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ENVIRONMENTAL

Draft : Environmental Impact Statement

Chapter B9 Socio-Economic

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B9.1 Introduction

This chapter addresses the socio-economic aspects of the proposed Cairns Shipping Development Project (the project). The socio-economic impact assessment (SEIA) was carried out to assess the potential social impacts and benefits associated with the construction and operation of the project at the Port of Cairns. To complete the SEIA, the authors drew on existing data and reports as well as information gathered from stakeholders and the community through an engagement process.

This socio economic impact assessment (SEIA) addresses the requirements of the Queensland Government's Terms of Reference (TOR) for an EIS (Sections 6 and 7) and the Commonwealth Government's Guidelines for an EIS (Section 5.9.1) in relation to socio-economic assessment.

The SEIA describes the existing socio-economic conditions in the relevant project and study areas. As relevant, these socio-economic conditions include:

- A description of the area
- Demographic profile (where relevant)
- Relevant physical and social infrastructure
- Social values
- Economic environment.

Note that Indigenous and non-Indigenous cultural heritage is addressed in **Chapter B13, Cultural Heritage**.

These existing conditions are used to assess the potential direct and indirect impacts the project may have on the socio-economic environment of the project and study areas. Where potential impacts have been identified, relevant mitigation and/or management actions have been proposed to reduce their significance.

B9.2 SEIA Methodology

The SEIA was undertaken in the following stages:

- Legislative and policy review – The legislative framework within which the SEIA sits was first explored and documented (refer to **Section B9.4**)
- Existing conditions – Identifying and documenting the existing social and economic environment that may be impacted by the project (Refer to **Section B9.4.3.3**). GIS mapping has been used to assist with documenting the existing socio-economic environment
- Impact assessment – Potential impacts associated with the project were assessed against the existing conditions to provide an evaluation of the negative and positive social and economic outcomes of each option and their associated sub options (refer to **Section B9.6**)
- Mitigation and management – Where potential impacts were identified, potential methods to avoid, manage or mitigate these impacts has been identified and documented. Predicted residual impacts of the project have also be documented where relevant (refer to **Section B9.7**).

B9.2.1 SEIA Guidance

The methodology used to complete the SEIA was developed using guidance from international, Australian and Queensland sources. The International Principles for social impact assessment (Vanclay, 2003) state that SEIA:

“...includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, or planned interventions (policies, programs, plans, and projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment”.

The Commonwealth Government's *Social Impact Assessment Toolkit: A guide to assessing the socio-economic impacts of Marine Protected Areas (MPAs)* in Australia (Department of Environment and Heritage, 2005) was also used to guide the development of the SEIA. While this guideline focuses on quantifying the socio-economic impact of changes to MPAs in order to make decisions about structural adjustments which is not relevant to this assessment, the structural process of undertaking the SEIA outlined in the guideline was of assistance.

The Queensland Government's Department of State Development, Infrastructure and Planning's Social Impact Assessment Guideline (2013) also assisted with the SEIA.

B9.2.2 Information Sources

The SEIA has been informed by a wide range of existing reports and studies. The stakeholder and community engagement and the socio-economic assessment are tied together to ensure a participatory approach has been taken to complete the SEIA. Input from stakeholders and the community has been used to better understand the current social environment and people's perception of the project and its potential social and economic impacts and benefits.

The SEIA also relies on inputs from a variety of disciplines including landscape and visual, cultural heritage, noise, traffic and project design.

The SIA has been carried out using information gathered from the following sources:

- ABS census data – 2011 Census data has been used to provide information about relevant populations
- Existing reports and data – a number of existing reports have been used to gather information about the project. This includes government plans and policies, information from other planning projects conducted in the vicinity of the project area, media reports and community based websites. Economic reports prepared for Ports North and other economic data has been used to inform the economic sections of the SEIA
- Site visit – A site visit was conducted on 26 and 27 August 2013 to view the study areas
- Stakeholder and community engagement activities – A wide variety of stakeholder and community engagement activities were undertaken for the project. Details of this engagement are included in **Section B9.3** of this chapter
- Economic modelling – Economic modelling and analysis was undertaken in the *Cairns Shipping Development EIS Economic Analysis 2014* (Cummings Economics, 2014) and is included in **Appendix D9**.
- Demand modelling – Cruise shipping demand forecasts are documented in the *Cairns Cruise Shipping Development - Demand Study Update 2014* (BMT WBM, 2014), included in **Appendix D6**.

B9.2.3 Assumptions and Technical Limitations

The SEIA has been prepared using existing data and reports and anecdotal information gained through consultation with project stakeholders. Information available up to and including 19 September 2014 has been used in the preparation of this report.

B9.2.3.1 Social Assumptions

The demographic data used for this SEIA was drawn from the 2011 ABS Census where available. Demographic profiles in this SEIA are based on usual place of residence data which counts where people live no matter where they were on Census night. Place of enumeration data counts where people were on Census night and has been used to represent the 'transient population' within the SEIA study areas.

It is noted that Douglas Shire de-amalgamated from the Cairns LGA at the beginning of 2014. While population count data has been updated to reflect the new Cairns LGA boundary, other data for the Cairns LGA derived from the ABS Census 2011 still includes data from the Douglas Shire. As the population of the Douglas Shire is only a small percentage (less than 10 percent) of the overall Cairns LGA this is not deemed a significant issue.

B9.2.3.2 Economic Assumptions

Economic benefits are measured in terms of the direct expenditure generated in the economy (technically referred to as output) as a result of the project (the project case) compared with the base case. Standard input/output methodology is then used to identify estimated flow-on effects through the economy including on final total value added and employment. Total value added impacts can in turn be related to Gross Regional Product (GRP), which is a summation of value-added by all economic entities in that region and net indirect taxation.

It is normal practice to establish a project period for assessment of impacts. A project period of base year plus 25 years has been selected for the economic assessment of the project based on commencement of benefits in 2016 and extending through to 2041.

It is also standard methodology to assume that benefits into the future are not as valuable as benefits in the present and to discount future impacts at a discount rate to establish a Net Present Value of impacts. A discount rate can be likened to an interest rate. For this project, a discount rate of four percent real is used, i.e. the equivalent of seven percent nominal assuming an inflation rate of three percent per annum. In the final analysis, results are tested at seven percent real (10 percent nominal) and 10 percent real (13 percent nominal).

The 2014 Demand Study Update provides projected ship movements in three classes of Mega, Mid-sized and Boutique for 2016, 2021 and 2026. Post 2026, growth is projected to 2041 at half the rate shown in the 2014 Demand Study Update, except ship numbers anchoring off Yorkeys Knob which are expected to decline between 2021-2026. It is assumed that in this case, underlying growth would offset continuing decline and that this number would remain static between 2026-2041.

Additional detail about the economic methodology and assumptions can be found in **Appendix D9**.

B9.2.4 Project and Study Areas

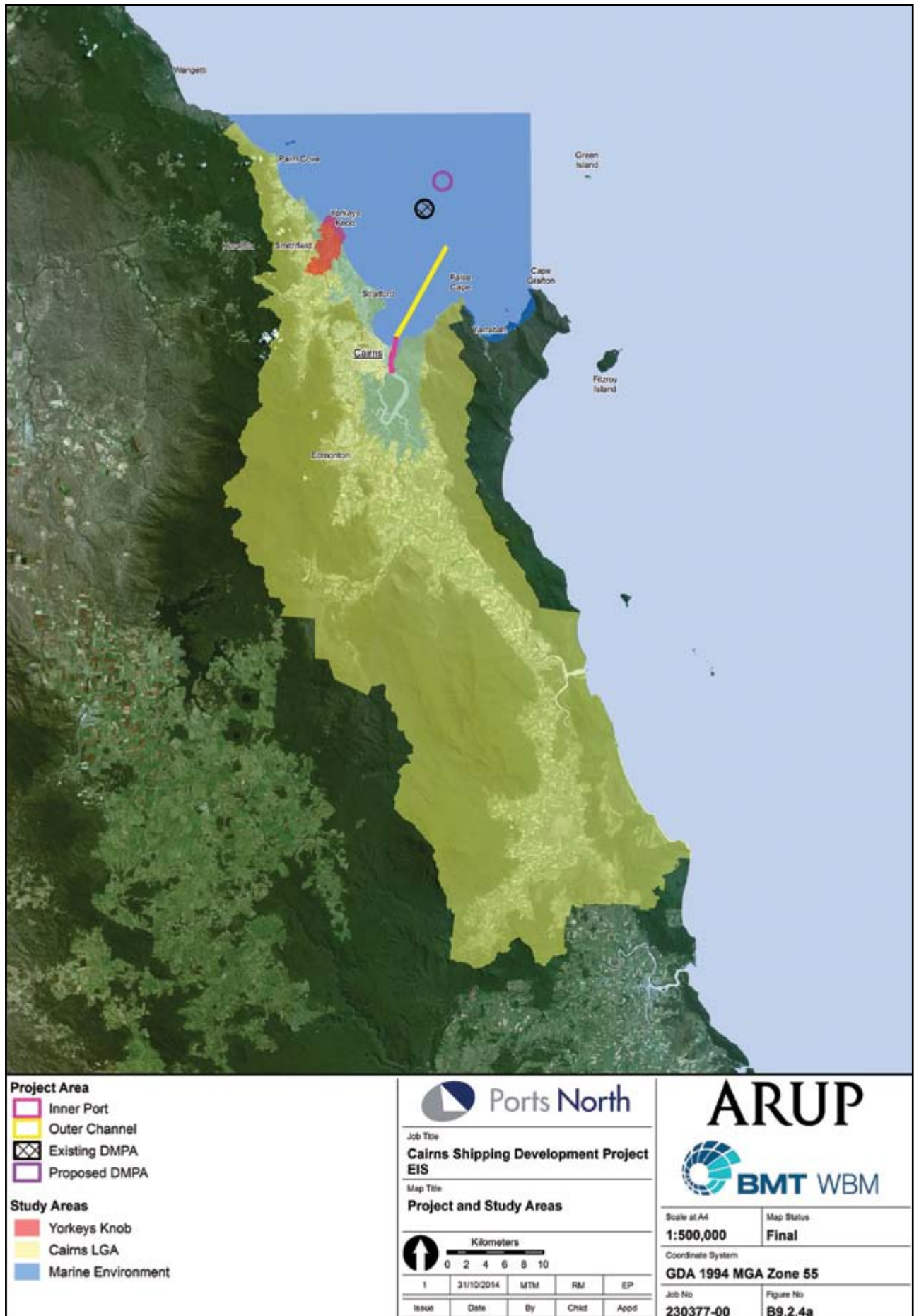
This EIS relates to the immediate footprint of the project, including the shipping channel, dredge material placement areas (DMPAs) and wharf upgrades (known as the project area) and a broader area beyond the immediate development footprint (known as the study area) illustrated in Figure B9.2.4a.

The project area is described in detail in **Chapter A4, Project Description**.

As shown in **Figure B9.2.4a**, the broader study area includes:

- The Cairns Local Government Area (LGA) from the ABS Census 2011 to consider the broader socio-economic aspects of the project
- Yorkeys Knob, the location of the current offshore anchorage for mega cruise ships
- The marine environment of Trinity Inlet, Trinity Bay and immediate surrounds.

Figure B9.2.4a Project and Study Areas



B9.3 Stakeholder and Community Engagement

Ports North engaged a range of stakeholders and community members during the preparation of the EIS for the project.

Given that the major component of this project is the proposed dredging to expand the shipping channel, engagement activities focused on people and groups who have the greatest potential to be impacted by this aspect of the project. This included public sector, private sector, tourism bodies and NGO stakeholders with an interest in the marine environment and economic development.

The views of the broader community have also been taken into consideration during the preparation of the EIS through community engagement activities and the monitoring of public opinion.

Appendix B provides a full summary of the engagement activities undertaken for the project.

B9.3.1 Engagement Objectives

A number of engagement objectives were articulated for the project at the outset. These included:

- To provide information about the EIS to relevant stakeholders and community members during the preparation of the EIS
- To provide opportunities for interested people and groups to learn about the EIS as it progresses so they can make informed comments during the public comment period
- To provide opportunities for Ports North and its consultants to engage with people and groups to better understand the real and perceived impacts and benefits of the project
- To address the consultation requirements of both the Queensland Government EIS TOR and Commonwealth Government EIS Guidelines.

B9.3.2 Stakeholders Engaged

Key stakeholders engaged during the project sit within the following categories:

- Decision makers/influencers – those with decision making power or the ability to influence decisions
- Business and industry groups – groups who promote economic development and employment or operate businesses within the region
- Port users and tenants – those who currently use the Port of Cairns and will continue to do so during construction and operation of the improved facilities
- Local and regional communities – people who live and work within Cairns and the surrounding area
- Community/special interest groups – those who have a specific interest in an aspect associated with the expansion project, i.e. environment groups
- Indigenous groups – groups with current Native Title claims or those who will make claims in the future.

B9.3.3 Engagement Methods

The engagement program utilised the following engagement tools and activities:

- Meetings, briefings and workshops – These sessions were held with relevant stakeholders to both provide information about the project and gain information from stakeholders regarding their operations and/or opinions of the project. More than 60 meetings, briefings and workshops have been held with stakeholders since late 2012. Engagement activities have focused on the people and groups who have the greatest potential to be impacted by the project. This has included public sector, private sector and NGO stakeholders with an interest in the marine environment and economic development
- Cairns Show display – Ports North staffed a display in the Fred Moule Pavilion at the 2014 Cairns Show (16, 17 and 18 July 2014). The Cairns Show was an opportunity to speak to a diverse range of people about the project. During the three-day event the team spoke to more than 250 people about the project
- Community survey – Ports North conducted a Community Survey in 2014 to assess the broader community's understanding of and views about the project

- Fact sheets – A series of fact sheets were prepared for the project
- Website – The Ports North website was used as a source of information about the project. The site www.portsnorth.com.au/projects/cairnsshippingdevproj.php included information about the approvals process, the Queensland EIS process, the Commonwealth Government EIS process, community input and contact details for Ports North
- Media activities – Ports North was active in the local media during the preparation of the EIS
- Phone/email – Email address enquiries@portsnorth.com.au and phone number (07) 4052 3888 were advertised on the Ports North website and in fact sheets as methods to contact Ports North regarding the project.

B9.3.4 Engagement Outcomes

In relation to broader public perception, it is acknowledged that there is great interest in the issues associated with dredging in the vicinity of the Great Barrier Reef at both national and international level. While these issues are not centred on the project, they remain relevant to the project. The issues being discussed in the political sphere and the media impact on people's perception of the project. That said, discussions with the local stakeholders and community and the community survey results show that local people's perception of the project is quite different to the opinions being expressed broadly in the media. Most local people are keen to see the project progress due to the economic benefits it will bring the region, but acknowledge that the GBR environment needs to be protected at the same time.

See **Appendix B** for a full summary of engagement outcomes.

B9.4 Policy Context and Legislative Framework

Appendix C, Legislation and Approvals provides a detailed review of the policy and legislative framework for the project. The following provides an overview of legislation, plans and policies that have specific relevance to the socio-economic environment.

B9.4.1 Federal

B9.4.1.1 Environment Protection and Biodiversity Conservations Act 1999

As described in **Chapter A1, Project Introduction**, the project was deemed by the Minister to require assessment under the EPBC Act in relation to a number of matters of national environmental significance. The method of assessment is an EIS and Ports North is required to prepare the EIS according to the EIS Guidelines provided by the DoE Minister. These guidelines include a requirement for a socio-economic assessment.

B9.4.1.2 Great Barrier Reef Marine Park Act 1975

Great Barrier Reef Marine Park Act 1975 (GBRMP Act) is the primary Act in respect of the Great Barrier Reef Marine Park. It has provisions for the establishment of the Marine Park and the Authority responsible for its management (the Great Barrier Reef Marine Park Authority (GBRMPA)), the planning and management of the Marine Park, acceptable uses of the Marine Park and enforcement mechanisms for breach of these (Great Barrier Reef Marine Park Authority, 2014).

Great Barrier Reef Marine Park Regulations 1983 (GBRMP Regulations) are the primary regulations in force under the *Great Barrier Reef Marine Park Act 1975*. A component of the project requires permission under the GBRMP Regulations and therefore the GBRMP Act. To streamline the assessment process, the EIS Guidelines also include requirements for this permission to be assessed.

Great Barrier Reef Marine Park Zoning Plan 2003 (GBRMP Zoning Plan) is the primary planning instrument for the conservation and management of the Marine Park. Subsection 32(1) of the *Great Barrier Reef Marine Park Act 1975* sets out that the Zoning Plan takes account of the World Heritage values of the Marine Park and the principles of ecologically sustainable use. The Zoning Plan aims, in conjunction with other management mechanisms, to conserve the biodiversity of the Great Barrier Reef ecosystem within a network of highly protected zones, and provide opportunities for the ecologically sustainable use of the Reef and access to the Great Barrier Reef Region. (Great Barrier Reef Marine Park Authority, 2014).

B9.4.2 State

B9.4.2.1 State Development and Public Works Organisation Act 1971

As described in **Chapter A1, Project Introduction**, the project has been declared a coordinated project for which an EIS is required. A separate set of guidelines were issued by the Queensland Government for this assessment, namely the TOR for an EIS. The TOR require that a social and economic impact assessment is undertaken and included in the EIS.

B9.4.2.2 Fisheries Act 1994

The *Fisheries Act 1994* sets out Fisheries Queensland's responsibilities for the economically viable, socially acceptable and ecologically sustainable development of Queensland's fisheries resources.

The *Fisheries Regulation 2008* defines specific regulatory rights and allocation requirements for people and/or entities wishing to disturb and/or remove Queensland's fisheries resources. The EIS TOR require that any potential impacts on commercial or recreational fishing are identified and documented in the EIS.

B9.4.2.3 Marine Parks Act 2004

The Queensland Government's *Marine Parks Act 2004* allows for the establishment of marine parks on tidal lands and waters to protect and conserve marine habitats including mangrove wetlands, seagrass beds, mudflats, sandbanks, beaches, rocky outcrops and fringing reefs. The Great Barrier Reef Coast Marine Park is one of three marine parks established in Queensland.

The Great Barrier Reef Coast Marine Park runs the full length of the national Great Barrier Reef Marine Park (GBRMP) from just north of Baffle Creek (north of Bundaberg) to Cape York. It provides protection for Queensland tidal lands and tidal waters and lies adjacent to the GBRMP. The State Marine Park complements the GBRMP by adopting similar zone objectives, and entry and use provisions. The Department of National Parks, Recreation, Sport and Racing manages the Great Barrier Reef Coast Marine Park as a multi-use marine protected area under the Marine Parks Act.

The *Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004* is the primary tool used to manage the Marine Park. It outlines activities permitted and restricted in different zones of the Marine Park.

B9.4.2.4 Far North Queensland 2009-2031 Regional Plan

The Far North Queensland 2009-2031 Regional Plan (FNQRP) remains the current Queensland Government strategic planning document for Far North Queensland. It is noted that the Queensland Government is in the process of updating the state's regional plans. The FNQRP highlights the Port of Cairns as a key node for the development of tourism in the region.

B9.4.3 Local Government

B9.4.3.1 Cairns Economic Development and Innovation Strategy and Delivery Program 2012 - 2015

The Cairns Economic Development and Innovation Strategy and Delivery Program presents Cairns Regional Council's plan of action to help build prosperity and sustainable growth in the Cairns region. The Strategy provides Council with a framework to guide the region's business and industry focused activities towards building a vibrant and diverse economy. The Strategy and its Delivery Program are based on partnerships and regional collaboration (Cairns Regional Council, 2012).

B9.4.3.2 Community Development Strategic Plan (2011 – 2016)

The Cairns Regional Council's Community Development Strategic Plan focuses on the next five years from 2011 to 2016. This plan aims to:

- Respond to social inclusion and community development priorities highlighted in the Council Corporate Plan
- Set clear directions as to how these priorities will be achieved, measured and monitored
- Strengthen the capacity of the unit to better meet the needs of vulnerable groups in the community who traditionally have difficulty being heard.

The CRC has a vision for the future where the region thrives and inspires in the way it balances economic development, environmental management and social well-being. This plan supports that commitment to deliver the community outcome priorities expressed in the Corporate Plan.

B9.4.3.3 Imagine Tomorrow – Your Community Plan 2011 – 2031

CRC prepared its Community Plan to gain a clear appreciation of the needs and priorities of residents and to provide a framework for future development and growth of the region. The Community Plan creates a vision for the regional community, which is critical considering predicted future population growth and the need to plan for strong, sustainable growth.

B9.4.4 Other Relevant Strategic Plans

There are a number of non-Government strategic plans that also reference the project.

B9.4.4.1 Tropical North Queensland Regional Economic Plan 2011-2031

Advance Cairns' *Tropical North Queensland Regional Economic Plan 2011-2031* (TNQREP) outlines a 20-year economic vision for the region built through consultation with key economic stakeholders in Far North Queensland. It sets out a vision to become 'The World's Leading Sustainable Tropical Region'. This will be achieved through:

- A strong and confident tropical economy
- An enriched lifestyle in liveable communities
- A natural and built tropical environment which is enjoyed, protected and enhanced.

The project is listed in the TNQREP as an activity to strengthen and diversify the region's tourism industry and destination appeal.

B9.4.4.2 Regional Development Australia Far North Queensland and Torres Strait Roadmap 2013 – 2016

Regional Development Australia (RDA's) Far North Queensland and Torres Strait Roadmap 2013 – 2016 (FNQTSRM) sets out a number of regional focus areas which include:

- Expanding the region's outside earnings
- Ensuring social services and infrastructure are at levels appropriate to the population
- Re-establishing confidence in the region's future opportunities
- Leveraging opportunities to enhance employment opportunities for the region's Indigenous population
- Ensuring long-term planning commitments from governments to tackle water and energy security and climate adaptation measures.

FNQTSRM recognises that strong growth in the cruise ship market in Australia offers an opportunity for the region as an existing major cruise ship port. However, this growth has been accompanied by an increase in the size of cruise ships. It recognises that Cairns has a major challenge to achieve the deepening of the harbour channel and port anchorages to accommodate these larger cruise vessels.

The upgrade of the shipping channel and associated port infrastructure is identified as a key infrastructure asset needed for social and economic development and future sustainability of the region.

B9.4.4.3 Tropical North Queensland Destination Tourism Strategy 2012 -2016

The Tropical North Queensland Destination Tourism Strategy is one of 10 regional destination strategies prepared by Tourism and Events Queensland. The strategies provide a framework to guide tourism industry development in Tropical North Queensland by coordinating stakeholders to work towards common goals to maximise the tourism potential of destinations to achieve a balance of economic, social and environmental outcomes.

Improving access to North Queensland via cruise shipping activity is a product and infrastructure development goal outlined in the strategy. Growth of the cruise sector is also listed as an opportunity for the region.

B9.4.4.4 Tropical North Queensland Tourism Opportunity Plan 2010 - 2020

The Tropical North Queensland Tourism Opportunity Plan provides direction on the sustainable development of tourism in the TNQ region. It lists the upgrade of the Cairns Cruise Liner Terminal (CCLT), which was completed in 2010, and the upgrade of the shipping channel as key opportunities to grow cruise tourism.

B9.5 Existing Socio-Economic Conditions

Before potential impacts of the project can be assessed it is important to understand the existing socio-economic conditions in the relevant areas of interest. This provides a baseline from which to assess how the socio-economic environment may change as a result of the project.

This section describes the existing socio-economic environment within the project and study areas.

B9.5.1 Project Area

As discussed in **Section B9.2.4**, the project area includes the immediate footprint of the project, including the shipping channel, dredge material placement areas (DMPA) and wharf upgrades. This section includes the following:

- A description of the project area
- A demographic profile of the area
- Key physical and social infrastructure
- Social values
- Economic environment.

B9.5.1.1 Description of the Project Area

The port is situated on the western bank of Trinity Inlet, a mangrove-lined estuary to the west of the city of Cairns on the border of the Cairns CBD. Trinity Wharf is the location of the CCLT. The land immediately surrounding the port is a mix of industrial and commercial uses. East Trinity Reserve, an undeveloped environmental reserve, lies opposite the port on the eastern side of Trinity Inlet, providing a green backdrop to the city of Cairns. The current Port of Cairns navigational channel extends into Trinity Bay, which forms part of the Coral Sea.

To maintain its defined dimensions, the Port of Cairns' shipping channel is dredged annually. This maintenance dredging has been undertaken each year since the Port opened. Ports North currently has approval from GBRMPA to place the material from this maintenance dredging in a location (the DMPA) approximately 12 kilometres offshore. Ports North has placed dredge material in this location for the past 20 years and estimates that approximately 6.5 million cubic metres of dredge material has been placed in this location to date. The location of this DMPA is recorded in marine mapping. A Notice to Mariners regarding the dredge activity is issued to advise other vessel operators to proceed with caution around the operating dredge vessel.

B9.5.1.2 Demographic Profile

There are few permanent residences in close proximity to Trinity Wharf. There are a number of short-term accommodation facilities located along Wharf Street (Far North Queensland Apartments and the Reef Hotel) which also accommodate some permanent residents. There are also a number of people who reside on boats moored in Marlin Marina and Trinity Inlet.

Using data from the 2011 Census, there are less than 200 people living within 250m of the shipping channel's centreline. Most of these people (90 percent) live in apartments in the block between Lake Street and Abbot Street.

B9.5.1.3 Physical and social infrastructure

The Port of Cairns is operated by Ports North, a Government-owned Corporation that develops and manages port facilities on behalf of the Queensland Government. Ports North is responsible for the development and management of a number of Queensland ports including Cairns, Cape Flattery, Karumba, Mourilyan, Skardon River, Quintell Beach, Thursday Island, Burketown and Cooktown. Ports North's operations and facilities are vital economic generators for the regions they service, as well as Queensland's broader tourism and export industry. The Port of Cairns and its associated facilities is therefore social infrastructure for the people of Far North Queensland.

In the 2012/13 financial year there were 1,994 vessel arrivals at the Port of Cairns (Ports North, 2013). These were a mix of bulk trading vessels (79 arrivals), cargo and barge vessels (481 arrivals), international and domestic cruise (121 arrivals), fishing (1,171 arrivals), Australian Navy (18 arrivals) and tugs and slipping (124 arrivals). The Port of Cairns is also a strategic, popular and attractive transit port for cruise companies (BMT WBM, 2014). Cairns is regarded by the cruise industry as having one of the best product offers in Australia including day tour availability and access to the CBD adjacent to the wharf. Based on a review of bookings since 2010, each year there has been 27-31 international cruise ship visits to Trinity Wharf. The number of ship visits to the CCLT is declining each year due to cruise operators using larger ships which are unable to berth at Trinity Wharf due to the manoeuvrability of the vessel or the vessel being too large to access the channel (BMT WBM, 2014).

At present, there is one company based, or home-ported, in Cairns - the small adventure class Coral Princess Cruises that operate cruises out of Cairns and use Cairns as its corporate and maintenance base for cruises conducted in the Kimberley region and the Pacific Island areas (Cummings Economics, 2014). However, P&O have recently announced plans to base the Pacific Eden in Cairns for cruises into the Coral Sea/Pacific area using a passenger ship that can berth at Trinity Wharf. Also, Paul Gaugin cruises commenced using Cairns as a point of embarkation / disembarkation during 2014.

The Port of Cairns supports a number of other shipping activities (cargo, Australian Navy), port service providers (stevedores) and other commercial businesses. Tugs, pilotage, fuel, waste disposal, provisioning and other service providers also assist port based organisations in carrying out their business. Australian Government agencies including Customs and Immigration and Australian Quarantine and Inspection Services also operate at the port.

Cairns Port generally supports two types of cargo shipping:

- Northern supply trade to Papua New Guinea, Torres Straight and Weipa
- Bulk cargoes – fuel, gas, sugar, molasses and fertilizer is shipped using Handimax vessels which are both tide and capacity restricted.

As described in **Chapter B1, Land**, Ports North's Cityport development is a major urban revitalisation project for the Port of Cairns. The Cityport Master Plan sets out the vision for the 33 hectare site located on the western shore of Trinity Inlet, with the Cairns CBD to the west, the Cairns Esplanade to the north and the commercial port facilities to the south. The Cityport development consolidates port operations and provide for the integration of the CBD with the Cairns waterfront to create an urban waterfront area with a focus on uses that maximise the community and tourism values of the area. Ports North has commenced development of this precinct and will progressively release land parcels within Cityport to be developed in accordance with the Master Plan. The recent upgrade of the CCLT was an element of the Cityport development.

B9.5.1.4 Social Values

Key social values associated with the project area relate to the port's role in the trading of goods, a base for the Australian Navy and the facilitation of passengers visiting Cairns.

Ship based trade remains an important activity for Cairns and FNQ due to the region's remoteness from other major centres and the limited availability of infrastructure links (road and rail) to the area. Goods that cannot be transported by road or rail enter and leave North Queensland via the Port of Cairns or other Ports North ports. The Port of Cairns is also vital for the supply and trade of goods to remote areas of North Queensland, Papua New Guinea and the Torres Strait.

The Port of Cairns is a base for the Australian Navy. With responsibility extending from Rockhampton to Thursday Island, HMAS Cairns has 900 navy and civilian personnel and is the homeport for 14 naval vessels. HMAS Cairns' primary responsibility is to provide maintenance, logistic and administrative support for Cairns based units. HMAS Cairns also provides refit and training support for neighbouring Pacific Island nations (Royal Australian Navy, 2013).

Naval vessels stationed at Cairns can operate without tidal or capacity restrictions, though larger visiting naval vessels cannot access the naval base. This is particularly relevant to foreign vessels that visit Australia, such as the US Navy.

The local community benefits from cruise ship visits in relation to passenger spend in the local economy and the flow on benefits this create for employment. The port also plays a role in providing a positive passenger experience for visitors to the region. When a ship is able to berth alongside at the CCLT passengers can walk directly off the ship to the wharf and into the Cairns CBD or meet tours wharf side, offering an enhanced experience in comparison to more complicated transfers using tender vessels and buses to access the Cairns CBD, which is the situation when vessels cannot access the Port.

B9.5.1.5 Economic Environment

The project area facilitates activities that provide significant economic input into the local and regional economy. In 2012/13 cargo shipping activity added \$170-200 million to the local economy (Cummings Economics, 2014). The main bulk cargo shipping is of Handimax size vessels with an average operating cost in the order of \$20,000 a day. Average number of ships a year is estimated at 62 per annum, comprising:

- Fuel - 40 ships
- Sugar and molasses - 15 ships
- Fertiliser - 7 ships.

All these ships are of a size that cannot enter the port at low tide, even with restricted loads. This means they are subject to six to eight hour timing constraints for tide inbound and outbound. Even at high tide most cannot enter or depart fully loaded. This results in many of the movements having to share their loads with other ports, in most cases Townsville.

The cost penalty differs depending on whether a ship is coming in from the north and returning north or from the south. For ships from the north, the cost penalty arises from the need to travel 13 hours down to Townsville and 13 hours return and the cost of berthing at a second port. This cost penalty is estimated at one day extra ship operation (\$20,000) plus costs to berth at an additional port (\$50,000), i.e. a total of \$70,000 per voyage. For ships from the south, the additional cost is restricted to the cost of an additional port of call of about \$50,000. It is estimated that \$2.6 million in additional costs are incurred each year due to these restrictions.

Cruise activity added \$11.6 million in economic benefit to the Cairns economy through cruise shipping activity in 2012/13. This economic contribution is discussed in more detail in **Section B9.5.2.3**.

B9.5.2 Study Areas

As described in Section B9.2 the study area for the project takes a broader area than just the port area. This broader area includes the Cairns Local Government Area (LGA) and other areas of interest including Yorkeys Knob and the marine environment. The following sections provide details about these areas.

B9.5.2.1 Study Area - Cairns LGA

The first study area is the Cairns LGA. This area is a key study area for the project's SEIA as it is the closest major population base to the project area. This section includes the following:

- A description of the project area
- A demographic profile of the area
- Key physical and social infrastructure
- Social values
- Economic environment.

Description of the Study Area

The Cairns LGA is located on coastal land between the Great Dividing Range and the Coral Sea. The World Heritage Wet Tropics rainforest is located to the west and north and the Coral Sea and World Heritage Great Barrier Reef Marine Park to the north and east. The Cairns Central Business District (CBD) is located directly adjacent to the Port of Cairns.

As outlined in Tourism Tropical North Queensland and Tourism Queensland's Tropical North Queensland Tourism Opportunity Plan (2010):

"Cairns city is situated along the foreshore of the Coral Sea and Trinity inlet. It is an established tourism destination of global significance and acts as the region's hub for tourism. Other destinations within Cairns include Palm Cove and Kuranda which have substantial existing tourism infrastructure. As a hub for the region it also is the key centre for tourism related industry including retail and business events. Equipped with an international airport and a busy cruise port with over 200 international and domestic cruise ship visits a year, Cairns provides the base from which many visitors explore Tropical North Queensland. It hosts a wide variety of accommodation options ranging from backpacker hostels through to five star hotels. Tours to the rainforest and Great Barrier Reef depart daily from Cairns' major accommodation providers. A large number of community, cultural and tourism related festivals and events are also based in Cairns. It is also home to the Cairns Convention centre which has very good existing capacity and capability to host tourism related events. The recent redevelopment of Cairns foreshore 'esplanade' has incorporated excellent community space including pools, recreation and sporting facilities."

Cairns role as the hub of North Queensland also extends into health care, government, retail and other services with major providers established in the Cairns CBD.

Cairns is also the location for the region's major airport, with Cairns Airport servicing both domestic and international aircraft. In 2013/14 more than 4.5 million passengers travelled through Cairns Airport.

Demographic Profile of Cairns

A demographic analysis has been undertaken to provide a profile of the community within the Cairns LGA. The demographic profile was compiled using place of residence data from the Australian Bureau of Statistics' (ABS) 2011 Census data. Note that population data has been updated to exclude counts from the Douglas Shire, but other demographic data uses the full Cairns LGA from the 2011 Census.

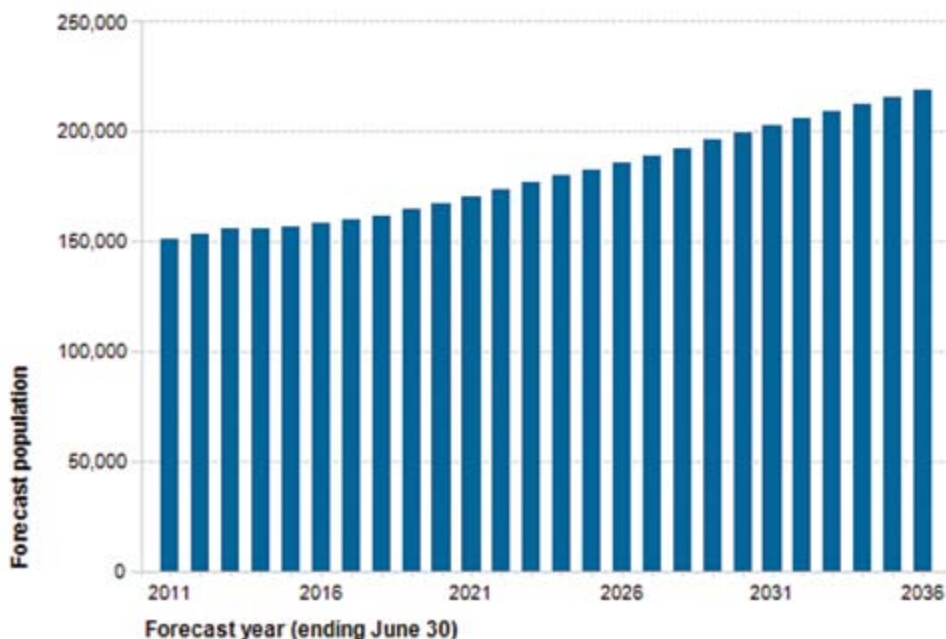
Population

According to 2011 Census data that has been interpreted by the Queensland statistician to remove data associated with the de-amalgamated Douglas Shire, the Cairns LGA had a population of 150,994 people, with close to 19,000 additional people calling the LGA home since the 2006 Census. This represented 3.4 percent of Queensland's total population at the time of the 2011 Census. As at 30 June 2013, the estimated resident population of the region was 157,081 persons (Office of Statistical and Economic Reserach Queensland, 2014) showing an average annual growth rate of two percent since 2011.

Figure B9.5.2.1a Forecasting Population Growth for the Cairns LGA

Forecast population

Cairns Regional Council

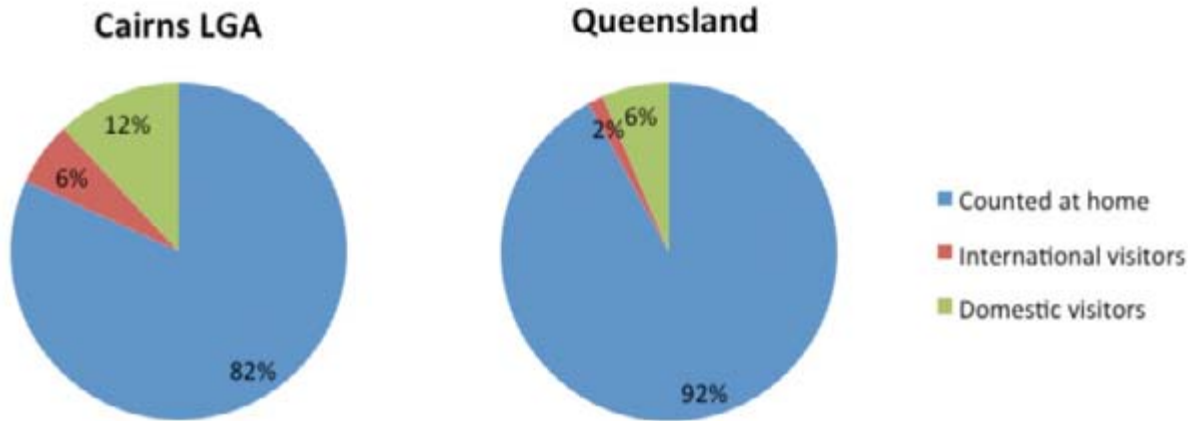


The population of the Cairns LGA is forecast to continue growing at an average rate of between 1.5 and 1.7 percent per annum until 2036 (CRC 2013) as shown in **Figure 9.5.2.1a**. The Queensland Government statistician (Office of Statistical and Economic Reserach Queensland, 2014) predicts slightly higher growth rate (1.9 percent,) with around 244,083 people calling Cairns home by 2036.

Aboriginal and Torres Strait Islander people make up 9.2 percent of the local population which is greater than the State and National averages of 3.6 percent and 2.5 percent respectively (Australian Bureau of Statsitics, 2011).

The Cairns LGA also contains a high percentage of transient population given its popularity as a tourist destination. On the night of the 2011 Census 18 percent of people counted in the LGA were visitors to the area. In comparison, only eight percent of the people counted in the State of Queensland on Census night were visitors to the state (as shown **Figure B9.5.2.1b**).

Figure B9.5.2.1b Census Count Data for the Cairns LGA and State of Queensland - Number of Visitors Counted

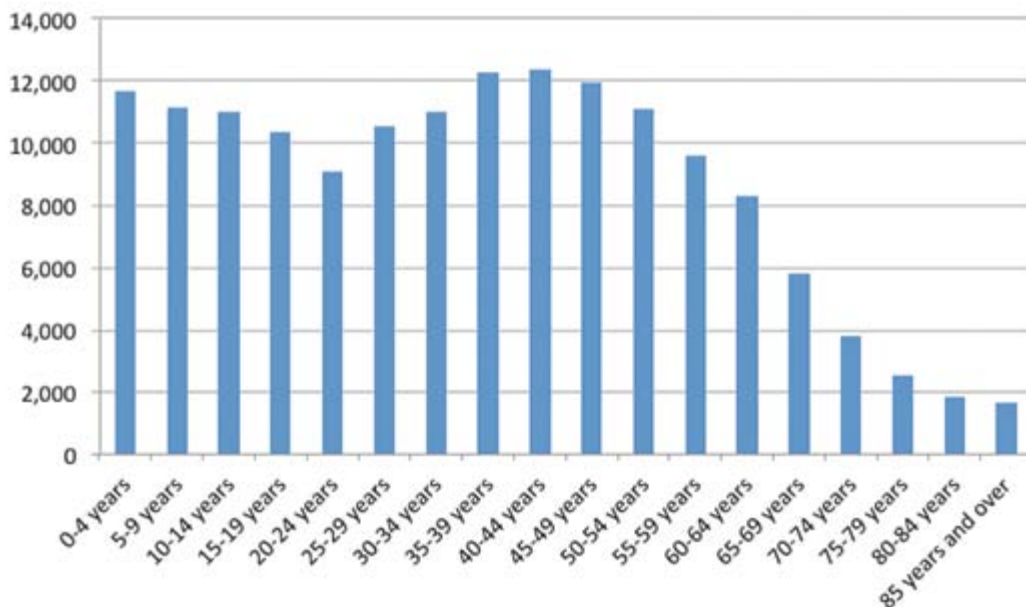


Age Distribution

According to Census data (2011), the average age of Cairns residents is 36 years, the same as Queensland’s average and a year younger than the Australian average age at 37 years. Children aged 0 to14 years make up 21.7 percent of the population, a slightly higher percentage than the Queensland population (20.2 percent). People aged over 65 years make up 10 percent of the population, a lower percentage than the Queensland population (13.2 percent). This means approximately 68 percent of the Cairns population is of working age, a higher percentage than Queensland of 66.7 percent.

It is noted that there is a lower percentage of people aged 20-24 (5.8 percent) in the Cairns LGA than the Queensland population (6.8 percent) as shown in **Figure B9.5.2.1c**. This indicates people in this age group are leaving the area, most likely to seek education and job opportunities.

Figure B9.5.2.1c Age Distribution within the Cairns LGA Population (at 2011)



Education

At the time of the 2011 Census, 30.9 percent of people in Cairns were attending an educational institution. Of this, pre-school, primary and secondary school made up a large percentage (51.8 percent) with tertiary education or technical institution only accounting for 15.1 percent. This is equivalent of five percent of the total residents in Cairns attending tertiary education or a technical institution which is slightly lower than the state and national average of six percent and seven percent respectively. Cairns residents (aged 15 years and over) with a post-school qualification (including bachelor degree or higher, diplomas and certificates) accounted for 57.3 percent of residents aged 15 years and over, which is slightly higher than the state’s percentage of 54.2. The majority of the post-school qualifications in Cairns were certificate level (at 38 percent).

Income

Median weekly incomes for an individual were \$620 (\$587 for Queensland), \$1,393 for a family (\$1,453 for Queensland) and \$1,145 for a household (\$1,235).

Employment

An analysis of the jobs held by the workforce in the CRC area in 2011/12 shows the four largest industries were:

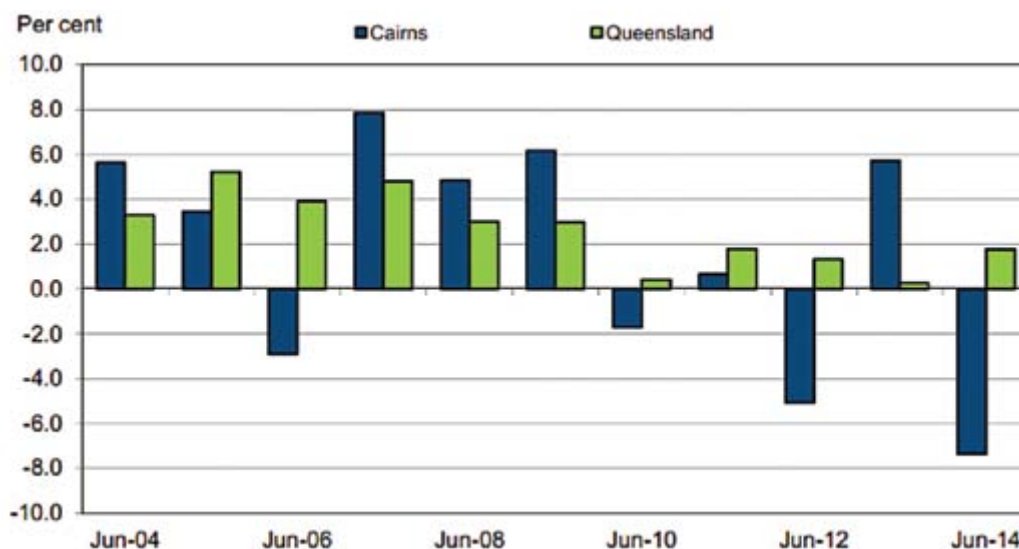
- Retail trade (13.8 percent of workers)
- Health care and social assistance (13.2 percent of workers)
- Construction (11.2 percent of workers)
- Accommodation and food (9.5 percent of workers).

At the time of the 2011 Census, 51 percent of the Cairns LGA’s population were active in the workforce. Of the 79,769 people who were active in the workforce, 59.7 percent were full time workers, 27.6 percent were part-time workers, 6.1 percent were away from work and 6.6 percent were seeking work (unemployed). These percentages were similar to the state percentages. Indigenous people represent 5.7 percent of the local workforce and women 40.7 percent of the workforce.

Labour force data released by the ABS in July 2014 showed a higher unemployment rate of 8.1 percent for the Cairns statistical area (SA4) compared to six percent for the State of Queensland (Queensland Treasury and Trade, 2014) as shown in **Figure B9.5.2.1d**. Unemployment in this area is the fourth highest rate for all Queensland SA4 areas. The Cairns region has a highly seasonal workforce due to its reliance on tourism, hospitality, accommodation and retail industries.

At the time of the 2011 Census the percentage of unemployed Indigenous people in the Cairns LGA was 23.8, significantly higher than the overall percentage for all people within the Cairns LGA (6.6 percent).

Figure B9.5.2.1d Annual Change in Employment - Cairns SA4 (Queensland Treasury and Trade, 2014)



Place of Birth and Ancestry

Nearly 70 percent of Cairns residents are Australian born and from Australian descent, with almost 60 percent of residents having both parents born in Australia. This is similar to that of the state and national average. The most common ancestry of Cairns residents was Australian and English descent followed by Irish, Scottish and German.

Language Spoken at Home

English was the most common language spoken at home for almost 81.6 percent of residents. The remainder nominated languages other than English spoken at home, which included Japanese, Italian, German and Yumplatock (Torres Strait Creole). Households which spoke two or more languages at home was 14 percent, higher than the Queensland average of 11.9 percent but lower than the national average of 20.4 percent. This indicates that Cairns attracts a higher level of cultural diversity than the state.

Households and Families

The Cairns household structure is primarily dominated by couples and small families. The majority of occupied private dwellings were detached houses with an average of three bedrooms per dwelling and average household size of 2.5 people.

The primary dwelling structure was detached housing at 71.3 percent, below that of the state average of 78.5 percent. Apartment dwellings are common in Cairns, comprising of 19.7 percent of housing types compared to only 11.7 percent of that of the state. Ports North has also reported that 32 people live aboard at Marlin Marina. It is not known how many people live on vessels moored in Trinity Inlet.

Socio-Economic Status Indicators

The following factors identify employment, income, housing tender and cost. These attributes are combined with the Census Socio-Economic Indexes for Areas (SEIFA) index. The SEIFA is an index provided by the ABS that summarises different aspects of the socio-economic conditions of people living in an area based on a set of socio-economic data from the Census such as low income, low educational attainment, unemployment and dwellings without motor vehicles. It provides a more general measure of socio-economic status than is given by measuring income or unemployment alone. SEIFA for the 2011 Census has been used for this report. The SEIFA has a number of indexes (Australian Bureau of Statistics, 2013).

The Index of Relative Socio-economic Disadvantage (IRSD) is a general socio-economic index that summarises a range of information about the economic and social conditions of people and households within an area (Australian Bureau of Statistics, 2013). This index includes only measures of relative disadvantage. A low score indicates relatively greater disadvantage in general. As shown in Error! Reference source not found. the Cairns LGA sits within the sixth decile of the index IRSD indicating that the area is not highly disadvantaged. In comparison, the adjacent LGA of Yarrabah sits within the first decile of the index indicating that it is a highly disadvantaged area.

The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) summarises information about the economic and social conditions of people and households within an area, including both relative advantage and disadvantage measures (Australian Bureau of Statistics, 2013).

A low score indicates relatively greater disadvantage and a lack of advantage in general. The Cairns LGA again sits within the sixth decile of the IRSAD as shown in **Figure B9.5.2.1f**. This shows that the Cairns LGA is one of the more 'advantaged' regions of Far North Queensland.

Figure B9.5.2.1e SEFIA Index of Relative Socio-economic Disadvantage (IRSD) for Cairns

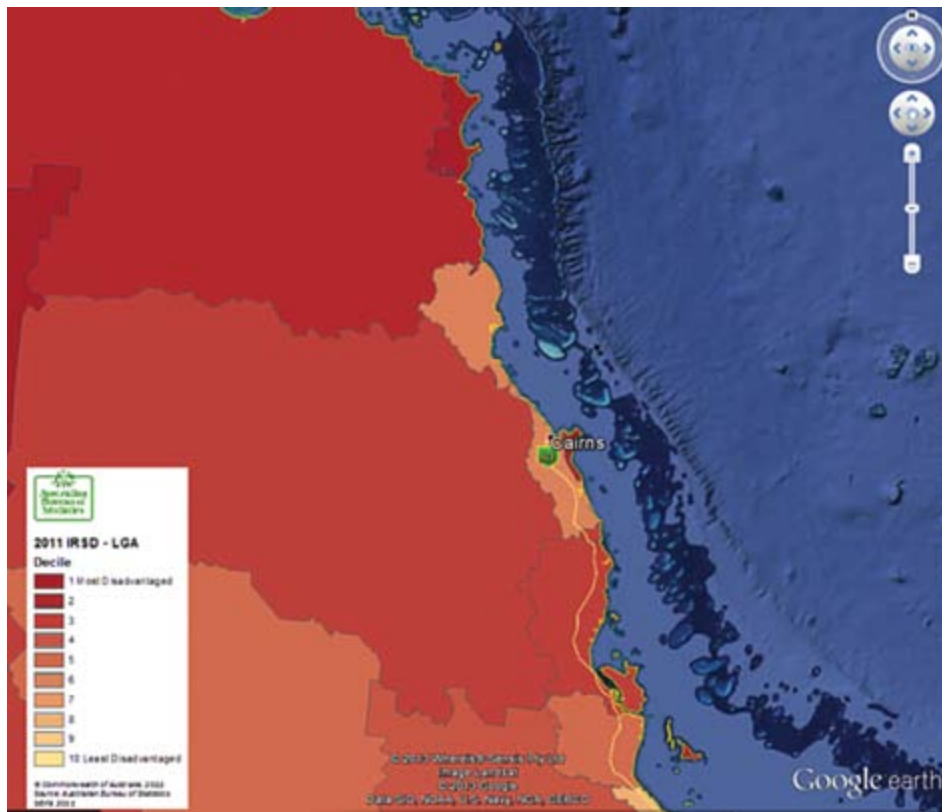
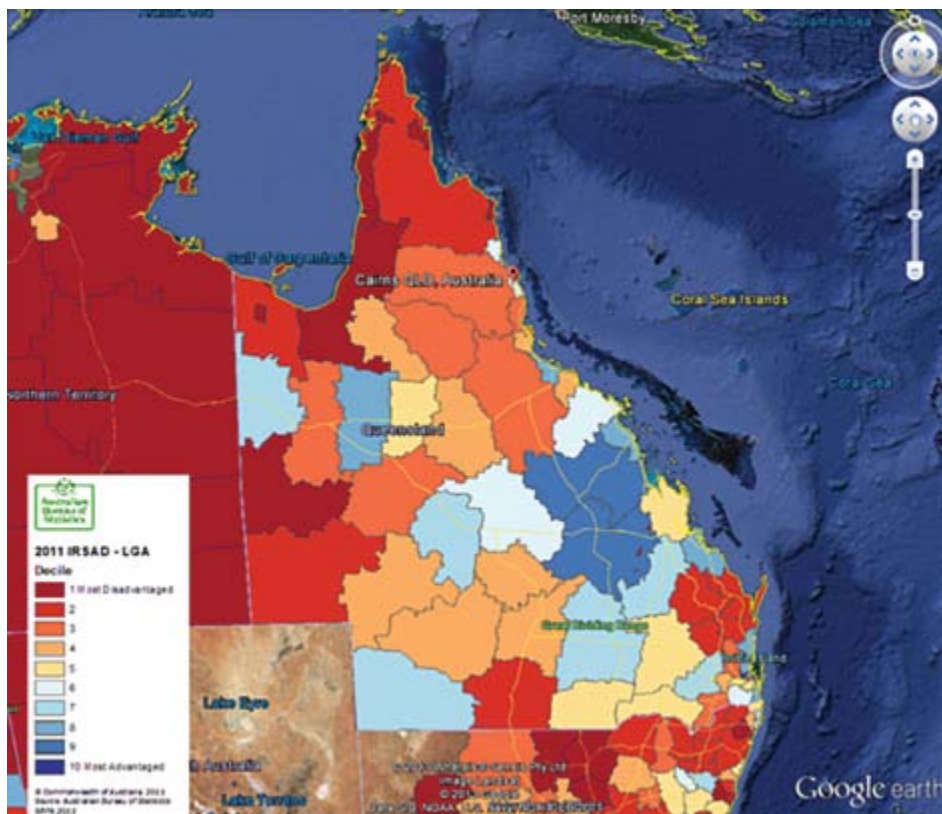


Figure B9.5.2.1f SEFIA (IRSD) for Queensland



Physical and Social infrastructure

As a major regional centre, Cairns services its population with a range of physical and social infrastructure which includes:

- Education – such as childcare, primary, secondary and tertiary facilities.
- Healthcare – such as hospitals, doctors, allied health.
- Shopping/retail areas
- Recreational facilities – such as swimming pools, sports fields, The Esplanade
- Arts and cultural facilities – such as Cairns Convention Centre
- Services – such as power, water, sewerage, waste collection
- Commercial services – such as banking
- Emergency services – such as ambulance, fire, police
- Tourist attractions - such as Skyrail, Tjapukai Aboriginal Cultural Park, Cable Ski Park, Cairns Tropical Zoo and the Great Barrier Reef.

These services are provided by a range of government and private sector providers. Population growth forecasts assist these providers to deliver and manage their infrastructure and service according to the needs of the population.

As described in **Section B9.5.1.3** the Port of Cairns, which is the focus of this project, is a significant piece of physical and social infrastructure for the people of Cairns and Far North Queensland.

The Cairns region also provides a range of civic and tourism related facilities that are used by local people and visitors to the region. Cruise ship passengers who come to shore are likely to join a land or marine based tour during their stay in Cairns. Currently, a ship that anchors off Yorkeys Knob generally gives its passengers six to eight hours ashore. This generally provides enough time to join a tour, but little additional time to visit the Cairns CBD. Ships that berth at Trinity Wharf are more likely to stay for at least 24 hours, giving their passengers time to undertake a tour and visit the Cairns CBD. These passengers are more likely to utilise Cairns' civic facilities and spend money in the local economy on food, beverage and retail items.

Social Values

The Cairns Community Plan best articulates the key social values of the area:

“Residents of the region have been attracted for many different reasons over a long period of time. As a result the things people love about the region have added to its unique character as Cairns has grown into an important regional service centre.

However, there is a constant theme that resonates from residents: lifestyle. Many people say our region's greatest asset is its laid-back and relaxed lifestyle. Some enjoy the fact that Cairns remains liveable with the amenities of a city, yet with the feeling of a big country town.

The diverse culture and history of the Aboriginal and Torres Strait Islander people is integral to the sense of place and community spirit of the region. Also important is the fact the region is multicultural and cosmopolitan with people from all over the world choosing to live and contribute to the diverse lifestyle choices the region has to offer. Aboriginal and Torres Strait Islanders and people from culturally and linguistically diverse backgrounds continue to inspire the arts sector and bring life and vitality to the region.

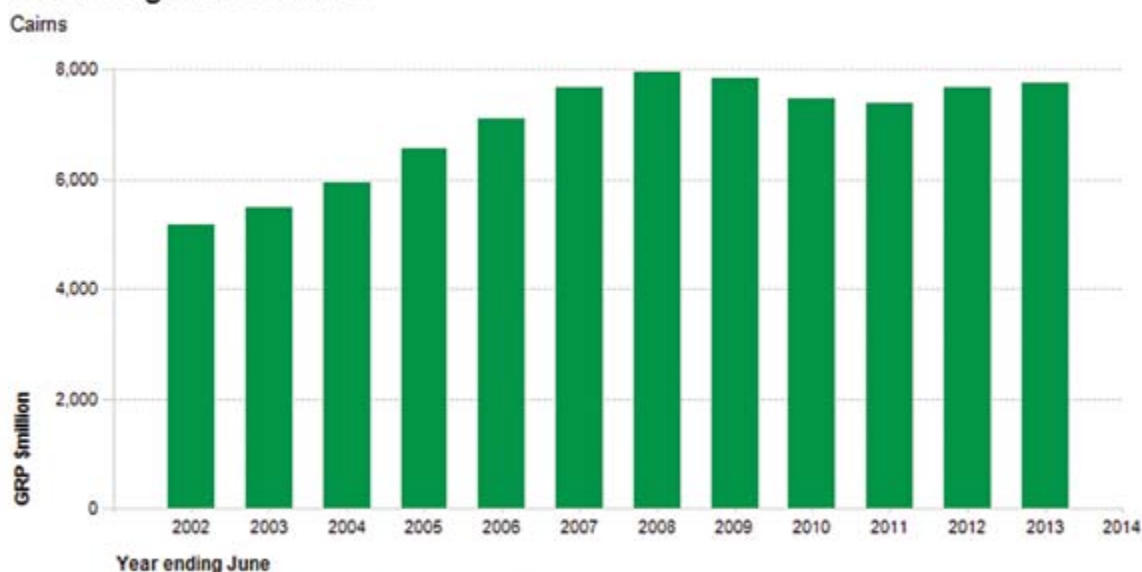
Of great importance is the outdoor lifestyle encouraged by the region's climate, while the natural setting provides many great destinations within close proximity. All of this is located within a unique natural garden that offers lush wet tropics, green hill sides, tablelands, reefs, ocean and rainforests. Even the cane fields are viewed as a unique and desirable contributor to the landscape. Some even say that they live on vitamin 'G': the green essence that permeates every vista in almost every direction. Hence, the sustainability passion of residents who believe the region must remain known for its green approach to all aspects of life. Finally, the focus on their local community and the desire to keep their space unique and special is paramount in the minds of many.”

Economic Environment

The Gross Regional Product (GRP) of the Cairns region was estimated at \$7.7 billion (at 30 June 2013) representing 2.72 percent of Queensland's overall Gross State Product (GSP). **Figure B9.5.2.1g** shows the value of the Cairns region's GRP since 2002. Fairly consistent and strong growth took place between 2002 and 2008, before a period of decline and stagnation during 2009-2011 which is consistent with domestic and global financial conditions at that time. The region's GRP has stabilised and shown moderate growth in recent years as shown in **Figure B9.5.2.1g**. **Table B9.5.2.1a** shows the top 10 industry sectors for the Cairns LGA economy.

Figure B9.5.2.1g Gross Regional Product 2002 - 2003

Gross Regional Product



Source: National Institute of Economic and Industry Research (NIEIR) ©2014
Compiled and presented in economy.id by .id the population experts

.id
the population
experts

Table B9.5.2.1a Key Industry Sectors Cairns LGA Economy (economy.id, 2014)

| Industry Sector | Percentage of Region's Economic Activity | Total Added Value (\$m) |
|---|--|-------------------------|
| Transport, postal and warehousing | 11.0 percent | \$778.5 |
| Health care and social assistance | 10.8 percent | \$761.8 |
| Public administration and safety | 9.3 percent | \$658.5 |
| Construction | 9.3 percent | \$657.6 |
| Retail trade | 8.4 percent | \$594.6 |
| Wholesale trade | 6.2 percent | \$441.2 |
| Education and training | 5.9 percent | \$419.2 |
| Accommodation and food services | 5.8 percent | \$408.9 |
| Manufacturing | 5.2 percent | \$364.9 |
| Professional, scientific and technical services | 4.8 percent | \$338.3 |

The region was affected by the recent 'Global Financial Crisis' (GFC) and other factors including the appreciation of the Australian dollar, which had most noticeable impacts on the tourism and construction industries. A significant factor in the region's vulnerability to the GFC and other recent events is its reliance on only a few major industry sectors rather than a diversified economy. This leaves the region vulnerable to both domestic and international boom and bust cycles (Cairns Regional Council, 2012). Adding to this vulnerability is the fact that around 95 percent of businesses in Cairns are classified as small businesses.

B9.5.2.2 Study Area - Yorkeys Knob

The next study area, Yorkeys Knob, has been included in the SEIA as a study area because cruise ships that are currently too large to access the Port of Cairns anchor offshore at Yorkeys Knob and transfer their passengers to shore. This section includes the following:

- A description of the project area
- A demographic profile of the area
- Key physical and social infrastructure
- Social values.

Description of the Study Area

Yorkeys Knob is a northern beach suburb of Cairns, approximately 13km from the Cairns CBD. The local population is serviced by a small shopping area which includes a supermarket, post office, bakery, bottle shop and other shops. A few shops are also located close to the suburbs main beach area at the northern end of Sims Esplanade.

Demographic Profile

At the time of the 2011 ABS Census it was home to 2,768 people. More than 1,500 private dwellings are located in the suburb.

Physical and Social Infrastructure

The largest facility located in the suburb is the Yorkeys Knob Boating Club located at Half Moon Bay Marina. The marina provides berths for close to 200 boats and has two breakwaters to protect the north and north-west sectors of the marina. Driftaways restaurant is located in the clubhouse.

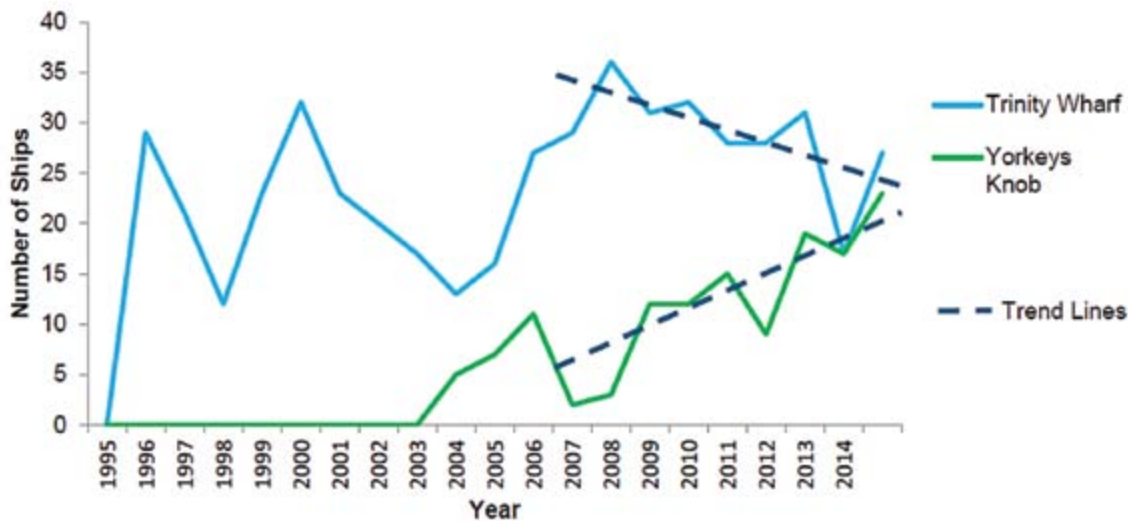
As described in **Chapter A1, Project Introduction**, larger cruise ships are, due to their size, increasingly unable to access the Port of Cairns and as a result are required to anchor offshore when visiting Cairns. Ships that anchor off Yorkeys Knob generally only stay for a day giving passengers approximately four to six hours ashore. These ships transfer passengers via tender vessel before they are loaded into coaches for transfer to tour locations or into Cairns City. The facilities at Yorkeys Knob Boating Club and Half Moon Bay Marina are utilised to facilitate this process. During this process access to the marina and its facilities (i.e. refueling facilities, boat ramp) are somewhat restricted for other users. Yorkeys Knob Boating Club is paid a fee per ship visit to facilitate these transfers. Quicksilver Reef Magic and Sunlover Cruises provide tender and coach services as required to cruise ships. Access in and out of the area is via Yorkeys Knob Road which joins the Captain Cook Highway. Buses transporting cruise ship passengers to the city use this route. This journey to the Cairns CBD currently takes approximately 30 minutes to complete. It is noted that the proposed Aquis Resort would add additional traffic on this road during its construction and operation.

The total time it takes a passenger to transfer from their cruise ship to the Cairns CBD and return is estimated at 3.5 hours (Cummings Economics, 2014). Industry advice indicates that the complications of a ship to shore transfer and coach transfers to the city results in between 20–40 percent of passengers deciding to stay on the ship (Cummings Economics, 2014). Of those who do leave the ship, very few stay in Yorkeys Knob for the day. Most travel to the Cairns CBD via coach or head off on other organised tours.

Bad weather (such as winds over 15 knots) can also further complicate or even cancel ship to shore transfers. Industry information indicated that the number of weather cancellations varies from year to year but that average was about 10 percent of visits. It is only known a short time in advance whether these conditions will apply and that the shore tenders still need to be paid for whether used or not (Cummings Economics, 2014). Some 95 percent of passengers would disembark the ship if it berthed at Trinity Wharf (Cummings Economics, 2014).

Forecasts show the proportion of cruise ship passengers visiting Cairns in mega class ships will have risen from none in 2004 to about 50 percent by 2016 (BMT WBM, 2014). **Figure B9.5.2.1h** shows the increase in use of Yorkeys Knob since 1995.

Figure B9.5.2.1h Ship visits at Cairns Trinity Wharves and Yorkeys Knob 1995 - 2014 (CSDP Demand Study, 2014)



Ports North is currently working with Yorkeys Knob Boating Club an upgrade to facilities at Yorkeys Knob including:

- Improved bus parking and passenger pickup/drop-off
- Covered areas and seating for waiting passengers
- Upgraded pontoon and walkways to allow improved and increased capacity for berthing of ship tenders
- Landside hardstands and landscaping.

These works are expected to be completed in 2015 and will provide improved facilities and amenities for the regional recreational boating population as well as improve the transfer efficiency and the passenger experience for the largest mega cruise ships that will continue to be required to anchor offshore at Yorkeys Knob in the future (e.g the *Queen Mary*).

The upgrade will also provide an intermediate improvement to the transfer efficiency and passenger experience for any Mega cruise vessels utilizing Yorkeys Knob until they are able to be serviced at the Port of Cairns upon completion of the project.

Social Values

The suburb of Yorkeys Knob is predominantly a beachside residential suburb. From a social perspective, the transfer of passengers from anchored ships to tour buses or the Cairns CBD is an infrequent activity brings additional bus and taxi traffic into the local area, but this has limited impact on the social environment of the area because passengers are just transiting through the area.

Yorkeys Knob is also the location for the proposed Aquis Resort. The Aquis Resort site is located on 340ha of land which is accessed via Yorkeys Knob Road or Dunne Road. Information about the Aquis Resort is available at www.dsdp.qld.gov.au/assessments-and-approvals/aquis-resort-at-the-great-barrier-reef-project.html. Potential cumulative impacts associated with this development are discussed in **Chapter B18, Cumulative Impacts Assessment**.

B9.5.2.3 Study Area - Marine Environment

The next area of interest investigated is the marine environment study area. This has been included in the SEIA because of the dredging and dredge material placement associated with the project. It is important to understand the socio-economic values of this area in order to assess potential impacts.

The marine environment offshore from Cairns provides a variety of commercial and recreational opportunities that provide both economic and social benefits for the community. This section describes the current commercial and recreational uses of the marine environment. See **Chapter B13, Cultural Heritage** for information about the use of the marine environment by traditional owners.

These waters are protected by both State and Federal legislation, primarily through the declaration of marine parks. This marine park status allows uses within the park to be regulated according to the relevant marine park plans. This section includes the following:

- A description of the project area
- Social values
- Economic environment.

Description of the Study Area

The marine study area includes the waters of Trinity Inlet, Trinity Bay and immediate surrounds as shown in **Figure 9.2.4a**.

Social Values

The marine environment is currently used for a variety of commercial and recreational purposes of social value. Commercial purposes include commercial fishing, the cruise industry and marine based tourism. Recreational activities include fishing and boating.

Commercial Fishing and Aquaculture

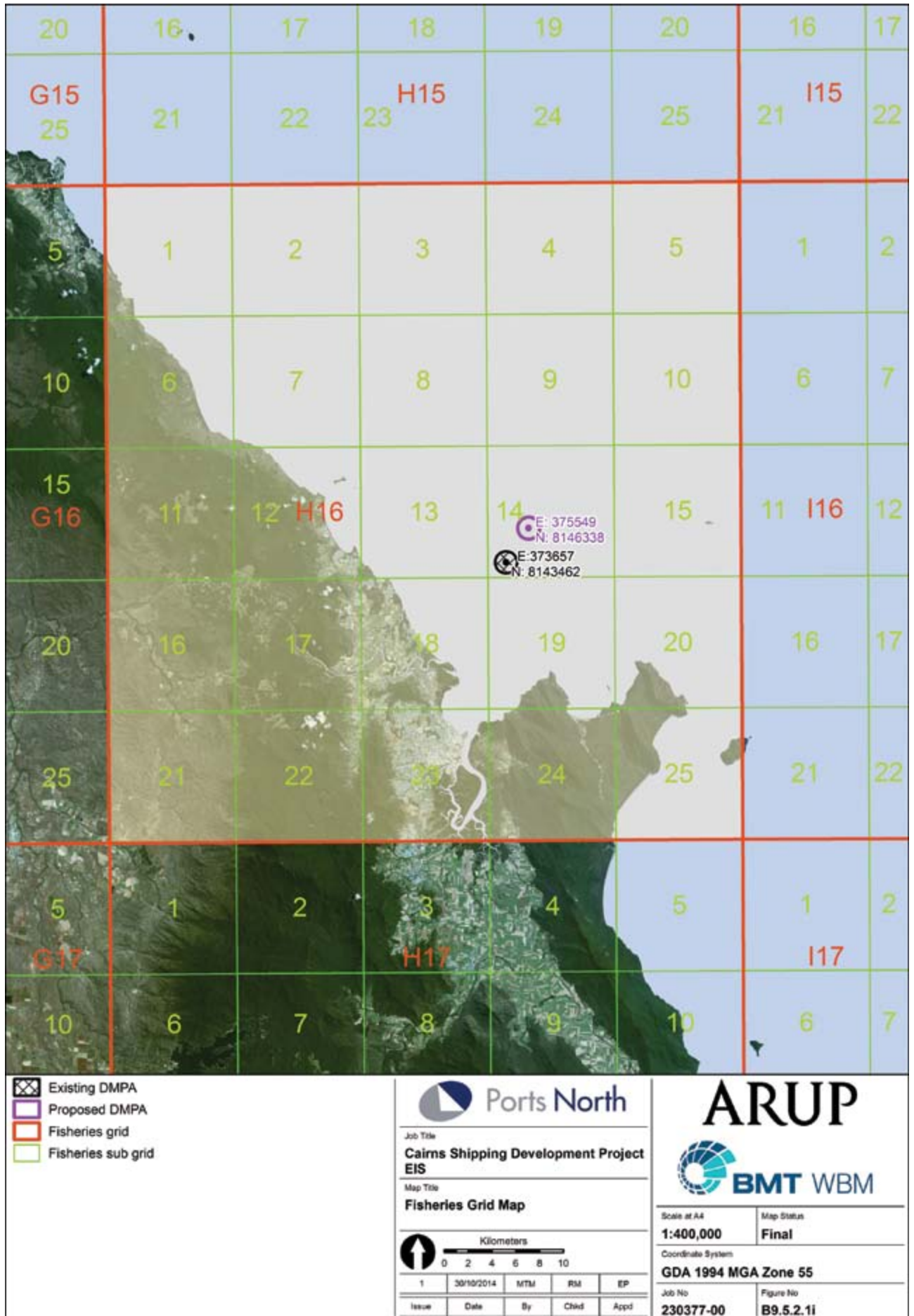
In addition to the requirements of the Marine Parks, the principal legislation for fisheries in Queensland is the *Fisheries Act 1994* and the *Fisheries Regulation 2008*. The *Fisheries Act 1994* sets out Fisheries Queensland's responsibilities for the economically viable, socially acceptable and ecologically sustainable development of Queensland's fisheries resources. The Fisheries Regulation 2008 defines specific regulatory rights and allocation requirements for people and/or entities wishing to disturb and/or remove Queensland's fisheries resources.

Commercial fishers are required to be licenced and report on their fishing catch and effort via log books that are submitted to the Department of Agriculture, Fishing and Forestry (DAFF) via Fisheries Queensland. Some fishers are also required to carry Vessel Monitoring System (VMS) units which record their activities.

Fisheries Queensland's reporting grids have been used as the source of fishing effort and catch data for this SEIA. For this project, grid H16 is the primary area of interest (as shown in **Figure 9.5.2.1i**) with the adjacent grids H15, I15, I16 and I17 used for comparative purposes. The 'five boat rule' applies to data collected by Fisheries Queensland. This means that all non-aggregated data is considered confidential and aggregated data cannot be published unless it includes data from at least five licence holders (Fisheries Queensland, 2014).

As discussed in **Section B9.5.1** Ports North has a permit to place dredge material from its annual maintenance dredging activities within the GBRMP boundary. The current approved Dredge Material Placement Area (DMPA) for maintenance dredging is located in grid H16, sub grid 14 as shown in **Figure B9.5.2.1i**. For reference, the current DMPA is one nautical mile in diameter, the grids are 30 nautical miles long and wide, and sub grids are six nautical miles long and wide. The DMPA covers approximately two percent of sub grid H16:14.

Figure 9.5.2.1i Fisheries Grid Map



Catch and Effort

The commercial catch and effort for the primary grid of H16 and the adjacent grids are shown in **Figure B9.5.2.1j** and **Figure B9.5.2.1k**. These graphs show that since 1990 fishing effort and catch weights have all been in decline.

A key reason for this decline was the July 2004 implementation of a new zoning plan for the GBRMP that increased the number of ‘no-take’ (no fishing) areas from 5 percent to 33 percent of the Marine Park. It also increased the number of ‘no-trawl’ areas from 15 percent to 28 percent of the Marine Park (Ledee, et al., 2012). At this time the Australian Government committed to a structural adjustment package to assist fishers, fishery related businesses and others adversely affected by the rezoning to exit the industry, restructure their businesses to adjust to the changes or make other changes to lessen the impact (Ledee, et al., 2012). This has resulted in a reduction in the effort and catch volume over time.

Figure 9.5.2.1j Catch Weight (kg) by Reporting Grid

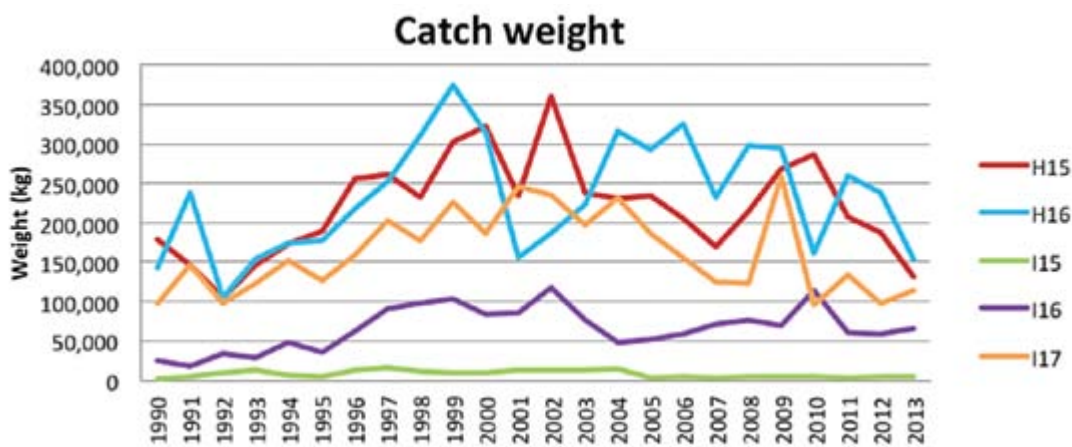
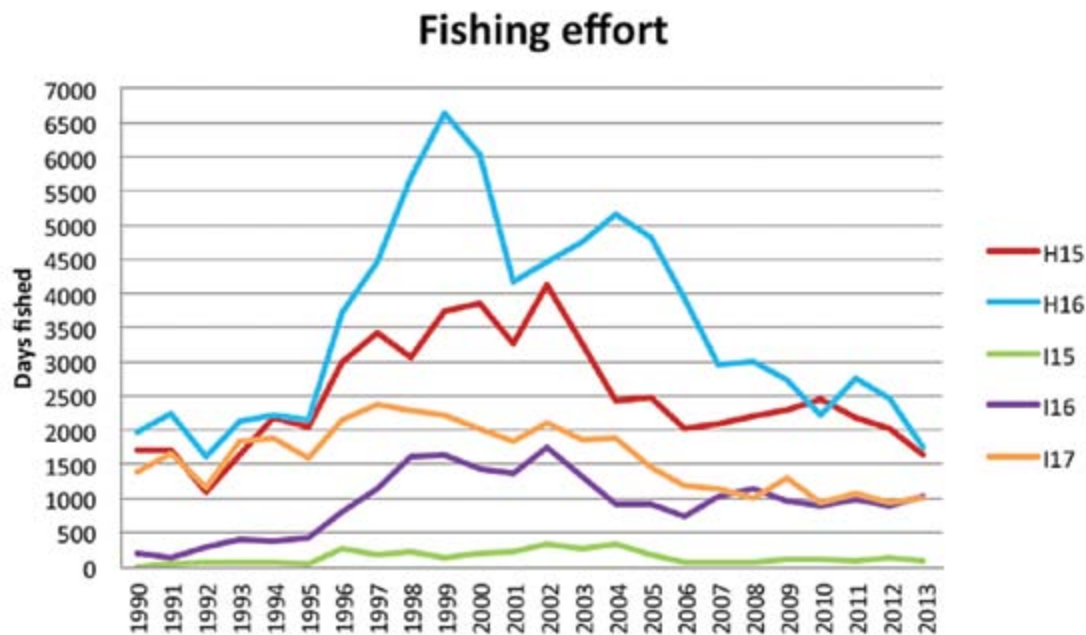


Figure B95.2.1k Fishing Effort (Days) by Reporting Grid



From this it can be seen that a significant proportion of fishing effort and catch (by weight) in the local area occurs in grid H16. This is likely due to its proximity to Cairns in relation to travel distance and population base.

Licences

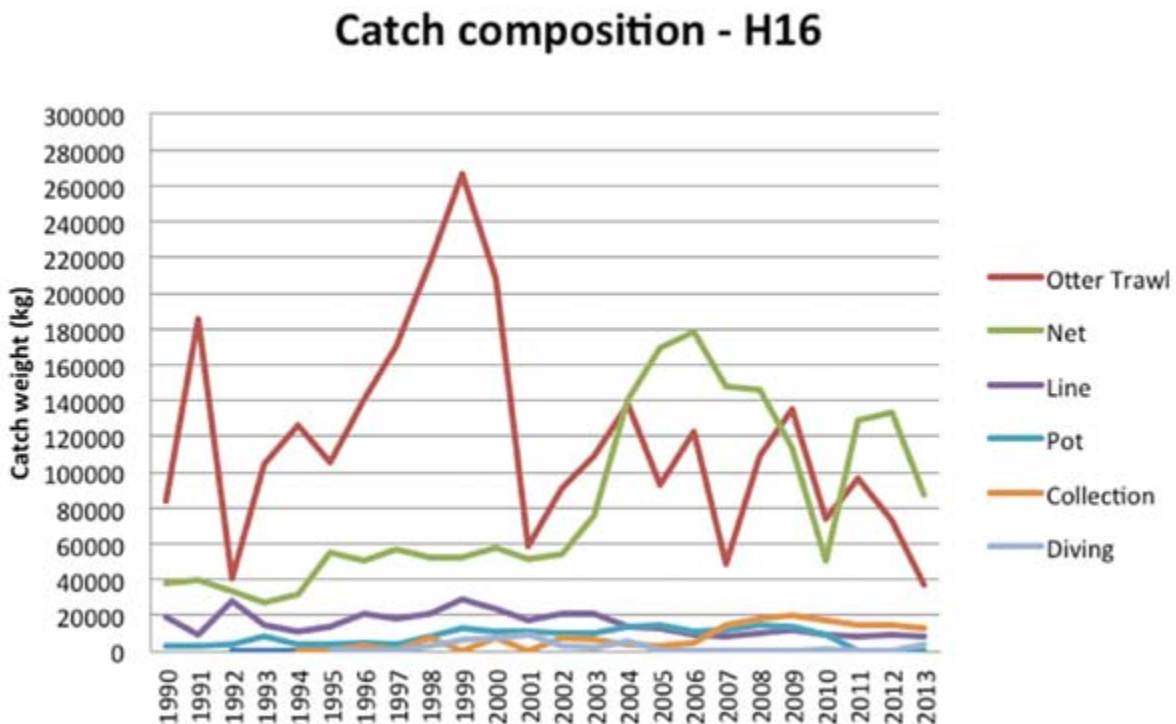
Queensland commercial fishers are required to hold certain authorities that cover a range of commercial fishing licences (with associated fisheries symbols), permits and quotas. Licences and permits allow commercial fishers to catch certain marine species as long as they abide by conditions such as area restrictions, catch limits, catch reporting and gear used.

An indication of the number of active commercial fishers has been drawn from Queensland Fisheries log book data. This data shows that 87 commercial boats fished in grid H16 during 2013. These commercial boats recorded the following fishing activities:

- Collection – 10 licenced boats
- Diving – 11 licenced boats
- Line – 30 licenced boats
- Net – 12 licenced boats
- Otter trawl – 24 licenced boats.

Most boats have multiple symbols associated with their commercial boat licence. **Figure B9.5.2.1I** shows the composition of the catch in grid H16 from 1990 to 2013. From this data it can be seen that otter trawl and net fishing are most common in grid H16.

Figure B9.5.2.1I Composition of Catch for Reporting Grid H16



Fisheries Regulated Waters

Fisheries regulated waters are areas where fishing is restricted. Trinity Inlet is a Fisheries Regulated Water and as such, there are certain restrictions to commercial fishing in this area. Anecdotal advice suggests that of those who still fish this area, they only fish their licence in the regulated waters area a few times a year, but fish heavily at the start of the barramundi season (seasons starts February each year).

Scientific Research

The Great Barrier Reef inspires and facilitates a wide range of scientific research from independent study projects to large multi-agency collaborative research programs (Deloitte Access Economics, 2013).

In 2010, research funding for reef-related projects from the Australian Research Council (ARC) grants alone totalled more than \$8 million. This funding supports a large body of research with 230 research reports published in 2009 in the Australian Coral Reef Society's publications. The 2012 International Coral Reef Symposium, held in Cairns, had over 2,000 attendees, 1,200 of these from outside Australia – an indicator of the importance of the Great Barrier Reef to international reef research (Deloitte Access Economics, 2013).

Cruise Industry

As described in **Section B9.5.1**, the Port of Cairns is a strategic, popular and attractive destination for cruise companies (BMT WBM, 2014). When visiting the Cairns region cruise ships either use the shipping channel to access the CCLT at the Port of Cairns or anchor offshore at Yorkeys Knob.

The Port of Cairns is predominantly a transit port with cruise ships generally visiting for a day with some staying overnight. A transit port is an en route stop within a longer itinerary. Passengers are generally unable to join or leave the ship at a transit port. There are also limited opportunities for ships to take on supplies or undertake maintenance as their stops are of a short duration.

At present, there is one company home-ported in Cairns - the small adventure class Coral Princess Cruises that operates cruises out of Cairns and use Cairns as its corporate and maintenance base for cruises conducted in the Kimberley region and the Pacific Island areas (Cumplings Economics, 2014). P&O have recently announced plans to base the "Pacific Eden" in Cairns for cruises into the Coral Sea/Pacific area using a passenger ship that can berth at Trinity Wharf. Also, Paul Gaugin cruises commenced using Cairns as a point of embarkation / disembarkation during 2014.

Marine Based Tourism

Vessels operating tourism based services out of the Port of Cairns include reef vessels, fishing charter vessels, dive charter vessels, sail charter vessels and river cruise vessels.

A Deloitte Access Economics study undertaken for the 2011-12 financial year indicated that tourism related to the Great Barrier Reef adds around \$5.2 billion to the national economy and generated approximately 64,000 full-time equivalent (FTE) jobs (Deloitte Access Economics, 2013). Close to 50 percent of this added economic value (\$2.5 billion) and 30 percent of jobs were located in the Wet Tropics Region where Cairns is the major urban centre.

Reef Vessels

The Reef Fleet Terminal at Marlin Marina within the Port of Cairns serves as the home for a variety of vessels operated by cruise and tourism operators. An estimated 740,000 visitors pass through the terminal annually, with the building designed to accommodate up to 2,000 people at a time (Ports North, 2013).

The 'reef fleet' that operates out of the terminal includes (but is not limited to):

- Big Cat
- Cairns Dive Centre
- Compass Cruises
- Deep Sea Divers Den
- Down Under Dive
- Falla
- Fitzroy Island Resort
- Ocean Free/Freedom
- Passions of Paradise

- Pro Dive
- Quicksilver (including Great Adventures and Ocean Spirit)
- Raging Thunder
- Reef Day Tripper
- Reef Magic
- Rum Runner
- Seastar Cruises
- Sunlover Cruises
- Tusa Dive

Charter Fishing

A number of fishing charters also operate out of the Port of Cairns. In 2013, 16 licensed charter fishing licences were active in the H16 grid (Fisheries Queensland, 2014).

During engagement activities charter operators reported the following areas are popular for charter fishing:

- Trinity Inlet
- False Cape
- The Hospital Flats
- The end channel markers
- In the vicinity of channel markers four and five
- Barron River
- The old anti-submarine boom gates (which now create an artificial reef for marine life)
- Saltwater Creek
- Reddin Creek
- Tomatis Creek.

These boats are used to transport tourists to the reef for day or overnight trips usually to undertake diving, snorkelling and sightseeing activities. Key reef destinations in the vicinity of Cairns are shown in **Figure B9.5.2.1m**. The existing and proposed DMPA are located more than 12 kilometres from major reef areas.

Figure B9.5.2.1m Reef Areas near Cairns used by Tour Operators



Recreational Marine Uses

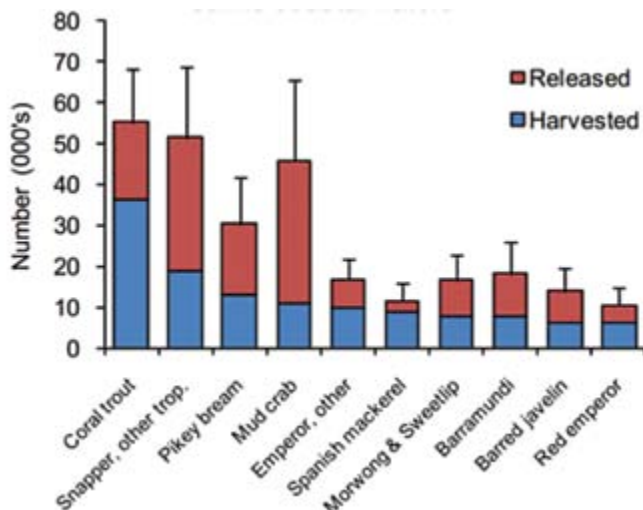
The marine environment is also used for a variety of recreational purposes. Locals and visitors use the beaches and foreshores, local waters and reef areas for recreational activities.

Recreational Fishing

Recreational fishing is a popular activity with approximately 23 percent of Far North (which includes Cairns, Cooktown and Weipa) residents aged five years or above fishing during the 12 months according to 2010 state-wide recreational fishing survey (Department of Agriculture, Fisheries and Forestry - Fisheries Queensland, 2010). This percentage is greater than the state-wide average of 17 percent. More days were spent fishing from boats than the shore and most of this fishing was done in marine waters.

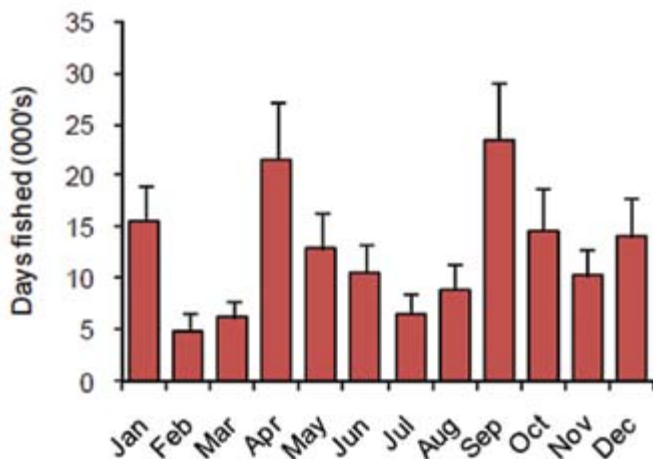
Far North residents took more than 60 percent of Queensland’s recreational harvest of sharks. They also took more than 30 percent of the state’s recreational harvest of barramundi and coral trout and 25 percent of the state’s recreational harvest of Spanish mackerel (Department of Agriculture, Fisheries and Forestry - Fisheries Queensland, 2010). Key species targeted by recreational fishers in Far North Queensland are shown in **Figure B9.5.2.1n**. A significant portion of fish caught in Cairns coastal waters are released back into the marine environment as outlined in the 2010 Statewide Recreational Fishing Study (Taylor, et al., 2012).

Figure B9.5.2.1n Estimated Recreational Fishing Catch for Cairns Coastal Waters (Taylor, et al., 2012)



The reef, estuaries, rivers and creeks all provide popular fishing spots for recreational anglers. While recreational fishing activity occurs year round, there were peaks in activity around April and September coinciding with school holiday periods (see **Figure B9.5.2.1o**).

Figure B9.5.2.1o Recreational Fishing Effort



Recreational Boating

Recreational boating activity is closely tied to recreational fishing activity with most people heading out on boats to partake in fishing or cruising activities. There were 10,838 recreational vessels registered with the Department of Transport and Main Roads in suburbs closest to the Port of Cairns (postcodes 4865, 4868 – 4872 and 4878-4879) at July 2014 (Queensland Government, 2014).

In the vicinity of the project areas there are a number of boat ramps which provide access to local waters. These include:

- Smiths Creek: Next to sugar terminal. Small ramp with limited car parking
- Tingara Street-Smith Creek: Large public ramp and car park offering wash down and rigging areas. Lighting provided. Handy floating pontoon. To become main town ramp
- Redbank: Off Redbank Road and further up the system. Small ramp with limited parking. Not good access on large dropping tides as access is limited at very low water
- Blackfellow Creek: Off Thompson Road Edmonton. Small ramp with limited parking.

Economic Environment

The marine environment supports a range of economic activities. This section outlines the economic contribution of these activities.

Value of Commercial Fishing and Aquaculture

The total direct value of all commercial fishing and aquaculture in the Great Barrier Reef World Heritage Area in 2010-11 was estimated at \$193 million (Deloitte Access Economics, 2013). In the Wet Tropics region, where Cairns is the major urban centre, the direct value of commercial fishing and aquaculture in 2010-11 was estimated at \$21.3 million, comprised of:

- Line, net, pot and trawl - \$12 million
- Harvest - \$3.1 million
- Aquaculture - \$6.2 million.

These values were generated based on commercial log book data on commercial catch by grid reference, the gross value product of catches for each of Queensland's harvest fisheries and the gross value product of aquaculture sourced from farm gate values (Deloitte Access Economics, 2013).

Estimating the Gross Value of Production (GVP) for the primary catch grid of H16 has been achieved by using total fisheries GVP for Queensland published by the Australian Government and the percentage of the overall catch for Queensland recorded in this grid. In 2012/13 the fisheries GVP for Queensland was estimated at \$222.9 million (Australian Government, 2013). Using data provided by Fisheries Queensland, it is calculated that in the year 2012/13, 0.79 percent of Queensland catch was recorded in grid H16 (Fisheries Queensland, 2014). It is therefore estimated that fisheries GVP in grid H16 during 2012/13 was \$1,757,742. As discussed above the current DMPA covers less than two percent of this overall area.

Value of Scientific Research

It is estimated that reef related scientific research added \$98 million to the Australian economy in 2012. This also resulted in 880 jobs in mostly professional services roles (Deloitte Access Economics, 2013).

Value of Cruise Shipping

In 2012-13 the estimated total output of the Australian cruise shipping industry was \$2.06 billion, including direct expenditure of \$1.23 billion, an increase of around 20 percent on the previous year (Cruise Down Under, 2013). This increase has come mainly through the use of larger ships with more passengers and crew rather than an increasing number of ships as shown in **Table B9.5.2.1b**.

Table B9.5.2.1b Cruise Ship Visit Statistics (Cruise Down Under, 2013)

| Cruise Ship Characteristics | 2011-12 | 2012-13 | Actual change | Percent change |
|---|---------|---------|---------------|----------------|
| Number of cruise ship visits to Australian ports (domestic and international ships) | 736 | 692 | -44 | -6.0% |
| Number of visiting cruise ships (international ships) | 42 | 43 | 1 | 2.4% |
| Passenger capacity of cruise ships | 54,063 | 62,051 | 7,988 | 14.8% |
| Number of crew on cruise ships | 22,997 | 27,032 | 4,035 | 17.5% |

Total cruise ship visits to Australian ports are expected to increase by approximately 140 visits (almost 17 percent) to an estimated 825-835 in 2013-14, which is in line with the growth trend over the last decade (Cruise Down Under, 2013).

Queensland is not considered by most international cruise companies to be a separate itinerary area. It is simply part of the Asia Pacific, South Pacific or Australasian region. Other than Coral Princess Cruises with their Cairns-based operation using small adventure ships operating 12 months a year, all other cruise companies including Carnival Australia and Royal Caribbean International, which include Queensland and Cairns in their itineraries, do so as part of their regional itineraries. The basing of a P&O Australia ship in Brisbane has increased domestic cruising to the state. A second ship will be based there in 2015 thereby increasing cruising within Queensland (BMT WBM, 2014). **Table B9.5.2.1.c** shows a summary of direct expenditure associated with the cruise shipping industry at Queensland ports in 2012/2013. This shows that \$11.6 million in economic benefit was added to the Cairns economy through cruise shipping activity in 2012/13.

Table B9.5.2.1c Summary of Direct Expenditure Associated with the Cruise Shipping Industry in Queensland (2012-13)

| Port | Visit Days | Passenger Days At Port | Crew Days At Port | Direct Expenditure (\$m) | | | | Total |
|---------------------|------------|------------------------|-------------------|--------------------------|---------------------|----------------|---------------|----------------|
| | | | | Passenger ^(a) | Crew ^(a) | Operator | Corporate | |
| Queensland | | | | | | | | |
| Brisbane | 105 | 324,582 | 65,064 | \$117.17 | \$14.44 | \$198.50 | \$19.57 | \$349.7 |
| Cairns/Yorkeys Knob | 43 | 44,149 | 12,751 | \$8.90 | \$0.86 | \$1.79 | \$0.04 | \$11.6 |
| Cooktown | 2 | 669 | 0 | \$0.16 | \$0.00 | \$0.01 | \$0.00 | \$0.17 |
| Mackay/Whitsundays | 38 | 54,691 | 12,465 | \$11.18 | \$0.82 | \$1.07 | \$0.00 | \$13.1 |
| Port Douglas | 18 | 25,156 | 0 | \$4.70 | \$0.00 | \$0.11 | \$0.00 | \$4.8 |
| Thursday Island | 5 | 1,513 | 146 | \$0.36 | \$0.01 | \$0.01 | \$0.00 | \$0.4 |
| Townsville | 4 | 2,813 | 929 | \$0.58 | \$0.06 | \$0.30 | \$0.00 | \$0.9 |
| Total | 215 | 453,573 | 91,355 | \$143.1 | \$16.2 | \$201.8 | \$19.6 | \$380.7 |

Note: (a) Includes both domestic and international expenditure. Some totals may not add up due to rounding issues.

Source: CDU, Individual Ports, AECgroup

As discussed in Section 0, mega class ships that call at Cairns typically must anchor at Yorkeys Knob. The *Rhapsody of the Seas* is an exception to this general rule, as it can access Trinity wharf under favourable tidal and weather conditions. The other classes of vessels (mid-size, boutique and adventure classes) are able to access Trinity Wharf. Ships that cannot access the port will typically anchor offshore from Yorkeys Knob and ferry their passengers ashore by tender. It is estimated that it costs \$173,400 per visit for a ship to anchor off Yorkeys Knob (Cummings Economics, 2014). This comprises costs associated with the ship-to-shore transfer (vessel and coach hire), dis-benefits of those who do not go ashore, dis-benefits of weather based cancellations, crew movements and ship operations (port/service berthing charges, fuel for offshore layover).

As shown in **Table B9.5.2.1c**, in 2012/13 direct expenditure associated with cruise shipping in the Cairns region was \$11.6 million. A large portion of this expenditure is generated by passengers and crew spending money in the local economy. Expenditure generated by passengers and crew members who come ashore is estimated at \$220 per passenger and \$78 for crew for a Port of Cairns anchored ship (2016 dollars). This drops to \$172 for passengers and is assumed as \$0 for crew (who cannot go ashore) for a Yorkeys Knob anchored ship in 2016 dollars (Cummings Economics, 2014).

The drop in expenditure when anchored at Yorkeys Knob is attributable to a reduction in the number of passengers who choose to come ashore and the fact that crew cannot typically take shore leave. The complication of ship to shore transfers discourages around 25 percent of passengers from leaving the ship, with this number increasing in bad weather. For those passengers who do decide to come ashore, very few stay in Yorkeys Knob, around one half transfer to the Cairns CDB and the other half go on tours (Cummings Economics, 2014).

Value of Marine Based Tourism

Overall tourism data has been used to help quantify the economic value of marine based tourism activities. It is acknowledged that non-marine based activities are also included in these figures, but it has not been possible to extract marine based activities from the totals.

Some \$2.5 billion was spent on tourism related activities in the Wet Tropics region, of which Cairns is the major centre (Deloitte Access Economics, 2013). This spend added around \$1.2 billion to the local economy in 2011/12 and supported more than 18,000 jobs.

Value of Recreational Activities

In 2011-12 recreational activities in the Wet Tropics region, which includes Cairns, were valued at \$78.5 million. Of this, \$48.6 million was spent on the purchase of equipment for recreational activities (such as boats and fishing equipment), \$13 million was spent on fishing trips and \$4.6 million was spent on boating trips.

B9.6 Impact Assessment

This section of the SEIA assesses the potential impact of the project on the existing socio-economic conditions. As described in **Chapter A1, Project Introduction**, the project involves the following activities:

- Widening and deepening of the shipping channel and Crystal Swing Basin, including lengthening of the existing channel and establishment of a new shipping swing basin (Smith Creek Swing Basin) upstream of the existing main swing basin to enable future expansion of the HMAS Cairns Navy base
- Structural upgrade of the existing cruise shipping wharf one to five to accommodate larger and heavier cruise ships
- Upgrade of ship services to the cruise shipping wharf, including Intermediate Fuel Oil (IFO), potable water and fire-fighting services
- Placement of material from capital dredging campaign at a newly identified marine based material placement area
- Long-term placement of material from maintenance dredging campaigns in the newly identified marine based material placement area
- Relocation of existing and installation of new navigational aids.

The impact assessment section of this SEIA chapter assesses the impact of these activities on the social and economic environment in the project and study areas. The description of potential impacts uses the following scales:

- Local scale impacts/benefits – Impacts/benefits that will occur within or in close proximity to the project area or in a specific location (such as Yorkeys Knob)
- Regional scale impacts – Impacts/benefits that will occur at a regional scale such as the Cairns LGA or North Queensland region. In relation to the marine environment impacts would occur within the area identified as the marine environment for this SEIA (see **Section B9.2.4**)
- Broader scale impacts – Impacts/benefits that would occur at a broader scale, such as the entire Great Barrier Reef Marine Park or the State or National economies.

Where relevant, potential impacts are described in relation to the proposed project (the project case) and the do nothing case (the base case).

B9.6.1 Impact Assessment Process

Impact assessment methodology guidance for the project is outlined in Chapter A1, Introduction. This guidance outlines the process for assessing the significance, likelihood, duration and risk rating for potential impacts.

The significance criteria shown in **Table B9.6.1a** were adopted for this SEIA and have been used to assess socio-economic impacts in line with the assessment process detailed in **Chapter A1, Project Introduction**. The likelihood and significance of an action occurring have determined the risk rating by using the risk matrix shown in **Table B9.6.1b**.

Table B9.6.1a Impact/Significance Criteria

| Impact Significance/ Consequence | Description of Significance |
|-------------------------------------|---|
| Very High | <ul style="list-style-type: none"> • The social environment is irrevocably changed and people can no longer live, work or recreate in the Cairns area or local marine environment. • Extreme economic losses to the National economy in terms of economic output and job creation. |
| High | <ul style="list-style-type: none"> • The social environment is changed and people can no longer live, work or recreate in the Cairns area or local marine environment. • Highly-significant economic losses to the Queensland economy in terms of economic output and job creation. |
| Moderate | <ul style="list-style-type: none"> • The social environment is changed and people no longer see the Cairns area or local marine environment as an attractive place to live, work or recreate. • Significant economic losses to the region's economy in terms of economic output and job creation. |
| Minor | <ul style="list-style-type: none"> • The Cairns area or local marine environment is changed, but these changes would only occur during dredging/construction or people can/would adapt to these changes over time. • Some economic loss in term of economic output and job creation at the local scale. |
| Negligible | <ul style="list-style-type: none"> • No change to the social and economic environment. |
| Beneficial | <ul style="list-style-type: none"> • The social environment is changed and people see the Cairns area or local marine environment as a more attractive place to live, work or recreate. • Economic gain would be experienced through an increase in local/regional/state economic outputs and jobs. |

Table B9.6.1b Risk Matrix

| Likelihood | Significance | | | | |
|-----------------------|--------------|------------|----------|---------|-----------|
| | Negligible | Minor | Moderate | High | Very High |
| Highly Unlikely/ Rare | Negligible | Negligible | Low | Medium | High |
| Unlikely | Negligible | Low | Low | Medium | High |
| Possible | Negligible | Low | Medium | Medium | High |
| Likely | Negligible | Medium | Medium | High | Extreme |
| Almost Certain | Low | Medium | High | Extreme | Extreme |

Table B9.6.1c Risk Rating Legend

| | |
|------------------------|--|
| Extreme Risk | An issue requiring change in project scope; almost certain to result in a 'significant' impact on a Matter of National or State Environmental Significance |
| High Risk | An issue requiring further detailed investigation and planning to manage and reduce risk; likely to result in a 'significant' impact on a Matter of National or State Environmental Significance |
| Medium Risk | An issue requiring project specific controls and procedures to manage |
| Low Risk | Manageable by standard mitigation and similar operating procedures |
| Negligible Risk | No additional management required |

B9.6.2 Potential Project Area Impacts

As described in **Section B9.5.1** the project area is focused on the CCLT, the shipping channel, swing basins and proposed DMPA. There are few permanent residences in the vicinity of the CCLT, but it is noted that a number of businesses operate tourist accommodation facilities along Wharf Street, which also include permanent residents.

The project area is where construction and operational activities related to the project would take place. The project area is already used for shipping and boating activities and this use will not change as a result of the project. Landside activities will take place on land operated by Ports North. Marine activities will take place in Trinity Inlet, the shipping channel and the proposed DMPA. The landside (wharf upgrades) construction period is expected to last for six to eight months. Marine based works (dredging) are expected to last for approximately 23 weeks.

While there are not expected to be any direct social impacts due to construction and operation of the project, a number of indirect impacts associated with the social environment have been identified in other EIS chapters. These impacts would occur at the local scale within or in close proximity to the areas of construction and dredging and are generally temporary in nature. These include:

- During construction:
 - Noise – Piling and backhoe dredging are activities that may result in noise exceedences of between 3-10 dB at the nearest sensitive receptors (along Wharf Street and in Trinity Inlet). As outlined in **Chapter B10, Noise and Vibration**, piling activities will be limited to the daytime period unless approval is obtained from DEHP/local authority based on 'sufficient grounds' to justify night time construction. The main dredge method proposed (utilising a trailing suction hopper dredger (TSHD)) creates minimal, if any noise, and is therefore proposed to operate 24/7. Dredging will be scheduled to avoid dredging of the Trinity Inlet channel in the vicinity of residential receptors during the night time period wherever possible. Where scheduling to avoid impacts is not possible, consultation with affected residents will be undertaken.
Overall, construction related noise is not expected to result in significant social impacts.
 - Vibration – Piling works to upgrade Trinity Wharf would be undertaken carefully to limit vibration from piling activities to protect the heritage wharf structures. By limiting vibration at the wharf, excess vibration that could also affect nearby people and buildings would also be limited. Therefore vibration is not expected to have significant social impacts.

- Road traffic – The construction works are not expected to introduce large numbers of additional vehicles to the local road network. **Chapter B14, Transport**, forecasts that there will only be an additional 60 vehicle trips per day related to the construction workforce. It is also forecast that there would be a maximum of seven trucks (concrete/dump truck) travelling to and from the site each day during construction. These traffic volumes are not expected to cause significant social impacts.
- Vessel traffic – The use of marine equipment during dredging and wharf upgrade works, will generate vessel traffic. This requires measures to be in place and implemented to manage risks, while maintaining safe navigation, supporting efficient port operations and reducing disruption to other vessel traffic and shipping activities.

A number of vessels will be used for different components of the project including dredging vessels, a survey boat, a piling barge, a supply barge and other ancillary vessels (such as tugs, workboats and crew boats).

Chapter C2, Dredge Management Plan and **Chapter C3, Vessel Transport Management Plan** provide detail about the vessels that will be used and how these will be managed.

These additional vessel movements will be managed according to the Vessel traffic Management Plan (**Chapter C3, Vessel Transport Management Plan**) to maintain safe navigation and minimise disruption of other vessels using the area. With these management plans in place, social impacts associated with an increase in vessel traffic are not expected to be significant.

- Impact on fisheries values – The operation and activities of the dredging vessels both in the channel and at the DMPA (dredging, sailing and placing material on the seabed) may affect marine life in specific areas as described in **Chapter B7, Marine Ecology**. These impacts are expected to be relatively localised to the areas being disturbed by dredging or the placement of material from the dredge activity. The new DMPA would be marked on marine maps as a ‘spoil ground’ to notify fishers of its location, they can then decide if they want to fish in this area. It is not expected that the dredging activities will impact the fisheries values of the broader area.
- Visual amenity – The significance of visual impacts associated with the construction of the project has been assessed as negligible for all viewpoints except from the Cairns high-rise apartments. People in these dwellings will see construction activity on the wharf and the dredge vessel operating in Trinity Inlet. These visual changes are not expected to result in significant social impacts.
- Air quality – As discussed in **Chapter B11, Air Quality**, dust generation and vehicle exhaust emissions during construction have the potential to impact on air quality however the impact is likely to be minor due to the small number of vehicles and the short-term period of construction.
- Water quality – Impacts to water quality from dredging and the impact this could have on marine life is a key concern voiced by stakeholders and the community. **Chapter B5, Marine Water Quality** discussed this topic in detail. In relation to contaminants, a detailed Sampling and Analysis Plan (SAP) (see **Appendix D2**) has been completed for the areas to be dredged and this has shown no evidence of contaminants in this material. Therefore the risk of potential water quality impacts associated with contaminants is low.

In relation to turbidity, in the inner harbour the type of material being dredged (stiff clays) and the type of dredger used (backhoe dredge) would not create high levels of turbidity. That said, Trinity Inlet is expected to experience some low level turbidity, especially during spring tides where the ambient turbidity also increases.

In the outer channel, water quality impacts are expected to be minimal and median turbidity levels are not expected to increase significantly in the outer channel area.

At the DMPA the placement of dredged material will increase turbidity in the vicinity of the placement site. The impact of this turbidity will be highest within the actual DMPA and it is expected that this will impact the ecology of the DMPA site. The area within a 2.5km of the DMPA would also experience low to moderate water quality impacts which may impact the ecology of this area. A visible dredge plume may also extend beyond the low to moderate impact area, but no ecological impacts are expected in this broader area.

Once the material has been placed, the impact assessment has concluded that the potential for re-suspension of dredged material following placement at the DMPA is negligible.

As discussed in **Chapter B5, Marine Water Quality**, the Dredge Management Plan (**Chapter C2, Dredge Management Plan**) is a key mitigation strategy for the project. The Dredge Management Plan outlines a suite of measures to minimise the potential for water quality impacts to occur.

- During operation:
 - Noise – People who currently live or work in close proximity to Trinity Wharf already experience an increase in noise and vehicle/pedestrian traffic when a cruise ship is docked at Trinity Wharf. This noise would occur more frequently as the number of ships able to berth at Trinity Wharf increases.
 - Road traffic – There is currently an increase in road traffic in the vicinity of Trinity Wharf on days when ships are docked. This traffic is predominantly buses and taxis and is generally managed appropriately. The additional number of ships is not expected to cause significant social impacts related to road traffic
 - Vessel traffic – Once the project is operational it is expected that an additional 63 mega size cruise ships will call into the Port of Cairns each year by 2026, comprising 32 diverted from Yorkeys Knob and 31 new ship visits to the region. Annually, it is estimated that 110 ships (Boutique, Mid-size and Mega) would call into the Port of Cairns by 2026.

When a cruise ship is manoeuvring to and from or berthed at Trinity Wharf the Ports North Port Notices (as required by the *Transport Infrastructure Act 1994*) must be adhered to. The Port Notices outline security, authorised officers, emergency procedures, port management, port control, health and safety and environmental requirements relating to the port. This includes security and exclusion zones around certain vessels, such as cruise ships.
 - Impact on fisheries values – As discussed in **Chapter B7, Marine Ecology**, any potential impacts on fisheries values during the operation of the project would be related to annual maintenance dredging. During annual maintenance dredging impacts to marine ecology would occur in areas being disturbed by dredging or the placement of material from the dredge activity. It is not expected that the maintenance dredging activities will impact the fisheries values of the broader area. The new DMPA would be marked on marine maps as a ‘spoil ground’ to notify fishers of its location, they can then decide if they want to fish in this area. It is not expected that the additional shipping activity would impact the fisheries values of the broader area.
 - Visual amenity – As discussed in **Chapter B12, Landscape and Visual**, the significance of visual impacts associated with the operation of the project has been assessed as negligible for all viewpoints except from the Cairns high-rise apartments. People in these dwellings will more cruise ships, more frequently, berthed at Trinity Wharf once the project is operational. These visual changes are not expected to result in significant social impacts.
 - Air quality – As discussed in **Chapter B11, Air Quality**, during operation there is a slight chance of a minor exceedence of air quality standards in very close proximity to vessels berthed at the wharf under the worst case meteorological and topographical conditions. Even if this occurred, it is not expected to impact sensitive receivers located close to Trinity Wharf.
 - Water quality – As discussed in **Chapter B5, Marine Water Quality** Annual maintenance dredging would again disturb areas within the channel harbour and DMPA. This annual maintenance is currently conducted according to a Long Term Dredging Sea Dumping / Marine Parks Permit and Management Plan (LTDSMP) which contains management measures to reduce impacts on water quality from dredging and placement. The new DMPA site also has marginally improved performance compared to the existing approved DMPA from a water quality perspective (the deeper DMPA site is more retentive and further limits potential re-suspension following placement).

Overall, indirect, localised impacts that may be experienced by people in the vicinity of the project area from landside construction and project operation are not considered to be significant in relation to the social environment because the actions are consistent with the current use of the area and there are a limited number of permanent residents in this area. It is not expected that people’s way of life, environment, health and wellbeing or personal and property rights (including property values) would be significantly impacted.

In relation to marine based impacts there will be additional vessel traffic created by the dredging and wharf upgrade works, but this traffic is not considered to be significant in the context of the daily vessel traffic that uses the Port of Cairns and will be managed according to the Vessel Traffic Management Plan. While the dredging activities will impact localised areas of the marine environment (areas being dredged and the DMPA), these impacts will be managed according to the Dredge Management Plan and are therefore not expected to have a significant impact on the broader ecology of the area.

B9.6.3 Potential Study Area Impacts

The following sections outline the social and economic impacts and benefits associated with the Cairns LGA, Yorkeys Knob and the marine environment.

B9.6.3.1 Potential Study Area Impacts - Cairns LGA

Demographics

At a local scale, it is not expected that the project will impact the demographics of the project area.

At the regional scale, the project would be one of a number of factors contributing to the overall growth of the local population and economy over time. The project would assist in supporting the existing population through growth in jobs and additional input to the local economy. The project is therefore consistent with the regional economic and community development plans published by the Local Government, Advance Cairns and RDA, as outlined in **Section B9.4.3**, in relation to economic development, job creation and diversification of industry.

The project is one of the major last stages for the Cityport development which has seen a significant revitalisation and increased connection of the esplanade, lagoon and foreshore to the operating port area including the upgraded CCLT. This process has seen a steady increase in the number and economic benefit from restaurant and tourist accommodation through these areas of the Cairns LGA.

Physical and Social Infrastructure

Improvements to cruise shipping infrastructure brought about by the project are key benefits to the region's physical and social infrastructure. The project will enable larger cruise ships to more frequently access the Port of Cairns which will bring more cruise passengers into the heart of Cairns. These vessels are likely to have more passengers per ship (around 2,000 people) and are more likely to stay for 24 hours or more, giving people time to experience the Cairns CBD and surrounds during their stay. This will mean that more frequently, there will be cruise ship passengers in Cairns utilising the region's physical and social infrastructure.

The people of Cairns are used to 'ship days' and the local economy is geared to meeting the needs of visiting cruise passengers by offering relevant tour options (type, duration and quantity of offerings) and putting on additional staff in retail and hospitality offerings to meet additional demand for services.

Discussions with local law enforcement personnel indicated that while there are additional people in the Cairns CBD during ship visit days, passengers are generally well behaved and do not create a significant increase in reported incidents.

In relation to health services, cruise ships are generally well equipped to manage the health and safety of their passengers. In extreme circumstances, or when a ship does not have adequate health care facilities, there would be a need to access health care services at port. It is not expected that the increase in cruise ship passengers will create a significant demand for health care services in Cairns.

The growth of cruise ship numbers and therefore visiting passengers is forecast to occur gradually over time once the project is operational. Over time, as more ships call into the Port of Cairns the local market will grow and adjust to both increases in visitor numbers and an increase in resident population.

The project will not create an unreasonable, immediate demand for additional physical and social infrastructure from day one, therefore Ports North does not foresee issues associated with passengers utilising civic and social services and facilities when visiting the Cairns region. In the short (3-5 year) and medium to longer term (5 – 15 years) it is expected that local physical and social infrastructure will develop in line with resident population growth and additional demand for services by visitors.

Economic Benefits

A cost benefit analysis has been undertaken for the project as discussed in **Chapter A1, Project Introduction**. In terms of economic efficiency, the indications are that as a public project there is a healthy direct benefit cost ratio of the order of 2.7.

Based on the assumptions about growth outlined in the Demand Study (see **Appendix D6, Cairns Cruise Shipping Development – Demand Study**), the dredging of the channel and other improvements are forecast to benefit Gross Regional Product in relation to economic output due to additional cruise ship visits (as a transit port) as outlined in **Table B9.6.3.1a**.

Table B9.6.3.1a Estimated Increases in Output at 2026 and 2041 (nominated year values)

| | Year | Base Case | Project Case | Difference |
|--------|------|--------------|---------------|---------------|
| Output | 2026 | \$36 million | \$103 million | \$67 million |
| | 2041 | \$63 million | \$224 million | \$161 million |

Net Present Value (NPV) of the increased benefits to the regional economy in terms of value added over a period (2016 to 2041) is shown in **Table B9.6.3.1b**.

Table B9.6.3.1b Net Present Value (NPV) of Increased Benefits

| NPV – (discount rate 7 percent 'nominal' / 4 percent 'real') | 2016 Values |
|--|---------------|
| NPV Increased Output | \$744 million |
| NPV Increased Total Value Added | \$673 million |

This shows that up until 2041 the project is estimated to add \$673 million in value to the regional economy in 2016 dollars, i.e. around \$27 million per annum. This economic benefit will be distributed broadly through the local economy via passenger spending, additional goods and services needs, job creation and training opportunities. Ports North itself will not see a significant portion of this economic benefit, but will play a key role in facilitating economic opportunities for the local and regional community.

Ports North will require its dredging and construction contractors to implement strategies for assessing the capacity and cost-effectiveness of sourcing goods and services from the regional and wider state economy during the pre-construction and construction phases of the project. Once operational, where Ports North has control, it would also implement strategies assessing the capacity and cost-effectiveness of sourcing goods and services from the regional and wider state economy.

To maximise opportunities for local suppliers during construction and operation of the project Ports North will require its contractors to prepare a Local Industry Participation Plan (LIPP) in accordance with the Queensland Local Industry Policy (Department of Employment, Economic Development and Innovation 2010) and its associated Guidelines. This will detail strategies for ensuring local suppliers of goods and services receive full, fair and reasonable opportunity to tender for work throughout the life of the project.

Workforce Demand and Profile

Construction and operation of the project is forecast to create jobs in the local and regional economy. Since the EIS TOR were issued, Skills Queensland has been disbanded with the Department of Education, Training and Employment taking on many of the responsibilities of Skills Queensland. The Skills Queensland template for workforce demand is no longer available; therefore information about the construction and operation workforce and employment numbers is described in this section.

As discussed the Cairns workforce is highly seasonal with lower unemployment percentages in the peak tourist season (April to October with the peak months being Jun to Aug) and higher unemployment during non-peak months, particularly in the 15- 24 year age bracket. As the peak cruise season is October to May (i.e. outside of the current peak tourist season), the more ships that call into Cairns over time, the more potential that these employment peaks and troughs would be somewhat smoothed, because ship visits and the tourism related activities generated provide increasing employment opportunities in those months of the year outside the current peak tourist season.

Table B9.6.3.1c shows the forecast increase in employment attributable to the project.

Table B9.6.3.1c Estimated Increases in Employment at 2026 and 2041 (nominated year values)

| | Year | Base Case | Project Case | Difference |
|------------|------|-----------|--------------|------------|
| Employment | 2026 | 251 | 718 Jobs | 467 Jobs |
| | 2041 | 266 | 946 Jobs | 680 Jobs |

Construction Workforce

There are two key construction activities that will create employment opportunities - dredging works and wharf upgrade works. It is estimated that during construction, 100 jobs will be created by these works. These jobs will be created with contractors carrying out the dredging and construction work and will not be Ports North positions.

In relation to the dredging works, 88 jobs are forecast to be created by these works. This is a specialist skill set and it is likely that the dredge contractor will bring a skilled workforce to complete these works. Ports North will work with the appointed dredge contractor to develop appropriate recruitment and training programs as relevant. This would include identifying roles that can be filled by local workers. Where possible recruitment and training programs will focus on attracting and training Indigenous people, women, secondary school students, unemployed and underemployed people.

In relation to the wharf upgrade works, 12 jobs are forecast to be created by these works. The skills required to complete this work are more likely to be found in the local workforce and therefore there is more opportunity for local workers in this area. Ports North will work with the appointed construction contractor to develop appropriate recruitment and training programs as relevant. This would include identifying roles that can be filled by local workers. Where possible recruitment and training programs will focus on attracting and training Indigenous people, women, secondary school students, unemployed and underemployed people.

A further 332 jobs will be created by the 'flow-on' effects of these jobs totaling 432 jobs during the construction period. Again, these jobs will be created in the broader market place and are not controlled by Ports North. Recruitment and training for these positions would therefore be managed by others.

Cairns has a well-developed marine industry with people who are experienced and skilled in a variety of marine related industries. This capability has developed predominantly to service the reef fleet, Australian Navy, commercial fishers and super yacht industry. It is therefore expected that where local personnel are required for marine related construction activities these skills will be able to be sourced from the local population.

Ports North does not foresee any supply related or social/cultural issues associated with its contractors recruiting a suitably qualified and experienced workforce to undertake dredging and construction works for the project due to the small workforce required and the skills base that already exists in the Cairns region.

Operational Workforce

By 2026, 467 additional jobs are forecast to be created, increasing to 680 additional jobs by 2041. These jobs would not be Ports North jobs, rather jobs created in the market due to an increase in cruise shipping activity. Recruitment, training and development associated with these jobs would not be controlled by Ports North.

Once the project is operational, many of the jobs created (approximately 80 percent) will be in tourism related industries such as retail, food and beverage, accommodation and tourism related services. These positions generally require a low skill base and the local workforce has the capacity to fill these positions.

The Cairns region has a number of training organisations providing retail, hospitality and tourism related training courses. These include Tropical North Queensland TAFE (TNQT) and a range of private training organisations. Some of these programs are supported by the Queensland and Australian Government. Where relevant, Ports North would work with local training organisations to increase the skill base of the local population.

Other jobs created will likely be in the marine servicing industry, which as discussed, Cairns has well developed skills, experience and training programs within the workforce. It is expected that as demand for these skills increases, training opportunities in this industry will also increase.

If home porting opportunities continue to increase there will be more opportunity for job creation and it is likely that these jobs will be in more diverse industries such as ship provisioning, training and specialised marine activities.

Cruise shipping activity in the Cairns region will increase gradually over time giving the local employment market time to grow and adjust to this gradual increase. The project will not create an unreasonable, immediate demand for these additional retail, hospitality, tourism and marine servicing jobs from day one, therefore Ports North does not foresee issues associated with skills shortages once the project is operational. In the short (3-5 year) and medium to longer term (5 – 15 years) it is expected that the local employment and training market will develop in line with the gradual increase demand for employees in these industries.

Home Porting

The economic and employment benefits discussed have been calculated assuming Cairns remains a transit stop in a longer cruise itinerary. If cruise ships were to use Cairns as a home port (where a cruise voyage starts and finishes) additional economic benefits would be generated.

Currently, there is one company home-ported in Cairns; the small adventure class Coral Princess II (44 passenger capacity) operates cruises out of Cairns and uses Cairns as its corporate and maintenance base for cruises it also conducts in the Kimberley region and the Pacific Island areas. The adventure class Paul Gauguin (332 passenger capacity) also uses Cairns as a port of embarkation for cruises via Papua New Guinea and Solomon Islands ports to Fiji and Fiji to South Pacific islands to Tahiti and return. P&O have also recently announced plans to base the Pacific Eden in Cairns for cruises into the Coral Sea/Pacific area using a passenger ship that can berth at Trinity Wharf.

It is expected that a mega ship home ported in Cairns would result in expenditure generated in the order of \$2 million per voyage (Cummings Economics, 2014). 2016 Net Present Value of expenditure generated by home porting shown in **Table B9.6.3.1d**.

Table B9.6.3.1d NPV for Transit and Home Port Options

| | Transit Port | Home Port |
|--|---------------|--|
| | 2016 Values | 2016 Values |
| NPV Increased Output | \$744 million | \$1.1 billion (additional \$363 million - as modelled) |
| NPV Increased Total Value Added | \$673 million | \$1 billion (additional \$328 million - as modelled) |

Should home porting opportunities continue to increase, there is the potential for even more jobs to be created and these jobs to be more diverse than just in tourism related industries. For example, home ported ships would require maintenance and supplies which may assist in diversification of the local economic and employment environment.

Broader Cruise Industry

Cairns is considered by cruise companies as an 'iconic'/'marque' port of call that is included in almost all cruise ship itineraries along the Queensland coast. The proposed infrastructure improvements at the Cairns Port will upgrade Queensland's attraction as a cruise destination, with wider benefits to other Queensland ports.

The availability of fuel as part of the project raises the prospects of cruises out of Brisbane and Sydney being able to extend their itineraries further north into the currently underdeveloped cruising areas of the northern Coral Sea, Papua New Guinea, Solomon Islands and Micronesia and undertake longer cruises east into the Pacific. It will also assist extension of cruises west into the Arafura Sea, Darwin and Indonesia area from Queensland. Thus the fuel availability factor will help expand Queensland's offerings into these areas.

It should be noted that within the Cairns region, there will be an effect of spreading the benefits further afield. Yorkeys Knob transfers limit the potential length of stay to one day and within that day to daylight hours. Being able to have passengers come back later in the evening and to extend the stay to two days will enable passengers to travel further out in the region to experience its attractions with major potential benefits beyond the immediate Cairns area to Port Douglas, Cassowary Coast and the Tablelands.

Other Shipping

As described in **Section B9.5.1.5** it is estimated that \$2.6 million in additional costs are incurred each year due to shipping restrictions. With the project operational, these costs would no longer be required as these ships would be able to access the Port of Cairns unrestricted. Calculated NPV (2016 prices) of savings to existing larger fuel, fertiliser and sugar ships being able to enter the port without tidal restrictions are estimated to be of the order of \$59.8m by 2041 as shown in **Table B9.6.3.1e**.

Table B9.6.3.1e Estimated Net Present Value of Benefits (growth and no-growth scenarios)

| Discount Rate Nominal | Real | No growth scenario | Growth scenario |
|-----------------------|------------|--------------------|-----------------|
| 7 percent | 4 percent | \$46.4 million | \$59.8 million |
| 10 percent | 7 percent | \$33.3 million | \$40.7 million |
| 13 percent | 10 percent | \$25.3 million | \$29.8 million |

While there has been little growth in these cargoes in recent years, there is an expectation that growth will occur during the next 25 years based on population growth, increases in sugar production and demand for fertiliser for a growing agricultural sector. The growth scenario is conservative using an average of two percent per annum growth for fuel and one percent per annum growth for fertilisers and sugar.

Australian Navy

The vessels home-stationed at the Cairns Navy Base are currently accommodated by the existing channel. However, the proposed project would provide a deeper and wider entrance channel that would facilitate access for the majority of the larger visiting Australian and foreign naval vessels that are currently unable to enter the Port of Cairns. For example, large vessels from the United States regularly call into Cairns and are unable to enter the Port.

Apart from Cairns being a desired port of call for shore leave, it is likely to enhance the operational role of Cairns as a navy base if larger ships were able to come in to the port, even if the ships permanently stationed in Cairns are of a size that do not need a deeper channel, especially in times of emergency.

It is difficult to quantify this in benefit cost/economic efficiency terms. However, obviously the spending through shore leave visits and operational visits could bring a secondary economic benefit of increased spending in addition to those identified for the cruise ships.

B9.6.3.2 Potential Study Area Impacts - Yorkeys Knob

As discussed in **Section B9.5.2.2**, Yorkeys Knob is used as an anchorage and passenger transfer area by mega class ships that are too large to access the Port of Cairns. With the project operational, the number of ships using the Yorkeys Knob anchorage would reduce significantly. All but the largest cruise ships, such as the *Queen Mary 2*, would be able to dock at Trinity Wharf.

With the project operational, services and facilities currently used in the ship-to-shore and city transfer process would no longer be regularly required.

This would result in:

- A reduction in road and vessel traffic in the Yorkeys Knob/Half Moon Bay Marina area on ship visit days. It is expected that vessels and coaches that currently service Yorkeys Knob would be redeployed to service ships berthed at Trinity Wharf
- A reduction in dis-benefits associated with using Yorkeys Knob through a reduction in actual costs and inefficiencies calculated as time cost for passengers
- A reduction in the dis-benefits (actual costs and inefficiencies calculated as time costs) associated with anchoring and unloading a ship at Yorkeys Knob from an estimated \$173,400 to an estimated \$35,000 (actual costs) if the ship was berthed at Trinity Wharf
- More passengers able to leave the ship and spend money in the local economy providing an improved passenger access and experience and economic benefits to the Cairns region
- More crew able to disembark for shore leave while the ship is docked. This is beneficial to cruise ship operators for the wellbeing of their staff and flexibility for roster/shift changes
- Yorkeys Knob Boating Club no longer receiving payment to facilitate ship-to-shore-to-city transfers
- Other users' access to infrastructure at Half Moon Bay Marina, such as the boat ramp and refuelling facilities, will not be affected as frequently.

Overall, there are significant economic and amenity benefits for cruise ship operators and their passengers and amenity benefits for local Yorkeys Knob residents through the removal of traffic from their local roads.

B9.6.3.3 Potential Study Area Impacts - Marine Environment

The dredge component of the project is expected to take 23 weeks to complete. The dredge vessel would be operating 24 hours a day during this period. The following sections outline potential social and economic impacts associated with this activity.

Commercial Fishing and Aquaculture

Ports North conducts annual maintenance dredging in the shipping channel to maintain its dimensions. This work takes approximately three weeks to complete each year and is generally conducted between May and November. Material dredged during this maintenance campaign is currently placed at a site approximately 12km offshore. Approval to place material at this site was granted by GBRMPA. Discussions with fishers (see **Appendix B, Stakeholder and Community Engagement Report**) and Ports North indicate that the existing annual dredge activity does not greatly impact other vessel operators. Vessels are well versed in manoeuvring around each other in the inlet and shipping channel with boating and shipping rules outlining how vessels are expected to interact with each other. Maritime Safety Queensland (MSQ), a government agency of the Department of Transport and Main Roads and the Cairns Regional Harbour Master (RHM), are the authorities responsible for navigation safety in the Port of Cairns.

A new DMPA has been identified for the placement of material from the capital dredge campaign and the future annual maintenance dredge material. Refer to **Chapter C2, Dredge Management Plan** for additional information. The preferred new DMPA is located in fishing grid 16, sub grid 14. This is the same grid and sub grid as the current DMPA as shown in **Figure B9.5.2.1i**.

In relation to commercial fishing in the vicinity of these areas, it has been identified that trawl operators are the most likely to be impacted by the location of the new DMPA due to their method of fishing (running shots) and equipment used for this activity (dragging trawl nets and chains along the seabed).

Fisheries Queensland conducted an assessment of the potential DMPAs location against vessel monitoring system (VMS) data collected from trawl operators. Fisheries Queensland reported that most trawl activity is recorded in area five. In the preferred area data shows that there have been less than five trawl boats operating in this area each year since 2011.

The dredge vessel placing material at the preferred site is therefore expected to impact less than five trawl boats that may operate in the vicinity of the site from time to time. As discussed in **Chapter C2, Dredge Management Plan**, high level impacts from turbidity (suspended silts in the water) will be experienced within the DMPA, with moderate to low impacts in the area immediately adjacent to the DMPA (within 2.5 km of the DMPA). While there may be a visible plume in areas outside these, no ecological impacts would be associated with this.

The impact to commercial fishing has therefore been assessed as low due to the low number of fishers operating in the vicinity of the new DMPA, the temporary nature of the impacts and that impacts from dredging are expected to be localised to the areas being disturbed by dredging or the placement of material from the dredge activity. It is not expected that the dredging activities will impact the fisheries values of the broader area. Commercial fishing catch weights and GVP are therefore not expected to be significantly impacted by the works. In addition, anecdotal evidence gained through consultation activities with commercial fishers indicates that fishers are also known to fish areas that have been disturbed by dredge activities (DMPA or dredged areas) during the annual maintenance dredge campaign.

Marine Based Tourism

Commercial activities such as charter fishing, reef vessels and diving activities are not expected to be impacted by the project. These activities would continue as usual, navigating around the dredge vessel as required.

Water quality impacts associated with dredging and the impact this could have on the reef is a key concern voiced by stakeholders and the community. The key water quality impact of relevance to the project is turbidity created by dredging activity. As discussed in **Section B9.6.2** the DMPA site and the area immediately adjacent to this site (within 2.5km) will have turbidity that could impact the ecology of these areas. Outside these areas, ecological impacts are not expected. The DMPA site and its adjacent area are located more than 12km from major reefs and other areas used for marine based tourism; therefore no impacts on reefs and tourism activity are expected.

While no ecological impacts are expected outside the DMPA and adjacent areas, there is concern from operators and industry bodies that the Great Barrier Reef 'brand' could be impacted by adverse media attention at a national and international level related to dredging proposals in the vicinity of the GBRMP. There is concern that damage to this brand could result in a drop in international and domestic visitation numbers and therefore spend in the local region which could impact the economic contribution of the Great Barrier Reef. It is recognised that this is an issue for the broader Great Barrier Reef, not just reefs in the vicinity of Cairns.

Ports North will continue to work with tourism operators and the local media to ensure accurate information about dredging activities is communicated.

Recreational Fishing and Boating

Given that the dredge activity will take place within the shipping channel and swing basins, this activity is not expected to significantly impact recreational fishers. Boat based fishers will need to manoeuvre around the dredge vessel according to Queensland boating rules. The Queensland Recreational Boating and Fishing Guide outlines Queensland requirements for boating and fishing and provides adequate guidance on recreational boating within shipping channels.

B9.7 Mitigation and Management

As discussed in this impact assessment section and outlined in **Table 9.9a**, there are a number of additional mitigation measures proposed to manage identified temporary, localised impacts associated with the socio-economic environment. These include:

- Establish and maintain a dialogue with property owners and users in the vicinity of the port – Ports North would identify stakeholders located in the vicinity of the wharf who could potentially be impacted by construction activities. This will also include Trinity Inlet, port and Marlin Marina users as well as local residents and businesses. A construction engagement program would be developed and implemented to create a dialogue with stakeholders during the construction phase
- Notify stakeholders in advance of any construction works outside of regular construction hours – Where works are scheduled to occur outside regular construction hours, stakeholders would be advised in advance
- Communicate outcomes of environmental monitoring and management – Ports North will actively and regularly communicate the outcomes of environmental monitoring and management activities to demonstrate to stakeholders and the broader community during construction and operational of the project. These monitoring and management actions will be overseen by an Expert Advisory Panel comprising relevant regulatory bodies and environmental specialists. The role of this Panel and their on-going assessment of the monitoring and management actions should also be communicated to stakeholders and the community
- Ports North to maintain feedback channels (phone/ email) – Ports North would continue to promote and manage feedback channels, such as a project email address and phone number, during construction activities for stakeholders to ask questions, provide feedback and lodge complaints
- Ports North to continue to provide LMAC and TACC members with regular updates on project progress – Ports North will continue its involvement in LMAC and TACC and would use these forums to provide updates regarding the project and receive feedback from the industry
- Ports North to continue consulting with Port Users - In the lead up to and during dredging activities Ports North will continue to consult with its customers to inform them of upcoming activities and discuss any impact these may have on operations
- Ports North to continue consulting with commercial fishers – In the lead up to and during dredging activities Ports North will continue to consult with local commercial fishers so that any issues associated with the dredge program and its interaction with commercial fishers can be identified and addressed early.
- Ports North to work with its contractors to encourage local employment and supply opportunities – While jobs created by construction and operation of the project are not Ports North employed positions, Ports North recognises it has a role to play in developing employment, training and supply opportunities for local people. As relevant, Ports North will work with its contractors to develop local employment and training opportunities during construction, focusing on skills development for school leavers, women, Indigenous and unemployed/underemployed. During construction and operation, where relevant, Ports North will also encourage the organisation and its contractors to develop strategies to assess capacity and cost-effectiveness of sourcing goods and services from the regional and wider state economy.

In addition to these measures, Ports North also has a role in ensuring the economic benefits associated with the project are achieved. This involves continuing to work with the cruise industry to promote Cairns for inclusion on operators' itineraries and as a home port option. Ports North would also continue to work with local tourism and economic development bodies to maximise the economic benefits the new shipping infrastructure would bring.

B9.8 Conclusion

The project is expected to bring significant social and economic benefits in terms of economic input and jobs and is not expected to have any significant negative impacts on the socio-economic environment during its construction and operation.

The project will contribute an estimated \$673 million to the local economy by 2041. A further \$328 million in added value would push the total valued added to \$1 billion if a small percentage of the very large cruise liners were home ported in Cairns. This economic input would also drive job creation, with 467 new jobs created by 2026, increasing to 680 jobs by 2041.

The region would also benefit from other efficiency gains related to supply trade, bulk cargo and Australian Navy related activities valued at around \$60 million by 2041.

In terms of economic efficiency, the indications are that as a public project there is a healthy direct benefit cost ratio of the order of 2.7.

Community consultation and research has confirmed that the project has strong local support, driven largely by support for the economic benefits it will bring the region, while acknowledging that the reef environment needs to be protected at the same time.

In relation to commercial and recreational marine activities, it has been assessed that the project would not cause any significant issues in relation to the socio-economic environment. It has been identified that commercial trawlers have the most potential to be impacted by the dredge works. This is in relation to the placement of dredge material at the proposed new DMPA. Using data collected by Fisheries Queensland it has been identified that for the past three years, each year less than five trawl boats have fished the area proposed as the new DMPA.

Given the small number of boats fishing this area impacts to their operations are not expected to be significant and commercial fishing catch weights and GVP are not expected to be significantly impacted. Ports North will continue to work with the commercial fishing industry and local marine groups (LMAC and TACC) and other marine stakeholders in the lead up to and during the dredge works to identify and address any concerns.

In relation to project construction activities, the land based works (wharf upgrades) would not impact any non-Ports North land and properties located in close proximity to Trinity Wharf are generally non-residential. Indirect impacts associated with construction noise, vibration, visual amenity and traffic may be experienced by people who work/stay for short periods of time in properties along Wharf Street, but the risk of these impacts has been assessed as low. Works in this area would be similar to other recent major projects in the area, namely the refurbishment and development of the CCLT in 2010, the foreshore redevelopment and Shed Two refurbishment in 2012. Ports North will identify stakeholders who may be impacted by land based construction works and will establish a dialogue with these people so they can be informed in advance of works that may impact them.

The marine based works will take place in Trinity Inlet and the shipping channel in the form of dredging. Channel maintenance dredging is undertaken annually by Ports North, and as such is not an uncommon activity in the port area. Vessels operating within the port would need to navigate around the dredge vessel and other ships according to normal boating rules and the Port Notices, but this is no different to navigating around other vessels in the area. The dredge vessel will divert from the shipping channel as soon as practicable to minimise any potential delay to ships. The TSHD proposed to conduct the majority of dredging does not create significant noise and is not expected to create significant issues for maritime vessels.

In relation to community impacts, there is a desire to understand water quality impacts associated with the project and any impact this could have on the marine environment. The outcomes of environmental management and monitoring will be communicated with stakeholders and the community. These monitoring and management actions will be overseen by an Expert Advisory Panel comprising relevant regulatory bodies and environmental specialists. The role of this Panel and their ongoing assessment of the monitoring and management actions should also be communicated to stakeholders and the community.

There is concern among some tourism operators and industry bodies that the Great Barrier Reef 'brand' could be impacted by adverse media attention at a national and international level related to dredging proposals in the vicinity of the GBRMP. There is concern that damage to this brand could result in a drop in international and domestic visitation numbers and therefore spend in the local region which could impact the economic contribution of the Great Barrier Reef. Ports North will continue to work with tourism operators and the local media to ensure accurate information about dredging activities is communicated.

Overall, the social and economic benefits of the project in relation to supporting and growing the local cruise industry far outweigh the social impact identified in this chapter.

B9.9 Summary of Impacts and Benefits

Table B9.9a provides a summary of the impacts and benefits associated with the project from a socio-economic perspective. Relevant mitigation measures are also captured in this table.

Table B9.9a Impact Summary Table

| Primary impacting process | Initial Assessment with Mitigation Inherent in the Preliminary Design in Place | | | | Residual Assessment with Additional Mitigation in Place | | | |
|--|--|------------------------|----------------------|-------------|---|------------------------|----------------------|----------------------|
| | Statutory mitigation measures required | Significance of impact | Likelihood of impact | Risk Rating | Additional Mitigation measured proposed | Significance of impact | Likelihood of impact | Residual Risk rating |
| Project case - CONSTRUCTION | | | | | | | | |
| Noise and vibration from construction works | <ul style="list-style-type: none"> Construction works will typically be undertaken during regular construction hours, no noisy night time works are proposed at this time. Heritage protection requirements for the Wharf will reduce the potential for vibration to impact adjacent properties and their users. | Minor | Possible | Low | <ul style="list-style-type: none"> Ports North to establish and maintain a dialogue with property owners and users in the vicinity of the Port (along Wharf Street) during construction. Property owners and users and people who live aboard boats in Trinity Inlet would be notified in advance of any construction works outside of regular construction hours. Ports North to maintain feedback channels (phone/email) for stakeholders to ask questions, provide feedback and lodge complaints. | Negligible | Possible | Negligible |

| Primary impacting process | | Initial Assessment with Mitigation Inherent in the Preliminary Design in Place | | | Residual Assessment with Additional Mitigation in Place | | |
|---|------------------------|--|-------------|--|---|----------------------|----------------------|
| Statutory mitigation measures required | Significance of impact | Likelihood of impact | Risk Rating | Additional Mitigation measured proposed | Significance of impact | Likelihood of impact | Residual Risk rating |
| <p>Road traffic from construction works</p> <ul style="list-style-type: none"> Construction workers vehicles are to be parked on Ports North property not in public parking areas. | Negligible | Possible | Negligible | <ul style="list-style-type: none"> Ports North to maintain feedback channels (phone/email) for stakeholders to ask questions, provide feedback and lodge complaints. | Negligible | Possible | Negligible |
| <p>Vessel traffic from dredge works</p> <ul style="list-style-type: none"> Mariners to adhere to boating rules. VTMP prepared to address vessel traffic during construction activities. DMP prepared to ensure dredging activities are undertaken in the most environmentally sound manner. Notice to Mariners to be issued by the Harbour Master to advise of dredge work duration. | Minor | Possible | Low | <ul style="list-style-type: none"> Ports North to continue to provide LMAC and TACC members and other marine industry stakeholders with regular updates on project progress. Ports North to maintain feedback channels (phone/email) for stakeholders to ask questions, provide feedback and lodge complaints. | Minor | Possible | Low |
| <p>Changes to navigation aids</p> <ul style="list-style-type: none"> VTMP prepared to address vessel traffic during construction activities. Notice to Mariners to be issued by the Harbour Master to advise of changes | Negligible | Possible | Negligible | n/a | n/a | n/a | n/a |

| | | Initial Assessment with Mitigation Inherent in the Preliminary Design in Place | | | Residual Assessment with Additional Mitigation in Place | | | |
|---|---|--|----------------------|-------------|--|------------------------|----------------------|----------------------|
| Primary impacting process | Statutory mitigation measures required | Significance of impact | Likelihood of impact | Risk Rating | Additional Mitigation measured proposed | Significance of impact | Likelihood of impact | Residual Risk rating |
| Dredging activities interfere with commercial fishing activities and impact productivity | <ul style="list-style-type: none"> VTMP prepared to address vessel traffic during construction activities. DMP prepared to ensure dredging activities are undertaken in the most environmentally sound manner. Notice to Mariners to be issued by the Harbour Master to advise of changes. | Minor | Unlikely | Low | <ul style="list-style-type: none"> Ports North to continue consulting with the commercial fishers to identify and address issues. | Minor | Unlikely | Low |
| Recreational boating and fishing activities | <ul style="list-style-type: none"> VTMP prepared to address vessel traffic during construction activities. DMP prepared to ensure dredging activities are undertaken in the most environmentally sound manner. Notice to Mariners to be issued by the Harbour Master to advise of changes. | Negligible | Unlikely | Negligible | n/a | n/a | n/a | n/a |

| Initial Assessment with Mitigation Inherent in the Preliminary Design in Place | | Residual Assessment with Additional Mitigation in Place | | |
|--|---|---|----------------------|-------------|
| Primary impacting process | Statutory mitigation measures required | Significance of impact | Likelihood of impact | Risk Rating |
| <p>Community concern about the impact of dredge and material placement activities</p> | <ul style="list-style-type: none"> DMP prepared to ensure dredging activities are undertaken in the most environmentally sound manner. | Moderate | Possible | Medium |
| | | <p>Minor</p> | Possible | Low |
| | | <p>Additional Mitigation measured proposed</p> <ul style="list-style-type: none"> Ports North to actively communicate the results of monitoring activities (such as water quality monitoring). This may include real time data available on the Ports North website. Ports North to actively communicate with stakeholders and the community throughout the dredging program to advise of increases in turbidity and if these are associated with the dredge works. Ports North to maintain feedback channels (phone/email) for stakeholders to ask questions, provide feedback and lodge complaints. | | |

| Initial Assessment with Mitigation Inherent in the Preliminary Design in Place | | | Residual Assessment with Additional Mitigation in Place | | | | | |
|--|--|------------------------|---|-------------|---|------------------------|----------------------|----------------------|
| Primary impacting process | Statutory mitigation measures required | Significance of impact | Likelihood of impact | Risk Rating | Additional Mitigation measured proposed | Significance of impact | Likelihood of impact | Residual Risk rating |
| Project case - OPERATION | | | | | | | | |
| Economic outcomes – more spending in the local economy | n/a | Beneficial | Almost certain | Beneficial | n/a | n/a | n/a | n/a |
| Employment outcomes – more jobs in the local economy | n/a | Beneficial | Almost certain | Beneficial | n/a | n/a | n/a | n/a |
| Improved cruise ship passenger experience | n/a | Beneficial | Almost certain | Beneficial | | | | |
| Base case – OPERATION | | | | | | | | |
| Economic 'loss' of not capitalising on growth in the global cruise industry (fewer ships) and decreased passenger spend per ship anchored off Yorkeys Knob | n/a | High | Almost certain | High | <ul style="list-style-type: none"> project is the key mitigation measure to address this risk. | n/a | n/a | n/a |

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