



Supporting the National Broadband Network in Far North Queensland

Submission to NBN Co. Ltd

A JOINT INITIATIVE OF



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Foreword

This submission presents the commitment of the Far North Queensland Regional Organisation of Councils (FNQROC) to support and facilitate the National Broadband Network (NBN) in the region. FNQROC represents nine council areas of Far North Queensland, covering more than 249,000km² and a combined total population of 280,000 people.

Within the FNQROC region, the four council areas of Cairns, Cassowary, Cook Shire and Tablelands are driving support for high speed broadband through the NBN for the wider region.

The Councils of FNQ urgently seek consideration of this region as a priority for NBN rollout. Our need as a region is based on the exceptional combination of social, economic and environmental challenges we face and the significant opportunity that consistent and accessible high speed broadband presents to address challenges and realise the region's growth potential. While these needs underlie our purpose, they are not the focus of this submission. This document is focussed on presenting to NBN Co. the region's business case for priority rollout and our strength of commitment to support NBN Co. at a practical level.

Far North Queensland has ideal sites for fibre, wireless and satellite solutions. Our climate and topography is diverse, ranging from tropical rainforest, high rainfall and cyclones, to the dry savannah, allowing NBN Co. the opportunity to deploy all options that will be required across the Nation.

We present to NBN Co. a broad range of benefits to support deployment of the network including:

- More than 10,000 Greenfield lots in the pipeline to be developed within the next two years. This is in addition to the Mt Peter Master Plan area which is the second largest single development in Queensland.
- The FNQ2031 regional plan, the second statutory plan for the State, clearly articulating where urban development will occur and the densities to be obtained. Councils are currently in the process of amalgamating and amending their planning schemes to comply with this statutory plan.
- Opportunity to undertake rollout as part of cyclone recovery measures.
- A number of council areas as ideal trial sites for underground deployment in a tropical environment, such as the city of Cairns.
- Several indigenous communities within the FNQROC region which would present an ideal opportunity to trial the service delivery technology.
- An available construction workforce suitable for training to assist with the rollout.
- Demonstrated ability to deliver training needs associated with the rollout.
- Demonstrated support service capability.

NBN has the potential to reduce isolation, improve access to information in remote communities and reduce travelling times within the region, particularly the Indigenous communities.

Supporting high speed broadband is strongly embedded as a priority in our local and regional strategies which specifically target economic diversity and the strengthening of education, health and research.

As a lifestyle destination, this region attracts a significant international visitor population with high expectations for broadband services (many visitors are from countries with very high fibre penetration such as Japan). The Cairns International Airport is the seventh busiest airport in Australia.

We are a highly creative community with rapidly developing knowledge industries which contribute to our internationally recognised tropical expertise. This is supported by James Cook University and its specialisation in tropical research through the Cairns Institute and partnerships with Cairns' Tropical North Queensland TAFE.

We formally advise our full commitment to support and facilitate the work of NBN Co. in providing access to high speed broadband in this region. As a partnership we will work cooperatively with NBN Co. to provide information, facilities and services to help in the design and construction of the network in this region and we urge NBN Co.'s consideration of Far North Queensland as a priority business case.

This submission is fully endorsed by the seven Councils of Far North Queensland.

We look forward to working with NBN Co. in the future.

Yours sincerely



Cr Tom Gilmore
Chair FNQROC
Mayor, Tablelands Regional Council



Cr Val Schier
Mayor, Cairns Regional Council



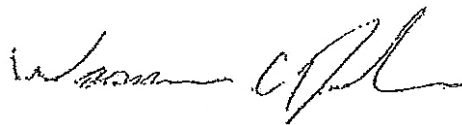
Cr Bill Shannon
Mayor, Cassowary Coast Regional Council



Cr Peter Scott
Mayor, Cook Shire Council



Cr Corrie Pickering
Mayor, Croydon Shire Council



Cr Warren Devlin
Mayor, Etheridge Shire Council



Cr Desmond Tayley
Mayor, Wujal Wujal Aboriginal Council

Executive Summary

The councils of Cairns, Cassowary, Cook Shire and Tablelands are committed to support and facilitate the rollout of the National Broadband Network (NBN) in their regions and are driving this support on behalf of the greater regional area of Far North Queensland (FNQ). This submission by the Far North Queensland Regional Organisation of Councils (FNQROC) presents this commitment and the business case to be considered by NBN Co. as a priority for NBN rollout.

FNQ is a region of significant and sustained growth. It is characterised by a tropical climate and pristine natural environment with two World Heritage Areas and distinct population centres including Cairns City (168,251), Innisfail (9,062), Mareeba (9,025), and Cooktown (1,579). The region's \$9 billion economy represents 5% of Queensland's GRP. While traditionally focussed on agriculture, tourism and resource extraction, recent economic challenges have now focussed the region on diversification, with key growth areas including aviation, marine, creative industries, education and tropical expertise and research and development. Over \$2.7 billion of major recent or planned investment highlights the region's current growth and development. The region's economic development strategies are focussed on growing the digital economy and increasing the sustainability of its communities. High speed, consistent and accessible broadband is central to this positioning.

The FNQ councils are committed to supporting the NBN Co. in the rollout of NBN at a practical level through a dedicated single point of contact, a key stakeholder working group and through a community engagement campaign aimed at information, capacity building and maximising uptake and application. The region is positioned to support the NBN rollout through its planning framework and delivery. This submission presents GIS mapped information to NBN Co. of all existing and proposed developments, existing fibre, power and transportation infrastructure.

Consistent FNQROC development standards will streamline the NBN in a broad range of areas, including lower thresholds for conduit requirements, facilitation of planning of FAN sites, cataloguing of existing ducts and shared trench arrangements, identification of opportunities for co-investment with council works and provision of a clear strategic planning framework for greenfield rollout.

Significant planned developments totalling approximately 28,000 in the next 15 years in the FNQ region highlight the case for current planning for the NBN. These developments include the Mount Peter Master Planned community. At 3,330 hectares and with 18,500 new dwellings, the Mount Peter Master Plan it is the second largest Greenfield development in Queensland.

The region offers significant industry capability to support the NBN rollout and the submission presents the capability of 18 regional companies offering services in 10 key NBN build sectors. In addition, the region offers full training capability to ensure a skilled workforce to support a NBN rollout, including the Tropical North Queensland institute of TAFE.

Ten regional case studies in the areas of health, education, creative industries, energy provision, community service delivery, tourism and data services highlight a range of applications to be supported through the NBN.

The message and intent of this submission is that FNQ has a strong business case for early rollout of the NBN and that the combined regional councils are committed to fully supporting the NBN Co. in its build and delivery.

1. Regional Overview

1.1 Far North Queensland Region

For the purpose of this submission to NBN Co., the Far North Queensland region comprises the eight Local Government Areas (LGA) of:

- Cairns Regional Council
- Cassowary Coast Regional Council
- Cook Shire Council
- Croydon Shire Council
- Etheridge Shire Council
- Tablelands Regional Council
- Yarrabah Aboriginal Shire Council
- Wujal Wujal Aboriginal Shire Council.

This region covers a total area of 249,000km², representing 14.4% of the total area of Queensland or 3.3% of Australia. The current population of FNQ is 280,000 persons or 5.9% of the State's population (OESR, 2011).

The region has many advantages including its skilled people and their cultures, pristine natural environment, reputation as a sought after destination, agricultural industries, mineral wealth and proximity to important economic zones. Significantly in a world where half the population lives between latitude 35° North and latitude 35° South – and where little attention has previously been given to the needs of this demographic and the associated \$40 trillion tropical product market. FNQ is one of the most developed tropical regions on the planet and in possession of considerable tropical expertise.

1.2 Regional Population and Growth

Far North Queensland, particularly the Cairns LGA, has experienced some of the fastest growth rates in the Country over the past two decades, with annual growth consistently between 2.5%–3.5%. This strong growth is predicted to continue for the next two decades, with the population of FNQ projected to rise to more than 370,000 by 2031 (Table 1.1 refers). Planning for this growth is discussed in subsequent sections of this submission.

Table 1.1 Projected Population Growth for FNQ to 2031 (OESR, 2011)

LGA	Projected Population Growth				
	2011	2016	2021	2026	2031
Cairns	172,890	190,657	207,756	224,426	241,494
Cassowary Coast	31,371	32,307	33,198	34,046	34,841
Cook	4,018	4,256	4,544	4,831	5,157
Tablelands	47,572	50,622	53,464	56,500	59,873
Remaining Councils	25,071	26,871	28,353	29,804	31,194
FNQ	280,952	304,713	327,315	349,607	372,559
QLD	4,611,491	5,092,858	5,588,618	6,090,548	6,592,858

1.3 Key Population Centres

Table 1.2 identifies the population centres in Far North Queensland with a population greater than 1,000 persons. A brief summary of these major centres is provided below.

Table 1.2 Population Centres in Far North Queensland with a population >1000 persons
(OESR, 2011)

Urban Centre	Population	Density (person per hectare)
Cairns City	168,251	8.85 persons/ha
Innisfail	9,062	3.95 persons/ha
Mareeba	9,025	4.46 persons/ha
Atherton	7,332	4.12 persons/ha
Cooktown	1,579	1.90 persons/ha
Port Douglas and Craiglie	4,128	4.90 persons/ha
Yarrabah	2,803	1.56 persons/ha
Tully	2,654	3.73 persons/ha
Mossman	2,152	2.54 persons/ha
Kuranda	1,919	1.97 persons/ha
Mission Beach	1,555	1.22 persons/ha
Cardwell	1,513	1.61 persons/ha
Babinda	1,336	3.11 persons/ha
Wongaling Beach	1,161	1.46 persons/ha
Herberton	1,045	2.22 persons/ha
Yungaburra	1,045	2.01 persons/ha
Malanda	1,042	4.01 persons/ha
Tolga	1,001	1.96 persons/ha

Appendix A contains mapping of the region with future growth areas.

1.3.1 Cairns City (168,251)

The coastal city of Cairns is the urban heart and largest population centre in Far North Queensland. With a balance population of more than 168,000, the city plays the key role in servicing the greater region. Cairns is an internationally renowned tourist destination, providing the base for visitation to the World Heritage Area listed Great Barrier Reef and Wet Tropics rainforests.

Cairns is the primary business, commercial and service centre for Far North Queensland, Cape York, the Gulf of Carpentaria and Papua New Guinea. The city is home to all key regional infrastructure, most importantly – the Cairns International Airport, Cairns seaport, HMAS Cairns, Cairns Base Hospital and James Cook University. As such, Cairns represents the concentration of the region's employment opportunities. The majority of future growth in the FNQ region will be based in Cairns.

1.3.2 Innisfail (9,062)

Innisfail is the largest town in the Cassowary Coast local government area and in the southern area of FNQ. It is a major regional activity centre which bustles with economic activity set against a traditional agricultural backdrop. Innisfail contains a diverse range of commercial, retail and administrative functions and provides a range of urban services to the local urban and rural communities.

The region is famed for its agricultural production with sugar cane and bananas being the dominant crops. A number of sugar mills exist in the vicinity and the ports of Mourilyan and Lucinda are major regional trade hubs. Innisfail itself has strong potential to become a multi-modal transport hub in the near future. The town is well connected in terms of rail, road and port infrastructure and provides a strategic linkage between Cairns, Townsville and the Atherton Tablelands.

1.3.3 Mareeba (9,025)

Mareeba is the largest town and industrial/agricultural centre of the Atherton Tablelands. The town is recognised to have significant future growth potential. It has ample residential and industrial land, a vibrant main street, and a pivotal role in agriculture and mining. Mareeba has considerable broadhectare land supply serviced by the large Mareeba Dimbulah Irrigation Area from Tinaroo Dam, which is relatively unconstrained by good quality agricultural land or areas of ecological significance.

Mareeba is well serviced by road, rail and air infrastructure and has thus become the primary urban centre supporting all rural communities in the expansive west and north-west parts of the FNQ region.

The growth of Mareeba is supported by a diverse economy which is expected to further diversify with the ongoing development of the Mareeba Industrial Park and the upgrade of the Mareeba Airport to provide for new aviation maintenance and training industries. The town and surrounding areas will also continue to play a key role in the burgeoning natural resource management and agricultural science industries.

1.3.4 Atherton (7,332)

Atherton is the major town of the Atherton Tablelands and administration centre for the Tablelands. Atherton provides a high level of residential, commercial and retail opportunities as well as industrial, educational, professional and social facilities. It has an important rural industry function and is in the "golden triangle" – one of the richest and most diverse agricultural areas in Queensland.

Adequate land has been identified by the Atherton Urban Growth Study to meet the predicted 1.4% annual growth to 2031. It is expected an increasing proportion of dwellings in Atherton will need to be supplied by redevelopment, focussed in and around the regional activity centre.

1.3.5 Cooktown (1,579)

Cooktown is an unspoilt small historic coastal town which offers a relaxed lifestyle in a beautiful environment without foregoing modern services and technologies.

Cooktown is the central hub of Cook Shire providing medical, education, entertainment, shopping and business services to visitors, residents in outlying towns and Indigenous communities of the Cape.

Tourism offers opportunities for economic development as the self drive market continues to grow and the historical significance of the region is attracting increasing numbers of organised tour groups.

New arts and cultural centres have recently opened in Wujal Wujal and Hope Vale Aboriginal communities showcasing the Indigenous artistic talent in the region.

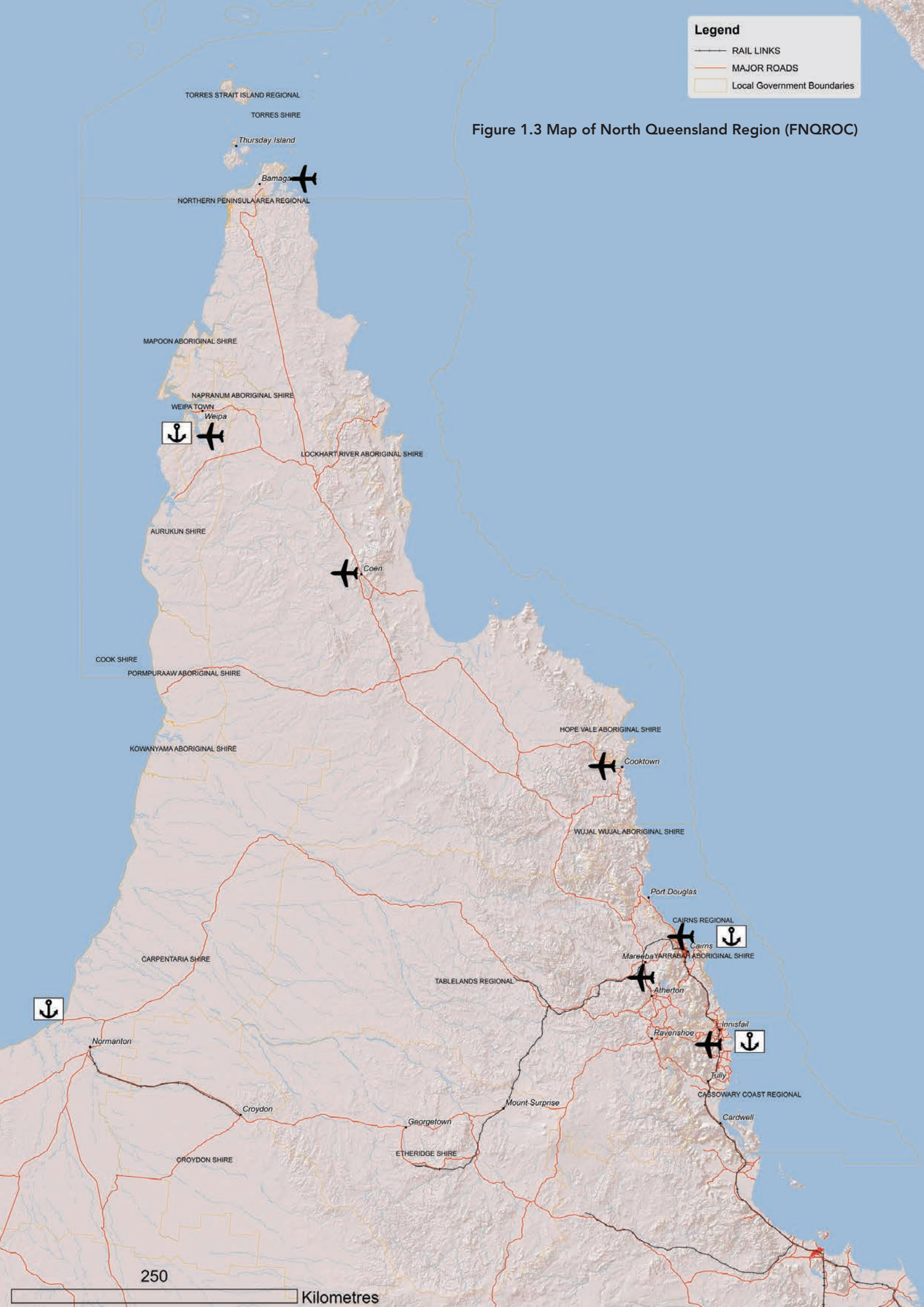


Cooktown, Events Centre

Legend

- RAIL LINKS
- MAJOR ROADS
- Local Government Boundaries

Figure 1.3 Map of North Queensland Region (FNQROC)



2. Regional Economy – Profile and Positioning for Growth

2.1 Economic Profile

A detailed economic overview of Far North Queensland and Cairns specifically are provided as supporting documents with this submission.

The Gross Regional Product of Far North Queensland is estimated at \$9.1 billion, or 5% of Queensland's total economy (ABS, OESR 2006).

The region's economy is traditionally based on agriculture, resource extraction and tourism industries and the region's many natural advantages include a tropical climate, high biodiversity, mineral wealth and proximity to the important new economic zones of the Asia-Pacific.

Despite economic challenges in recent years, including the global financial crisis and strong Australian dollar, the region has maintained consistent economic growth at a rate of more than 2.4% (DLGP, 2011) and annual population growth of 1.4% (OESR, 2011).

Table 2.1 presents the strengths and opportunities characterising the Far North Queensland economy.

Table 2.1 Regional Economy Characteristics (Source: TNQREP 2011)

Regional Economic Strengths and Opportunities
• Environment and lifestyle – The environment (including two World Heritage listed sites) and the lifestyle make the region an area that people want to visit, do business in and live • Agricultural resources – The region has an abundance of fertile soil, plentiful water and agricultural expertise and experience • Tropical expertise – We are one of the few first world economies located in the tropics providing scope for knowledge industries including tropical expertise, bio fuels, tropical health and medicine • Industry groups – Established, diverse productive industry clusters, including Super Yachts, Study Cairns tourism and tropical expertise • A rich cultural heritage • A range of lifestyle options • Infrastructure – The region boasts international standard infrastructure (eg. James Cook University, Cairns Convention Centre and the Cairns International Airport) • Abundant renewable energy technology inputs – in water, sun, wind, geothermal characteristics and agricultural by-products • Asia Pacific markets – Activity of near neighbours (eg. PNG, Guam and Asia Pacific) provides real potential for economic growth • NBN – Future plans for a national broadband network is a recognised major opportunity for FNQ • Mining Services growth – Predicted increase in mining activity both in Australia and in our near neighbouring countries provide economic and employment opportunities

The key challenges facing the FNQ economy as it grows includes the need for:

- improved all weather road and rail infrastructure to support inter and intra logistics in extreme conditions;
- reliable and consistent high speed broadband and mobile service coverage;
- adjustment to a carbon tax economy;
- opportunities to be realised from high levels of unemployment experienced by our large Indigenous population;
- diversification to address vulnerability to boom and bust cycles; and
- connections to markets in times of disaster.

High speed broadband within the region is recognised as a critical means to mitigate many of the challenges and risks we face.

Focussing on the long term economic growth of the region, the primary goal for Far North Queensland is diversifying its economy to build greater resilience and robustness. The region's growth industries include aviation, marine, creative industries, mining services, education and tropical expertise.

The current growth and development in the region is highlighted by the major recent and planned infrastructure investments as listed:

- Cairns CBD Master Plan – \$81M
- Port Douglas Master Plan – \$60M
- Cairns Convention Centre – \$6.3M
- Cairns Base Hospital Redevelopment – \$456M
- Cairns Entertainment Precinct – \$240M
- Bruce Highway upgrade – \$638M
- James Cook University Cairns Institute – \$25M
- Marine Training College – \$10.5M
- Cairns Transit Network – \$100M
- Cycle Network – \$6.1M
- Reef and Rainforest Research Centre – \$25.8M
- Port of Cairns Redevelopment – \$23M
- Cairns Cruise Liner Terminal – \$13.6M
- Cairns Airport Domestic Terminal Redevelopment – \$200M
- Ma Mu Rainforest Canopy Walk – \$10M
- Mareeba Airport Expansion – \$13M
- Tully to Innisfail Transition line – \$87M
- Refurbishment of Innisfail Hospital – \$47M
- Lotus Glen Prison expansion – \$445M
- Replacement of Police Station and Watch House (Mareeba) – \$10M
- Cooktown Events Centre – \$10M.

2.2 Far North Queensland Digital Economy Strategy

Far North Queensland is committed to building its strength as a digital economy. The digital economy is identified as a priority within both the *Far North Queensland and Torres Strait Regional Development Australia Road Map 2011* and *Tropical North Queensland Regional Economic Plan* (Draft 2011). Through these strategies, the region is focussed on facilitating the provision, uptake and application of high-speed, business-grade broadband by businesses and communities across the FNQ region. These strategies recognise the digital economy as key to the future economic diversification, resilience and competitive advantage of the region, both in 'weather-proofing' the existing business base and in providing the platform for new and emerging areas of economic activity across the region.

The region's focus on building the strength of its digital economy is resonated by both the State and Federal Governments. The *Draft Regionalisation Strategy* (DRS) released by the Queensland Government in July 2011, states that in Far North Queensland:

"the connectivity provided through the rollout of the National Broadband Network (NBN) will provide a once-in-a-generation opportunity for significant economic and social development in rural and regional Queensland... Substantial opportunities exist for productivity and service level improvements in health, education, transport, energy management and mining sectors".

The DRS and the statutory FNQ Regional Plan 2031 both identify that much of Far North Queensland's economic potential is tied to the NBN (and greater digital economy strategy) and the ability of the region to remain competitive in a national and international context, despite its isolation.

These strategies underpin the strong, collective commitment of the Far North Queensland region to supporting and facilitating the rollout of the NBN in the region.



Cairns Convention Centre

2.3 ICT Industry Growth Potential

The FNQ information and communication technology (ICT) industry is a mature industry, mainly based Cairns, servicing a broad range of sectors, in particular the tourism sector. Given its attractive environment and lifestyle, the region has significant potential to attract further investment in the sector with the right infrastructure in place. The primary restriction to the growth of this sector and other similar sectors is the lack of bandwidth and other shortcomings of existing telecommunications infrastructure. A range of relevant examples are presented as case studies within section 8 and Appendix B. The primary restriction on the growth of this sector and other similar sectors is the lack of bandwidth and other shortcomings of existing telecommunications infrastructure.

The Qld State Government is currently partnering with the region to facilitate the development of an industry group to assist capacity development of the region's ICT sector.

Further supporting the growth of the ICT industry in FNQ, the James Cook University, Cairns campus, currently offers a number of ICT Bachelor of Information Technology courses through its School of Business program. These courses specialise in Business Informatics, Computing and Networking, Interactive Technologies and Game Design. ICT business graduates often stay in the region to work in the local ICT industry or set up ICT businesses.

2.4 Growing Tropical Expertise & Innovation

Far North Queensland's strong research and industry capability positions the region to become an internationally recognised centre for tropical expertise. With more than 40% of the world population living within the tropical zone and the value of the global tropical product market estimated at \$40 trillion, the region's opportunities to capitalise on 'knowledge-based' industries, based on the region's tropical expertise, will be an important part of future economic growth.

This expertise involves the unique local knowledge and practical innovation obtained from the experiences of adapting to the local environment and climate. Areas of expertise include tropical health, tourism, bio-security, primary industries, built design, environmental science and management, infrastructure provisions and the results for tropical living. The development of enabling technologies and of the NBN as key infrastructure is crucial for this innovation.

A profile of tropical expertise and innovation in the region is included with the supporting documents.

2.5 Education & Equity

Education underpins any development in knowledge-based industries and overall transitioning of the economy. Perpetual improvement and investment in education and skills are a key focus within all strategic documents and plans for Far North Queensland.

Equitable access to education within the region is currently hampered by distance. FNQ seeks high speed broadband to allow those in remote and Indigenous areas the same opportunities as those in urban and regional centres without having to leave their land.

2.6 Indigenous Population

The FNQ region is home to the majority of Queensland's remote Indigenous communities where the historical socio-economic challenges have been well documented. At the last census, 9.7% (or nearly 30,000 persons) of the FNQ population stated themselves as being of Aboriginal or Torres Strait Islander. The primary concentration of Indigenous peoples is within Cairns, though notable communities also include Mossman, Wujal Wujal and Yarrabah, and on the Cape York Peninsula significant Indigenous centres include Aurukun, Kowanyama, Pormpuraaw, Mapoon and Bamaga.

As a component of the joint Australian and Queensland Government's commitment to the 'Closing the Gap' agenda, significant investment has been made into the more remote Indigenous communities. This investment has specifically been targeted at education through the provision of improved schooling facilities and trade training centres in the smaller communities. FNQ seeks early rollout for the potential it offers to very significantly contribute to the equity of Indigenous populations in FNQ, through remote education outcomes, e-health service delivery and vastly improving existing communication norms.

The region of FNQ seeks effective broadband connectivity as an opportunity to significantly increase the sustainability of remote communities. Access to broadband telecommunications can play a crucial role in overcoming inequities due to remoteness, to help to close the gap on access to health, education, training and employment opportunities and other basic services. The important social outcomes that broadband communication can play in connecting separated families and supporting the maintenance of Australia's unique Indigenous culture and languages is extremely important for FNQ. Broadband would reduce the vast digital divide for remote Indigenous populations and provide significant outcomes in terms of social, economic and cultural development and connect remote regions with the broader community.

3. Supporting NBN

3.1 Single Point of Contact

To facilitate communication with NBN Co., FNQROC has appointed a single point of contact through the Executive Office of the FNQROC.

3.2 Far North Queensland NBN Working Group

A regional NBN working group has been created, representing key stakeholders within all levels of government and the private sector. The working group will work with NBN Co. and provide direction and assistance on all aspects from the planning stage, to the completion of the rollout.

The working group structure is presented in Table 3.1 in the implementation of the NBN from shared facilities to infrastructure and/or land corridors. The group has been selected for their ability to quickly work through any land management issues or other activities that may arise in the provision of new infrastructure and to directly support and facilitate the NBN.

Table 3.1 Far North Queensland NBN Working Group



3.3 Commitment to Working with the Community

FNQROC is committed to supporting the community engagement and information provision on the NBN. The Councils of FNQ and the external stakeholders involved (DTMR, Ergon & Powerlink) all have demonstrated experience of successfully managing community expectation and ensuring sustainable deliverable outcomes for major projects. This experience includes a range of highly controversial and politically sensitive undertakings, with examples of recent and current projects as follows:

- **Powerlink** – Major community consultation undertaken for the significant land resumption issues associated with the new coastal high-voltage transmission lines between Ingham to Cairns.
- **Department of Transport and Main Roads** – Significant public relations and community engagement exercise involved in the Bruce Highway upgrade which includes the resumption of up to 380 homes in the Southern Growth Corridor.
- **Cassowary Coast Regional Council** – Significant community building exercises for both the Cyclone Larry and Cyclone Yasi recovery efforts. Each of which involved significant infrastructure disruption/renewals and managing the community expectations for the servicing issues associated with these.
- **Cairns/Tablelands/Cassowary Coast Regional Councils** – Navigating the major community management issues associated with local government amalgamations.
- **Cook Shire Council** – Regular public relations activities and community engagement with the sealing of the Mulligan Highway and regular closure of the Peninsular Development Road (the only link to the top of Cape York).

3.4 Community Engagement Planning

Community engagement initiatives to promote and present the NBN to the region to date include the following:

- Initial meeting of local government and ICT industry representatives with NBN Co.;
- Business survey of 724 Cairns based businesses highlighting business support and demand for high speed broadband – **over 70% of Cairns businesses state that high speed broadband is either very important or extremely important to their business** (Full survey is included in the supporting documents);
- Focussed and detailed survey of business internet and broadband usage to inform strategies to build future capability, applications and uptake in Cairns currently under contract in conjunction with Queensland State Government (DEEDI);
- *Broadband for Breakfast* Seminar in Cairns, supporting the NBN and Qld State Government to more than 120 attendees;
- *Broadband for Lunch* Seminar in Atherton, attracting more than 40 attendees; and
- Public call for companies to register their NBN-related capabilities (FNQ NBN Industry Capability Profile presented in Appendix C).

An FNQ regional NBN Community Engagement Plan for activities by the region itself is currently under development. The plan will propose to include but not be limited to:

- regular community seminars and forums;
- NBN and Digital Economy Expo with presentations, trade displays and demonstrations;
- engagement with the training sector to develop suitable training for NBN construction and digital economy usage;
- six monthly “Business Connect” communication forums;
- continuing information to the development community on the changes to greenfields developments;
- continuing information to builders and developers on internal cabling standards;
- FNQROC monthly newsletter and regular press releases on FNQROC activities;
- Cairns’ regular economic e-update;
- single point of contact in FNQROC and each council for NBN enquiries;
- progressive information release on case studies;
- links to NBN Co. information on all websites;
- ongoing development of new case studies; and
- migrating suitable case studies to pilot projects.

4. The Planning Case for NBN

4.1 Supportive Planning Framework

The FNQROC and the wider FNQ development community are positioned to work with NBN Co. in planning the logistics ahead of an anticipated rollout of the NBN in the region.

4.1.1 GIS Information

Each Council of FNQROC has their own specialised GIS unit. FNQROC can confirm that these units will be fully cooperative in assisting NBN Co. with any spatial data that is required for the planning and implementation of the network. The units have been briefed as to what NBN Co. will likely require of them and have already commenced work on establishing purpose-built NBN-related composites. These are designed to highlight all existing underground infrastructure across the region and identify opportunities for shared trench arrangements. A list of the relevant layers is contained as Appendix D. The only significant gaps in the mapping generally correspond to existing Telstra infrastructure, whose spatial footprint/details have never been fully released to local government.

Most Councils in the region operate on adaptations on the very basic MapInfo GIS software packages (be it MapInfo Professional, Exponare or EasiMaps programs). This continuity allows greater ease in the interchange of data and mapping layers across the region and will facilitate the formation of datasets at a regional level. If NBN Co. were to require additional material, FNQROC have the scope to very easily construct new datasets and spatial mapping were the data made available.

4.1.2 Planned Developments – Operational Works

The FNQROC Development Manual is a policy under all planning schemes within the region which sets the minimum standard for all civil engineering works. This ensures consistency and best management practice across the region.

The current Urban Development Institute Australia (UDIA) guidelines require developments greater than one hundred (100) lots to provide suitable conduit for the purposes of facilitating the NBN. The reality is very few developments in FNQ actually exceed 100 lots and those that do are often staged, such that no more than 20-30 lots are released onto the market at any one time.

In this context, there is currently a recommendation before FNQROC to lower the threshold requirement for conduit works, down to all developments greater than ten (10) lots. This threshold evidences the commitment of the FNQROC and development community to assist in the cost and construction of the NBN rollout.

4.1.3 Local Planning Codes and Development Application Requirements

In Cairns, new FAN sites or other facilities (if required) are defined as ‘Telecommunications Facilities’ under the planning scheme. Council’s single point of contact will liaise with the working group to facilitate the location, planning and establishment of these sites. Furthermore, the FNQROC development guidelines are amenable to potential co-location with existing infrastructure.

4.1.4 Heritage Precincts and Environmentally Significant Zones

Though Cairns and the greater FNQ region has a number of heritage sites and ‘character precincts’, the rollout of the NBN is highly unlikely to have any impacts upon these sites as the focus is on built form. With respect to environmentally sensitive areas, it is likely all works will follow the existing built footprint. Where works are required in sensitive areas, the working group, particularly FNQROC Environmental Officers and local Department of Environment and Resource Management (DERM) contacts will focus on ensuring that all works comply with legislation and best practice, while still expediting the process.

4.1.5 Overhead/Underground Power Infrastructure

FNQROC has excellent mapping data available on all high voltage and low voltage lines and associated infrastructure. Ergon Energy (Nexium) and Powerlink, the owners and managers of all power infrastructure in the region, are represented on the working group and have given their commitment to facilitating the project.

4.1.6 Location of Existing Ducts and Shared Trench Arrangements

FNQROC is currently in the process of compiling a combined catalogue of existing ducts and shared trench arrangements across the greater FNQ region, based on ‘as-constructed’ drawings. The majority of the existing footprint in urban areas has been mapped and is available from GIS systems.

The technical specifics of shared trench arrangements will also be incorporated into the FNQROC Development Manual to ensure consistency across the region.

4.1.7 Opportunities for Co-Investment with Council Works

All Councils are reviewing their capital works programs to identify opportunities for co-investment with NBN Co.. Cairns Regional Council will provide a list of all new works (and maintenance works with the provision for conduit activities) to NBN Co. to follow this submission. These will likely include new roads, road widening, streetscape work and co-location opportunities with Council’s optical fibre network which has recently been extended to Woree.

4.1.8 Strategic Planning and Greenfield Sites

The FNQ 2031 is the strategic document intended to guide all future growth in FNQ. A key component of the Regional Plan was the statutory implementation of a defined urban footprint, effectively providing specified areas and limits of growth. The footprint has designated by default that the Mount Peter site be the major future urban growth centre in the Cairns region. Though largely designed to constrain urban sprawl and protect good quality agricultural land (GQAL), the plan also allows for far more certainty in the provision of infrastructure to greenfields areas.

The Regional Plan therefore provides a perfect platform for the NBN rollout. With the bounds of development already known and the nature of the growth in these areas largely identified through master planning and existing development approvals, NBN Co. can easily and accurately plan the logistics of any greenfields rollout.

4.1.9 Scope of Current Development

Table 4.1 (below) identifies the number of already approved, yet undeveloped residential lots currently in the pipeline. In total this represents approximately 28,000 lots over the next 15 years. The vast majority of these lots are new greenfield sites as opposed to urban infill. Significantly, the table below does not include the Mount Peter master planned area, detailed below, or those subdivision applications yet to be approved (over 1,500 lots within CRC alone). Nor does Table 4.1 budget for higher density development such as multi-units or townhouses via urban infill.

Table 4.1 Closing Stock of Uncompleted (approved but undeveloped) Residential Lots
(OESR, 2010)

Locality	Uncompleted Residential Lots (Closing Stock Dec 2010)
Cairns Regional Council	5,720
Tablelands Regional Council	2,947
Cassowary Coast Regional Council	900
Cook Shire Council	368
9,935 lots	

The largest concentrations of new lots within the Tablelands Regional Council area are in the form of significant new (conventional) housing estates on the outskirts of Mareeba. This is the same with Cassowary Coast, where the largest greenfield subdivisions are concentrated on the periphery of Innisfail and Mission Beach.



Operational works in the region



Mount Peter Master Planned Area

4.2 Significant Planned Development

4.2.1 Mount Peter Master Planned Area – Cairns Region

Mount Peter is the key residential component in the southern growth corridor and was declared a Master Planned Area (MPA) in May 2008. Mt Peter lies 15km to the south of the existing Cairns CBD and is located between the existing urban centres of Edmonton and Gordonvale. It is expected to provide for an ultimate population of over 40,000 people, making it the second largest greenfields development in all of Queensland, behind the Coomera Town Centre on the Gold Coast. Table 4.2 summarises the key attributes of this new master planned community.

Table 4.2 Mount Peter Master Planned Community – Key Attributes

(Mount Peter Structure Plan, 2010)

Mount Peter Attributes	
Area	Approximately 3,330 hectares in total with a developable area of 1,582 hectares
Average Residential Density	20 Dwellings per hectare
Additional Dwellings	Approximately 18,500 new dwellings
Additional Population	In excess of 40,000 persons
Affordable Housing (%)	Approximately 10% (= 1,850 dwellings)

The Mount Peter Structure Plan (2010) sets out the timeframes for development over the next ten (10) years. The plan includes a mix of business and industry centres, creating an employment hub which services Mount Peter and the southern growth corridor while complementing the Edmonton Town Centre and Pregno developments.

The initial stages of this development are already underway on the southern fringes of Edmonton but have slowed due to the current economic situation. The provision of infrastructure is also well under way with the completion of a full trunk infrastructure study. Over \$800 million is to be dedicated to the provision of infrastructure and capital works within the Mount Peter master planned area over the next 20 years.

4.2.2 Edmonton Town Centre – Cairns Region

When completed, the Edmonton Town Centre will function as the primary centre servicing the future residential, retail, economic, medical and transit demand of southern Cairns. It will ultimately serve a catchment area population in excess of 80,000 people and generate over 7,000 direct new jobs. The Southern Community Health Precinct and 300+ bed hospital will be located immediately adjacent the Town Centre on its western edge.

The finalisation of the Edmonton Town Centre will, along with the Edmonton Business & Industry Park, see Edmonton develop into the second key node for the city of Cairns complementing the existing Cairns CBD, which will continue to be the focal point supporting the majority of tourist and business activity.

4.2.3 Edmonton Business & Industry Park (Pregno Industrial Site) – Cairns Region

The Edmonton Business & Industry Park is a significant industrial development on the eastern (less populous) side of the Bruce Highway, in the southern growth corridor. The project, being developed by Pregno Investments, covers an area of almost 50 hectares and is conservatively estimated to support a total gross floor area (GFA) of 120,000m². The Edmonton Business & Industry Park and the Edmonton Town Centre will result in an employment precinct which supports future growth within the corridor. Development on the initial stages of the site is expected to begin within the next two years and a 20 year staging plan has been approved.

4.2.4 Mareeba Industrial Park – Tablelands Region

The Mareeba Industrial Park is a large industrial estate situated on the north-western edge of Mareeba Township. Stages 1A, 1B, 1C and 1D comprising of 48 allotments have been completed and a further 180 hectares of land will be progressively developed over the next 30 years. The Mareeba Industrial Park has a number of attributes, being land size, cost and proximity to transport infrastructure, which makes it a most suitable location for large scale industrial development.

4.2.5 Smithfield Town Centre – Cairns Region

Though significantly smaller in scale than the Edmonton Town Centre, the Smithfield Town Centre is designed to perform a similar function for the suburbs along the Northern Beaches of Cairns. The final form of the Smithfield Town Centre is still being developed and worked through, although it is likely to be a mixed use development with a nucleus of commercial/retail activity supported by higher density residential development, in the form of units/apartments. The total area for the new centre is 45.3 hectares.

4.2.6 East Woree Industrial Park – Cairns Region

The East Woree Industrial Park lies between the existing industrial hub of Portsmith and the northern end of the southern growth corridor. The park was designed to handle the spillover from Portsmith and has become home to large transport depots, workshops and a range of large wholesale/retail facilities. There are still a number of large sites yet to be developed.

4.2.7 Existing Fibre Optic Developments in Cairns

There are currently three (3) significant and relatively recent greenfields subdivisions in Cairns and one (1) in Port Douglas serviced by high-speed broadband (Telstra Velocity). The local development industry has embraced the concept of optical fibre developments. Information on the existing fibre footprint is contained within the Infrastructure section below.

5. Infrastructure

5.1 Existing Fibre Footprint

5.1.1 Telstra

Far North Queensland is currently well served by Telstra infrastructure, with optical fibre existing to all major exchanges, mobile telephone base stations, RIM cabinets and the out-posted CMUXs. The extent of the existing fibre footprint is also significant with respect to area – with fibre extending to most towns on the Tablelands, west to Normanton, and from Cooktown right up to Weipa and Bamaga at the tip of the Cape York Peninsula. Telstra backhaul is currently along two routes down the coast from Cairns, a coastal route (largely following the Bruce Highway corridor) and an inland line.

5.1.2 Optus, Nexium and AARNET

In addition to Telstra infrastructure, Optus have ownership of the 'Reef' fibre, which utilises the 1,820km rail corridor from Brisbane to Cairns. The network has significantly reduced the costs of high speed communications to residents living in coastal regions. There is also some Optus fibre around the Cairns CBD, though its footprint is constrained.

Nexium, a commercial subsidiary of Ergon Energy also has an optical fibre footprint, both underground and suspended, and aerial which connects major Ergon facilities as well as some Telstra exchanges.

The Australian Academic Research Network (AARNET) has a diverse 10 Gbps optical fibre network through to the James Cook University (JCU) in Cairns. This optical fibre also runs through the Townsville First Release site in Aitkenvale.

5.1.3 Cairns and Tablelands Regional Councils

Cairns and Tablelands Regional Councils each has its own existing optical fibre network, which is being expanded. The network in Cairns links all major Council offices and depots.

5.2 Transport Connects

Far North Queensland has always had a large transport industry, acting as the hub for all movement to Cape York Peninsula, the Torres Strait, the Gulf of Carpentaria, Papua New Guinea and all areas to the south of the state.



5.2.1 Air

Central to the region's transport infrastructure is the Cairns International Airport, a capital city standard facility and the seventh busiest airport in the country. Cairns International airport has averaged over 3.6 million passengers per year over the past three (3) years, with strong growth in domestic tourism numbers. The airport is one of the few in Australia to co-locate international, domestic and regional services in the same facility. A \$200 million re-development of the domestic terminal has recently been completed, with a \$15 million refurbishment of the international terminal now underway. The success of the Cairns International Airport is essential for the continued viability of the tourism industry.

Also being upgraded is the Mareeba Airport, which has received \$13 million in State Government funding. This investment is set to position Mareeba as a regional aviation training hub for the Asia-Pacific by developing the facility as a high technology maintenance and specialist flight training venue.

Other regional airports include Cooktown, Coen and Mundoo (Innisfail) aerodromes.

5.2.2 Road

Far North Queensland lies at the end of the Bruce Highway, connecting the east coast of Queensland, 1,700km north of Brisbane. The Highway is currently receiving a major injection of \$600 million of capital infrastructure funds aimed at weather-proofing the significant sections of the road which have historically been highly susceptible to flooding. The Kennedy Highway, Burke Development Road and the Gulf Development Road are the main links with the west of the region and extend from the Atherton Tablelands to East Arnhem Land in the Northern Territory. The Cape York Development Road extends north from Mareeba to the tip of the Cape York Peninsula.

5.2.3 Rail

Cairns is also the terminus for the North Coast Railway Line that follows the eastern seaboard of Queensland. The line supports a number of passenger services, including the high speed Tilt Train. Freight services also operate along this route, with major Queensland Rail freight handling facilities at Portsmith (Cairns) and Tully. The Northern Line then extends from Cairns up to the Atherton Tablelands, supporting freight and tourism activities to Mareeba and the Gulf country.

5.2.4 Sea

The region has historically had very strong sea linkages, the traditional trading links to Papua New Guinea (PNG), Torres Strait and the base for exporting the agricultural and resource product of the region. Cairns is the largest port in the region and is in the gradual process of transitioning from the base for Australia's largest fishing fleet to becoming one of the busiest cruise ship destinations in the country.

The port is ideally located to function as a supply and service base for mining operations in PNG and Indonesia and has now begun large scale domestic and industrial freight services to Port Moresby. Capitalising on its strategic location, the Royal Australian Navy also has a base in Cairns (HMAS Cairns) which supports 14 warships and more than 900 personnel.

The port is currently undergoing a major re-development to attract and increase accommodation for tourist and cruise ship operations. This includes a lucrative super-yacht industry which has led Cairns to become one of the dominant centres for luxury cruising within the southern hemisphere.

Other significant port infrastructure within FNQ includes the bulk sugar terminal wharves at Mourilyan and Lucinda and the significant resource-exporting hub of Weipa. Mourilyan has been strategically highlighted as a potential transport hub for the region connecting road, rail, sea and air ports.

6. Industry Capability

Appendix C presents a sample of industry capability available within the FNQ region to support the NBN rollout in the following areas:

- Conduit, pit and pipe networking;
- (Optical) cable hauling and jointing;
- Internal cabling skills for multi-dwelling units;
- Directional boring;
- Construction skills, including heavy plant operation;
- Civil plant hire and equipment;
- Road construction and traffic management;
- Surveying;
- Logistics, including warehousing and storage facilities; and
- Project management and administration.

Included within this capability is the FNQ region's extensive expertise in the construction industries. In the past this capability has been engaged in developments to service the tourism industry. With the slowdown in the tourism market, the region offers a highly skilled construction workforce available to NBN Co. with appropriate training where required.

Table 6.1 summarises the sample of local companies and their capabilities. The councils of FNQ would be happy to assist NBN Co. and their contractors to find local companies ready to assist with the rollout of the network.

Table 6.1 FNQ Industry NBN Support Capability

Company Name	Conduit, pit and pipe networking	(Optical) cable hauling and jointing	Internal cabling skills for multi-dwelling units	Directional boring	Construction skills, including heavy plant operation	Civil plant hire and equipment	Road construction and traffic management	Surveying	Logistics, including warehousing and storage facilities	Project management and administration
Koppens Developments	X				X	X	X		X	X
DotCom Technologies	X	X	X	X	X	X	X	X	X	X
Jackson & Jackson Refrigeration	X		X							X
Cairns Plant Hire	X		X	X	X	X	X		X	X
SPA Consulting Engineers (QLD)	X									
Metrobuild Constructions	X		X	X	X	X	X	X	X	
Lauder Bedboring and Excavation				X						
Skill360 Australia					X					
Fibre Optics NQ Pty Ltd		X	X							
East Coast Traffic Control P/L							X			
Charles O'Neill Pty Ltd								X		
Brazier Motti Pty Ltd								X		X
RPS								X		X
John MacIsaac and Associates Pty Ltd								X		
Cavill-Jones Surveyors Pty Ltd								X		X
Innisfail Carrying Co									X	
Collins Warehousing									X	
Harry's Backhoe Hire Pty Ltd						X				

7. Education and Training Delivery

FNQ is home to a range of industry training organisations and is well positioned to support training needs for the NBN. The Tropical North Queensland Institute of TAFE (TNQIT) services more than 13,000 clients annually from eight campuses located at Cairns, Innisfail, Tully, Atherton, Mareeba, Mossman, Thursday Island and Bamaga. TNQIT has responded to the recent Expression of Interest issued by NBN Co. and is prepared to offer NBN training courses to supplement their existing expertise in electrical and data communications training. TNQIT would have the capacity to provide training if required in its campus. This capacity could be activated at short notice to service training requirements in Far North Queensland or other areas such as North Queensland (Townsville). Appendix E presents TNQIT's capability to support the NBN.

In addition to the initial dialogue with TAFE, FNQROC have also liaised with local fibre optic specialists Vanguard Communications Pty Ltd and Sydney-based company Commsforce Pty Ltd, about opportunities for bringing the recognised industry leader, Celemetrix Pty Ltd, to Far North Queensland where local capability is not available. The training programs conducted by Celemetrix are specifically tailored to the NBN and have the potential to fill the current skills shortfalls in the region for the highly specialised and technical areas such as optical jointing, network design and testing.

8. Regional Case Studies

FNQROC has commissioned 10 case studies of businesses and applications which use broadband communications. These case studies are presented in Appendix B. These are largely existing applications which use existing services and are limited by the capacity of the broadband services available. These case studies demonstrate a sample of the applications which will work much more effectively when using NBN services once they are available.

In some cases the NBN will not only improve the speed of operation but allow the scope of operation to be increased dramatically. We believe these case studies will be useful in demonstrating the value of the NBN to the greater region.

The following case studies are presented in detail in Appendix B:

- **Power Generation** – Alternative Energy Supply
- **Multi-media Industry** – Handling Video Content
- **Health Industry** – Creative Health Media
- **Community Sector** – Information Hub
- **Tourism Industry** – Electronic Booking Systems
- **Information Technology** – Localised Data Services
- **Health Industry** – Media Imaging
- **Government Community Engagement and Service Delivery**
- **Education Industry** – Creative Courses On-line
- **Demonstration Village** – Malanda Rural Technical Village.

Further case studies are currently planned including the environmental research sector and a local area case study transitioning from traditional industry to new economy opportunities. It is proposed that a select number of these case studies could be developed as NBN pilots, and we look forward to identifying regional pilots in consultation with NBN Co.



Appendix A – Regional Maps

Legend

CRC Optic Cable Footprint

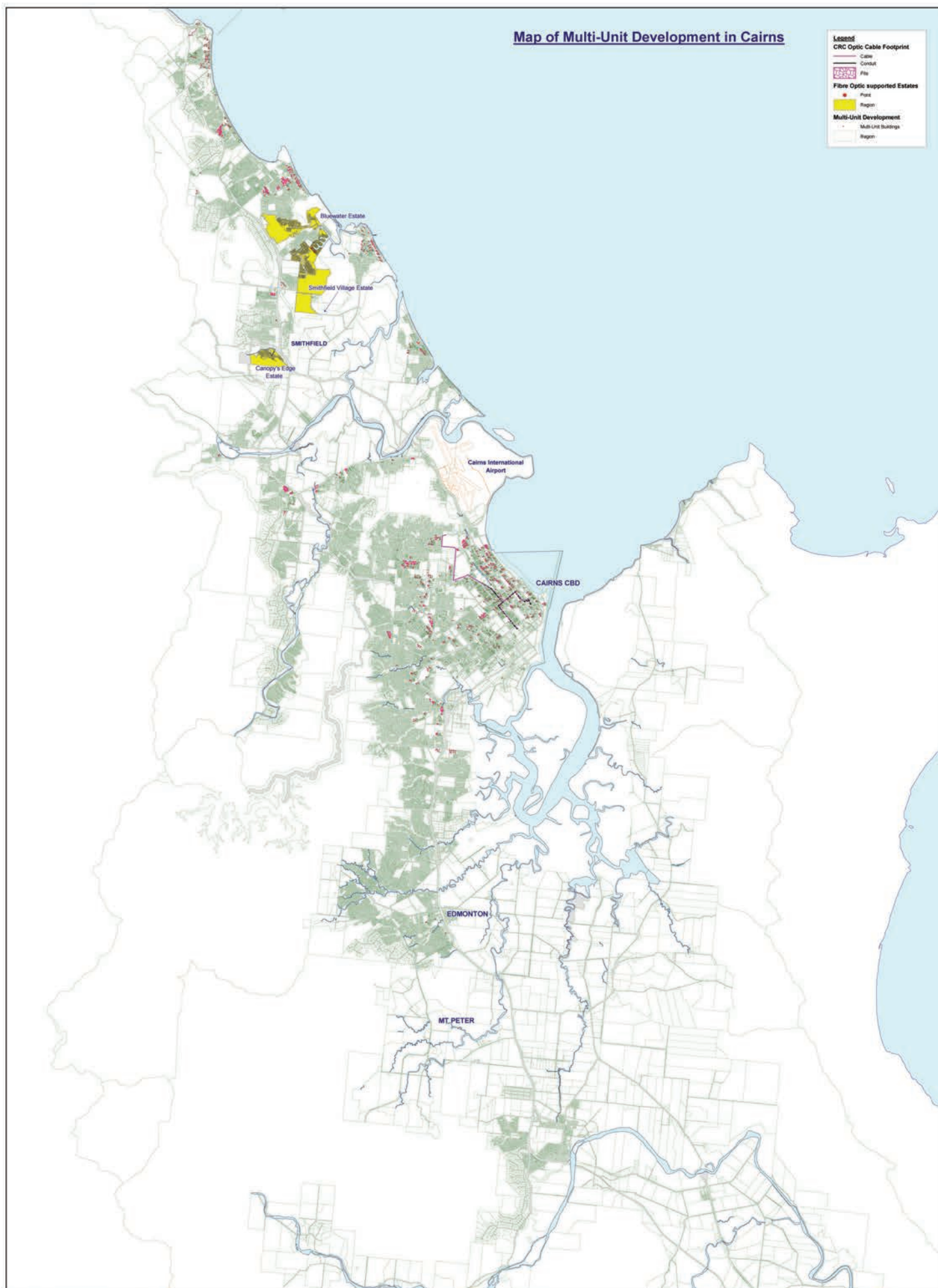
- Cable
- Conduit
- Pile

Fibre Optic supported Estates

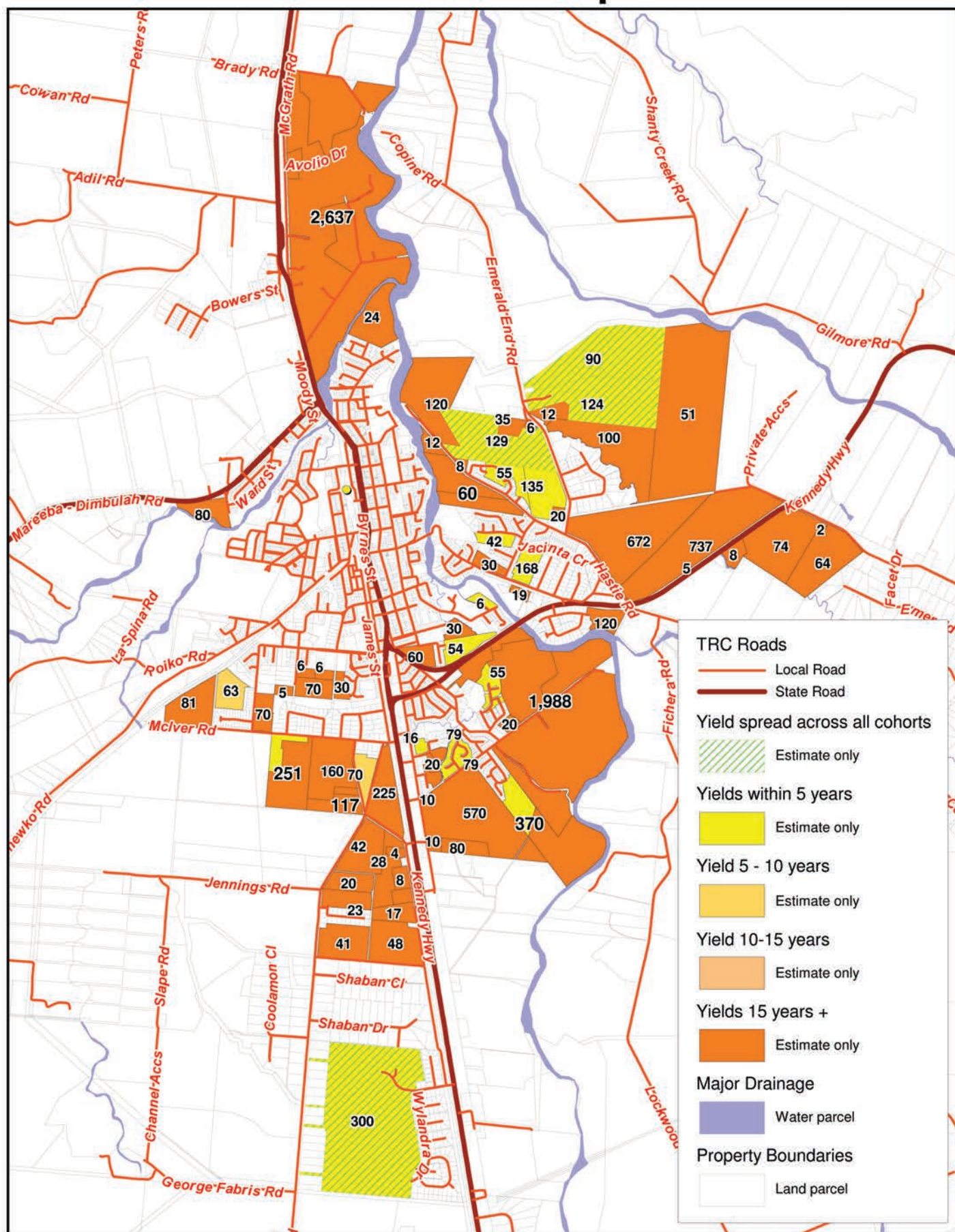
- Point
- Region

Multi-Unit Development

- Multi-Unit Buildings
- Region



Estimated Residential Development - Mareeba



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Note: This data is an estimate only - some parcels require rezoning for development to occur and this document does not imply Council approval for residential yields as indicated.

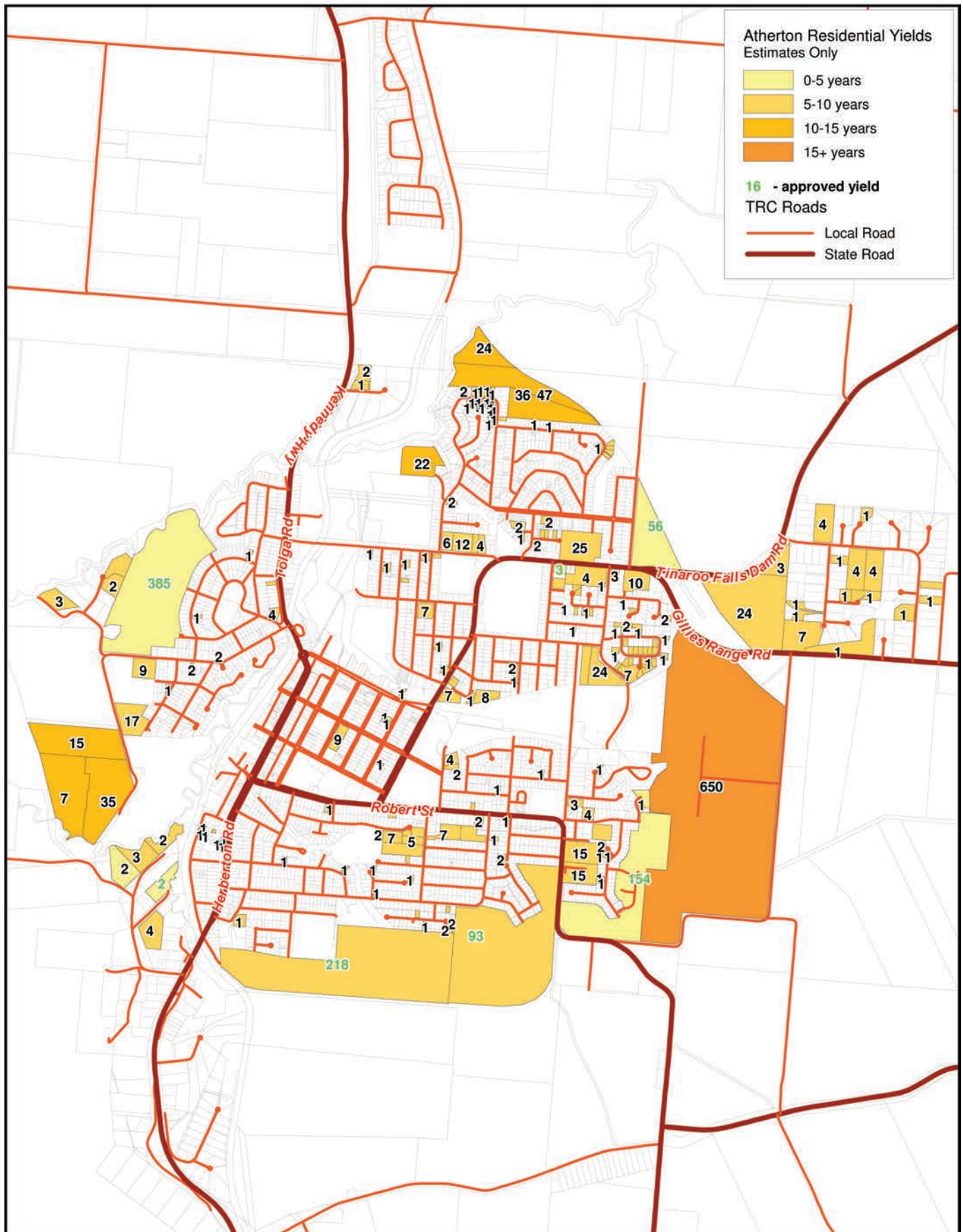
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Commercial-in-confidence

Scale
1cm = 530m
Map Grid of Australia
Zone 55 (GDA94)



Estimated Residential Development Yields - Atherton



No:	COMMUNITY USES
1	POWDER MAGAZINE
2	SPORT AND GAME FISHING CLUB
3	WATERFRONT
4	WATERFRONT
5	RESERVE (HARBOUR PURPOSES)
6	COURT HOUSE
7	MAGISTRATE'S RESIDENCE
8	QLD POLICE SERVICE
9	VOLUNTEER COAST GUARD
10	RSL
11	RESERVE (SCHOOL OF ARTS)
12	COUNCIL CHAMBERS
13	RESERVE (HTAGE,HIST & CULT PURP)
14	RESERVE (LOCAL GOV PURPOSES)
15	ANGLICAN CHURCH
16	QLD FIRE SERVICE
17	RESERVOIR
18	RESERVE (LOCAL GOV PURPOSES)
19	JAMES COOK MUSEUM
20	ROMAN CATHOLIC CHURCH
21	ROMAN CATHOLIC CHURCH
24	SHIRE HALL
25	SHIRE HALL
26	RESERVE (WATER SUPPLY PURP)
27	BAPTIST CHURCH
28	TELSTRA
29	RESERVE (LOCAL GOV PURPOSES)
30	SULLAGE DUMP
31	RESERVE (SLAUGHTERING PURP)
32	RESERVE (CEMETERY)
33	COUNCIL DEPOT
34	COUNCIL DEPOT
35	RESERVE (LOCAL GOV PURPOSES)
36	RESERVE (HOSPITAL)
37	ERGON
38	ERGON
39	ERGON
40	COOKTOWN & DISTRICT YOUTH ASS
41	ENDEAVOUR LIONS CLUB
42	RESERVE (SPORT AND RECREATION)
43	RESERVE (SPORT AND RECREATION)
44	KINDERGARTEN/STUDENT HOME/
44	COMMUNITY CENTRE
45	RESERVE (STATE HIGH SCHOOL)
46	RESERVOIR
47	FUTURE RESERVOIR
54	PUMPING STATION
55	COMMONWEALTH RESERVES

No:	DESCRIPTION
A	ENDEAVOUR PARK
B	CKT BOWLS CLUB
C	LIONS PARK
D	ANZAC PARK
E	RESERVE (PARK & REC)
F	RESERVE (PARK & REC)
G	KEABLE PARK

Legend

- Business
- Conservation
- Community Uses
- Industrial
- Medium Density Residential
- Mixed Use
- Open Space
- Low Density Residential
- Rural Residential
- Rural



**Cook Shire
Planning Scheme**

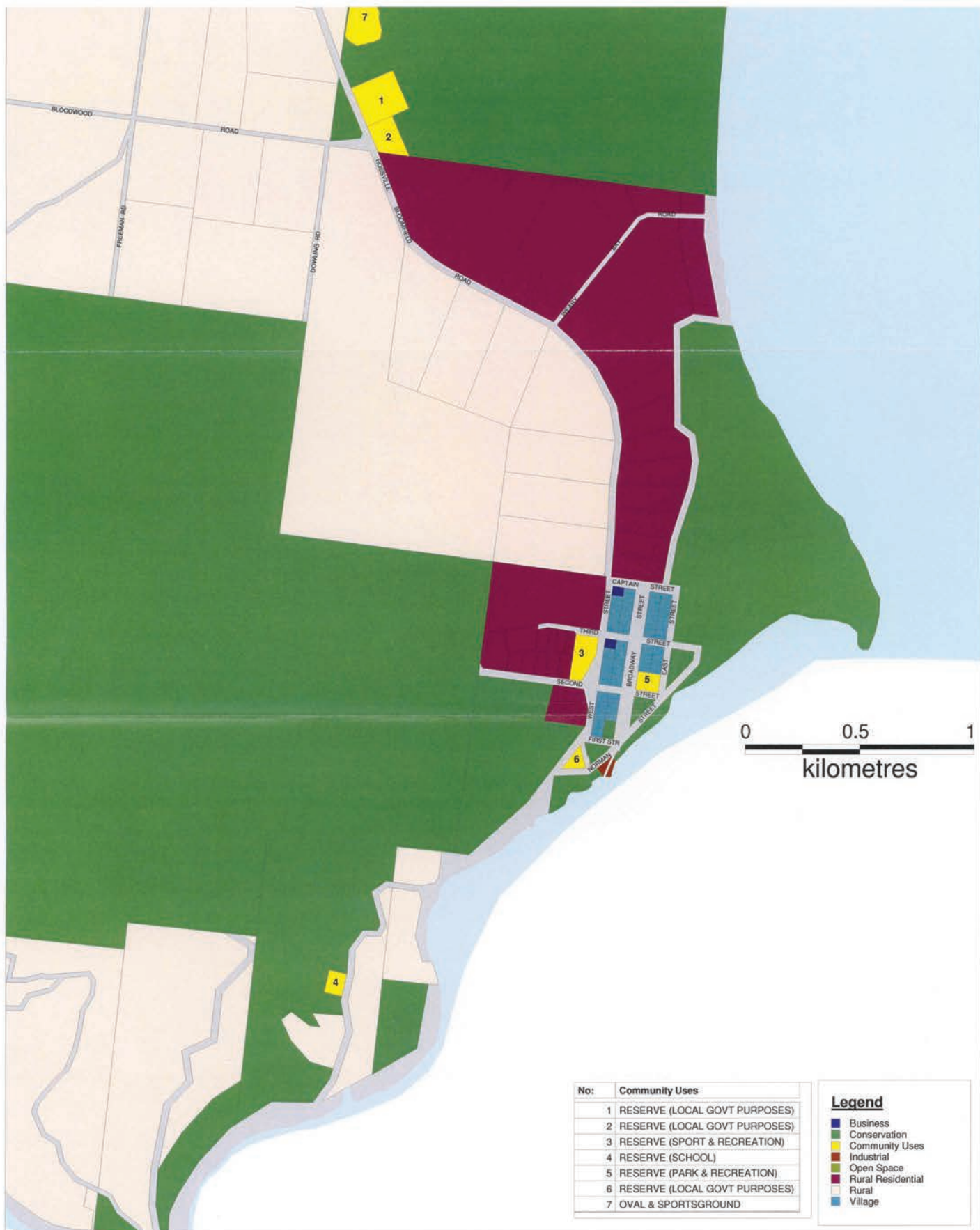


Cooktown

MAP 2

1 June 2007

DATE:	CAD FILE:
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SCALE:	drawn by:
1:20,000	Cook Shire Survey Office



**Cook Shire
Planning Scheme**



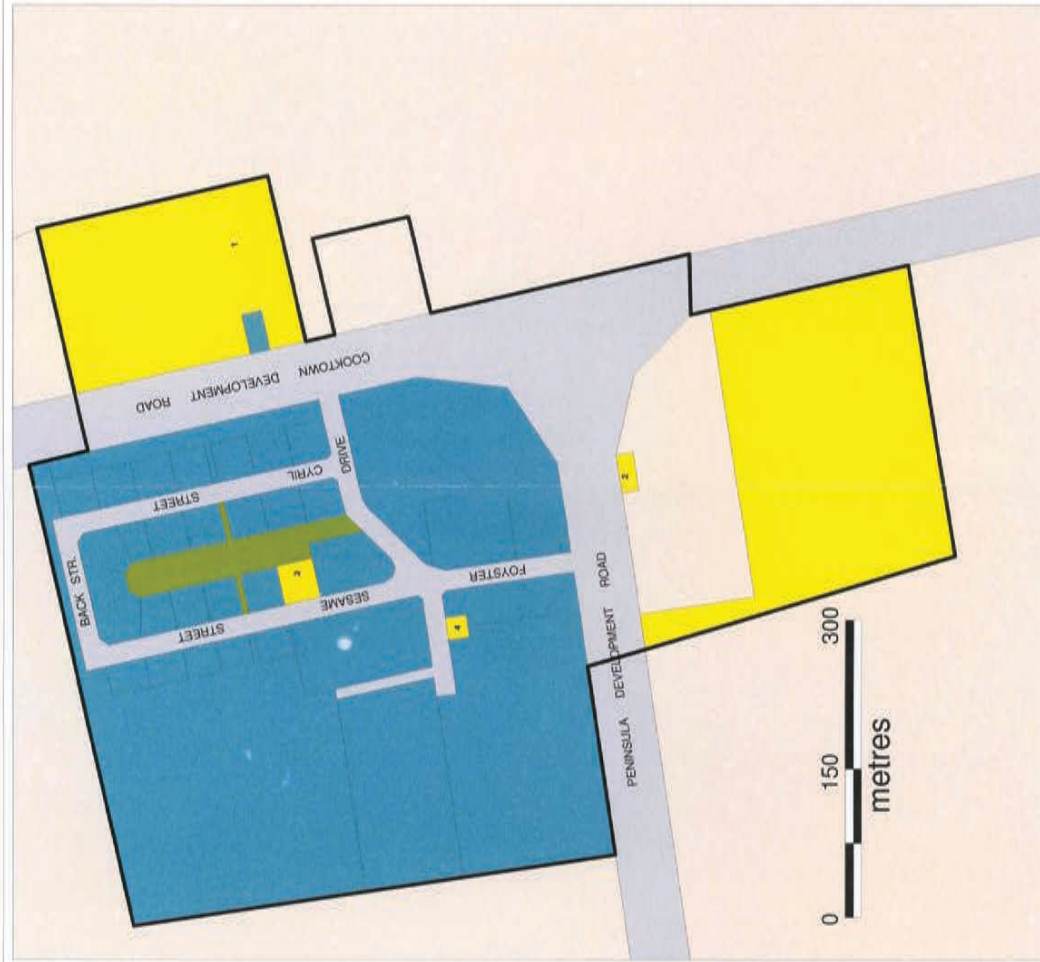
**Ayton Locality
(Plan 1 of Ayton, Rossville
and Portland Roads Locality)**

MAP 4

DATE:
21/8/2006
SCALE:
1:15,000

CAD FILE:
TPS-A3-Ayton-V9.wor
drawn by:
**Cook Shire
Survey Office**

1 June 2007



No:	COMMUNITY USES
1	CAMPING RESERVE
2	RESERVE (LANDING GROUND)
3	CAMPING RESERVE
4	CAMPING RESERVE
5	STATE SCHOOL
6	RESERVE (LOCAL GOV PURPOSES)
7	HEALTH CLINIC
8	RESERVE (POLICE PURPOSES)
9	WATER TREATMENT PLANT
10	CAMPING RESERVE
11	LANDFILL SITE
12	RESERVE (CEMETERY)



No:	COMMUNITY USES
1	STATE SCHOOL
2	RESERVE (LOCAL GOV PURPOSES)
3	COMMUNITY HALL
4	WATER TREATMENT PLANT

DATE:	19/4/2006	CAD FILE:	TPS-A3-Land +Laura-V7.wor
SCALE:	as specified	Drawn by:	Cook Shire Survey Office

Cook Shire **Planning Scheme**



Lakeland and Laura Locality

MAP 7

1 June 2007



DATE:	19/4/2006	CAD FILE:	TPS-A3-Portland Roads -V7.wor
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Cook Shire
Planning Scheme

Portland Roads Locality
(Plan 3 of Ayton, Rossville
and Portland Roads Locality)

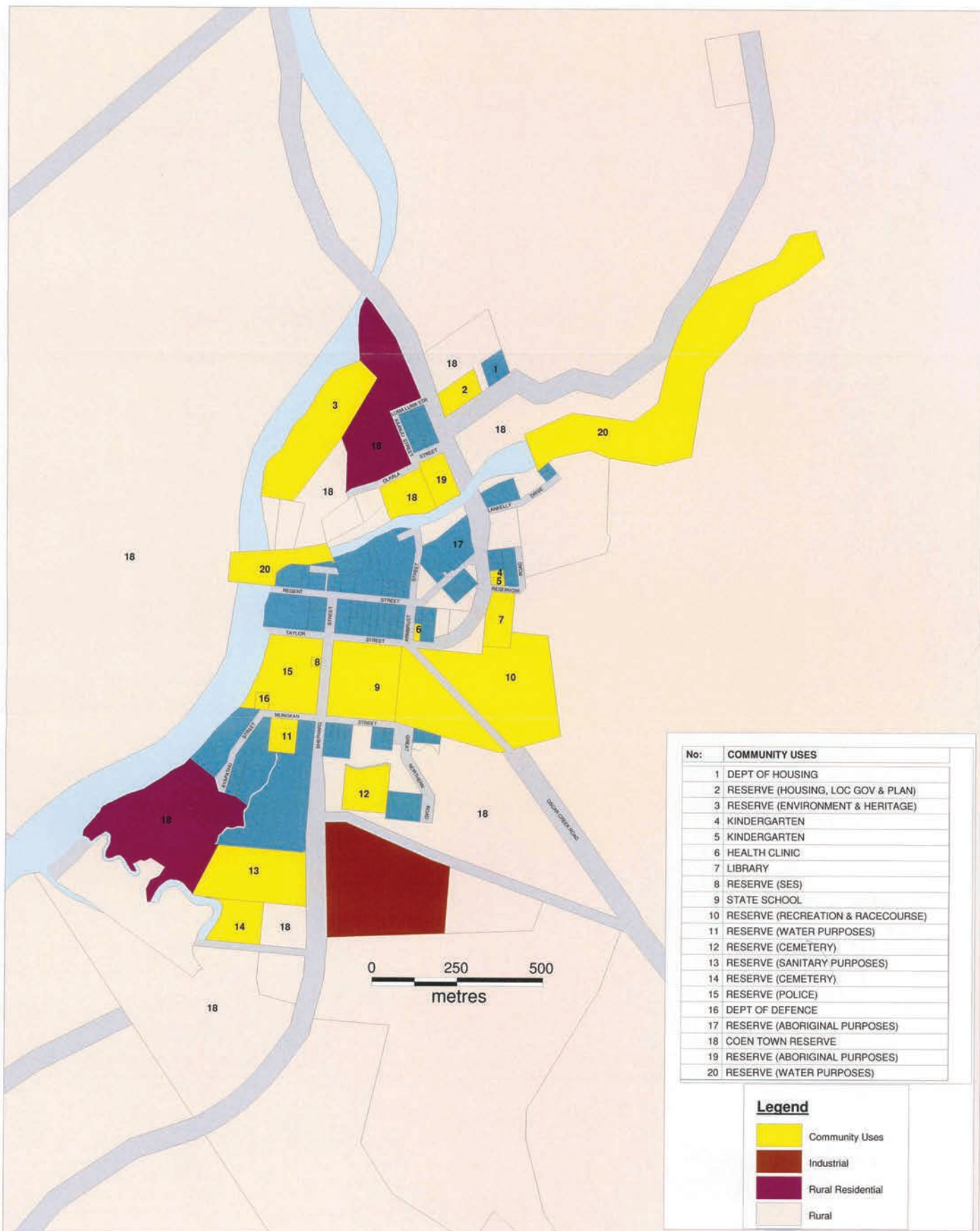
MAP 6



1 June 2007

Legend	
Conservation	Dark Green
Community Uses	Yellow
Rural Residential	Purple
Rural	Light Orange

No.	COMMUNITY USES
1	RESERVE (WATER SUPPLY)
2	PORTS CORPORATION PURPOSE
3	RESERVE (DRAINAGE)



**Cook Shire
Planning Scheme**



Coen Locality

MAP 8

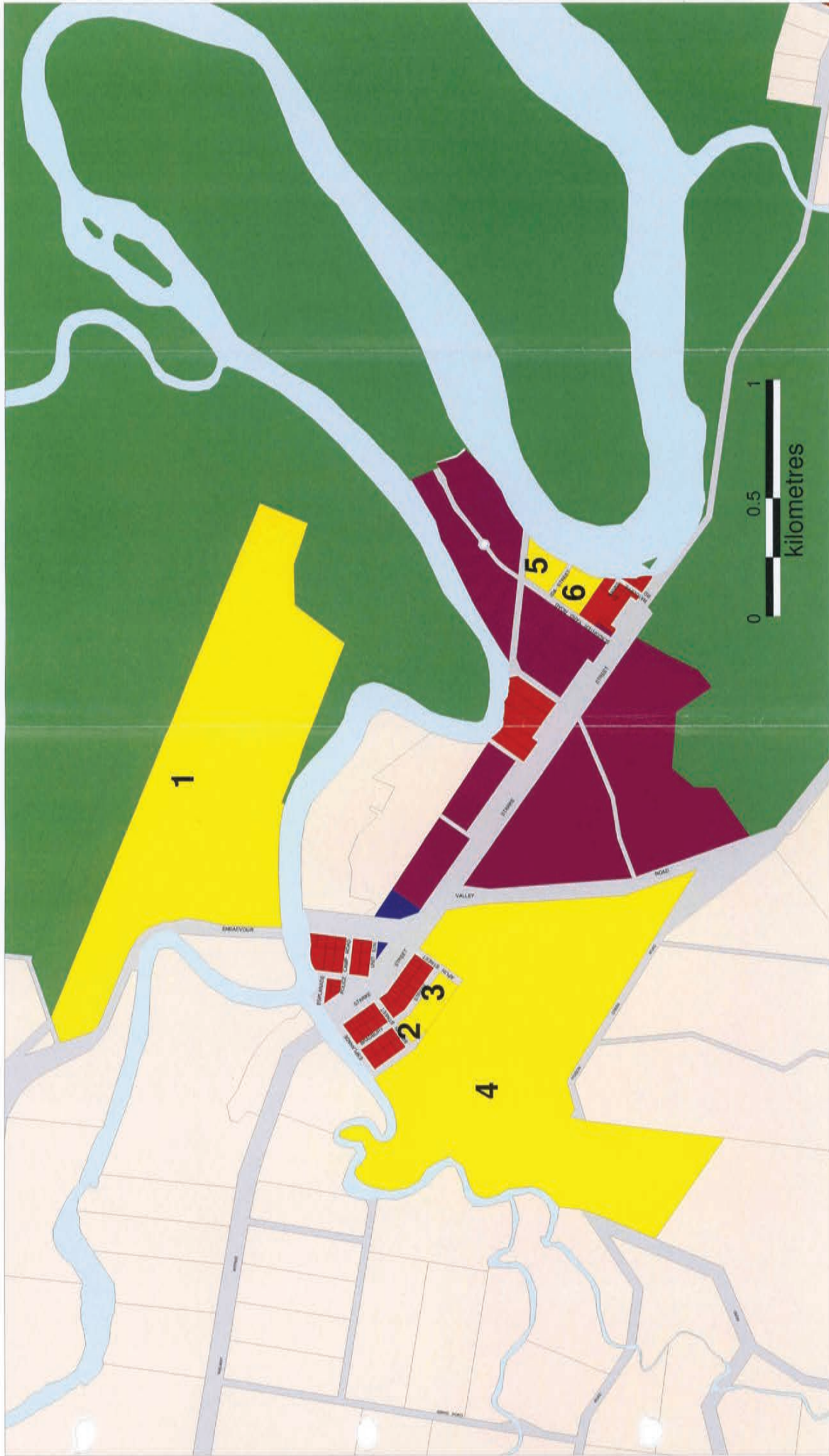
1 June 2007

DATE:
28/8/2006

SCALE:
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CAD FILE:
TPS-A3-Coen-V9.wor

drawn by:
**Cook Shire
Survey Office**



No:	COMMUNITY USES	1 COOKTOWN AIRPORT 2 RESERVE (POST & TELEGRAPH) 3 RESERVE (PUBLIC PURPOSES) 4 TOWN RESERVE 5 RESERVE (RECREATION)		Cook Shire Planning Scheme	Marton	MAP 3	DATE:	CAD FILE:
							18/4/2006	TPS-A3-Marton-V7.wor
							SCALE:	drawn by:
							1:15,000	Cook Shire Survey Office

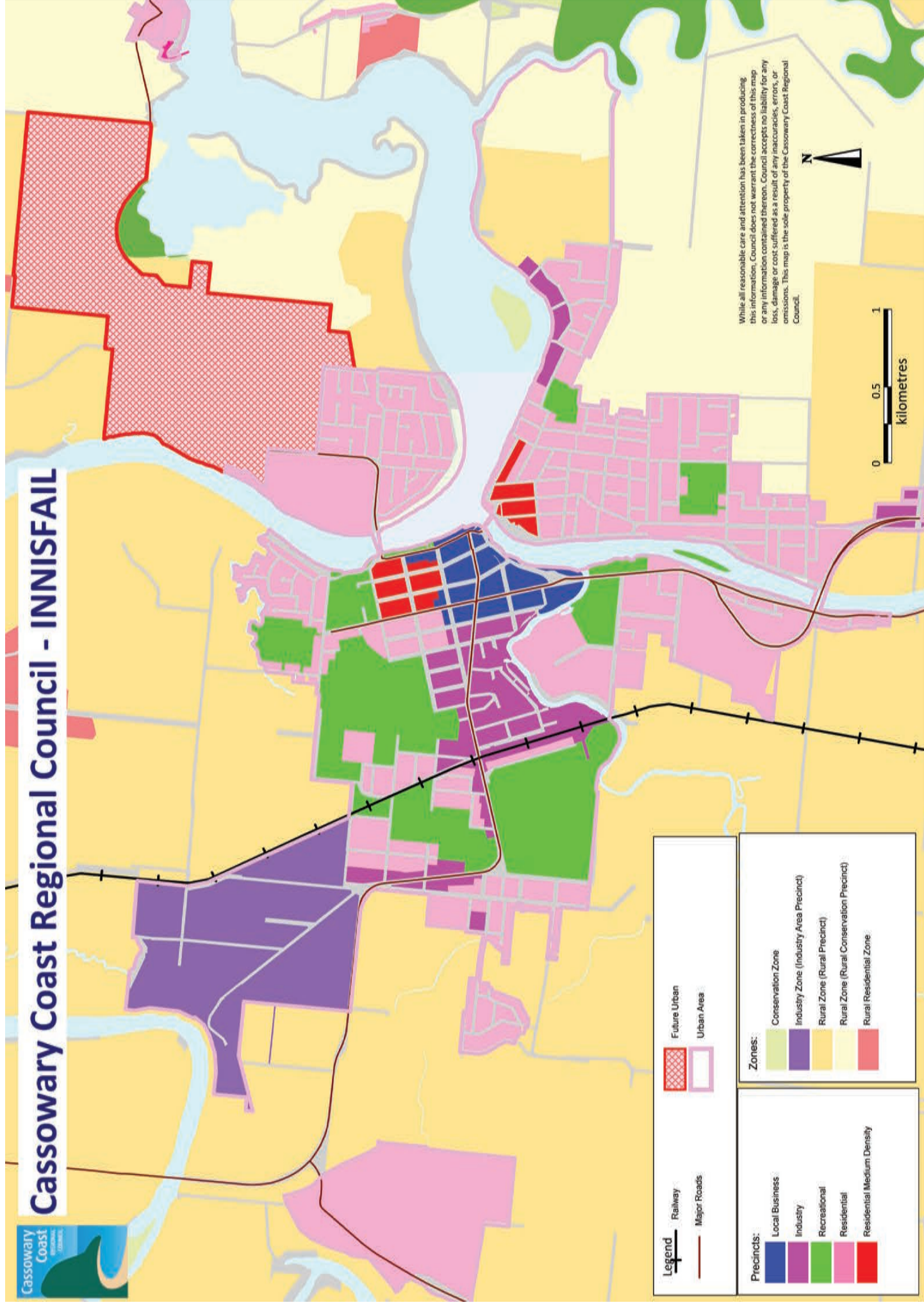
1 June 2007



Cassowary Coast Regional Council Overview



Cassowary Coast Regional Council - INNISFAIL



Legend

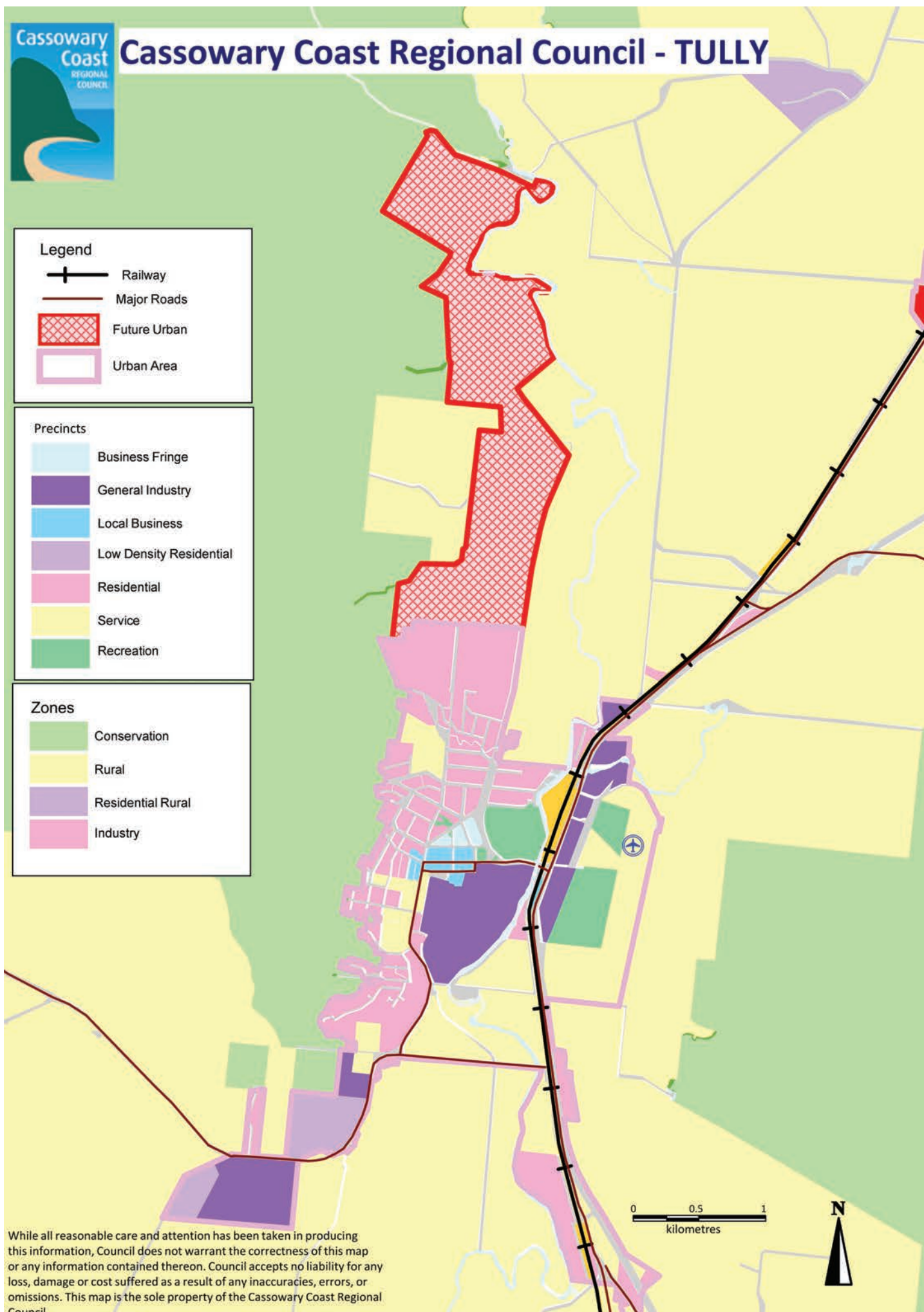
-  Railway
-  Major Roads
-  Future Urban
-  Urban Area

Precincts

-  Business Fringe
-  General Industry
-  Local Business
-  Low Density Residential
-  Residential
-  Service
-  Recreation

Zones

-  Conservation
-  Rural
-  Residential Rural
-  Industry



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Appendix B – FNQ Regional Case Studies



CASE STUDY

Power Generation — Alternative Energy Supply

Through its award-winning invention known as Polepower®, Cairns-based business **Evolve Energy** is leading the global market in photovoltaic electricity generation. The units are innovative in terms of function and design, and are intended for use at a commercial level. Unlike current solar panels, the are designed for use by electricity utilities and attach to electricity poles to generate clean, green energy close to the point of use. Then using smart-grid technology and the internet, they allow power to be proactively managed at the ends of the distribution network where customers require it.

With the support of Ergon Energy, Polepower® was recently trialled on Magnetic Island (Townsville) and over a 12-month period, has proven to be extremely successful. Negotiations are now underway to expand the project commercially.

Challenges

The micro-inverter used by Polepower® is the first of its kind to be approved for connection to the Australian power grid. The smart-grid version requires reliable internet access to be used at capacity and in a fiercely competitive market, strong internet services are vital to ensure successful uptake of this technology.

If the communications improve, the offering and the options for how solutions are applied would be better down the track. The rate of take-up would improve.

David Smyth, Evolve Energy

Improving the system control

A feature of the smart-grid enabled system is wireless communications back to a web portal using a mesh network and either ADSL or mobile phone networks. NBN would improve the communications of these systems to allow increased data flow between the web portal and the devices in the field which could allow increased functionality and control of these systems in the future.

Smarter operation for energy utilities

Under current operating conditions, when any power line smaller than a high voltage feeder goes down in a power network, the utility is reliant on telephone reports from users to identify when an outage has occurred. This is particularly onerous in the case of wide-spread damage from a storm or cyclone.

In addition to managing power, the Polepower® system developed by Evolve Energy allows utilities to see how the power grid is operating and identify faults instantly. If there is a loss of supply in the system, an alarm would sound in the control centre and a crew can be despatched directly to the site of the fault.



David Smyth and Grant Behrendorff of Evolve Energy

In this scenario, there is a direct correlation between the reliability of information transfer and the ability to control and maintain the power grid. So using NBN fibre optic connections to communicate with Polepower® systems will improve power supply reliability and enhance customer service.

Critical issues for Far North Queensland

The technology Evolve Energy has developed is of critical importance to Far North Queensland. Most of the power produced in Queensland is generated in the South East corner. As a result, the cost to supply power to Far North Queensland is up to four times more expensive than supply into Brisbane. Economic modelling indicates that deployment of Polepower® to 5% of poles in Australia will generate an economic benefit of \$270 million to the region. In addition, there are significant savings to be made through offsetting power line upgrades. The Polepower® system developed by Evolve Energy has the ability to reduce the peak power loads on the grid. This can reduce the need for capital works programs which are often designed specifically to manage peaks that typically occur for less than 5% of the time.



An example of the Polepower® photovoltaic system

If negotiations for wide-scale deployment of Polepower® are successful, Evolve Energy plans to develop a manufacturing plant in Far North Queensland. While NBN is not essential for the progress of this technology, it will certainly assist it to be more cost effective, efficient and practical.

Australia has an opportunity to reap significant economic and environmental benefits from the success of Evolve Energy's technology. The successful commercialisation of this award-winning system in a highly competitive, global market can be improved with the implementation of the NBN.



CASE STUDY

Multi-media Industry — Handling Video Content

Green Lantern Pictures are an-award winning video, DVD and web content production company. They operate from Cairns and develop advertising and marketing media for corporate clients. The advertising material Green Lantern creates is distributed to television networks nationally.

Current Limitations

Using ADSL, Green Lantern has limited options for sending draft video material to clients for review. In practice they are restricted to around 5MB per file for an outgoing email.

As a result, the client receives a low-resolution video with lower-quality audio. This is often not the best showcase for the material that Green Lantern has produced.

A current alternative is the use of file sharing websites. While this allows clients to receive much larger files, it has some drawbacks. The information is stored and accessed via cloud computing. This means the interface is often not very professional and lacks the personalisation and security of email or a local file server.

We just need a little bit extra to be able to provide quality files as the client will be seeing it on air. We are talking about 50MB to be able to provide a high definition broadcast file.

Travis Franze, Green Lantern Pictures

Compulsory satellite services add cost

All production companies are required to use one of two content distribution services to submit advertisements to the regulating authority and the TV networks. A fee is charged for the use of these services, which utilise privately owned satellites for data transfer.

It is quite conceivable that a low budget commercial, less than \$1000 can rack up another \$300 just in these Adstream and Dubsat charges. It would be hugely advantageous if the NBN could allow us to send material directly.

Chris Forsberg, Green Lantern Pictures



Travis Franze and Chris Forsberg of Green Lantern Pictures believe that coverage of natural disasters will significantly improve with the NBN



Video review and data management is likely to be more efficient

Revolutionising the news

Only in the case of really big news stories will the TV networks resort to using low-resolution footage. This rules out much of the material gathered on site in the early stages of a natural disaster. However, with the ability to send high-resolution imagery with a standard internet connection news coverage is likely to change significantly.

With a faster connection, I could take my laptop out to a natural disaster, set up a lighting situation for a presenter and do a full report from my laptop. We'll be able to do remote jobs like that as the travel time on fast breaking news stories will be dramatically reduced. For a disaster story this could really make a difference, perhaps even save a life.

Travis Franze, Green Lantern Pictures

In addition, the NBN is likely to advance niche specialist programs that are provided on the internet rather than on free to air TV. With audiences accessing more on-line data and news the demand for production services such as those provided by Green Lantern is likely to increase.

Efficiency is the key benefit

The team at Green Lantern Pictures anticipate that with the introduction of the NBN, data management time will be reduced by around 20 to 40 per cent. Some examples of expected efficiencies are:

- Faster transfer of data to and from clients using email
- Management of data delegated to an administration team
- Reduction in the costs of satellite distribution networks
- On-line back-up system to replace cumbersome manual system
- More practical uses for cloud computing services.

These practical savings in the business and the improved connectivity would allow Green Lantern to expand its market. They would no longer be restricted to a local market but could start to build a global service.

It is of critical importance to the long-term future of the Far North Queensland economy to diversify and expand market offerings. Providing high speed broadband to creative industries such as Green Lantern will continue to strengthen the economic prospects of this region.

With NBN it will be like when colour TV came in – a revolution.

Chris Forsberg, Green Lantern Pictures



CASE STUDY

Health Industry — Creative Health Media

HITnet is the Health Interactive Technology Network. They seek to improve Indigenous health literacy through the rapidly evolving IT and multimedia fields. They host a national digital network that provides customised, reliable health information to hard-to-reach populations across Australia using touch screen kiosks.

There is no one else like us. We are quite unique with what we are doing. The digital divide is huge in remote communities, and in many instances they do not have the capacity to maintain home computers. Having publicly available touch screen kiosks with culturally relevant health information provides huge benefits.

Julie Gibson, HITnet

Operating within the constraints

In providing this service to clients, HITnet operate with a virtual, national team. They have staff and suppliers in Cairns, Brisbane, Melbourne, Sydney and customers throughout the country. Considering the large file sizes that are required for multi-media data it can be difficult to review and share information across the team. Much of the time, files are saved onto a memory stick and sent via post.

This takes considerable staff time to organise and manage. HITnet would be able to provide a more efficient service and achieve more with their limited resources when data sharing is made easier through the NBN.

This efficiency gain could be critical to closing the healthcare gap by achieving more equitable access to health information.

Running a national network of kiosks

The health kiosks are currently located in 70 different urban, rural and remote locations nationally. Each is connected to the internet, which is used to check how they are operating, refresh content and retrieve usage statistics. However the connections can be sporadic and unreliable. When there is no internet service, the kiosk runs in isolation.

HITnet recently undertook a “full refresh” of kiosk software and content. The upgrade files were eight Gigabytes in size, which was not possible to upgrade remotely using the current internet services. So they were forced to hire a sub-contractor to visit each site and manually upload the software and associated data to the kiosk.

If we had superfast broadband there is so much more we could do compared with what we have to work with at the moment.

Julie Gibson, HITnet



Community members using a HITnet kiosk in Roeburne, Western Australia



Members of the Cairns HITnet team working on the design of a health module

Building new initiatives

As a complement to the current system, HITnet are launching a new web site that will have a virtual kiosk incorporated into it. This will be the first time that all the health content that is available via the kiosks, will be displayed on the web. To achieve this, the video modules that feature on the kiosks have required further compression, so there is concern that this will compromise the quality of the material.

The big dream for HITnet is to be able to easily receive and upload video material from people on remote communities. This would strengthen the personalisation of the materials on each kiosk and open up new avenues to discuss health issues that are relevant to that community at that present moment.

To be a multi-media producer now the software that you need is available on a laptop. People can create their own video productions, their own music and animations and so on. To be able to distribute that and to generate skills, potentially employable skills, is very important.

Julie Gibson, HITnet

At the moment the team is limited to producing health modules that are less than 400MB. They expect however, that with improved internet services nationally, there will be no limit to file sizes that can be seamlessly pushed out to the network. Thus there will be more flexibility in what, how and when information can be produced and distributed.

If we don't move forward with faster broadband, the rest of the world will and we will be severely disadvantaged.

Julie Gibson, HITnet



Julie Gibson, Technical Manager for HITnet



CASE STUDY

Community Sector — Information Hub

Rebuilding from natural disaster and diversifying services

The **Innisfail Information and Community Hub (IICH)** is a proposed initiative of the Cassowary Coast Regional Council. In conjunction with strategic partners such as Queensland Health and James Cook University (JCU), the Hub aims to enhance opportunities for advanced learning, and to help the region recover from the economic losses caused by Cyclone Larry in 2006 and the devastating impact of Cyclone Yasi in February 2011.

The current state of play

Under current internet speeds, which struggle to download files such as online application forms, services in the region are sporadic and limited. On many occasions, pages time-out before data can be entered, and videos or high resolution images are almost impossible to retrieve.

The ability of the Council to support local businesses to be players in the digital economy is limited by slow internet speeds.

Julie Murphy, CCRC

Unreliable connections cause frustration for tourists who use public computers to communicate with home. And without the capacity for receiving video feeds, students who live in the area have limited availability of courses they can study without leaving home.

This is a major problem when the cost of relocation is prohibitive, and feeds into the cycle of high unemployment and socio-economic disadvantage.

Impact on socio-economic status

While impacts of slow internet affect many groups of people, of major concern is the impact this is having on the socio-economic status of the area. 40% of the region's population occupies the lowest recorded socioeconomic group, which is twice the Queensland state average. This is thought to be related in part to the training opportunities for young people, Indigenous people, and workers who need to re-skill. Looking forward, a key strategy for the region is to increase tertiary degree participation, whilst also encouraging creative thinking in business.

The potential for online collaboration to improve the quality of life of people in our region is huge.

Julie Murphy, CCRC



It is anticipated that tertiary education will be supported by the Hub

Unveiling the Hub

As part of achieving this goal, the Hub will provide computer banks and other facilities that deliver equitable, public access to internet services, videoconferencing space, and meeting rooms for the community.

In what is expected to bring community-wide benefit, through access provided by the NBN, there are plans in place to offer the following services:

- Business Development and Learning Lounge;
- Training in how to use technology;
- Guidance on accessing content that aids in building businesses;
- In partnership with JCU, live feeds to university lectures and tutorials for a broad range of subjects;
- Access to digital content for e-Health initiatives and medical training;
- The capture and preservation of the region's history in conjunction with the State Library of Queensland;
- Sharing of Indigenous culture through high quality, high resolution photographs and videos (online media) to raise awareness and build tourism income; and

- Local and tropical research, in particular cyclone testing research, tropical science research, and research that supports the cane growing industry.

Through these initiatives, it is estimated the region will experience a 5% increase in employment. The progression of these plans is limited by unreliable connections, low speed connections and the inability to access real-time video feeds.

Investment in this region will have a multiplier effect on business confidence, connection with global communities and the knowledge base of the area.

Julie Murphy, CCRC



CASE STUDY

Tourism Industry — Electronic Booking Systems

ResPax have developed software that provides real-time information regarding tour information (such as text, photos and videos), availability, reservations and booking confirmations for booking agents. Tour operators around the world use ResPax tour reservation software to improve their business practices.

A high proportion of ResPax's clients are based in Cairns. Through necessity, ResPax are using a Brisbane server to host the system. This means that when a Cairns agent books a Far North Queensland attraction, the data can often go from Cairns to Sydney to Brisbane and back to Cairns. Fast and reliable internet services are therefore crucial for the success of the reservation software.

Reliability is paramount

Real-time reservations software acts as the backbone to a tour operator's business. So the value of the software is integrally linked with the reliability of the internet connection. If the connection is down for any reason, or running too slow, operators are severely impacted. When access is interrupted they do not have manifests for that day's tours or know whether there are availabilities for bookings, which means they are unable to make or alter sales. So the better the internet connection the more efficient operators can be.

Whenever the network goes down, ResPax receive numerous phone calls. Operators often think that it is the software that is at fault, reducing the perceived value of the product. To maintain as much connectivity as possible, at significant cost to the business, ResPax have invested in 3 independent ADSL connections.

The Respax Operator Network software is trying to lead the future way of doing business, where everything is more automated and on-line. Not having to do the manual phone calls and paper vouchers. Streamlined processes allow the Australian tourism industry to keep their costs down and be competitive internationally.

Peter Woodward, Respax



Peter Woodward from ResPax aims to further develop the tour operators bookings management software



ResPax would reinvent the savings from the introduction of the NBN into hiring more developers

ResPax offers a fully internet enabled product inventory and distribution system for the travel industry as a whole. It allows networking and collaboration between all points of the distribution chain, interconnecting travellers, agents and tour operators.

As an example of the impact of the software, Big Cat Green Island Cruises has identified savings in the order of \$80,000 a year from the use of ResPax – savings that are the result of streamlined booking and reporting processes. This result is not unique to Big Cat and applies to a number of Cairns operators.

So indirectly, through improving the financial viability of Cairns' tour operators, the ResPax system has flow-on effects to the economy, community and Australia more widely.

We could probably save some of the costs that we have had, such as 3 ADSL services and the Brisbane servers. We would reinvest that into our business and expand our service. We would hire more developers and get our products to market quicker.

Peter Woodward, Respax

The next steps

The introduction of the NBN to FNQ is expected to improve the reliability of the software, creating better services and financial savings for Tourism operators and resulting in a more competitive industry. ResPax can see many potential benefits to their business and their clients, such as:

- More frequent data refreshing and updates to client product information on the ResPax Operator Network system;
- Reduced need for ADSL service redundancy, potentially leading to cost savings;
- Ability to offer a data backup service to clients; and
- Better functionality for a new, entry-level product that ResPax has developed for small operators.

There are many operator reservation systems in the world. Any Australian operator can use a system based overseas to potentially benefit from faster network infrastructure. So it is imperative that high speed broadband be implemented locally to support the viability of our Tourism industry.



CASE STUDY

Information Technology — Localised data services

Precedence is one of the largest web development companies in regional Queensland. The business has been operating for 9 years and while they now boast a team of 12 professionals with an annual turnover of \$1 million, their North Queensland location has restricted some aspects of their service.

Protecting data loss from cyclones

Businesses in the region are acutely aware of the risks posed by extreme weather conditions such as cyclones. In the case of a major weather event, there is a real possibility that a business could lose all its data if an effective off-site back-up system is not maintained. In response to client demand, Precedence provides this service for the region but with the limited upload speed of ADSL, the initial back-up can take weeks.

Forced to move services out of town

Precedence used to run a purpose-built data centre in Cairns. However, the bandwidth availability on a wholesale basis was so expensive that it was not workable. When combined with the single point of failure issues, it was not possible for Precedence to maintain this service.

At the moment it is quicker to post a hard disk of data to somebody in another town than it is to transmit that data using current ADSL services. To get around the slow ADSL upload speeds, we post our clients a hard disk and they post it back so that we can upload that data to the secure server.

Kaj Haffenden, Precedence

Forced to move services out of town

However, the bandwidth availability on a wholesale basis was so expensive that it was not workable. When combined with the single point of failure issues, it was not possible for Precedence to maintain this service.

While it is better for Australia to have more data centres that are geographically dispersed, we had no option. We made the conscious decision to move the entire infrastructure to a data centre in Canberra.

Kaj Haffenden, Precedence

As part of running the centre, co-location was a key service being offered by Precedence. Co-location provided a managed, secure, temperature-controlled environment where local companies could house their own servers in the data centre in Cairns. With the introduction of the NBN, Precedence would rebuild their data centre in Cairns to offer this and similar services.



Kaj Haffenden sees lots of opportunity for improving data services to North Queensland businesses



Precedence would re-establish their data centre in Cairns

Solving these issues with the NBN

With the greater upstream bandwidth offered by the NBN, cost effective and quick off-site back ups will be possible. Complemented by the opportunity of co-locating servers in a local data centre, North Queensland businesses will have greater security from the tropical environment.

As soon as the NBN becomes available, Precedence will immediately expand their business.

They have plans to develop a business grade video conferencing platform. This is perfectly suited to businesses in Cairns to reduce the time and cost of flights. Many local businesses are constantly engaging with clients and suppliers in the rest of the country. The harsh reality is that current video conferencing is just not good enough.

It's challenging to conduct a business meeting over the internet at the moment. There is only one company currently offering business-grade video conferencing and it costs hundreds of thousands of dollars to set up.

Kaj Haffenden, Precedence

Experiencing widespread benefits

It is anticipated that Precedence will be able to double their workforce as soon as the NBN comes to town. This will mean more opportunities for Computer Science graduates to stay in the region and addressing the concentration of the skilled workforce in the capital cities.

Precedence have a policy of not outsourcing their projects overseas, but keeping the workforce Australian based. As a result of the NBN, Precedence plan to establish more satellite offices and increase the opportunities for more people to work from home. Working remotely is challenging with the current ADSL services, but will be a practical option with the NBN in place.

North Queensland businesses stand to benefit substantially from improved internet services. The NBN will bridge the long-standing practical issues of being so remote to Brisbane and provide greater security against the tropical environment and extreme weather events.

This is the opportunity of a lifetime.

Kaj Haffenden, Precedence



CASE STUDY

Health Industry — Medical Imaging

Advancements in critical health care are ready to be implemented

North Queensland X-ray Services (NQXS) are a medical imaging firm with five clinics located across Cairns and Townsville. Two of these clinics are located in Cairns, with one centrally located near the CBD and a satellite clinic located at Smithfield. While radiographers and sonographers work at both locations, the Radiologist reports from the CBD clinic only.

Massive amounts of data

As part of daily operations, NQXS in Cairns relies on the transfer of patient data between the CBD and Smithfield. This is essential to the business as it allows staff to access patient information, and enables the Radiologist to receive and report on patient images.

In most cases, data transfer requirements are massive. When transferring image files between clinics, while ultrasound files are quite small, a general x-ray file is a minimum of 25MB and a CT file can be up to 2GB per patient. This adds up quickly across the day and is compounded when results must be shared between Cairns and Townsville.

Aiming for efficiencies

While a new patient management system has recently been installed to improve data efficiency, it runs on a network using ADSL and with current internet infrastructure, the fastest connection available is unable to manage daily data needs.

This means that an effective, centralised database is not possible with current bandwidth limitations. And while the new patient software has capacity to link directly with GP offices for digital reporting, the facility has not been activated as bandwidth is not available to support the service.

If bandwidth does become available, it will be a simple case of activating the service and giving doctors a secure password so they can login and access patient history on demand and in real time. Younger doctors in particular are requesting this service and it is currently not achievable.

New Zealand are doing it – they have better bandwidth than us. They are already moving away from producing hard-copy images.

Travis Scott, NQXS

To overcome the challenges of unreliable internet, NQXS has installed 2 x ADSL2+ connections with an unlimited data plan. This comes at a high cost, and reliable connections are still not guaranteed.

Whenever it's raining we always have internet issues and dropouts. We've had it checked out that many times by [our provider] and they say there's nothing wrong with it. But it keeps happening.

Travis Scott, NQXS



Providing a better standard of health care utilising electronic record sharing



Travis Scott of NOXS

As a result, NOXS must rely on CD's, films and localised hard-drive storage to produce and disseminate much of its patient information. Printing films wastes money and resources, and the silver contained in medical imaging film must be disposed of carefully as it can contaminate the local environment. A reduction in the use of film is therefore a sustainability issue as well as a cost and efficiency issue.

Implications for patient care

Even with these steps in place, if the internet is lost in Cairns, the Smithfield clinic will not be able to communicate with the CBD site, which means films would have to be couriered to enable patient reporting. Both clinics would lose email communication with GP's, limiting the ability to provide timely results for patients. And both clinics would lose access to Medicare online, meaning the business has no income and cannot provide patients with bulk billing services for a period of time.

Having availability of imaging online for referrers is the ultimate goal, but it has to be as quick as them looking at a film and we can't do it at the moment.

Travis Scott, NOXS

The future of medical imaging

With the introduction of the NBN, there are many potential benefits to NXQS and its patients, such as:

- Remote reporting services for regional patients
- Peer support for doctors, who could refer to specialists in other locations in real-time to obtain a second opinion
- Centralised patient management system, with reliable backup systems in place via secure cloud servers
- An increase in turnover of at least 20%, with a staff increase of 15% to cater for growing demand
- Savings of at least \$10,000 per month through increased efficiencies
- The ability to cater for electronic referrals from GP's and specialists, and to provide secure logins to access patient reports.

Real-time digital radiography is the future of medical imaging, and for NOXS, the biggest limitation is the ability to provide a reliable service. With the NBN, NOXS will provide the Cairns community with a better standard of health care through increased turnaround times for both doctors and patients.



CASE STUDY

Government Community Engagement and Service Delivery

Tablelands Regional Council (TRC) delivers local government services to a region of 64,000km² – approximately the area of Tasmania. The region has significant pastoral and agricultural industries, as well as thriving artistic and professional communities who have made the conscious decision to embrace the advantages of a rural environment and lifestyle. However, this idyll also carries a downside.

While a significant majority of the 47,000+ population is concentrated within the smaller area of the Atherton Tablelands, the challenges to the Council of running 5 main service centres separated by hundreds of kilometres, and to the community of being able to easily access these services are nevertheless still challenging. For example, it is not unheard of for a member of the public wishing to address a Council meeting to have to travel several hours each way for the opportunity of a 10 minute slot with Council, or for someone wishing to discuss a planning application to have to travel significant distances for a face to face meeting with a qualified planning officer.

Closing the distance with NBN

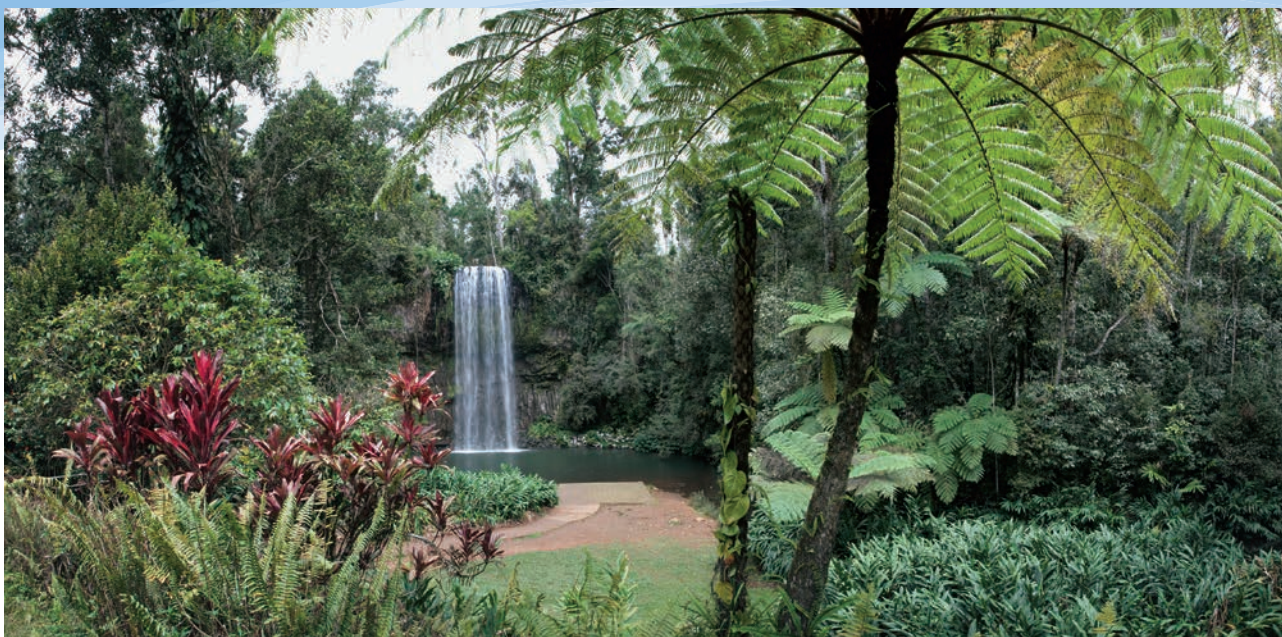
TRC sees the NBN as offering enormous potential for closing these distances, and bringing services more easily to the community. Council runs its own internal video and PC collaboration facilities over its own wireless network, and these have proved very successful and cost-effective internally. Professional expertise can be accessed and shared without the delays and costs of travel, and the improved regular contact helps foster a sense of community that would otherwise be difficult to achieve. However, the limited availability of suitable public infrastructure makes it impractical to extend this ability in a cost-effective manner within the wider community.

With NBN levels of bandwidth available more widely across the region, we see great opportunity for the community to participate more effectively in the activities of Council, and to avail itself of the services available either from the comfort of their own homes, or from a much more local and, hence, convenient location. And with this improved connectivity also come the opportunity for the community to access additional services such as remote learning, education and health which are currently difficult or impractical to access.

Improving access to council systems and data

TRC has worked hard to use the internet to better service its community. Its delivery of wildfire mapping and management services was been recognised in the Excellence in e-Government Awards where it was rated in the top four organisations nationally. However, its ability to provide a comprehensive, integrated suite of services comparable to those available in the major cities is compromised by the excessive costs of provisioning and accessing these services locally.

TRC currently runs its existing e-Services through a hosting provider based in Brisbane. This, however, has its own challenges; communications between the hosted environment and Council's own systems on the Tablelands can be slow and unreliable and are therefore unsuited to the provision of the range of services to which Council aspires.



Millaa Millaa Falls on the Atherton Tablelands

TRC anticipates that the NBN will not only allow Tablelands residents to utilise internet services more effectively, but it will also enable more advanced services to be made available through improved systems integration.

It is obvious that our community is crying out for improved access to online services. Over 60% of Council rates are now paid remotely, nearly 50% of reservations for library resources are made via the internet and our website usage has increased by 20% in the last 12 months. The potential for the internet to significantly enhance the way we do business is now more evident than ever before.

Ian Church, CEO Tablelands Regional Council

Maintaining communications in an emergency

Council plays a critical role during emergencies; the Mareeba office is the Local Disaster Coordination Centre (LDCC) for the region, and it is from here that the multi-agency response is coordinated both during and immediately after a disaster event.

During the recent cyclone Yasi, the LDCC successfully delivered immediate and up-to-date information on the situation and risks to which the community needed to be aware via Facebook. There was strong uptake and participation from the community, but interruptions in many people's internet services during the event were frustrating and potentially dangerous to them. It is hoped the NBN would provide the improved levels of accessibility and reliability that would make a real difference to the community in such situations. People's increased awareness of the social media phenomenon has resulted in an increased interest in, and demand for, online services across the board.

It has become increasingly obvious that internet channels are now fundamental to our ability to source and disseminate reliable information to the community. New bi-directional social media tools, such as Facebook and Twitter, not only allow us to inform the community but, in a way that has never before been possible, the community is able to provide the LDCC with updates on events as they occur.

Sarah Dean, Tablelands Local Disaster Coordinator



CASE STUDY

Education industry — Creative Courses Online

Right Brain Genius is an extraordinary training course devoted to developing human potential through unlocking your creative right brain. Over the years, Helen Joy (the founder of Right Brain Genius) has successfully taught thousands of people how to master the art of drawing using Betty Edward's approach "Drawing on the Right Side of the Brain".

Current mode of operation

Right Brain Genius is a fledgling company located in Cairns. Helen Joy is the only employee currently. She uses internet services predominantly for email, research and social media applications.

The courses that Right Brain Genius deliver are generally around 8 weeks in length, consisting of weekly sessions. While all the current courses are delivered in a face-to-face environment, Helen believes it is possible to move her unique course to a virtual classroom. Recent advances in online training platforms such as Learning Management Systems (LMS) and Virtual Learning Environments (VLE) make this technology available to smaller service providers such as Right Brain Genius.

However, a complimentary convergence in technology is needed to ensure the success – namely that the people participating in the courses themselves need to have access to reliable, high speed internet making the courses more accessible to more people in remote areas.

For Helen, the NBN would "fill the gap" to make online service provision to remote and regional areas practical and profitable for a small operator.

The course gives you the opportunity for a more enriched life where those who know you will marvel at your new found skill.

Helen Joy, Right Brain Genius



Contributing to the creative industries through training delivered locally, remotely and internationally



Helen Joy is the founder of Right Brain Genius

Future potential for expansion

Helen aims to expand her business through online, real-time streaming of classes (VLE). This has many potential benefits to the business, including:

- Ability to deliver training to communities that are located in remote areas
- More efficient use of Helen's time to reach a greater number of students
- Provides a cost-effective and practical platform for delivery of train-the-trainer courses across Australia and internationally
- Keeps the price of the course low making it more accessible to under-privileged communities.

Regional benefits

A particular focus for Right Brain Genius is the provision of training to Indigenous communities in Cape York where many people have low self-esteem. The Right Brain Genius classes have a direct benefit to the participant in the building of confidence and personal growth. The NBN service would make the provision of online, live streaming education more feasible.

The course is of particular value to children with Attention Deficit Hyperactivity Disorder (ADHD), Asperger Syndrome and other behavioural issues. Helen has had great results working with such children. Right Brain Genius aims to further expand community awareness and deliver practical courses to support the development of children.

The creative industries sector in Far North Queensland is estimated to generate an income of more than \$300 million annually. While Right Brain Genius represents a small part of this sector, it is an example of the ability for the NBN to support diversity and nurture creative potential in this region.



CASE STUDY

Demonstration Village — Malanda Rural Technology Village

Malanda is a community of approximately 4,000 people located on the Southern Atherton Tablelands. The town has been facing some harsh economic realities with the deregulation of the dairy industry. Malanda is now in the lowest 10% of nearly every socio-economic indicator. The population is aging and very few 18-35 year olds remain in the town. However, Malanda offers a very high quality of life and has proven to be attractive to knowledge workers and the 'creative classes'. This is borne out by the higher than average number of residents with post-graduate degrees.

In response to the demographic and economic issues, a group of local organisations have developed a vision for the future of Malanda. At the heart of this vision lies the NBN infrastructure. The concept is the Malanda Rural Technology Village (MRTV) – a demonstration village for positive transition to a knowledge economy.

Ironically, it is the community realisation of the economic crisis it faces, that has served as the catalyst for positive change. We want to take the best of the digital age, set it within our sustainable rural village context, and maintain the best of the lifestyle we all love.

Cr Rhonda Sorensen, Tablelands Regional Council

Widespread support

The vision of supporting Malanda to become a technology village is gaining widespread backing. The concept has support from local Mayors, Councillors, business people and Chambers of Commerce, Advance Cairns, Regional Development Australia and James Cook University.

With the initial concept growing out of a 'Blue-print for the Bush' project, the group have undertaken a workshop and developed a range of strategies to revitalise the town.

Dr Geraldine McGuire is a Malanda resident running an international sustainability consultancy practice from her home. She strongly supports the MRTV concept, as it will allow her to operate more effectively. Currently Geraldine uses a satellite service for all her communications. This is expensive, has high latency and is unreliable.

It is ridiculous that there is often better connectivity in an internet café in the developing countries that I work in, than we can get at home.

Dr Geraldine McGuire, Malanda Business Owner

Technology sector growth

With a desirable lifestyle and affordable living costs, Malanda has been promoted as a location of choice for those looking to develop a new business venture. The technology village aims to 'fill the gap' in this plan with business incubator/accelerator for technology start-up ventures.



Dr Geraldine McGuire working overseas with one of her clients



The additional connectivity offered by the NBN will assist to bridge the digital divide

Bandwidth and reliability of internet connectivity is essential to achieve this. The establishment of a vibrant community of new technology businesses is already under way and is well placed to take advantage of the NBN as it is made available. With rising costs of living in capital cities, the move to regional living makes concepts such as the MRTV a lucrative alternative for new business investment in Australia.

Future vision

The vision for MRTV includes the following:

- A business accelerator consisting of a high technology cluster
- Community owned telecommunications provider
- Renewable energy supply for an information hub
- High-tech organic farming principles showcased through a market garden
- Convergence of integrated technologies for residential developments
- High connectivity public meeting places
- Community college focussed on building knowledge of digital technology and environmentally sustainable development
- And an e-Health hub utilising existing linkages with general practitioners, JCU and the Queensland Rural and Remote Doctors association.

With the improved telecommunications delivered by the NBN the group expects to be able to entice new industries to the region, providing a strong base for on-going learning, infrastructure development and diversified economic growth.

The NBN rollout is expected to be a prominent driver of economic renewal and social cohesion particularly in communities that are responding proactively to the limitless opportunities associated with smart intelligent adaptation of the digital economy; Malanda is an example of such a community.

Allan Dale, Chair, Regional Development Australia, Far North Queensland and Torres Strait



Appendix C – Industry Capability Profile

Brazier Motti Pty Ltd

PO Box 1185, Cairns 4870, 07 4033 2377

Brazier Motti are a professional consulting firm providing surveying, town planning, project management, mapping and GIS services. The company's extensive resource base and comprehensive local knowledge have seen them used in a host of regional projects of significant scale.

Cairns Plant Hire

PO Box 354, Bungalow 4870, 0400 100 370

Cairns Plant Hire (CPH) operates as one of Cairns larger specialist fleets of earthmoving equipment, trucks and water tankers. CPH is in high demand within the local construction industry due to its expertise with finishing and landscaping earthworks.

Approximately 20 CPH staff work throughout Far North Queensland.

There are significant advantages with having CPH within the group. Its ready availability and close ties provide access to a large fleet of skilled operators and equipment when needed without sacrificing quality or time.

The fleet includes: Rubber tracked excavators, track loaders, mini bobcats, small tippers, forklifts, tractors, commercial mowers, larger tipper trucks and dog trailers and a fleet of various size water tankers. Cairns Plant Hire also provides a complete design cell. From scoping of projects to Asbuilt/Cadded plans CPH has a qualified design team to provide a complete turnkey communications company.

Cavill-Jones Surveyors Pty Ltd

PO Box 859, Smithfield 4878, 07 40382 390 / 0417 750 176

Specialising in engineering and mining surveying. This includes road surveys, bridging, rail and tunnels, all civil and sub-divisional work, sewer services, house pads, and a raft of excavation and filling operations.

Charles O'Neill Pty Ltd

PO Box 5246, Cairns 4870, 07 4051 6722

This survey practice has operated in FNQ for over thirty-nine (39) years and has a vast professional experience in relation to the area, logistics and conditions of operation. The company currently fields five (5) survey parties daily. The Company is registered as a Surveyor with the Surveyors Board of Queensland.

Collins Warehousing Pty Ltd

Shed 2/18 Spoto Street, Woree 4868, 07 4033 5808

Third party Logistics Warehousing and Distribution Centre and Training Facility including Stock Management and Consulting.

DotCom Technologies

PO Box 81, Bungalow 4870, 07 4036 1681 / 0407 628 268

DotCom Technologies specialises in communications and electrical installation and maintenance. Dotcom Technologies has also established in the South East Asia region mainly Malaysia, in Kota Kinabalu, Sabah offering experience in implementing the multi-super corridor infrastructure such as Optical fibre Optic and Electrical, Data and Telecommunication.

With many years experience in the optical fibre, electrical and communications field, the company is capable of offering planning, repairs, installation, and maintenance in a variety of fields and integrated systems including Data and Telephone installation, Clipsal 20 x 20 Certified installations, ADC Krone True Nett Integrated System ability to offer up to 20 years warranty, Molex – To offer 20 x 20 warranty, Optical Fibre installation (Direct termination, Fusion splicing and OTDR testing), Electrical installations, MATV and Closed Circuit TV (CCTV) installation, Intercom systems, Nurse Call systems, PABX and Key Telephone systems.

East Coast Traffic Control Pty Ltd

PO Box 905, Bungalow 4870, 07 4035 6335 / 0418 758 168

East Coast Traffic Control has been established since 1993 and is QA and Traffic Management certified. A large company, ECTC are used all across FNQ and have extensive experience in traffic control and traffic management plans.

Fibre Optics NQ Pty Ltd

233 Lyons Street, Cairns 4870, 07 4041 7772

With unique local knowledge, Fibre Optics NQ specialise in the design, supply, installation and testing of all telecommunication cabling across the greater NQ.

Harry's Backhoe Hire Pty Ltd

15636 Kennedy Highway MS415, Mt Garnet 4872, 40970126 / 0427733570

Operating two cat backhoes, 2 tipper trucks, a flatbed with water tank, a D46 dozer and a JD grader.

Innisfail Carrying Co

PO Box 905, Innisfail 4860, 07 4061 6426 / 0407 162 111

Innisfail Carrying Company is a mid-sized transport company with seven (7) trucks and trailers. All drivers are experienced and fully certified operators within the transport industry with a pro-active approach to safety ensuring all hiccabs, forklifts and lifting gear all comply with Australian Standards of workplace Health and Safety. Area of operation from Innisfail Depot north to Thursday Island and South to Brisbane and west to Mt Isa and all locations in between.

Jackson & Jackson Refrigeration Pty Ltd

180 Edith Street, Innisfail 4860, 07 4063 4400

Electrical, Refrigeration and Air Conditioning with branches in Cairns and Atherton. The company are Queensland Government PQC Qualified, and are QA Certified with AS/NZS ISO9001, AS/NZS 4801 and AS/NZS ISO14001.

John MacIsaac and Associates Pty Ltd

PO Box 5174, Cairns 4870, 07 4031 3288

Consulting Cadastral Surveyor operating out of Cairns and covering FNQ have worked as far as Winton, Mt Isa and Thursday Island on various major projects for Ergon Energy, Main Roads, Department of Environment and Resource Management and private clients. Established in 1976 by John Mac Isaac who has been in practice in North Queensland since September 1964. The company undertakes all types of surveys including longline road and powerline surveys, urban and rural land subdivisions, project mapping control surveys, GPS surveys, detail and topographic surveys, building unit subdivisions, construction setouts, boundary identification and provides consultancy services.

Koppens Developments Pty Ltd

192-224 Isabella Road, Edmonton 4869, 0408 774 837

Koppens Developments is a well established civil works company specialising in: subdivisions, road works, sewer, stormwater and bulk excavation

Lauder Bedboring and Excavation

M/S 1800 20 Graham Road, Mourilyan 4858, 0403 403 396

Lauder Bedboring was formed for the purpose of pit and pipe networking with bedborer drilling short straight bores up to 20 metres. The company has good local experience in the Cassowary Coast region.

Metrobuild Constructions Pty Ltd

PO Box 4923, Cairns 4870, 07 4045 5988 / 0417 736 995

Metrobuilds Construction Services:

- **Project Management:** Involves the management of the total process of a development initiating from the establishment and evaluation of the Client's needs to the progressive implementation of the development program involving a logical progression of activities that integrates professional consultants and trade resources to ensure the completion of the project within the Client's acceptable time, quality and cost parameters.
- **Design and construction:** Involves the establishment and evaluation of the Client's needs and with a team of selected design consultants complete the design documentation followed by timely completion of the construction phased for an agreed contract price. In most cases, the project can be fast-tracked by overlapping the design phase with the construction phase thus reducing the project completion time.
- **Construction management:** Involves management together with contract management and contract administration of traded resources.
- **Construction:** Involves the completion of the construction of the project in accordance with the design documentation.

RPS

PO Box 1949, Cairns 4870, 07 4031 1336

RPS is an international consultancy providing world-class local solutions in energy and resources infrastructure, environment and urban growth. In the Australia and Asia Pacific region, the company employs 900 people in 23 localities, including capital cities and regional centres in resource-rich and high growth areas with a strong presence in regional Queensland.

Skill360 Australia

PO Box 68W, Westcourt 4870, 07 4046 4000

Skill360 Australia is a not-for-profit Registered Training and Group Training Organisation. The company operates in the North Queensland Region delivering a range of both accredited and non-accredited training and have been providing training that results in a WH&S licence for the last 4 years. Clients include: Rio Tinto, Sea Swift and Flexihire. Plant the company is registered to deliver includes: Excavator, Backhoe, Front end Loader, Skid Steer, Elevated Work Platform, Forklift and Dogger.

SPA Consulting Engineers (QLD) Pty Ltd

PO Box 664, North Cairns 4870, 07 4032 3311

SPA Consulting Engineers (QLD) Pty Ltd has operated in Cairns and regional Queensland since 1988. Areas of stated specialist expertise are: Master planning of Electrical and NBN Co. projects, detailed design, documentation and management of electrical reticulation, roadway lighting and NBN Co. pit and pipe works associated with public infrastructure and subdivisional projects.



Appendix D – GIS Information

Relevant GIS Layers

Cairns Regional Council alone currently has over 350 layers of mapped spatial data. Those we believe are relevant to the NBN held by councils in FNQ include:

Relevant GIS Layers Available	
Full Cadastral Sets	• Road network • Lot and Plan (fully digitised survey plans) • Easements and covenants
Topographic/Environmental	• Full contours/spot level mapping (LIDAR) • Flooding limits (recognised Q10, Q50, Q100 levels) • Vegetation mapping (inc protected area mapping) • Soil details • Waterways, drainage corridors • Flora/fauna areas (pest/weed zones, quarantine areas etc)
Major Infrastructure	• Council depots, plants and all other assets • All buildings (and setbacks) • Electrical substations • Telephone exchanges
Hard Infrastructure	• All water, sewer and drainage infrastructure (pipes, nodes etc) • Existing power supply infrastructure footprint (above & below ground lines/nodes) • Rail, can railway, streetlights etc • Footpaths and cycleways • Existing fibre optic system (Council's only)
Planning Information	• Planning areas (zones) • Road hierarchy /major transport routes + public transport • Character precincts and heritage sites • Applicable overlays (environmental, hillslopes, connectivity)
Statutory Triggers	• Mapping of all relevant State & Federal Govt triggers (eg. Vegetation, wetlands, state controlled roads, coastal districts, erosion prone areas, defence ordnances etc)
Aerial Photography	• Recent aerial photographs (2011) for CRC at 15cm and relatively recent for most rural areas (2008/9) at 50cm

For the cadastral details, all lot and plan details are directly linked to the relevant survey plans.

For the hard infrastructure, all new infrastructure is linked to digitised as-constructed plans. Older infrastructure provides references so that details on alignment, depth and distance can be very quickly ascertained.



Appendix E –
Training and Support Capabilities
– TNQIT

Tropical North Queensland Institute of TAFE

Capability Statement – NBN Rollout

Tropical North Queensland Institute of TAFE (TNQ TAFE) is part of the Queensland Government Department of Education and Training, and is one of six (6) TAFE QLD Regional Institutes. TNQT's primarily services an area from Cardwell to the Torres Straits and west to Karumba. As part of the TQR network, TNQT is the largest provider of accredited vocational education and training in Queensland. We have access to the 1500 staff employed by 6 regional institutes who have a combined 46 campuses service approximately 90% of the State.

Training Offerings

The Institute delivers a range of accredited and non-accredited programs in multiple vocational areas across the tropical north. Program types include:

- Short courses
- Pre-Vocational programs
- Trades programs
- Certificate I – Diploma programs.

Training is delivered using a range of training models and incorporates recognition of prior learning (RPL) in all instances.

Training Solutions

The Institute is experienced in adjusting courses to meet the needs of our clients and training can be delivered on campus, on site or at a location suitable to the client. The Institute is able to structure training delivery in a number of ways to solve business needs including face-to-face, flexible, distance, web-based or video-link.

TNQT will work with clients to identify skills set training which is appropriate to their needs. Training is tailored to meet local conditions, workplace cultural sensitivities and operational requirements to reduce down time and reduce occupational health and safety concerns.

Telecommunication Specific Training

Short Courses

- Data Comms
- Fibre Optics
- Machinery courses include:
 - Elevated Work Platform
 - Dogger
 - Front End Loader
 - Crane
 - Grader
 - AutoCAD
 - Working Safely at heights
 - White Card (construction)
 - Traffic Control
 - Cultural Awareness
 - First Aid
 - Excavator
 - Bobcat
 - Forklift
 - Roller
 - Hydraulics
 - Confined space
 - Scaffolding
 - Restricted Electrical; Test and Tag
 - Chainsaw
 - Leadership

Post Trade/Licensing Short Courses

- Data Cabling
- Riggers, Cranes, Grader, Roller, Tractor
- Plumbing Licensing
- Electrical Contracting
- Gas Fitting
- Restricted Electrical
- Photo Voltaic Panel Installation
- Welding Certification
- Driver Training (car and truck)
- 4x4 Driver Training
- Trailer Towing
- Asbestos removal.

Pre-Employment Programs

TNQT are excited about the possibility of working with NBN Co. and associated contractors to deliver pre-employment training to new employees before they enter site. The program/s can be tailored to include the critical elements necessary to enable these new employees to be immediately productive upon commencement.

Some examples of programs that could be tailored to suit delivery needs would be:

- Certificate II in Electro-technology (Career Start)
- Certificate II in Sustainable Energy
- Certificate II in Engineering
- Certificate II in Civil Construction.

Trade Courses

TNQT currently delivery apprenticeship programs delivered using the UEE training package and regularly trains electricians and other tradespeople engaged with the installation of data and communication cabling. Some of the trade offering include:

- Electro-technology
- Data and Communication
- Construction
- Civil Construction
- Plumbing
- Engineering
- Transport and Logistics.

A training plan will be developed in consultation with NBN Co. and relevant contractors for all programs prior to commencement.

Aligning activities with Accredited Training Package Qualifications

TNQT will work with NBN Co. and associated contractors companies to map activities being undertaken by staff to training package competencies. This process will allow existing and new skills to be recognize and for qualifications to be awarded.

The goal of the activity would be to align and map existing duties and responsibilities carried out by NBN Co. and associated contractors with competencies outlined in the associated training package and to provide additional support and training to allow skills to be achieved and recognised.

Where gaps exist in the suite of competencies necessary to make up a full qualification, training can be co-ordinated to ensure a complete qualification and outcome is achieved.

Recognition of Prior Learning

Recognition for Prior Learning is always one of the first steps in any training processes. RPL, is the established practice of equating non-formal learning with formal competencies and qualifications. The objective is to establish whether or not the applicant has already acquired the skills and knowledge contained in the program they wish to undertake. The process may vary from a single competency to a complete qualification. In the latter case of a complete qualification, it would be unusual for an individual to be grant blanket exemption. In most institutions participants are requiring to undertake a small amount of formal training (gap) in order to achieve the qualification.

Award Winning Programs and Teachers

TNQT was recognised as Queensland's Public Training Provider of the Year in 2009 and won the Australian Training Initiative Award in 2010 for its Schooltech program. Construction teacher Paul Buckley was named Construction Trainer of the Year at the 2010 CSQ Excellence awards. Myra Session was Vocational Trainer of the year in the 2011 region finals of the Queensland Training Awards and TQNT also secured the Best Apprentice (Jessie Meek), Best Vocational Student (Nigel Vogler) and the Best Indigenous Apprentice of Trainee (Eugene Dorante). TNQT was a finalist in the Best RTO category in the 2011 mining awards.

Opportunities

The Institute welcomes the opportunity to discuss your training needs, or to explore collaborative opportunities to enhance training delivery on site or at any of our campuses.

Contact us

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