland Government contributes to these projects through subsidy schemes. Cairns Regional Council is well advanced with the Cleaner Seas project to upgrade four major waste water treatment plants.

The state government and regional councils are also introducing a range of water saving initiatives.

The strategic priorities for water planning and investment are to:

- review the supply of water to accommodate growth in the region
- diversify water supplies to manage climate variability, climate change and other supply risks to ensure contingency supplies
- ensure more efficient management and use of water
- improve water quality outcomes through initiatives such as water sensitive urban and rural design
- provide policy frameworks and subsidies to support more sustainable and integrated systems for water cycle management.

2.2.3 Making best use of available supplies

In recent years, the Queensland Government has recognised the important role demand management can play in sustaining the life of our water supplies. Demand management measures introduced by the Queensland Government include:

- the Business Water Efficiency Program, which provides rebates and subsidies for projects that reduce water consumption
- legislation dealing with water efficiency management plans for the non-residential sector
- the Lifestyle community not-for-profit grants program, which provides subsidies for not-for-profit organisations for projects to reduce water consumption
- the **eco**Biz program which assists businesses identify efficiencies in water.

Mandatory sustainable housing improvements will assist to manage water supplies for a growing population.

The Queensland Government aims to ensure that these housing improvements are practical and cost effective for householders and industries.

Sustainable housing

From 1 March 2009, the Queensland Development Code increased the requirements for water efficiency in new houses and units to include:

- 4-star Water Efficiency Labelling and Standards (WELS) scheme rated toilets
- 3-star WELS rated tapware
- where installed, efficient garden irrigation systems.

Mandatory water savings targets also apply to all new houses, townhouses, terrace houses and villas in FNQ. The targets can be achieved through a number of options including:

- household rainwater tanks
- dual reticulation
- communal rainwater tanks
- stormwater reuse
- an approved greywater treatment plant.

Pressure reduction and leakage management initiatives have the potential to significantly reduce wastage of water in some urban water systems.

Better use of recycled water through reticulation to industrial, commercial, residential, open space and rural users will relieve pressure on potable supplies and bring environmental benefits by reducing effluent discharge to waterways and into the Great Barrier Reef lagoon. The use of recycled water will be carried out in accordance with agreed recycled water management plans, as outlined in the Department of Natural Resources and Water's recycled water regulatory guidelines.

Cairns Regional Council is introducing recycled water schemes in new residential subdivisions. Recycled water is a safe alternative water source for homes that can be used for a range of non drinking uses such as watering gardens, toilet flushing and washing cars and hard surfaces around the home.

Demand management in Cairns

Cairns Regional Council has adopted a water demand management strategy to promote the efficient use of existing supplies and delay the need for new supplies to come online. The water demand management strategy contains a range of initiatives, including:

- a 10 per cent per capita water conservation target
- a community water conservation education campaign
- encouraging water conservation in the commercial sector through implementation of the **eco**Biz program developed by the Environmental Protection Agency
- a system leakage identification and reduction program
- a voluntary rainwater tank policy
- developing a recycled water strategy.

Opportunities for rural agriculture will be realised through efficiency of water use, water management, on-farm management practices for recycled water and additional supplies of water for rural use. Rural water use efficiency initiatives such as more efficient irrigation equipment and better irrigation scheduling will continue to reduce use or increase the value of production. Sunwater is undertaking improvements to the Mareeba irrigation distribution. The Tinaroo Falls dam spillway is also being upgraded.

2.2.4 Water quality

The Queensland and Australian government's Reef Water Quality Protection Plan sets a goal to halt and reverse the decline in water quality entering the reef within ten years. This includes reducing the load of pollutants from diffuse sources in the water entering the Reef. The State Costal Management Plan also requires all coastal councils to upgrade the standard of effluent discharged into the Great Barrier Reef lagoon. In October 2008, the Queensland Government committed $50 million over five years to support new regulation to reduce agricultural water pollution in Great Barrier Reef catchments.

Cairns Regional Council initiated the Cleaner Seas Initiative involving major upgrades at the northern, southern, Edmonton and Marlin Coast wastewater treatment plants over the next three years. This will not only increase capacity, it will also deliver significant environmental benefits by reducing the load of nutrients discharged to the Great Barrier Reef lagoon.

The Queensland Government supports local governments with subsidies for water and sewerage infrastructure. Subsidy rates are currently 40 per cent for major water and sewerage projects and 50 per cent for water recycling projects. Funding is also provided for studies and investigations to meet current and future needs. Funding has been allocated for the Cleaner Seas initiative, a sewerage scheme at Malanda and a waste water treatment plant at Yarrabah. A planning report is also being prepared for a potential Wangan, South Johnstone and Mourilyan sewerage scheme.

Integrated urban water management will improve water quality by reducing the quantity, and raising the standard, of effluent and stormwater discharges to waterways. The Queensland Government's environmental infrastructure program provides subsidies for a broad range of local government projects including solid waste, stormwater and erosion control initiatives, all of which promote more sustainable and integrated water management. Funding is also provided for water treatment infrastructure in locations such as Wujal Wujal and Yarrabah to provide potable water. The private sector is also expected to play a part by incorporating water quality initiatives, such as water sensitive urban design, in new development.

2.2.5 New and contingent supplies of water

The Queensland Government aims to provide a secure and reliable system for the supply of water for the communities of Far North Queensland. The Far North Queensland water supply strategy, being developed by the Department of Natural Resources and Water, provides an adaptive, long-term strategy to advance solutions for future urban, rural and industrial water needs in FNQ[2], while seeking to achieve optimal environmental, social and economic outcomes.

The water supply strategy recommends an appropriate balance of water supplies to meet regional demands, taking into account likely yields, costs of supply and supply risks for each source. The strategy seeks to achieve the sustainable allocation and best use of water by adopting a hierarchy of three key principles:

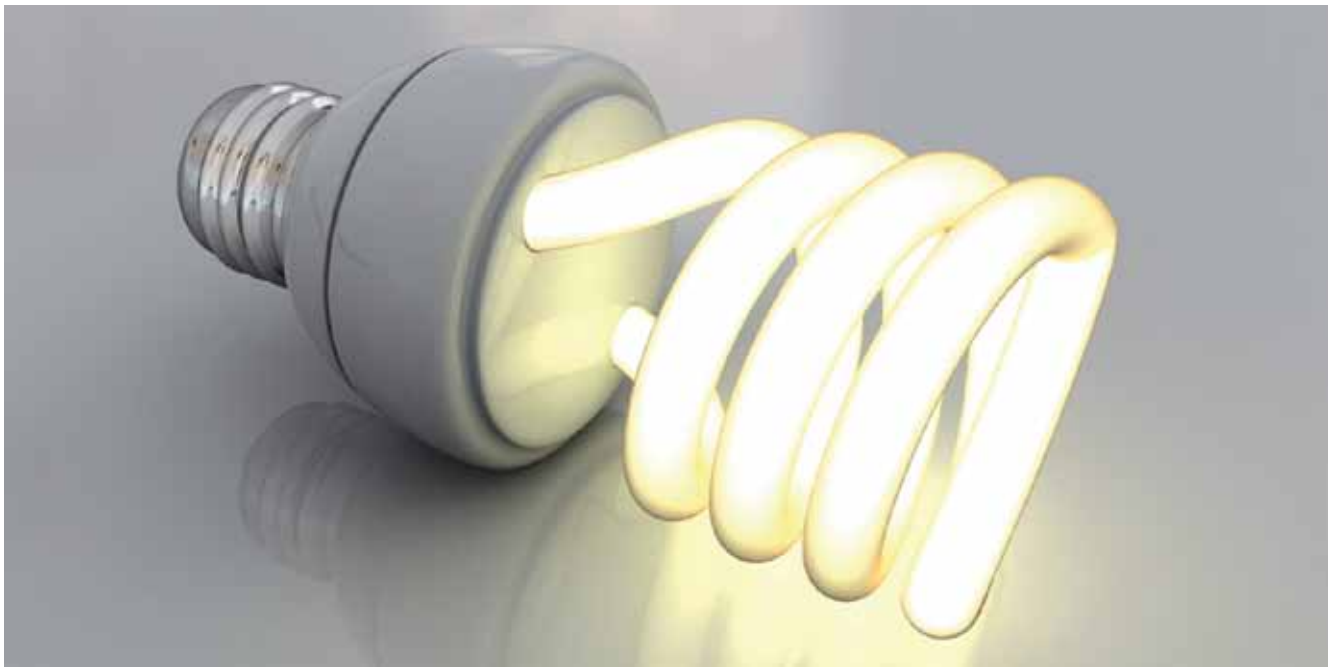
- facilitating the highest value and best use of water through trading of existing secure and well specified water entitlements
- promoting efficient use of water, for example, by improving demand management and by reusing and recycling water
- where demands cannot be met through the above measures, and where unallocated water is available, by the development of additional least cost water supply sources.

[2] The FNQ water supply strategy region only includes Cairns Regional Council, and the eastern parts of Tablelands Regional Council. It will include Cassowary Coast Regional Council in the future.

The FNQ regional water supply strategy identifies the following new and contingent supplies for further investigation

New and contingent water supply options—Far North Queensland	
North Coast	Daintree River intake Wonga bore field Whyanbeel Creek intake High Falls Creek intake Mossman River intakes Mossman River aquifer South Mossman River intake Mowbray River aquifer
Cairns area	Northern beaches aquifer Barron River—Lake Placid extraction Mulgrave River aquifer Mulgrave River—run of river intakes
Tablelands	Raising Tinaroo Falls Dam Off stream storage for Yungaburra Atherton Basalt aquifer—North Johnstone River Off stream storage from North Johnstone River Off stream storage for Ravenshoe supplies Accessing supplemented water from Tinaroo Falls dam Wild River supply options Raising Collins Weir Walsh River supply options Algoma Weir Hodgkinson formation Lake Mitchell
Non-site specific options	Rainwater tanks Water recycling Greywater reuse Seawater desalination Purified recycled water Surface water harvesting through privately owned dams

Source: Far North Queensland draft Regional Water Supply Strategy



Assessment of the infrastructure options have been conducted at a pre-feasibility level and should not be regarded as formal impact assessments or the government's endorsement for particular projects. Any potential infrastructure options will need to be assessed in accordance with the Queensland Government *Guidelines for the financial and economic evaluation of new water infrastructure in Queensland* (Queensland Treasury 2000). Progression of infrastructure options will require detailed environmental impact assessment, including opportunity for public comment.

It is also necessary to set aside a proportion of water resources for continued functioning of ecosystems. This is designed to balance the extraction and use of water for human purposes and the management of natural systems. The environment has received growing recognition as a legitimate user of water, with increased consideration of environmental flow requirements addressed in catchment management and legislative frameworks.

The FNQ regional water supply strategy[3] also identifies a number of implementation actions to ensure sustainable supplies of water including:

- undertaking level of service analysis and reliability assessment on existing supply sources and all demands—urban, industrial and rural
- investigating benefits and costs associated with a regional approach to water supply
- undertaking revision of capital cost estimates for the identified options
- investigating suitable sites for possible desalination plants in the future
- undertaking end use analysis and implementation of demand management plans for Kuranda, Mareeba, Ravenshoe, Herberton, Malanda, Yungaburra, Atherton, Tolga and the Douglas network
- investigating appropriate solutions for water supply issues associated with Indigenous communities and small towns in the region
- continuing loss reduction upgrades to the Mareeba Dimbullah water supply scheme.

The FNQ regional water supply strategy outlines a range of demand-side and supply-side options, including temporary and emergency supply options, that will be further investigated once the strategy has been publicly released.

2.3 Energy

Energy supply in the region is primarily reliant on electricity and gas for homes and businesses. Like the rest of the world, Far North Queensland faces uncertainty over the impacts of increased energy costs on a range of community and commercial activities that could accompany the introduction of carbon trading schemes.

The revised Climate Smart Strategy is the Queensland Government's contribution to tackling the causes of climate change. It outlines a long-term strategy to secure a clean energy future for the state. The strategy supports the use of renewable energy technologies (such as solar power, wind, hot rocks and biomass), encouraging the use of natural gas, increasing the efficiency of energy use by business and residents, encouraging carbon offsets and reducing vehicle emissions by encouraging fuel-efficient cars and increased investment in public transport.

[3] A full list of implementation actions is in the FNQ water supply strategy

2.3.1 Challenges

Managing greenhouse gas emissions from the energy sector will require significant efforts to reduce demand, improve efficiency, increase the energy supplied from low and zero emission sources and develop emerging technologies to reduce emissions of greenhouse gases.

Customers in all sectors of the electricity system expect greater levels of supply reliability and quality. There has been a fundamental shift in end usage patterns In recent decades, particularly during the last five to ten years. This includes larger loads due to air-conditioning, refrigeration and electronic equipment.

There is a low customer density west of the Great Dividing Range that is serviced by a large and diverse electricity distribution network. The low cost single wire earth return (SWER) technology is used to span long distances to service remote communities. There are also low levels of supply security because of lack of alternative supply paths or system redundancy.

The region's tropical environment, with accompanying storms and cyclones and high temperatures pose challenges in maintaining a reliable and secure electricity supply. The forecast impacts of climate change may exacerbate these risks. There are also extensive areas of high ecological significance, such as the Wet Tropics World Heritage Area, that require special consideration and environmental management.

The gas distribution network in Far North Queensland is limited to certain suburbs of Cairns and Port Douglas. This provides challenges for connecting customers to a reticulated gas system.

2.3.2 Responses

The Queensland Government will meet these challenges by diversifying its energy sources and encouraging competition in energy markets. The community needs to play its part by managing energy usage, especially during summer peak periods, by choosing energy efficient appliances and buildings and engaging in energy saving behaviours.

The revised ClimateSmart strategy outlines a long-term plan to secure a clean energy future for the state. The strategy supports the expansion of renewable energy technologies to ensure sustainable electricity supply. FNQ benefits from significant renewable energy generation from Barron Gorge hydro station, Kareeya hydro station, Koombooloomba hydro generator, Wind Hill wind farm and biomass (in the form of sugar cane bagasse) generators in FNQ sugar mills (at Arriga, Babinda, Mossman, Mulgrave and Tully).

The strategic priorities for energy in FNQ include:

- continuing to diversify sources of energy
- encouraging competition in energy markets
- managing energy demand
- managing and reducing greenhouse gas emissions
- enhancing the capacity, reliability and security of FNQ's electricity networks.

Reducing greenhouse gas emissions

Queensland Government initiatives to reduce greenhouse gas emissions from energy include:

- contributing to the development of the Commonwealth Government's national Carbon Pollution Reduction Scheme (emissions trading)—will drive a transition to lower emission generation technologies.
- the $50 million Renewable Energy Fund—provides support for renewable energy generation across Queensland
- the Queensland Gas Scheme increased to 18 per cent by 2020—a commitment to increase the proportion of gas in power sourced by retailers and major industries.
- the Queensland Feed-in Tariff for solar power: the *Clean Energy Act 2008* establishes Queensland's solar bonus scheme, or feed-in tariff—pays consumers for energy they contribute to the electricity grid from solar panel systems
- the 10% Renewable and Low-Emissions Target scheme—requires electricity retailers to purchase a set amount of energy from renewable or low-emission sources
- the Commonwealth Government's national 20 per cent renewal scheme for carbon emissions.

2.3.3 Demand management

Investing in energy efficiency reduces greenhouse gas emissions, provides better energy services and delays investment in new electricity generation. The Queensland Government supports demand management programs aimed at:

- reducing the effect of peak electricity demand on the network, and programs which support efficient use of energy, such as:
  - working with builders and developers to implement sustainable housing design supporting a range of energy- and water-saving measures for households
  - promoting energy-efficient air-conditioning
- improving energy efficiency in government buildings, government-owned corporations and statutory authorities via the Government Energy Management Strategy and the Strategic Energy Efficiency Program.

Sustainable housing

The *Queensland Development Code* includes provisions for sustainable housing which requires all newly constructed houses, townhouses, terrace houses and sole occupancy units in Queensland to use energy more efficiently. This is achieved by requiring some or all of the following measures:

- energy efficient lighting for at least 40 per cent of the total floor area
- greenhouse efficient hot water systems such as solar, heat pump or gas hot water.

New housing sustainability measures will:

- require all new houses and units be built to a 5 star (out of 10) energy equivalent rating
- require 80 per cent energy-efficient lighting in new houses and units
- provide better recognition of outdoor/indoor living areas in Queensland's building standards
- prevent the sale and installation of inefficient air conditioners
- ban residential estate covenants which restrict the use of energy efficient design features and fixtures
- require that a sustainability declaration be completed as a part of the sale of a house or unit.

A joint project was undertaken by Ergon Energy, ENERGEX and Powerlink in 2006 to identify and assess potential demand management opportunities. A Network Demand Management Program was developed that focuses on:

- demand reduction through replacement of ageing, inefficient plant and other energy efficiency measures
- power factor correction at the customer level
- promotion of existing controlled tariffs for hot water and other identified appliances
- developing capabilities to better manage household air conditioning.

ClimateSmart home service

The ClimateSmart home service is a new household energy efficiency program. Through this service, households will receive:

- a home energy audit conducted by a licensed electrician and a customised plan on how to save energy and money
- an energy monitor to show how much energy is being used throughout the day
- a water efficient showerhead supplied and installed to reduce water consumption and significantly reduce the amount of water being heated by electricity
- up to 15 free energy efficient compact fluorescent light globes.

2.3.4 Electricity

Over the past ten years, annual electricity demand in Queensland has grown by over 53 per cent and, in a medium growth scenario, is expected to grow by an average 3.6 per cent per annum over the next ten years. Forecasts indicate that in Far North Queensland, the peak electricity demand will grow at a rate of 3.7 per cent per annum over the next ten years, driven by industrial development and sustained population growth.

Innovation and deployment of new technologies and solutions is needed to deliver solutions. Demand-side initiatives coupled with innovative supply side solutions will be developed as part of broader infrastructure planning.

The electricity industry is comprised of three distinct, yet interconnected sectors—generation, transmission and distribution.

Generation

Most electricity in Queensland is generated by coal-fired power stations, located mainly in central and southern parts of the state close to major coal sources. However, an increasing amount of energy is being produced from natural gas, including coal seam methane, and from renewable sources such as hydro and biomass. FNQ already has significant renewable energy generation from hydro, wind farm and biomass and supply from these sources is being enhanced.

Government-owned corporations own most of the larger power stations. The number of partially or fully privately owned power stations is increasing.

Transmission

Powerlink Queensland's high-voltage transmission network transports electricity from power stations to distribution networks in Far North Queensland. Powerlink operates more than 12 000 circuit kilometres of high-voltage transmission lines throughout Queensland.

The primary transmission network in the region consists of two major supply routes:

- 275 kilovolt transmission network inland through Ravenshoe and the Atherton Tablelands to Cairns
- a 132 kilovolt network along the coastal plain from Ingham to Cairns, which is currently being upgraded.

Distribution

Most business and residential customers are supplied with electricity through a distribution system connected to the high voltage transmission system. Ergon Energy distribute electricity to Far North Queensland and operates a network of 150 000 kilometres of powerlines throughout Queensland.

Generation capacity

Queensland currently has a generation capacity of more than 11 000 megawatts, with more than $4.5 billion of investment in new generation infrastructure since 1998. The electricity generation industry in Queensland is well placed to meet increasing demand, with sufficient generating capacity to meet average demand even under extreme weather conditions. Recent proposals include a renewable energy wind farm at Archer Point, south of Cooktown.

The Queensland Government will continue to support renewable energy projects where they are commercially viable and meet electricity market needs. The Queensland Renewable Energy Fund (QREF) is a $50 million funding program that supports the development and deployment of renewable energy generation technologies in Queensland. Funds are allocated annually in the form of grants and loans to support proven renewable energy technologies statewide.

Archer Point wind site

The Archer Point Indigenous Land Use Agreement (ILUA) provides for access and co-management of the land at Archer Point, south of Cooktown, including the granting of an authority to investigate the possibility of establishing a wind farm over land.

The Queensland Government has called for expressions of interest to investigate the feasibility of a wind farm. Archer Point is one of the state's premium wind sites. It is anticipated it could provide up to 300 megawatt of zero emission energy to the national grid and generate additional clean power for Far North Queensland.

Electricity network

To meet increasing electricity demand, new transmission and distribution network infrastructure must be constructed. Ergon Energy produces 10-year maximum demand forecasts and long-term strategic plans to meet the electricity supply requirements for defined areas based on most likely 20-year load growth projections.

The timing of future investments will depend on demand. Expenditure will be adjusted as necessary to ensure the FNQ distribution network is able to meet demand, while also meeting mandated reliability requirements.

Powerlink has invested more than $100 million on projects in the Far North Queensland region in the past five years and is expected to invest more than $130 million on additional projects over the next three years. This includes the planned progressive replacement of its coastal 132 kilovolt network between Townsville and Cairns and additional work at local substations to help maintain continued reliability of high voltage electricity supply.

The new Tully to Innisfail transmission line was completed in October 2008. This project replaced an aged 132 kilovolt transmission line with a new dual voltage 275/132 kilovolt capacity transmission line. Construction is well advanced on the $94.7 million replacement of Powerlink's aged transmission line between Innisfail and Edmonton.

Powerlink is also investing more than $500 million into reinforcing its high voltage 275 kilovolt network between central Queensland and north Queensland, which will result in a more secure supply of high voltage electricity to Far North Queensland.

Ergon Energy is also investing heavily in its electricity distribution network, with a two year capital budget in Far North Queensland of $235 million. Ergon Energy's Network Management Plan details their intentions for network reliability, capacity and supply security over the next five years, as well as a comprehensive 20-year asset vision. This program is expected to:

- improve network performance
- improved the security of the network
- provide a significant increase in available capacity.

New innovation and technology will be a key focus for improving the supply of single wire earth return (SWER) systems. Capital investment in rural three phase feeders, capacity augmentation, reliability improvement, protection enhancement and maintenance will result in improvements to the SWER network.

A joint Ergon Energy and Powerlink study is being carried out to determine the location of future zone substations and 132kilovolt line requirements necessary to supply the Mount Peter Master Planned Area.

Stanwell has committed $8.5 million to rewind the generators at Barron Gorge hydro station in Far North Queensland. Commencing in 2009, the project will deliver an estimated 10 per cent improvement in efficiency.

Solar bonus scheme

The Queensland Government announced the Queensland Government solar bonus scheme on 11 March 2008. It will apply to small solar systems installed by households and businesses. The solar bonus is a feed-in tariff of 44 cents per kilowatt hour that will be paid for electricity fed into the grid at times when the solar system generates more than the household or business is using.

The solar bonus will be paid to consumers by the electricity retailer that supplies them with electricity from the grid. The scheme is designed to make solar power more affordable for Queenslanders, stimulate the solar power industry and encourage energy conservation.

2.3.5 Gas

Natural gas is playing an increasingly significant role as a fuel source for electricity generation, industrial processes, business and residential consumers in other parts of Queensland. Gas infrastructure, like electricity, can consist of major pipelines and localised distribution networks. This infrastructure is provided by the private sector, not the Queensland Government.

Currently large specialised marine vessels transport Liquefied Petroleum Gas (LPG) to Cairns. The LPG is transferred to other non-marine depots, or direct to consumers within a 300 kilometre radius, or transferred into cylinders for distribution within the region. There are reticulated gas systems in some suburbs of Cairns and in Port Douglas.

There is potential to diversify to liquefied natural gas (LNG) in FNQ in the future. A key challenge for the region is accessing bulk supply. The option for Queensland coal seam gas to be exported to international markets through the proposed LNG plant in Gladstone has the potential to impact upon the supply and price of gas for domestic generation.

2.4 Health

The Queensland Government is committed to providing high standard health services through the expansion and refurbishment of existing health care facilities in addition to new facilities. Cairns Base Hospital plays a crucial role in providing the majority of the health needs for the population of almost 250 000 residents in the Cairns and hinterland health service district and the Far North Queensland health cluster.

As well as increasing hospital services to meet these needs, it is also necessary to deliver services outside the hospital system. This includes community-based health prevention and early intervention services to address the increasing incidence of preventable chronic diseases.

2.4.1 Challenges

The demands on health services are dramatically increasing. Public and private sector services are trying to cope with significant population growth, an ageing population (with some people living with chronic conditions for many years) global workforce shortages, the increasing cost of medical technologies, and rising disease rates resulting from unhealthy lifestyles.

Cairns Base Hospital is experiencing significant increases in inpatient activity resulting in the extension of waiting lists for a range of services, including medical specialist outpatient and surgical services. However, there are high rates of potentially avoidable hospital admissions for a range of conditions. The predominant pressure on the hospital is the shortage of overnight beds and aged care places due to a shortage of aged care beds across the region. This places an aged care burden on Cairns Base Hospital as acute beds are occupied for long periods.

Queenslanders have a lower standard of oral health in comparison to other parts of Australia. Research shows that Queensland six year olds have nearly 30 per cent more decay in baby teeth compared to the national average, with a similar result for permanent teeth in

12 year olds. This disparity is also found between various areas of the state. The rate of tooth decay in Townsville which has flouridated water is up to 65 per cent lower than in Brisbane.

2.4.2 Responses

In October 2005 through the action plan: Building a better health service for Queensland, the government committed to major reforms to build a better health system. It will continue to meet this commitment by providing new facilities, where appropriate, and refurbishing and expanding existing facilities and services. A number of hospitals in FNQ have been substantially upgraded or expanded.

The Cairns Base Hospital and associated services Clinical Services Plan, released in December 2008, provides the strategic directions for the delivery of acute health services. The plan seeks to meet the needs of the Cairns and Far North population into the future and provides service requirements until 2021. Strategies have been identified to assist with demand management but some of these strategies are dependent on the concurrent development of support services. The Clinical Services Plan will inform a master plan that will detail the infrastructure that will deliver the services.

To meet future demand for health services, the Queensland Government is funding the redevelopment and expansion of Cairns Base Hospital with the revenue from the sale of the Cairns International Airport. Recurrent funding to support the expansion of Cairns Base Hospital will be sourced from future growth funding including the Australian Health Care Agreement.

Queensland Health's Major Hospitals Project Office is managing the $446.3 million upgrade. The redevelopment will include construction of a new clinical block, a new hub for surgical and day beds and enhanced aged care and rehabilitation facilities and the purchase of land. An expansion to the emergency department will increase capacity from 30 treatment spaces to 50, and the redevelopment will deliver an additional 168 beds by 2014.

Queensland Health is also securing a suitable location for future health services in on the south side of Cairns, which can accommodate large scale health services projects for residents, such as a new health centre. By carefully investing in land for infrastructure now, the Queensland Government is protecting the health needs of Cairns residents in the long-term. It would be prudent to ensure that the land selected is large enough to accommodate a new hospital in the longer-term.

Queensland Health will sell a prime suburban property to help tackle the shortage of aged care beds in Cairns. The intention is that the Hoare St property would become an aged care facility. This would reduce the aged care burden on Cairns Base Hospital and free up acute beds. The private sector provides an important role in providing aged care. The federal government has made a number of commitments to fund new aged care beds in Cairns, including the provision of interest-free loans.

The development of health precincts may supplement the capacity for acute health care. Co-locating and integrating the services of a variety of public and private ambulatory and community-based services may offer a more effective way of delivering health services to the community.

The Queensland Government is funding other critical infrastructure needs including Cairns central community health facility, Yarrabah primary health care centre, Ravenshoe primary health care centre and Cardwell primary health care centre expansion. Construction commenced on the $12.7 million Cairns central community health facility on the former Cairns North State School site in late 2008. The $15.77 million Yarrabah primary health care centre will allow for the integration of Gurinny Yellamucka Medical Service, co-location of a Queensland Ambulance Services facility plus the provision of accommodation units.

Together with oral hygiene and good nutrition, fluoridation has been proven to reduce tooth decay by up to 40 per cent. The Queensland Government has committed $35 million to rolling out a capital program to ensure that more than 90 per cent of Queenslanders would have access to fluoridated water by 2012. From 2009, fluoridation units will be installed at Bramston Beach, Babinda, Mossman and Whyanbeel in Cairns Regional Council, Atherton, Malanda and Yungaburra in Tablelands Regional Council, and Cardwell, Johnstone North, Johnstone South and Tully in Cassowary Coast Regional Council.

2.5 Education, training and the arts

FNQ needs creative thinkers with the skills and ingenuity to find solutions to existing and emerging social, economic and environmental problems, and to lead innovation to drive greater productivity.

A robust public education and training system is central to ensuring that residents have equitable access to education and training that will enhance their individual opportunities and their participation in the workforce. Together, FNQ state schools, TAFE institutes and

James Cook University deliver a public education and training system that provides access to high-quality learning experiences across the region.

The Queensland Skills Plan establishes a comprehensive policy framework for Queensland's vocational education and training system. This framework will ensure that the supply of skilled labour is better matched to industry's needs and the economy's demands. The new training system is underpinned by a major capital works investment program. Through a major six-year capital works investment program, in excess of $29 million will be spent to modernise existing TAFE infrastructure and construct new training facilities.

2.5.1 Challenges

The community has high expectations for contemporary education, training and arts facilities. The Department of Education, Training and the Arts will continue to build and maintain infrastructure across Queensland. This requires careful management of the wide range of new and ageing infrastructure and strategic partnerships to provide facilities that are fit-for-purpose and of high quality. The strategic use of current and future infrastructure are continually under review to ensure the most effective use of finite resources.

Schools and TAFE institutes will need to continue to utilise emerging technologies to provide exciting and engaging programs and services across Queensland. There is also a need to continue to adopt innovative practices that improve environmental sustainability.

Providing new schools in Far North Queensland, particularly in Mount Peter, presents a number of challenges. The need to identify optimum opening dates of new schools (to ensure their viability and that of existing schools) and the availability of appropriate land on which to locate new schools are key challenges.

2.5.2 Responses

The Queensland Government, through the Department of Education Training and the Arts, will continue to support programs and services that deliver strong educational outcomes for students in all schools across Queensland, including:

- undertaking master planning for new state schools, including appropriate co-location of social infrastructure
- delivering an ongoing program of state school renewal and refurbishment including initiatives that improve environmental sustainability
- explore innovative project delivery approaches, for example, public/private partnerships
- enhancing infrastructure and information communication technology to strengthen the capabilities of education, training and arts in Queensland.

When providing for new schools the government seeks value for money while maintaining high standards of equity and accessibility for new and existing schools across the state. These standards provide those undertaking the master planning of large tracts of urban residential land with an appreciation of what is achievable within the principles of accessibility and viability.

The Department of Education, Training and the Arts is planning new schools in partnership with local authorities and state agencies. Innovative ways of securing a school's footprint in major development areas are thus under constant discussion as part of these joint planning activities.

As part of the State Schools of Tomorrow project, the Queensland Government is investing $36.7 million into building a new educational precinct due to open in Innisfail by the start of the 2010 school year. The project involves transforming existing TAFE buildings, expanding the campus and building new centres for sport and performing arts, which will have the capacity for 300 seats.

The site will accommodate students in secondary, vocational, special and adult education in a unique configuration, and will boast twenty-first century classroom communications technologies as well as science and computer laboratories.

The Queensland government provided $8 million to help establish the Australian Tropical Forest Institute at James Cook University in Cairns. Funding of $20 million has been announced for a Tropical Health Alliance as part of the *Q-Tropics – Queensland Tropical Expertise Strategy*. The plan is to make north Queensland a global hub for tropical economic, social and environmental expertise. Of the $20 million, $12 million is for new facilities and equipment at the Cairns and Townsville campuses of James Cook University.

In 2008, the federal government committed $49.5 million over four years to build a dentistry school at the Cairns campus of James Cook University. The commitment involves $33 million in capital funding, $9.4 million in 60 dentistry places each year, and $7.22 million to provide outreach services so that dental students can undertake practical training in remote northern Australia.

An Early Years Centre is also being developed in Cairns. These centres will be 'one-stop-shops' where early childhood education and care, family support and health services are available for families expecting a child or with children aged up to eight years.

A number of initiatives are underway to foster arts and culture in FNQ:

- The $2.06 million stage two development of the Cairns Centre of Contemporary Arts (CoCA)
- The Backing Indigenous Arts program, in partnership with the Australian Government, focuses on building the creative capital of Indigenous Queensland communities through access to quality arts infrastructure. This program will:

- establish the $1.6 million Cairns Printmaking Centre
- provide $4.4 million to support Indigenous Arts Centres including $1 million for minor capital works to address immediate needs.

A number of studies to determine demand for arts and cultural facilities in Cairns are in progress. These studies will inform the development of Cairns Regional Council's cultural plan and the Mount Peter Master Planned Area.

Feasibility studies will also examine needs and options for lifestyle targeted facilities and services within identified arts and precincts such as the Munro Martin park, refurbishing the existing civic theatre and/or a regionally significant performing arts centre at Trinity Wharf. All capital work projects would require local lifecycle investment and funding from all three levels of government.

2.6 Justice, police and corrective services

Far North Queensland's rapidly growing, geographically decentralised and multicultural communities present a number of challenges including:

- maintaining equitable access to high quality justice services and facilities and
- providing sufficient access to services in regional, rural and remote areas.

The strategic infrastructure priorities of the Queensland Police Service and the Departments of Justice and Attorney General and Corrective Services include:

- providing modern and accessible courthouses
- providing operational equipment, facilities and technology to enable police to do their job safely and effectively
- developing the most modern correctional infrastructure in Australia, incorporating cutting edge technology and security systems.

The Queensland Government provides a range of infrastructure to support the justice system, including a network of police stations, courthouses and correctional facilities which are critical to maintaining a safe, just and supportive society. Justice, police and corrective services infrastructure currently being constructed in Far North Queensland include:

- replacement of police stations at Ravenshoe, Port Douglas and Smithfield
- co-location of the Courthouse, Police station and watchhouse to form a Mareeba justice precinct
- expansion and refurbishment of the Lotus Glen correctional centre.

2.7 Emergency services

The Queensland Government is responsible for ensuring Queensland communities are supported by a broad range of essential emergency services. The operational arms of the Department of Emergency Services (DES) include the Queensland Fire and Rescue Service (QFRS), the Queensland Ambulance Service (QAS) and Emergency Management Queensland (EMQ). These in turn support volunteer organisations ranging from the Rural Fire Service to Volunteer Marine Rescue and the State Emergency Service.

There is community expectation that emergency services facilities will be provided to meet the changing risk profile resulting from increases in population, demographic trends, industrialisation and external factors such as climate change. The demand for emergency service delivery is escalating, and the work of emergency services organisations is becoming more complicated and challenging.

At a strategic level, the Queensland Government is addressing these challenges, in part, by providing an extensive network of emergency services infrastructure and monitoring and reviewing its service delivery on an ongoing basis. For example, the acquisition and redevelopment of fire and rescue stations and ambulance stations is based on current and projected service delivery needs. Addressing demand will also require innovative and best-value service delivery and the improvement of operational systems.

Each facility is developed with the aim of providing optimal emergency service delivery to the community. Since response times are paramount, the performance of facilities is continually monitored. Facilities operate as part of an integrated regional network and facilities may be relocated if changes occur in the local social and geographic setting. For example, if significant urban development occurs. Planning for new and replacement stations is informed by capital infrastructure strategic planning.

The co-location of ambulance, fire and emergency management facilities with other emergency service and health facilities can provide synergies and efficiencies that benefit the community. The co-location of ambulance stations at primary health clinics at Yarrabah is underway. Planning is also underway to co-locate the Tully ambulance station with the Tully Hospital.

2.8 Regional sport and recreation

The Queensland Government is committed to working hard to make Queensland a better place to live, work and play. This includes providing new opportunities for Queenslanders to participate in sport and active recreation, from grassroots to elite level and to enjoy outdoor recreation activities. A key component of this commitment is ensuring the ongoing health and wellbeing of our communities through increased participation in physical activity. Combating increasing levels of obesity and inactivity requires strong, vibrant communities with improved access to sport and active recreation spaces and facilities that support participation from the grass roots to elite levels.

Queensland Government grant programs provide funding assistance that helps local governments and community organisations to construct sport and recreation facilities and prepare recreation plans that foster improved use and management of facilities. Funding assistance includes:

- $1.9 million funding for a $3.37 million regional tennis facility in Cairns.

The Queensland Parks and Wildlife Service provides outdoor recreation opportunities in the region's national parks and forests such walking tracks, camping areas, visitor centres, public amenities, roads and picnic facilities. This includes the Wet Tropics Great Walk.

Recreational boating is a popular activity for residents and for visitors to the region. The government has allocated $2.5 million over the past two years for projects to develop new, and upgrade existing, recreational boating infrastructure in the region at Daintree River boat ramp, Mourilyan Boat Harbour boat ramp, the Innisfail jetty and boat ramps at Tinaroo Dam. This investment complements the local government facilities that support recreational boating.

A major initiative for Queensland Government is the Eat Well Be Active campaign, which involves a range of projects to address the growing prevalence of obesity. The *Eat Well Be Active Supportive Environments for Active and Healthy Living* is a key project that uses an integrated approach to ensure supportive environments are designed and provided, enabling Queenslanders to lead more physically active and healthier lives.

2.9 Information communication technology

The Australian government has the primary responsibility for telecommunications policy and regulation. In recognition of the importance of telecommunications to the state economy, the Queensland Government actively engages with the federal government to guide and influence its broadband and telecommunications policies, programs and initiatives as they relate to Queensland.

While investment in telecommunications infrastructure is mainly undertaken by the private sector, governments influence and stimulate such investment through policies, programs and the regulatory environment. Specific initiatives include the following projects funded under the Australian Government's *Connect Australia* program:

- $4.9 million in funding was provided for a Department of Education, Training and the Arts (DETA) project to provide enhanced access to the Learning Place, DETA's e-learning environment for schools. The project provides enhanced broadband infrastructure for more than 7000 students across 128 schools in regional and remote Queensland.
- $5 million in funding was provided for Queensland Health to establish the Cooeenet@qld project. Developed in partnership with the Department of Emergency Services and the e-Health Research Centre, the project provides high-capacity broadband services to support health care and emergency services to communities in remote North Queensland.

The Queensland Government has also instituted improvements in the telecommunications infrastructure in Queensland through initiatives such as the Reef Network, **SmartNet** and Northern.net. The Reef Network delivers high speed communications to Queensland's coastal region through underground fibre optic cable running under the 1820 kilometre rail corridor between Brisbane and Cairns. The network has significantly reduced the costs of high speed communications to Queenslanders living in the coastal regions.

As part of the **SmartNet** procurement process, individual agreements have been reached between the Queensland Government and information communication technology providers. As part of these agreements:

- fibre optic cable will be installed into the central business district areas of Cairns and business grade broadband infrastructure into 30 towns across Queensland
- an alternative high capacity rural broadband network will potentially be provided.

Northern.net, a joint Australian and Queensland Government project, has extended broadband into regional areas in north Queensland, resulting in 28 small towns now able to receive residential grade (and in many cases business grade) broadband for the first time. Towns in Far North Queensland provided with broadband include Babinda, Cardwell, Chillagoe, Dimbulah, Herberton, Millaa Millaa, Mossman and Yarrabah.

2.10 Government service delivery

The Atherton Tablelands will strengthen its position in tropical science training and research with a single, purpose built agricultural facility planned for the region. The state-of-the-art facility at Mareeba will capitalise on the uniqueness of the region and the potential to accelerate growth on the Atherton Tablelands. The new agriscience hub will focus on research, development and extension, education and training. This will bring together the Department of Primary Industry and Fisheries regional scientific capacity in one location. The Australian Agricultural College Corporation's Mareeba campus will also be relocated and incorporated into the hub. In addition, the Walkamin Research Station will be improved and a suitable research node on the Kairi Research Station will be retained.

A further $40.5 million has been allocated in 2008–2009 for the continuing construction of a new government office building in Cairns, providing 9 600 square metres of net lettable area. The total project cost for Stage 2 of William McCormack Place is estimated at $79.5 million. The project will be targeted at achieving a five-star, green star rating under the Green Building Council of Australia rating scheme. This will set a high environmental standard in building design, construction and interior fitout and establish a new benchmark for government buildings across Queensland.

Funding of $10 million has been allocated in 2008–2009 for the purchase and refurbishment of the Mareeba Government office building. The aim of the project is to provide an improved and efficient office accommodation for four Government agencies in Mareeba in line with the Mareeba office accommodation strategy. The project is part of an overall regional strategy that will allow agencies to relocate and consolidate.

Schedule 1—Completed projects

Infrastructure planning and delivery is already well advanced in FNQ. The Queensland Government has constructed, or worked in partnership with federal government, local government, community organisations and private partners, to complete a number of regionally significant projects during the preparation of the FNQ Regional Plan. These projects informed the preferred pattern of development for FNQ and are evidence of the Queensland Government's ongoing commitment to dealing with population growth in the region.

Infrastructure projects, planning studies and related initiatives completed with Queensland Government funding and involvement during the preparation of the FNQ Regional Plan include:

Asset class	Project	Total estimated cost
Transport	Constructing the new Tully River bridge and opening several new sections of the Bruce Highway	Part of a $173 million project
Transport	Constructing a new high-level bridge over the Mulgrave River, south of Gordonvale	$48 million
Transport	Completing Mulgrave Road, Cairns upgrade between Ray Jones Drive and Sheridan Street	$16 million
Transport	Widening and sealing sections of the Kennedy Highway near Mt Garnet/The Lynd to increase road safety and efficiency	$14 million
Transport	Constructing a new 56 metre long bridge over Granite Creek and widening and sealing of 500 metres of roads at Wujal Wujal	$3.2 million
Transport	Constructing to sealed standard sections of Burke Developmental Road between Almaden-Chillagoe-Fortunata Creek	$9.4 million
Transport	Constructing to sealed standard sections of Kennedy Highway between Ravenshoe and Mt Garnet	$3.8 million
Transport	Introducing a new public transport initiative in Cairns and Innisfail. The ***q****connect* initiative standardised regular and concession fares, ticket types, introduced a zone system, and improved bus routes and timetables	N/A
Water	Completing a new Wujal Wujal sewerage scheme that includes a tertiary standard sewage treatment plant and a reticulation system	$5.9 million
Water	Introducing sustainable housing initiatives in the Queensland Development Code, including increased water and energy efficiency requirements for new houses and units	N/A
Water	Release of the draft *FNQ Regional Water Supply Strategy* in September 2007. The final strategy is expected to be released in 2009	N/A
Energy	Upgrade of Stanwell Corporation's electrocity supply distribution systems at Kareeya Hydro	$10 million
Energy	Completion of Powerlink's new Tully to Innisfail transmission line in October 2008. This project replaced an aged 132 kilovolt transmission line with a new dual voltage 275/132 kilovolt capacity transmission line.	$87 million
Energy	Completion of Ergon Energy's new Cairns North electricity sub-station in 2008 and installation of 132 kilovolt underground cabling	$65 million
Energy	Upgrade of Ergon Energy's Mareeba depot in 2008	$4 million
Energy	Upgrade Powerlink Woree Substation	$15 million
Energy	Upgrade of Ergon Energy's Mareeba electricity sub-station	$2.5 million

Asset class	Project	Total estimated cost
Energy	Completion of Ergon Energy's Chillagoe Zone Substation	$9.7 million
Energy	Construction of Ergon Energy's El Arish Substation. The project is being developed in conjunction with Powerlink Queensland.	$14 million
Energy	Construction of a new section of 22 kilovolt feeder between Mareeba and Emerald Creek	$3 million
Health	Redevelopment of Innisfail Hospital—completed in September 2008.	$42.3 million
Health	Refurbishment of Atherton Hospital—completed in early 2007	$3.8 million
Health	Refurbishment of the staff quarters and refurbishment of the West Ward at Mareeba Hospital—completed in early 2008	$2.1 million
Health	Opening a new Mission Beach Health Centre in early 2007	$1 million
Education	Opening of a state-of-the-art middle school at the Redlynch State College campus in 2007 through the Cairns Education Renewal Program initiative	$16.4 million
Education	Opening of new Isabella State School in Edmonton	$14.4 million
Justice	Completion of Mareeba's new courthouse in December 2008	$6.1 million
Justice	Completion of a new police station, with watch house facilities and police accommodation on site at Wujal Wujal in mid-2008	$4.3 million
Justice	Upgrade of Smithfield police station	$1.5 million
Emergency	Funding purchase of land to assist the community of Innisfail build a new SES headquarters	$120 thousand
Emergency	Opening new auxiliary fire stations in Malanda and Yungaburra in late 2008	$1.4 million
Emergency	Replacing the ambulance station at Babinda in late 2007	$0.9 million
Sport and recreation	Completing Ma:Mu Rainforest Canopy Walkway in the Wooroonooran National Park near Innisfail in August 2008	$10 million
Sport and recreation	Opening of Cairns Barlow Park redevelopment project October 2008.	$5.3 million
Sport and recreation	Upgrade of Cairns Regional Council's Flecker Botanic Gardens and Tanks precinct	$4 million
Sport and recreation	Completing the Redlynch multi-purpose outdoor facility	$2.3 million
Community	Opening a neighbourhood centre in Kuranda in early 2008	$1.3 million
Industry	Developing the Woree Business and Industry Park—by the Queensland Government	N/A

Note: Some projects were jointly funded by the Queensland and Australian governments or between Queensland and local governments or jointly funded with not-for-profit organisations.

Schedule 2—Regionally significant infrastructure projects—Far North Queensland

Regional Transport Infrastructure							
Map reference	**Project**	**Estimated total cost $M**	**Cost estimate type**	**Delivery timeframe**			
				2008–09 to 2011–12			
	Transport investigations						
1.1	Cairns Transit Network investigation	1.4	3				
1.2	Bruce Highway—Gordonvale to Cairns Planning study	5	3				
	Public transport						
1.3	Cairns bus priority works	3.9	2				
	Walking and cycling						
1.4	Principal cycle route–Cairns Central Business District to Aeroglen	6.1	0				
	Highways and major roads						
1.5	Bruce Highway: Upgrade Sheehy Road to Ray Jones Drive	150	0				
1.6	Bruce Highway: New Mulgrave River bridge and approaches	50	3				
1.7	Bruce Highway: Tully River—new alignment from Corduroy Creek to Tully High School to improve flood immunity	173	3				
1.8	Bruce Highway: Cardwell Range to Gordonvale–overtaking and auxiliary lanes at Babinda, Newman Creek and Victory Creek	24	2				
1.9	Bruce Highway: Cardwell Range upgrade	97	1				
1.10	Mulgrave Road, Cairns–additional lanes	16.5	3				
1.11	Innisfail-Japoon Road–new bridge and approaches	9.2	3				
1.12	Kennedy Highway: Mt Garnet–The Lynd–upgrades	19.2	3				
	Rail						
1.13	Targeted priority safety works at level crossings in north Queensland	10					
	Ports						
1.14	Cairns cruise ship terminal upgrade	11.2					
	Total	**570.5**					

Regional waste water infrastructure							
Map reference	**Project**	**Estimated subsidy $M**	**Estimated total cost $M**	**Delivery timeframe**			
				2008-09 to 2011-12			
	Waste water treatment plants						
2.1	Edmonton waste water treatment plant	8.3	15.5				
2.2	Southern waste water treatment plant	36	66.5				
2.3	Marlin Coast waste water treatment plant	24.5	41				
2.4	Northern waste water treatment plant	44.2	72.9				
2.5	Malanda sewerage scheme	12.6	12.6				
2.6	Cardwell and Port Hinchinbrook sewerage scheme	21	21				
	Total	**147**	**230**				

Electricity generation, transmission, sub-transmission and distribution							
Map reference	**Project**	**Estimated total cost $M**	**Cost estimate type**	**Delivery timeframe**			
				2008–09 to 2011–12			
3.1	Upgrades at Stanwell hydroelectric power station at Barron Gorge	8.5	3				
3.2	Replacement of Powerlink Innisfail to Edmonton 132 kilovolt transmission line with dual voltage 275/132 kilovolt capacity	94.7	3				
3.3	El Arish–Powerlink 132 kilovolt sub-station establishment	18.8	3				
3.4	Cairns–Powerlink 132 kilovolt substation rebuild	19.1	3				
3.5	El Arish–Ergon 132/22 kilovolt electricity substation	14	3				
3.6	Cairns North–Ergon 22 kilovolt Feeder Augmentation	4.8	3				
3.7	Chillagoe zone substation	9.7	3				
	Total	**170**					

Regional Health Infrastructure							
Map reference	**Project**	**Total estimated cost $M**	**Cost estimate type**	**Delivery timeframe**			
				2008–09 to 2011–12			
4.1	Cairns Base Hospital redevelopment	446.3	2				
4.2	Cairns Base Hospital Emergency Department expansion	11.1	3				
4.3	Cairns Central community health facility	12.7	3				
4.4	Yarrabah primary health care facility	15.8	2				
4.5	Ravenshoe primary health care centre	1.5	1				
4.6	Cardwell primary health care centre expansion	1.5	1				
	Total	**489**					

Education and training							
Map reference	**Sub-region**	**Total estimated cost $M**	**Cost estimate type**	**Delivery timeframe**			
				2008–09 to 2011–12			
5.1	Integration of the Innisfail state high school and inclusive education centre on the TAFE campus	36.7	0				
5.2	Tropical North Queensland Institute of TAFE Cairns campus redevelopment	29	2				
	Total	**65.7**					

Justice, police and corrective services							
Map reference	**Project**	**Total estimated cost $M**	**Cost estimate type**	**Delivery timeframe**			
				2008–09 to 2011–12			
6.1	Lotus Glen prison expansion—construction	445	2				
6.2	Mareeba replacement police station and watchhouse	10.3	3				
	Total	**455.3**					

Notes

A. The table identifies the expected delivery timeframe for each infrastructure project.

B. Estimated investment is in 2008 dollars except where projects have progressed to contract stage, in which case they are in out-turn dollars. Cost estimates in the state budget and other public documents may differ, as they may incorporate project costs that reflect anticipated changes in input prices between initial planning and the time of construction. Estimated investment includes funds already expended on projects.

C. Cost estimates are classified into five types depending on the level of investigation, approval and progress of projects including:

- Type 0—Pre-project estimate—the earliest estimate of project cost which is undertaken before a concept design. It is generally based on the cost of similar projects plus a contingency.
- Type 1—Concept estimate—typically undertaken in the initial planning stages, and based on a concept design.
- Type 2—Pre-market estimate—based on a more detailed review of scope and requirements. This estimate is determined after the Queensland Government has assessed the costs and benefits of a project.
- Type 3—Market price—the price agreed with the contractor. It is no longer an estimate nor is it a cost, since it has not been incurred.
- Type 4—Completed project cost—the total cost of the project, determined by the market price plus any variations. Large projects comprising a number of sub-projects may fall under two or more of the investment categories.

D. Where funding is required from other levels of government, their estimated costs have been included. Where projects are subject to federal funding, it is noted as timing of these projects is subject to negotiation with the federal government.

E. The federal government has committed $150 million to the Cairns Southern Corridor upgrade at the 2007 federal election, as part of the Auslink 2 program. This is in addition to $5 million allocated to planning work.

F. The Australian government has committed $90 million to the Cardwell Range upgrade at the 2007 Federal Election, as part of the Auslink 2 program. This is in addition to $6.9 million previously allocated to planning work on the range.

G. Provision of schools is dependent upon population thresholds being met and timing of delivery may be adjusted to reflect changing demand.

H. Energy authorities budget on a two-year basis. Project costs beyond that period are not included.

I. kV = Kilovolt.

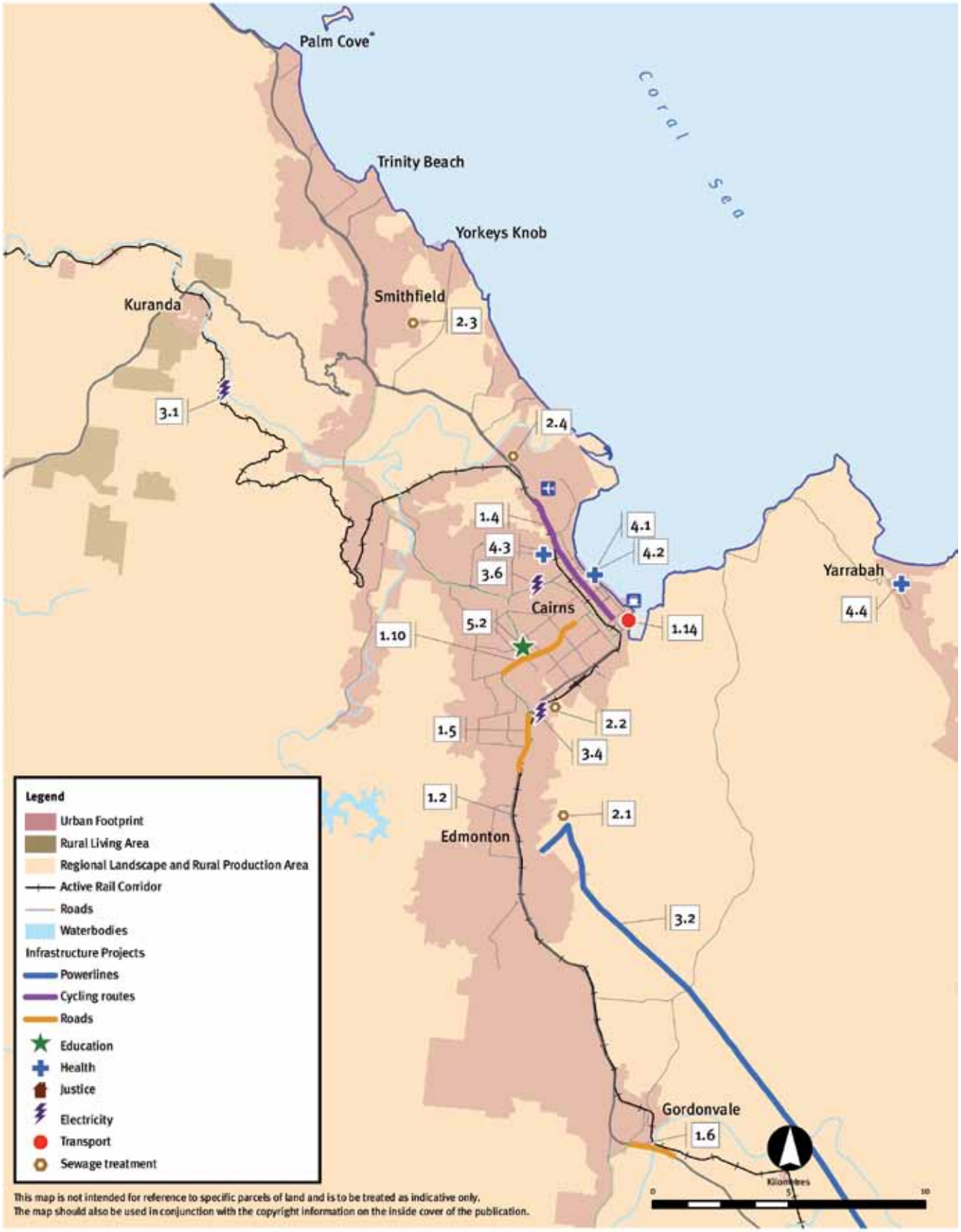
J. Projects currently being investigated or only identified as options are unlikely to have undergone detailed evaluation. Only cost estimates for planning, not construction is provided.

K. Where projects involve a subsidy payment to local government—for example, in the water sector—the expected Queensland Government funding allocation involved is outlined, pending agreement with local government on timing and implementation.

Schedule 3—Maps

FNQ Region Infrastructure

FNQ Region—Cairns Infrastructure



Schedule 4—Useful websites

The following websites provide further information on the scope and status of infrastructure projects in Far North Queensland.

Project	Website
Regional plan	
FNQ Regional Plan	www.dip.qld.gov.au
Sustainable housing	www.dip.qld.gov.au
Transport and roads	
Queensland Transport	www.transport.qld.gov.au/Home/Projects_and_initiatives
Cairns Bruce Highway upgrade	www.mainroads.qld.gov.au
Cairns Transit Network	http://www.cairnstransitnetwork.com.au/
Atherton Tablelands Rail Trail	http://www.trc.qld.gov.au/atherton-tablelands-rail-trail-feasibility-study
Cairns Port Authority	www.cairnsports.com.au
Ports Corporation of Queensland	www.pcq.com.au
Water	
FNQ Regional Water Supply Strategy	www.nrw.qld.gov.au
Sunwater	www.sunwater.com.au
Sustainable Housing Code	www.dip.qld.gov.au
Energy	
Department of Mines and Energy	www.dme.qld.gov.au
Ergon Energy	www.ergon.com.au
National Electricity Market Management Company (NEMMCO)	www.nemmco.com.au
Origin Energy	www.originenergy.com.au
Powerlink Queensland	www.powerlink.com.au
Stanwell Corporation	www.stanwell.com
Information and communication technology	
Queensland Telecommunications Strategic Framework	www.qgcio.qld.gov.au

Health

Cairns Base Hospital upgrade	www.health.qld.gov.au/buildinghealth
Cairns Base Hospital and associated services Clinical Services Plan 2008	http://www.health.qld.gov.au/publications/CBHServicePlan211008.pdf
Health Action Plan	www.health.qld.gov.au/publications/corporate/action_plan.asp
Health Precincts	www.health.qld.gov.au/publications

Education, training and the arts

Department of Education, Training and the Arts	www.education.qld.gov.au
Queensland Skills Plan	www.trainandemploy.qld.gov.au

Community safety

Department of Emergency Services	www.emergency.qld.gov.au
Queensland Police Service	www.police.qld.gov.au

Justice services

Courthouse upgrades	www.justice.qld.gov.au
Lotus Glen Correctional Centre expansion	http://www.correctiveservices.qld.gov.au/About_Us/The_Department/Custodial_Corrections/Lotus_Glen_Correctional_Centre/Lotus_Glen_Correctional_Centre_refurbishment_and_expansion.shtml

Local Government, Sport and Recreation

Q150 Community Funding Program	http://www.q150.qld.gov.au/index.aspx
Local Government Funding	http://www.lgp.qld.gov.au/?id=3776
Sport and Recreation Funding	http://www.srq.qld.gov.au/funding/our_funding_programs/our_funding_programs.cfm

Department of **Infrastructure and Planning**
PO Box 5194 Cairns Qld 4870 Australia
tel 1300 721 194
fax +61 7 4039 8866
FNQRegionalPlan@dip.qld.gov.au

www.dip.qld.gov.au