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Draft : Environmental Impact Statement

Chapter A1 Project Introduction

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A1.1 Project Overview

This Environment Impact Statement (EIS) assesses the environmental, social and economic impacts associated with the construction and operation of the proposed Cairns Shipping Development Project (henceforth known 'the project') at the Port of Cairns. The proponent for the project is Far North Queensland Ports Corporation Limited (trading as Ports North).

The Project was declared a 'coordinated project' under Section 26 (1) (a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act) in September 2012, and it was determined that an EIS was required to assess the impacts of the Project. Terms of Reference (ToR) for the EIS were released by the Queensland Coordinator-General in November 2012. The Project was also referred to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities (SEWPaC), now the Department of Environment, to determine whether the it is a 'controlled action' under the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). In October 2012, it was determined the Project is a controlled action, requiring assessment and approval under the Act. The Commonwealth EIS Guidelines were released in March 2013. The EIS must follow the format and content outlined in the TOR and the EIS Guidelines and this single EIS document has been prepared to address the requirements of both documents. **Appendix A** of the EIS contains cross-reference tables showing how each requirement of the TOR and EIS Guidelines have been addressed.

Once submitted, the EIS will be considered separately under the two legal frameworks as follows:

1. Under the State (SDPWO Act) process, the EIS and any additional information will be evaluated by the Coordinator-General. The Coordinator-General will then prepare a report that includes the evaluations of, and conclusions regarding, the project's environmental impacts and proposed mitigation measures. After considering all of this information, the Coordinator-General will recommend the project either:
 - Proceed subject to conditions and recommendations designed to ensure the project's environmental impacts are properly managed
 - Be refused on the grounds its environmental impacts cannot be adequately addressed.

The Coordinator-General's report on the EIS is not an approval in itself. Subsequent approvals and permissions will also be required for the project under other relevant Queensland Government legislation.

2. Under the Commonwealth (EPBC Act) process, the information presented in the EIS must be sufficient to allow the Minister to make an informed decision on whether or not to approve, under Part 9 of the EPBC Act, the taking of the action for the purposes of each controlling provision. Following consideration by the Minister, subsequent approvals and permissions will also be required under other Commonwealth legislation including the *Great Barrier Reef Marine Park Act 1975* and the *Environmental Protection (Sea Dumping) Act 1981*.

The key components of the project involve dredging a wider and deeper entrance channel to allow port access for larger cruise ships and upgrading berth infrastructure within Trinity Inlet. The dredging operations involve the removal of *in-situ* sediment material from within and adjacent to the existing shipping channel and placement at a nearby marine placement site. This EIS also considers options for land placement. Ongoing annual maintenance dredging will continue to be required to maintain the full functionality and safety of the port and entrance channels. There will also be some associated upgrades to land side port infrastructure required to accommodate larger and heavier cruise ships.

A1.2 Project Need

The expansion of cruise ship facilities in Cairns is seen as an important step in developing increased tourism opportunities in North Queensland and is necessary to support and grow cruise shipping operations in Queensland. Cruise shipping is the fastest growing tourism market world-wide, with a trend for increasing numbers of the larger 'mega class' cruise ships which are currently unable to access the Port of Cairns. It is anticipated that without the project, the future cruise shipping industry will ultimately decline in Cairns, due to the inability of the existing infrastructure to adequately cater for the larger mega class vessels / cruise shipping industry's future needs.

Given the importance of the Great Barrier Reef (GBR) as a tourism destination and specifically as one of three Australian icons for the cruise shipping industry, the inability for Cairns to adequately cater for mega class shipping may impact their ability to offer the GBR as a destination. This has the potential knock on effect of a significant change to cruise itineraries that may have wider tourism and economic consequences such as cruise liners looking for reef destinations elsewhere, other than the GBR.

The proposed Cairns Shipping Development Project would enable Cairns to attract and accommodate the growing cruise shipping market and secure associated economic benefits. Increased numbers of visiting cruise vessels will result in considerable benefits to the local economy and the wider Queensland cruise industry. This will lead to the general expansion of North Queensland's cruise industry, opportunities for increased cruise itineraries throughout the State and bring growth, stability and diversity to the Cairns tourism market sector.

The project development will also complement the Cairns Cruise Liner Terminal, Foreshore Development, Reef Fleet Terminal and Marlin Marina works completed as part of the Cityport Masterplan which aims to consolidate 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.

At present, almost half of the cruise ships visiting the area are unable to enter the Port of Cairns due to their size. Currently, these larger 'mega class' cruise ships must anchor offshore at Yorkeys Knob, located 15km north of Cairns. Yorkeys Knob does not have a cruise ship terminal and passengers and crew are ferried ashore to the Yorkeys Knob Boating Club facility, before being transported by bus into the Cairns CBD. This practice is very ineffective for both the cruise ship operators and for the local economy. It is costly for the operators to transfer passengers into Cairns, staff are generally unable to leave the ship and during inclement conditions passengers are reportedly often discouraged from coming ashore. It is estimated that approximately 10 percent of ship visits are lost entirely when shore transfer by tenders becomes unsafe due to rough weather. The local economy is missing out on potential revenue due to reduced numbers coming ashore and no overnight stays at Yorkeys Knob. Looking forward, the cruise sector is forecast to grow strongly with Australia having the largest forecasted growth of any global market. The growth will predominantly be in the 'mega class' cruise liners which are currently not able to enter the Port of Cairns (WBM, 2014).

While the main purpose of the project is to take advantage of cruise shipping opportunities, there are also significant other benefits to non-cruise forms of shipping, including:

- Enabling future expansion of the HMAS Cairns Navy base, in keeping with the Defence Force Posture Review (Hawke & Smith 2012) which recommends upgrading / expansion of bases at Cairns and Darwin. This potential expansion could bring permanent defence force staff to reside in Cairns and also allow larger visiting overseas Navy vessels (in particular US Navy carriers) to enter the port for Rest and Relaxation (R and R) visits
- The wider and deeper shipping channel will reduce the current tidal and loading restrictions on bulk cargo ships accessing the Port of Cairns, thereby improving both port efficiency and travel times for cargo ships travelling north which currently need to access both the Port of Cairns and Townsville in order to share their loads.

A1.3 Proponent

The proponent for the Project is the Far North Queensland Ports Corporation Limited, trading as Ports North, who operate the Port of Cairns as well as a number of other trading North Queensland ports including Karumba, Thursday Island and Mourilyan.

Ports North is a Government-owned Corporation established under the *Government Owned Corporations Act 1993* (GOCA 1993) that develops and manages port facilities including bulk shipments (e.g. sugar, molasses, fuel), marina and tourism facilities. As a Ports Corporation, Ports North has statutory power under the *Transport Infrastructure Act 1994* and the Transport Infrastructure (Ports) Regulation 2005 to issue licenses, leases and permits for the use of its port facilities and provides a number of multi-user facilities at its ports to achieve higher utilisation of infrastructure and greater efficiency. Ports North is also responsible for maintaining navigable Port depths, Port facilities and Port operations while vessels are alongside its facilities. The operations of the port are strongly supported by the community, particularly the cruise operations.

Ports North employ a workforce of 70 employees spanning a variety of professional, technical, trade and administrative roles in fields of planning and projects, environmental management, hydrographic survey, asset management, maritime operations and security, marine pilotage, information technology, commercial, financial and corporate services. Relevant trade and tertiary qualifications and long standing experience are held across all fields. Further information on qualifications of specific staff relevant to the project is contained in **Appendix F**.

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A1.3.1 Environmental Track Record

Ports North have a successful history of compliance with its environmental obligations, permits and approvals for operations and major projects. It manages a number of ports and associated shipping activities in areas of high conservation value. Whilst operating in such environments Port North continues to maintain a high level of compliance and effective management of its port operations without the occurrence of significant environmental harm or major incidents, fines or reprimands. An Environmental Management System consistent with ISO14001 is in place which addresses environmental management issues including planning, checking, and continual review of Ports North's management system and procedures inclusive of emergency response plans, loading and unloading of ships, stormwater management, oil spill response and waste controls. The EMS has been subject to external audits with a view to proceeding to ISO14001 certification in the next 12-18 months.

Appendix B10 Ports North Management policies provides copies of relevant Ports North corporate Health and Safety and Environmental Policies.

Ports North has a number of Ecological Monitoring Programs in place to measure and assess potential impacts associated with port operations including:

- A Sediment Analysis Plan for dredging and disposal of maintenance dredge material to an approved marine disposal site
- A Long Term Management Plan for the management of maintenance dredging and dredge material disposal
- A Water Quality Monitoring Program in Trinity Inlet
- A Marine Pest Monitoring Program to detect the presence of marine pests
- A long term Seagrass Monitoring Program.

These programs produce valuable data which helps provide a long term measure of the status of the ecological health of the port catchment. The programs also measure the effectiveness of the various management initiatives implemented to control the activities that the port operator can influence, thus reducing the risk of potential impacts to the environment in and around the port.

Ports North has extensive experience in delivering major projects and managing port infrastructure while maintaining a high level of environmental management. The Cityport Masterplan was subject to an Impact Assessment Study in the late 1990's and has been subsequently delivered in a number of stages with works involving capital dredging for marina expansions, marina and wave barrier construction, minor reclamation, foreshore protection and beautification, heritage wharf and shed refurbishments and backing land de-contamination. These works have required approvals of a similar scale to the proposed project, and included a Scientific Advisory Group to oversee environmental management of the capital dredging projects in the early 2000's. These projects were completed without any major adverse or unforeseen environmental impacts and to the satisfaction of regulatory agencies.

Ports North also maintains approved ten year Sea Dumping Permits and Long Term Management Plans for maintenance dredging activities under the *Environmental Protection (Sea Dumping) Act 1981*. An approval for Cairns was granted in 2010, and in 2013 for the Port of Karumba.

A1.4 Project Background

The Port of Cairns has a long history as a key cruise destination in Queensland given its proximity to the GBR which is an iconic Australian tourism destination. Cruise shipping has grown significantly in Australia with passenger numbers increasing by 200 percent since 2002. Cruise ships are getting bigger and there has been a general decline in recent years of the "Adventure class" (less than 100 passengers) and "Boutique" and "mid-size" ships (200 – 1,500 passengers) and a growth in mega size ships (2,000+ passengers) with indications being that future ships will be even larger. More than 80 percent of new cruise ships built since 2009 are unable to access the Port of Cairns.

For almost two decades Cairns enjoyed more cruise ship visits than any other port in Australasia however, in recent years that share, along with other Queensland ports, has fallen considerably. Current use of the Port of Cairns by cruise ships is split between those vessels that can access the entrance channel and moor at Trinity wharves and the larger ships that must anchor at Yorkeys Knob and tendered ashore either by the ships tenders or by catamarans from the Cairns reef fleet. In the period 2007-2014 there was an overall increase of 6 percent of ship visits into the region, however, the general trend shows a decrease in ship visits at Trinity wharves and an increase in ship visits at Yorkeys Knob corresponding to the general increase in ship sizes. The AEC Group report which reported on the economic impact assessment of the Cruise Industry in Australia during 2012-13, estimated that the cruise ship industry added approximately \$12 million to the local economy per annum between 2011 and 2013.

A Demand Study undertaken by BMT WBM as part of this EIS (refer **Appendix D6 Cairns Cruise Shipping Development – Demand Study**) found that the size of cruise liner vessels used and built in the industry is increasing with 31 mega cruise class ships built or being built between 2011 and 2018 having an average passenger capacity [lower berth] of 3336 and a maximum capacity of over 3700 berths. It is expected that many of the smaller vessels currently operating in Australia will be replaced with larger vessels. At present all mega ships with the exception of the Rhapsody of the Seas cannot access the Port of Cairns, and this ship is due for replacement in 2015. Also, in time as ship sizes increase, it will become more difficult to effectively transfer passengers ashore at Yorkeys Knob due to the number of passengers involved and the restricted time available for transfers, leading to future Mega ships not visiting Cairns unless the channel access is improved. Therefore, ports within Australia are under pressure to provide access for these larger vessels now and in the future to facilitate direct access for passengers and staff to cities and allow patrons undertake associated tourism activities.

Ports North initiated the Cairns Cruise Ship Development Strategy in 2012 (Arup, 2012) to review the feasibility of the Project. The strategy involved preparation of a conceptual design and investigation of the potential environmental and economic impacts. The Strategy determined that the benefits to the regional economy justified proceeding to the next stage of assessment.

The importance of cruise infrastructure is recognised in the regional economic development plans. The Tropical North Queensland Regional Economic Plan developed and approved by Advanced Cairns and the major Cairns based organisations including Cairns Regional Council and Chamber of Commerce has the expansion of the cruise industry and the development of key infrastructure including channel dredging as an important growth strategy to strengthen and diversify the Regions' tourism industry and destination appeal. Similarly Regional Development Australia Far North Queensland and the Torres Straits regional road map identifies the development of the cruise shipping channel as a key infrastructure asset needed for social and economic development and future sustainability of the region.

A1.5 Project Objectives

Ports North have identified the following objectives for the project:

- Conduct the project in a manner that is environmentally and socially responsible
- Establish a viable and sustainable cruise shipping operation for Cairns to foster tourism and enable and enhance local business opportunities
- Enhance market opportunities for the growing cruise shipping industry to provide economic benefits and jobs for the region and for Queensland
- Provide benefits to broader port shipping operations through improved channel efficiency
- Ensure that dredge material is managed and disposed of with the least environmental impact, no human health impacts and without cost disproportionality.
- Improve passenger safety by reducing the number of passengers being ferried ashore at Yorkeys Knob.

A1.6 Environmental Impact Statement (EIS) Objectives

The objectives of this EIS are as follows:

- To provide public information on the need for the project, alternatives to it, assess options and make informed decisions for its implementation
- To identify and assess potential direct and indirect environmental, social and economic impacts upon the surrounding physical and human environments during the construction and operational phase of the project
- To recommend mitigation measures to avoid or minimise any significant impacts identified to acceptable levels
- To identify potential residual impacts and design an appropriate management and monitoring program for the construction and operational phases of the proposed project.

A1.7 Project Description - Overview

The project involves upgrading the following Port infrastructure to enable larger cruise ships to berth at the Port of Cairns, as illustrated in **Figure A1.7a**:

- 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
- Fender system upgrade to the existing cruise shipping wharves 1-5 to accommodate larger and heavier cruise ships
- Upgrade of ship services to the cruise shipping wharves, including Intermediate Fuel Oil (IFO), potable water and fire-fighting services
- Establishment of a new site for dredge material placement to accommodate capital dredge material and for placement of future maintenance material. The EIS examined both land and sea disposal options.
- Relocation of existing and installation of new navigational aids.

Chapter A2, Dredge Material Placement Options of this EIS provides a dredge material placement options assessment for both land and marine placement. The chapter concluded with the selection of a preferred land placement site (East Trinity option) and a preferred marine placement site (Option 1A), subject to Government legislative changes. **Chapter A3, Appropriateness of Preferred Land Placement Site at East Trinity** addresses the appropriateness of preferred land placement at East Trinity in accordance with the assessment process for dredge material disposal outlined in the National Assessment Guidelines for Dredging (2009). The conclusion of **Chapter A3, Appropriateness of Preferred Land Placement Site at East Trinity** was that while technically feasible, the placement of dredge material at East Trinity is not considered appropriate based on a lack of long term planning intent for development of the land, its environmental zoning status, prospective impacts to cultural heritage and native title, the potentially high likelihood, severity and uncertainty associated with environmental impacts, human health and safety considerations and cost proportionality.

Consequently, the marine placement option for the project was adopted and fully assessed under **Part B, Technical Chapters and Part C, Management Plans** of the EIS in accordance with the project Terms of Reference (TOR) and EIS Guidelines. The project overview contained in this Chapter refers to the preferred marine placement area.

There are a number of emerging issues related to Port development and dredging that could lead to a change in the assessment processes for capital dredging. A number of key environmental reports, Port project announcements, and environmental and cost considerations could change the options available for assessment for capital dredging disposal. Following completion of the draft EIS, and prior to its public release, the Federal Government announced in November 2014 that legislation would be put in place using the Great Barrier Reef Marine Park Act to ban all capital dredging disposal into the GBRMP.

As a consequence of this announcement, the shortlisted marine option (Option 1A) and the other marine options located in the GBRMP could, in the future, no longer be available. Only marine Option 2 is not impacted by the recent announcements as it is outside of the GBRMP. Whilst a full EIS has not been undertaken on Option 2, this site does not have the same environmental performance as Option 1A. Based on the preliminary assessments undertaken of Option 2, it is considered unlikely that a full EIS would show that this option is appropriate for capital dredging material placement.

The current changing circumstances could, in the future, open the opportunity to reframe the criteria for assessing the acceptability of undue risk to human health or the environment or disproportionate costs included in appropriateness test outlined in the NAGD. If this does occur, particularly around the measure of cost disproportionality, then it provides an opportunity for further examination of East Trinity as a fill placement site option.

If East Trinity is subsequently deemed appropriate for further investigation more extensive assessments would need to be undertaken. **Part D, East Trinity Environmental Factors** of the EIS has been prepared to provide a more detailed Review of Environmental Factors (REF) for the East Trinity site and to guide these future assessments should they be required.

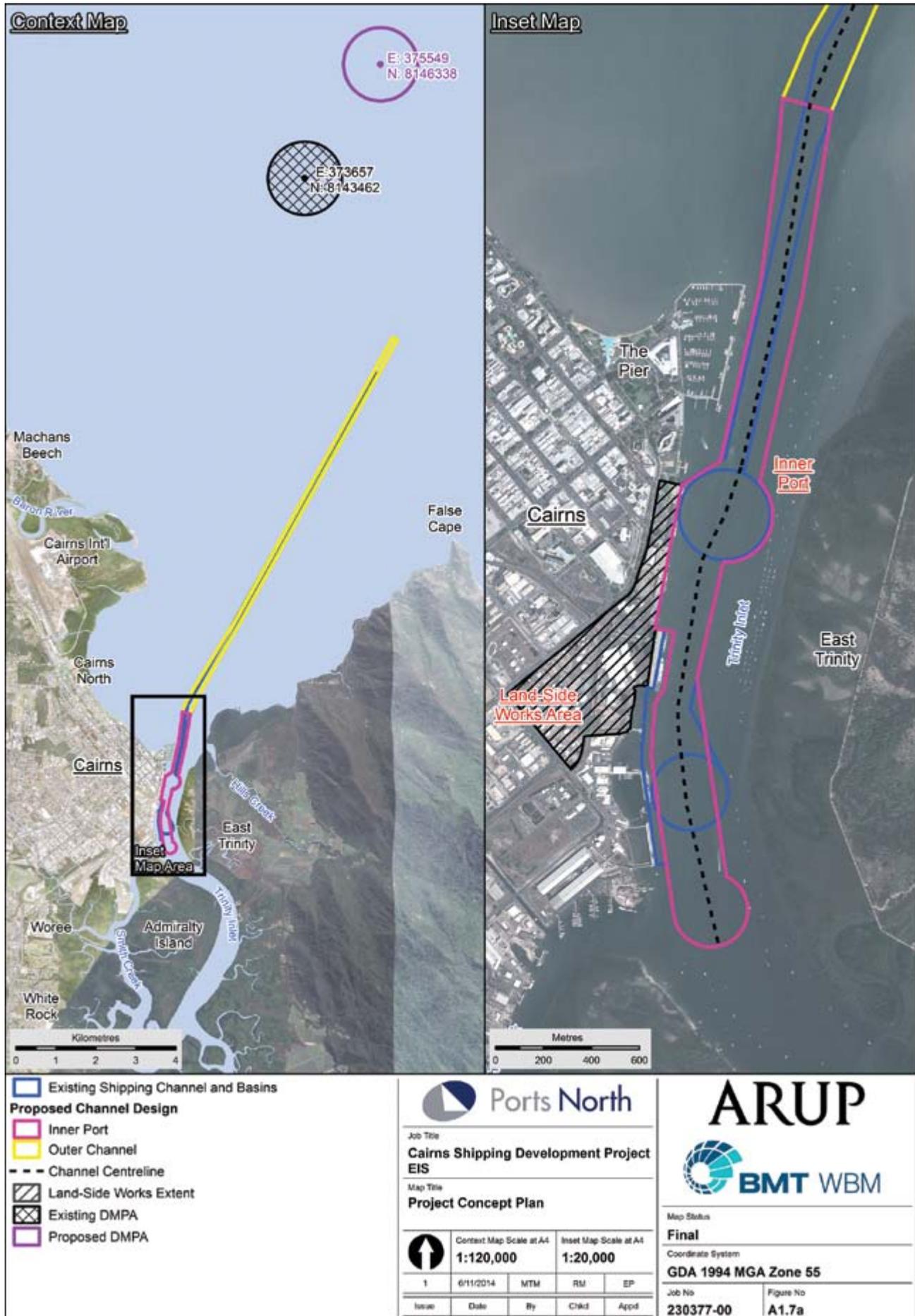
This project will occur within, the Great Barrier Reef World Heritage Area and the Great Barrier Reef Marine Park and adjacent to the Trinity Inlet Fish Habitat Area. These areas contain habitat, such as seagrass beds, that are important for a number of significant species including cetaceans, dugongs, juvenile fish and turtles. Consequently, works have the potential to impact on matters of National Environmental Significance protected under the *EPBC Act*.

A Concept Design for the channel upgrade and associated infrastructure has been prepared, and is detailed in **Chapter A4, Project Description. The Concept Design** has aimed to minimise the extent of dredging to the minimum required, whilst still maintaining safe navigation standards for cruise ships. Originally, the channel was proposed to be up to 160m wide, but has been reduced through a number of design iterations to 130m width. This has significantly reduced the amount of dredge material requiring disposal, and associated potential environmental impacts. Further detailed design shall be carried out to confirm channel dimensions and any design refinement would seek to further reduce the channel width and subsequently the amount of material requiring dredging. However, this EIS is based upon the Concept Design (Refer to **Chapter A4, Project Description**) and assesses the potential environmental impacts based on this design. Throughout project planning, measures to reduce the impact of the project will be further refined.

Once operational, the port will see an increase in total ship visits from 79 to 110 per year by 2026 and an almost doubling of the total number of Mega ship visits by 2026 (from 32 at Yorkeys Knob to 63 at Cairns Port) based on a conservative (medium) growth projection. While in the short term there would be an increase in ship numbers visiting Cairns with or without the project, it is predicted that without the project, mega ships may eventually cease visiting Cairns as future mega ships become too large to safely tender passengers from Yorkeys Knob.

Regular maintenance dredging already occurs on an annual basis, and will be continued for the upgraded channel and swing basins to ensure ongoing safe passage and operation.

Figure A1.7a Project Concept Plan



A1.7.1 Project Location

The Port of Cairns is situated on the western bank of Trinity Inlet, a mangrove-lined estuary to the west of the city of Cairns, Queensland. The Port lies on the border of the Cairns CBD. The land immediately surrounding the Port has a mix of industrial and commercial uses. There are a small number of residential apartments and short term accommodation options in close proximity to the Cairns Cruise Liner Terminal. There are also a number of people who live aboard boats moored in the Inlet. East Trinity, an undeveloped environmental reserve, lies opposite the Port on the eastern side of Trinity Inlet, and the fringing mangroves and distant hillslopes provide 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. Refer to **Figure A1.7a** which shows the project location and surrounding land uses.

For a detailed description of the physical environment of the Project and surrounding land uses, refer to **Chapter A4, Project Description**.

A1.7.2 Project Timing

The estimated overall construction period is one year from late 2016 to late 2017.

Capital dredging activities (including marine placement) will take approximately 23 weeks to complete but the actual dredging program will be established following detailed geotechnical investigations to clearly define the extent and classification of the dredge material and following assessment of the dredging plant capability. It is estimated that 21 weeks will be required for the trailer suction hopper dredger for the outer channel and inner port and 23 weeks for the back hoe dredger for the inner port and swing basins. These durations do not include dredge vessel mobilisation and demobilisation. The optimum time for dredging is between March and September to avoid impacts to sensitive habitats.

The estimated construction period for the wharf upgrade is 12 months and will occur simultaneously with dredging activities. Within this period, there is an allowance for the wet season (December-April) that can cause delays in construction.

Cruise ships are expected to be able to utilise the upgraded channel by late 2017.

More detail is provided in **Chapter A4, Project Description**.

A1.8 Need for the Proposal

This section provides a summary of the need for the proposal based on a number of studies that have been undertaken into potential cruise ship growth and economic analysis. These are further described in **Chapter B9, Socio Economic**.

The Australian cruise shipping market is changing, as shipping companies commission larger ships and assign them to their Australian itineraries. **Table A1.8a** demonstrates that the majority of new cruise ships being constructed are unable to access the existing Cairns Cruise Liner Terminal because the channel is not of sufficient depth or width.

Table A1.8a: New Cruise Ships and access to the Cairns Cruise Liner Terminal

Year	Ships Built	Able to Access the Cairns Cruise Liner Terminal	Not able to Access Cairns Cruise Liner Terminal
2009	13	2	11
2010	14	4	10
2011	7	1	6
2012 to 2018	38	7	31
Total	72	14 (however two will not visit Australia)	58

The Project would attract a greater number of cruise ships to Cairns, by enabling the larger megaships to dock at the Cairns seaport. By docking at the seaport, cruise ships can easily embark/disembark passengers, allowing visitors to spend more time in Cairns CBD or undertaking tours. This is a more attractive offering for cruise ship companies. It would also allow for crew to disembark while in Port, which is currently not the case for Mega ships moored off Yorkeys Knob.

A1.8.1 Overview of the Australian Cruise Industry

The global cruise industry is a \$60 + billion industry that employs over 100,000 seagoing staff and 20,000 on-shore staff, and carries 21.7 million passengers annually an increase of 4 million since the 2011 BMT WBM study (CLIA, 2014). The industry is primarily based on the Northern Hemisphere market where the bulk of the world's cruising populations reside. However, 3 percent of Australians have cruised which is significant in terms of percentage, second only to the USA, however it contributes a relatively minor proportion of the global cruise ship industry's economic value, because of its relatively low population size. Consequently the bulk of the world's cruise ships operate in the Northern Hemisphere and traditionally only head for the southern hemisphere and Asia during the Northern Hemisphere winter. Nevertheless Australians are an important source market for several cruise lines.

At the Cruise3Sixty Conference held in Sydney in February 2014 it was stated that the number of Australian passengers has increased by 200 percent since 2002 and it was predicted that Australia would have a market penetration of 4.5 percent by 2020, the highest in the world, and 10 percent by 2030 (Cruising, Worldwide Cruising News and Pictorial Issue 87, February 2014).

The only companies that currently base ships in Australia all year round are P&O Australia and the smaller boutique or adventure companies Coral Princess Cruises, Orion Expedition Cruises, Aurora and True North (although some of these operate overseas for part of the year). There are only four vessels permanently based in the South Pacific region offering cruises to a predominantly Australian and New Zealand population. These locally based vessels offer a total of 4,800 berths (or about 250,000 berths a year) to a predominantly Australian and New Zealand combined population (28 million). In addition to the locally based cruise ships, each year up to 40 international cruise ships, operated by 18-30 different companies, call at Australasian ports. This predominantly occurs between the months of November and April.

Australasia is not yet recognised as a cruising region in its own right; however it is a growth area that is included in cruise itineraries in the Asia Pacific and South Pacific regions and Around-the-world cruises and is being boosted by more ships home porting in Australian Ports.

The major influences which will impact on the growth of cruise shipping in Australia, and Queensland are:

- A current nine percent annual growth rate in global cruising, due partly to an increase in the number and capacity of cruise ships being built
- An trend towards large-size cruise ships both globally and domestically
- An aging population which has caused a rapid increase in overall passenger demand and international market size
- Increased globalisation of the industry has led to an increasing number of large-size ships seeking Northern Hemisphere winter destinations
- Increased consumer awareness of the Australian cruising region
- An increase in Asian tourists, particularly from China, which is likely to lead to an extension of Asian cruises to Australasia.

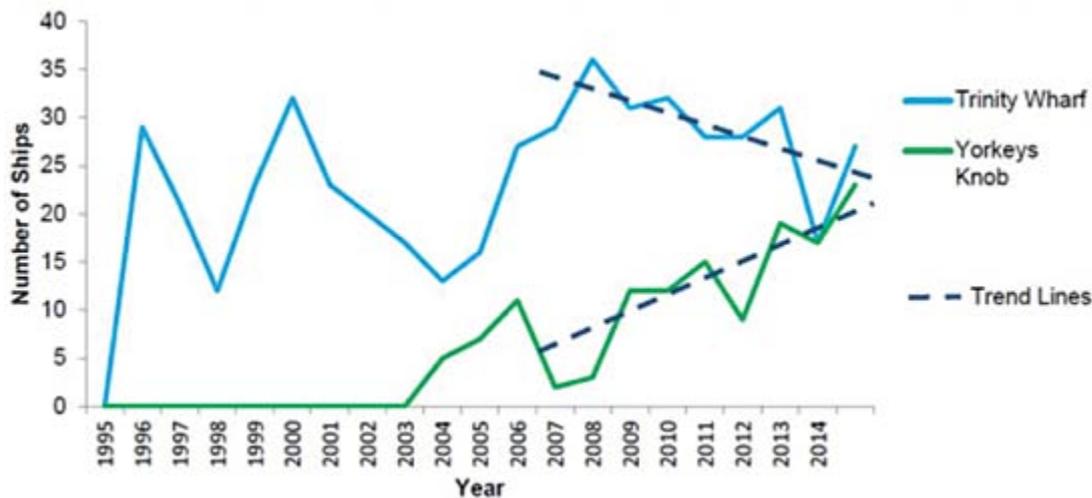
The current growth projections for the Australian/Asia Pacific area are up to 10 percent per annum over the next decade.

In summary, the demand for cruising internationally is strong. As the northern hemisphere destinations become crowded, and passengers seek new destinations, there will be increased interest in destinations such as Australia. Some 466,000 Australians took a cruise in 2010, of which 66 percent undertook cruises to the South Pacific, New Zealand and Australia.

A1.8.2 Current Usage of the Port of Cairns

Figure A1.8.2a shows historical cruise ship visits to Cairns. This ship visits shown in Figure A1.8.2a exclude Adventure Class ships that home port at Cairns.

Figure A1.8.2a Ship Visits 1995 – 2014 (Source: Ports North unpublished data)



For the previous two decades, Cairns has enjoyed a higher number of cruise ship visits than other port in Australasia, but in recent years that share, along with other Queensland ports, has fallen considerably. Current use of the Port of Cairns by cruise ships is split between those vessels that can access the entrance channel and moor at Trinity wharves and the larger ships that must anchor at Yorkeys Knob. A review of ship numbers from 2007-2014 allows the following conclusions can be made (BMT WBM Demand Study 2014):

- There has been an overall increase of 17 ship visits equating to an annual increase of around 6 percent
- The general trends clearly show a decrease in ship visits at Trinity Wharves and an increase in ship visits at Yorkeys Knob corresponding to the general increase in ship sizes.

A1.8.3 Demand Analysis

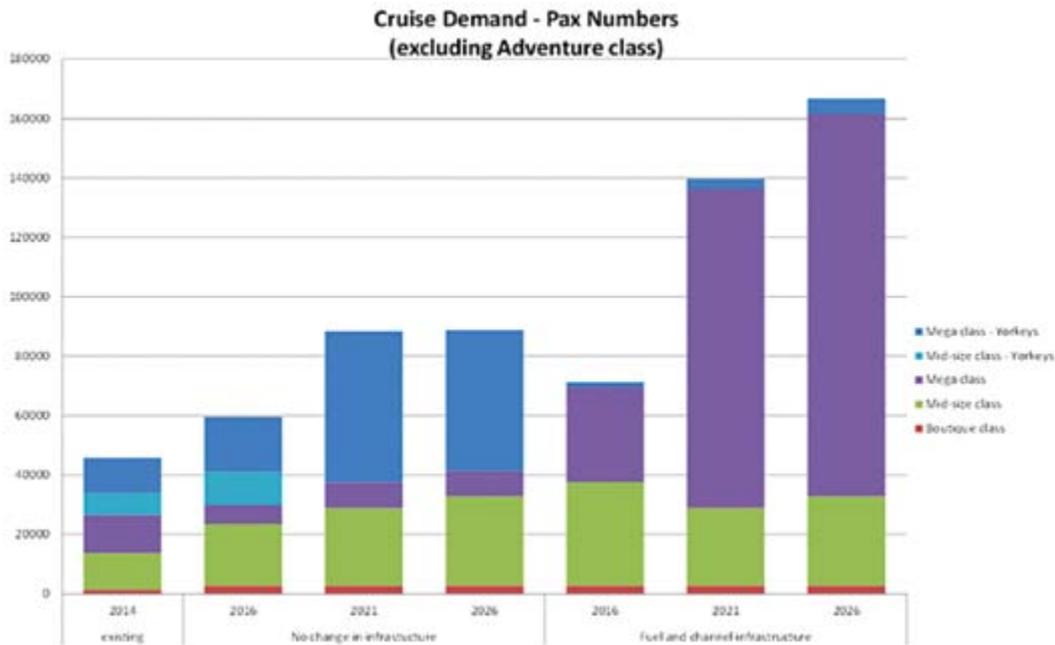
A demand analysis was undertaken in 2011 (BMT WBM, 2011), and this demand study was updated for the purpose of the EIS in 2014 and was informed by consultation with cruise ship companies, in-bound tourism operators, port service providers and tourism stakeholders. This provided information on existing and future cruise ships that may use the Ports of Cairns.

The demand analysis determined that market drivers for a cruise company to include a destination in their itinerary include:

- Source passenger market
- Population cruise conversion
- Cost of cruise and distance to home port destination
- Availability and quality of a destination
- Availability and quality of shore-based activities
- Availability of infrastructure (i.e. channel and berths)
- Availability of marine fuel
- Suitability of passenger terminal infrastructure and services
- Availability of ship services.

For Cairns, the greatest opportunity to increase ship visits by large vessels is the ability to reach the Trinity Wharves by improving the channel infrastructure and the provision of Intermediate Fuel Oil (IFO). As a result, the demand analysis examined future demand of two scenarios (a) no improvement to the existing channel and infrastructure and (b) improved channel and infrastructure. Figure A1.8.3a shows the predicted increase in cruise ship passenger numbers at Cairns following provision of the improved channel and infrastructure.

Figure A1.8.3a Cruise Demand Predictions (With and Without Infrastructure Improvement) – Passenger Numbers



A1.8.3.1 Unimproved Infrastructure Scenario

With no improvement to the existing infrastructure and channel, larger cruise ships will have to continue to utilise Yorkeys Knob. Whilst some growth in cruise ships will occur in the short term, higher growth in the long term will not be achieved due to the logistics of ferrying large numbers of passengers from mega cruise ships to and from shore, limiting time available for tours and overall visitor experience. Other limitations at Yorkeys Knob include:

- Increased numbers of passengers choosing to remain on board due to the difficulty and discomfort of disembarking
- The time available for shore excursions is reduced and sometimes tours are delayed or missed
- The opportunity for an overnight stay is denied
- There is limited opportunity for maintenance as the ship must remain fully operational
- Some ship visits are lost entirely when shore transfer by tenders becomes unsafe due to rough weather
- Crew are typically denied shore leave from tendered stops, resulting in the majority of crew remaining onboard.

As ship sizes increase over the coming years, it will become more difficult to operate from Yorkeys Knob. Over time, this is expected to result in a decline in passenger and crew satisfaction levels, and impact the continued use of Cairns as a cruise ship destination.

In recognition of the limitations of the existing facilities, Ports North is currently working with Yorkeys Knob Boating Club on plans to upgrade a number of 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 2*).

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 Cairns Shipping Development Project.

A1.8.3.2 Improved Infrastructure Scenario

Upgrade of the channel would enable the longer length mid-size ships and the majority of the mega size ships to berth safely at the Cairns Cruise Liner Terminal. The provision of a fuel oil supply and other infrastructure improvements would also enable boutique and mid-size cruise ships to travel further distances from Cairns in safety, encouraging them to consider the use of Cairns as a 'home' port. This would make Cairns a more attractive destination for cruise companies, leading to a greater increase in cruise ship numbers than would otherwise be experienced through normal industry growth. Those cruise companies that currently anchor off Yorkeys Knob would prefer to use the Cairns Cruise Liner Terminal for the following reasons:

- Disembarking at the Terminal is pleasant and inviting, allowing direct pedestrian access into the Cairns CBD and maximises the amount of time available for tours
- It enables the crew to go ashore thereby improving crew morale
- There is an opportunity for maintenance and for provisioning by local suppliers
- The opportunity for an overnight stay is provided
- Provision of Intermediate fuel oil (IFO) would be beneficial to all classes of ships and facilitate further travel distances from Cairns and/or consider making the Port of Cairns their base port.

Both the Port of Cairns and the operators of Mega cruise ships would benefit most from the channel access to Trinity wharves being improved such that the majority of Mega ships can berth safely in Cairns. As the number of Mega cruise ships increase there will be even more demand for this access and if not available it could lead to a reduction in cruise ship visits as the larger ships will find it more difficult to operate at Yorkeys Knob hence leading to more passenger dissatisfaction with the destination.

A1.8.4 Economic Benefits

An analysis of the economic benefits associated with the provision of improved infrastructure at the Port was undertaken as part of this EIS. This study updated a previous economic study completed in 2012 (Cummings, 2012).

The Economic Assessment considered the impact and benefits based on 2016 adjusted figures. It is estimated that the average spend per cruise passenger based on 2016 figures will be \$220 for passengers that disembark at the Port of Cairns. When anchored at Yorkeys Knob, the average expenditure is reduced to \$172 per person. In addition, crew expenditure is predicted to be \$78 per crew member when ships dock at Cairns (expenditure is \$0 when anchored at Yorkeys Knob as crew do not typically come ashore).

Based on the forecast growth from the Demand Analysis, the dredging of the channel and other improvements are estimated to benefit Gross Regional Product in relation to economic output due to additional cruise ship visits (as a transit port) as outlined in **Table A1.8.4a**.

Table A1.8.4a 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 A1.8.4b**.

Table A1.8.4b Net Present Value (NPV) of increased benefits

NPV – (discount rate 7% 'nominal' / 4% '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 input would also drive job creation, with 467 new jobs created by 2026, increasing to 680 jobs by 2041.

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). Based on a small percentage of mega cruise ships home ported in Cairns this would contribute a further \$328 million in added value to the regional economy by 2041.

The region would also gain from other efficiency benefits 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.

During construction up to 100 full time equivalent personnel will be employed for both landside and marine based construction activities. The total construction expenditure will be \$102 million (2014 value). Construction activity is estimated to create an addition to Gross Regional Value Added of the order of \$79 million over the life of this project (Cummings, 2014).

The Queensland Ports Strategy 2014 outlines the Queensland Government's framework for port development over the next 10 years. Its primary objective is to provide certainty to the ports industry and to the wider community that the economic contribution of ports can and will grow, while ensuring the continued protection of Queensland's valuable environmental assets, including the Great Barrier Reef.

The vision of the Queensland Ports Strategy is to:

"Drive economic growth through the efficient use and development of Queensland's long established major port areas, while protecting and managing Queensland's outstanding environmental assets."

Queensland's ports have important strategic functions such as:

- Exporting locally-produced commodities
- Importing goods for small or remote communities
- Providing facilities for national defence operations
- Encouraging tourism through cruise shipping and recreational marine facilities.

The proposed upgrade of the Port of Cairns will ensure that the port continues to fulfil all of these strategic functions required for sustained prosperity of both Cairns and Queensland.

A1.8.1 Summary

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 ability of ships to come into the port has an effect of enhancing the Queensland cruise ship experience for passengers, has substantial operational benefits for cruise companies including availability of fuel, and enhances opportunities for expanding tours to the north. Upgrading the Port of Cairns will upgrade Queensland's attraction as a cruise destination and thus has the potential to allow benefit to other Queensland ports due to increased visits of cruise ships to the Region.

Mega-class cruise ship numbers docking at the Port of Cairns dockside are expected to grow by 63 annual visits by 2026 with the delivery of improved infrastructure, providing regional economic benefits of \$634 million (2014 value) over the next 25 years. It is expected to generate employment opportunities during the construction phase as well as 467 additional jobs per annum by 2026 and 680 per annum by 2041 resulting from the increased cruise ship visits. The project will not only deliver significant economic benefit to Cairns, but will also deliver further benefits to the State of Queensland and Australia due to the considerable flow-on effects to the wider cruise, tourism and associated support industry.

If home porting of larger ships occurs (ships greater than 2000 passenger capacity) the potential economic benefit would be in the order of \$309 million (2014 value) over 25 years from 2016 to 2041 based on an expenditure of \$2 million per departure.

There are also significant direct benefits in terms of operational efficiency gains. The current situation where the larger cruise ships need to anchor off the coast and ferry passengers into Yorkeys Knob and then bus most of them into the city is inefficient, not only in extra costs of shore transfers and bus transfers, but also in time cost. Also, home-porting in Cairns would cut two days each way sailing from / to Brisbane for cruises northwards. In relation to existing shipping, there will be savings as larger fuel, fertiliser and sugar ships are able to enter the port without tidal restrictions. The indications are, that in terms of economic efficiency, as a public project there is a healthy direct benefit cost ratio of the order of 2.7.

Should the Project not proceed, Cruise Ships would continue to visit Cairns; however they would increasingly dock at Yorkeys Knob, limiting flow through to the Cairns economy. It is possible that in the long term the use of Yorkeys Knob will become untenable for mega class ships as due to their increased size it will not be possible to safely disembark passengers by tender.

A1.9 Project Alternatives

This EIS is based on the project description outlined in **Section A1.7** of this Chapter. Nevertheless, a summary of various alternative options is provided in order to demonstrate the appropriateness of the proposal and that it is the best approach for increasing revenue and employment from cruise ship visits to Cairns.

The options that have been explored are:

- The 'Do Nothing' scenario
- Use of an alternative site to the Port with new jetty for mooring large-size cruise ships
- Improved tendering alternatives
- Minor upgrades to existing infrastructure, without upgrade of the existing channel
- Capital dredging over multiple campaigns
- Placement of dredge material at an alternative location (refer to **Chapter A2, Dredge Material Placement Options, Chapter A3, Appropriateness of Preferred Land Placement Site at East Trinity** and **Part D, East Trinity Environmental Factors** for further information on this project alternative).

A1.9.1 The 'Do Nothing' Scenario

This scenario assumes that there is no upgrade to the channel or infrastructure at Port of Cairns (large-size ships would continue to anchor at Yorkeys Knob or at the Cairns Channel entrance). As previously stated, this would result in reduced use of Cairns by cruise ships over time, with subsequent loss of revenue and employment opportunities that would be provided with the current proposal.

A1.9.2 Use of an Alternative Port with New Jetty for Mooring Large-size Cruise Ships

A1.9.2.1 Yorkeys Knob Jetty

There are no other sites in the region with a custom cruise terminal already built and operational. Consideration of viability of upgrading Yorkeys Knob to a long trestle structure was considered. This option was discounted due to visual impacts, navigational safety impacts, potential megafauna impacts if permanent structures out to sea were established, potential impacts of close by sensitive receptors such as the coral at Double Island and ongoing environmental risks associated with trestles such as protective recoating and risk of contamination from fuel spills and paints. There are also significant and unacceptable costs associated with construction and maintenance of such a structure. The cost of the trestle wharf at Yorkeys Knob is estimated to be \$400 million. The trestle structure would not provide the same benefits for the ships as wharf side porting, but also the port side services such as fuel options and maintenance required to support the cruise operations would not be available. Given that there is currently a proposal to construct a large casino development close by to Yorkeys Knob there is the potential for increased traffic impacts on the local community due the cumulative increases in traffic generated by both developments during construction and operation.

A1.9.2.2 Yarrabah Jetty

Recent proposals for a Yarrabah Jetty are considered a complimentary location to Cairns rather than an alternative as it provides access to a cultural experience. This experience is different to that offered by Cairns CBD and is not aimed at the mass cruise shipping market. It is located over a steep mountain (low speed) range quite a distance by road from Cairns and thus would limit the economic benefits to Cairns that a Port of Cairns docking would deliver. As with Yorkeys Knob, Yarrabah does not offer any port services or fuel options. Given its strong cultural setting it is likely there would be potential cultural heritage challenges in expanding the Jetty to a size that could cater for all classes of cruise ships.

A1.9.2.3 General Limitations

In general the costs of upgrading the infrastructure at other locations to the standard required by cruise shipping companies would be substantial. In addition, other destinations would not be in such close proximity to the city of Cairns and the existing tourism infrastructure, reducing the potential economic gains for the Cairns region.

A1.9.3 Improved Tendering Alternatives

There are two options available for improved tendering, Cairns outer channel or Yorkeys Knob. For Cairns anchoring would be 10km from the CBD but would allow transfer by tenders straight into the CBD via the existing port channel and Cruise Terminal wharves.

For Yorkeys Knob the existing arrangement of anchoring 4km with a 15km bus transfer into the CBD would be maintained. Minor works are currently in progress, as an interim measure, to improve tender mooring, passenger disembarkation to land and landside passenger safety and bus access. However these improvements do not cater for longer term growth and along with other existing constraints, such as the shallow depth of the dredged entrance channel which tidally constrains some of the larger tender vessels, would not facilitate the potential growth in cruise shipping. The time to tender and transfer passengers limits the time available for tours and other onshore activities and the number of passengers willing to disembark via tendering is reduced. During inclement weather conditions, which is estimated to be approximately 10 percent of times it would not be possible to transfer passengers to shore. The ability of crew to disembark is also very limited. This option does not support the long term growth of the cruise industry as it is not preferred by Cruise operators.

A1.9.4 Minor Upgrades to Existing Infrastructure, Without Upgrade of the Existing Channel

The Economic Analysis (Cummings, 2012) explored the economic benefits to be gained from providing IFO for vessels, without upgrading the existing channel. Whilst there is some marginal economic benefit in providing these services, it does not improve the ability of large-size vessels to moor at the Cairns Cruise Liner Terminal, but may attract boutique and mid-sized vessels. The provision of IFO could also make the port more attractive for home porting or transit calls but the types of ships able to utilise the IFO would be limited by the access channel configuration. Therefore, upgrading the landside infrastructure without upgrading the channel infrastructure would not result in increased utilisation of the port in the longer term.

A1.9.5 Capital Dredging over multiple campaigns

The option of completing the capital dredging campaign over a number of years following on from the annual maintenance dredging campaign was considered. This option considered using the same dredging vessels and plant as is used for maintenance dredging – TSHD Brisbane. The availability of the TSHD Brisbane was one of key criteria in determining the time to complete the capital dredging program. In order to consider the viability of this option, the following assumptions were made:

- TSHD Brisbane would be available for 3 months per year to complete capital and maintenance dredging
- Capital dredging would take place over five years
- TSHD Brisbane would be capable of dredging the very soft to firm clays
- Backhoe dredging would be required during Year 4
- Back hoe dredge would be used to removed stiff clay from the inner port and swing basins
- No or limited overflow of the TSHD during capital dredging
- Existing overflow conditions would be maintained during maintenance dredging.

Dredging over multiple years is considered to have increased environmental impacts due to the receiving environment being disturbed over a longer period of time.

The economic benefits of widening the channel and allowing access for the Mega class cruise ships would be delayed. It could also result in reduced numbers of ships visiting the Cairns region in the shorter term and potentially missing their opportunity of being added to the cruise ships manifestos.

A1.10 Placement of Material at Alternative Locations

An assessment of alternative material placement options has been undertaken, and is detailed in **Chapter A2, Dredge Material Placement Options** of this EIS. Using a Multi-criteria Analysis approach, it assesses both marine and land dredge material placement options for the project against environmental, social, planning, economic and logistical criteria. Five marine and five land options were examined; these locations were chosen based on a number of previous studies that have investigated potential placement options (Connell Wagner (1990,1992), Environment North (2005), WorleyParsons (2010) and SKM (2013). The assessment concludes with the selection of a preferred land placement site (East Trinity option) and a preferred marine placement site (Option 1A), subject to Government legislative changes. **Part B, Technical Chapters** and **Part C, Management Plans** of this EIS are based on Marine Option 1A.

The 'appropriateness' of the preferred land based site was then assessed (**Chapter A3, Appropriateness Assessment**) in accordance with the assessment process outlined in the National Guidelines for Dredging (2009). The conclusion of **Chapter A3, Appropriateness Assessment** is that while technically feasible, the placement of dredge material at East Trinity is not appropriate based on a lack of long term planning intent for development of the land, its environmental zoning status, prospective impacts to cultural heritage and native title, and the potentially high likelihood, severity and uncertainty associated with environmental impacts. Placement at the East Trinity site also holds potentially significant human health and public safety risks primarily associated with the long settling and containment period (5 to 10 years), and direct cost disproportionality when compared with marine placement.

Based on this appropriateness assessment undertaken, the marine placement option for the project was adopted and fully assessed under **Part B, Technical Chapters** and **Part C, Management Plans** of the EIS in accordance with the project Terms of Reference (TOR) and EIS Guidelines.

As stated in **Section A1.7** above however there are a number of emerging issues related to Port development and dredging that could lead to a change in the assessment processes for capital dredging, and in particular to the criteria for assessing options to ocean placement of dredged material. **Part D, East Trinity Environmental Factors**, of the EIS has therefore been prepared to provide a more detailed Review of Environmental Factors (REF) for the East Trinity land placement site and to guide these future assessments should they be required as a result of changing circumstances.

A1.11 Environmental Impact Process and Policy Framework

This EIS has been prepared to respond to both State and Federal environmental assessment processes and Guidelines, as detailed below. The project is subject to bilateral agreement between the Commonwealth and the State Agreement under Section 45 of the *EPBC Act*. This agreement relating to environmental assessment (the assessment bilateral agreement) allows the Commonwealth Minister for the Environment to rely on specified environmental impact assessment processes of the State of Queensland in assessing actions under the *EPBC Act*. Separate approvals, however (or project refusal) will be granted by both State and Commonwealth.

A1.11.1 State EIS Approval Process

A 'Coordinated Project' declaration by the Queensland Co-ordinator General triggers a comprehensive environmental impact assessment process, which involves the preparation and assessment of an EIS. The assessment process provides an opportunity for formal public consultation to occur prior to a decision being made by the Co-ordinator General. The proponent is required to respond to any comments received through the provision of a Supplementary EIS, if required.

The proposal may be approved, or refused. **Figure A1.11.2a** illustrates the EIS approval process.

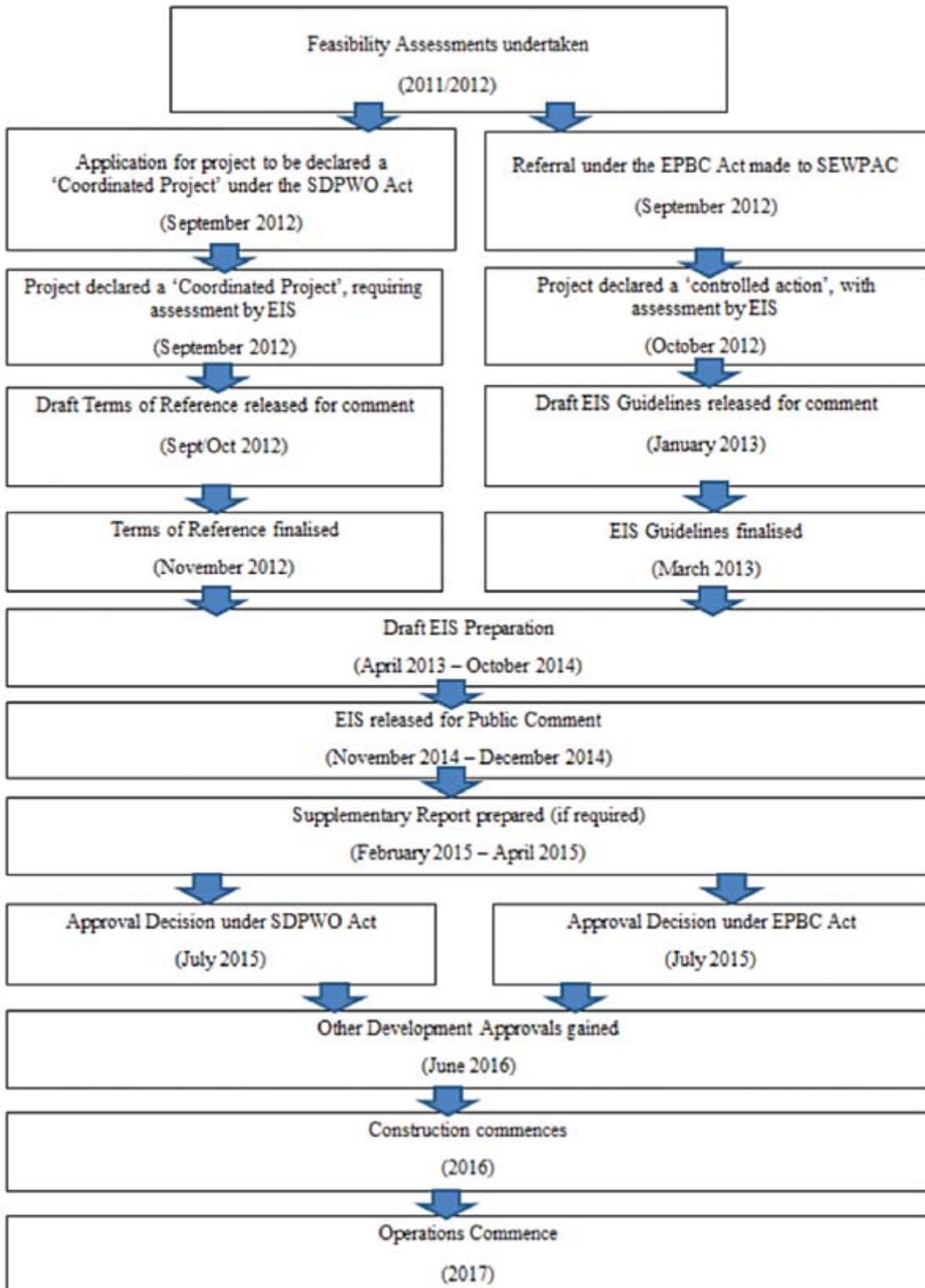
The EIS TOR was issued by the Co-ordinator General in August 2012, and are available for public viewing on the Department of State Development, Infrastructure and Planning's (DSDIP's) website. A cross-reference matrix identifying each of the SDIP's requirements and where they are addressed in the EIS is contained in **Appendix A1**.

Approval for this proposal is being sought from the Office of the Co-ordinator General under the SPDWO Act.

A1.11.2 EPBC Significant Impact Referral Process

Along with the EIS, the Project was referred to the SEWPaC under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Figure A1.11.2a EIS approval process



In October 2012, SEWPaC determined that the Project was a 'controlled action' under Section 75 and Section 87 of the *EPBC Act* and that the Project would be assessed by Environmental Impact Assessment. The relevant controlling actions are:

- World Heritage Properties
- National Heritage Places
- Listed threatened species and communities
- Listed migratory species
- Commonwealth marine areas
- Great Barrier Reef Marine Park
- Commonwealth land.

The EIS Guidelines for the Project were prepared by SEWPaC (now the Department of Environment (DoE)) and the Great Barrier Reef Marine Park Authority (GBRMPA) to address the requirements of Section 102 of the *EPBC Act*, Schedule 4 of the *Environment Protection and Biodiversity Regulations 2000* (EPBC Regulations) and the Great Barrier Reef Marine Park Regulations 88Q and 88R.

The Draft EIS will be approved for Publication by the Federal Minister prior to it being published. Similarly to the State EIS process, public consultation will occur, and the proponent must take into account any of the comments received. A report will be prepared by both the DoE and GBRMPA for the Minister who will decide whether to approve the proposal and what conditions should be attached should approval be granted.

A1.11.3 Key Policies and Legislation Requirements

Beyond meeting any EIS conditions of approval, the Project would be required to adhere to other relevant Federal, State and Local legislation and policy. An overview of policy and legislative requirements is provided in each technical report, relevant to the subject matter (**Chapters B1, Land to B18, Cumulative Impacts Assessment**). The key approvals that will likely be required for the project are outlined in the following sections. For a full description of each relevant policy or legislation, refer to **Appendix C, Legislation and Approvals**.

Following completion of the draft EIS, and prior to its public release, the Federal Minister for the Environment announced in November 2014 that legislation would be put in place using the Great Barrier Reef Marine Park Act to ban all capital dredging disposal into the GBRMP. Based on this announcement, it is anticipated that there will be a future change in legislation relating to capital dredging disposal, which will need to be addressed by the project.

A1.11.3.1 Over-arching Commonwealth and State Approvals

The approvals required for the project from the Commonwealth Government relate to the potential impacts the project may have on matters of national environmental significance. The approvals required from the Australian Government include:

- Approval of the relevant 'Controlled Actions' under the *Environment Protection and Biodiversity Conservation Act 1999*
- Marine Park Permit (for the capital dredging and marine disposal activities) under the *Great Barrier Reef Marine Park Act 1971*
- *Sea Dumping Permit under the Environmental Protection (Sea Dumping) Act 1981* (the sea dumping permit will be granted simultaneously with approval of the EIS, should it be granted)

The following State approvals are required (amongst others as detailed in **Section A1.11.3.2**) for the whole of the project and are required prior to commencing any works:

- Approval under the *Aboriginal Cultural Heritage Act 2003*. A Cultural Heritage Management Plan (CHMP) approved by the Department of Environment and Heritage Protection is required
- State Marine Parks Permit.

A1.11.3.2 Approvals for Specific Project Components

In addition to Commonwealth and State approval of this EIS, specific works proposed as part of the project trigger the need for permits and approvals from authorities under various legislation. These are identified in **Appendix C, Legislation and Approvals**.

In summary, the following approvals may be required:

- For capital dredging:
 - Development Permit for Material Change of Use for an Environmentally Relevant Activity ERA16 Extractive and Screening Activities (Dredging) and Environmental Authority; Allocation of Quarry Material or Dredge Management Plan (if other than marine disposal of dredge material is proposed)
 - Development Permit for Operational Works (that are tidal works for capital dredging)
 - Development Permit for Operational Works (that are completely or partly within a declared fish habitat area)
 - Development Permit for Operational Works (that that is the removal, destruction or damage of a marine plant) – if marine plants are found in the dredge footprint or at or adjacent to the proposed dredge material ground
- For disposal of dredge material at sea:
 - Marine Park Permit (integrated with Sea Dumping Permit)
 - Sea Dumping Permit (integrated with Marine Park Permit)
 - Development Permit for Operational Works (that that is within a coastal management district)
- For upgrades to existing wharf and land based infrastructure
 - Development Permit for Operational Works (for Installation of additional piles)
 - Development Permit for works on a Queensland Heritage Place (for development within the Cairns Wharf Complex)
 - Disposal permit to treat or dispose of contaminated soil from land recorded in the environmental management register (EMR) or contaminated land register (CLR) under section 424 of the *Environmental Protection Act 1994* (EP Act).
 - Development Permit for Material Change of Use for an Environmentally Relevant Activity (ERA 8 – Chemical Storage) (for Chemical storage for the proposed 3,000 ton heavy fuel oil storage tank)
 - Development Permit for Building Work (Building work declared as assessable under Chapter 2 of the *Building Act 1975*) (installation of new major moorings on the landward side of the wharves)
 - Compliance Certificate for Regulated Plumbing Works (for any plumbing work)
- For support infrastructure upgrades (subject to the determination of detailed design and siting arrangements)
 - Development Permit for Material Change of Use for an Environmentally Relevant Activity (ERA 8 – Chemical Storage) under the *EP Act* for the proposed 3,000 ton Heavy Fuel Oil storage tank
 - Compliance with the *Work Health and Safety Act* provisions for Dangerous Goods Safety Management for the proposed fuel supply tank, pump station and pipeline
 - Development Permit for Building Work declared as assessable under Chapter 2 of the *Building Act 1975*
 - Compliance Certificate for Regulated Plumbing Works under the *Plumbing and Drainage Act 2002*.
- For dredging and disposal of dredge material in a Fish Habitat area:
 - Revocation of Portion of Trinity Inlet Fish Habitat Area
 - Approval of State Cabinet and the Governor-in-Council to amend the Fisheries Regulation 2008.

A1.11.4 Stakeholder and Community Engagement

Ports North engaged with a range of stakeholders and community members during the preparation of the Environmental Impact Statement (EIS) for the Cairns Shipping Development Project (CSDP).

Given that the major component of this project is proposed dredging to expand the shipping channel, engagement activities focused on the 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, Stakeholder and Community Engagement Report provides a full summary of the engagement activities undertaken for the Project.

A1.11.4.1 Engagement Objectives

A number of engagement objectives were articulated for the Project at the outset of the EIS process. 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 Arup (and its subconsultants) 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 State Government EIS ToR and Australian Government EIS Guidelines.

A1.11.4.2 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 (Ports North, DoE, GBRMPA, Coordinator-General, other government agencies)
- Business and industry groups – group who promote economic development and employment or operate businesses within the region
- Port users and tenants - those who currently use Cairns Port and will continue to do so during construction and operation of the expanded port
- 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 expressions of interest in cultural heritage matters.

A1.11.4.3 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
- Cairns Show display – Ports North manned a display in the Fred Moule Pavilion at the 2014 Cairns Show (16, 17 and 18 July). The Cairns Show was an opportunity to speak to a diverse range of people about the CSDP. 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 understand the broader community's understanding of and views about the CSDP
- Fact sheets – A series of fact sheets were prepared for the CSDP
- Website – The Ports North website was used as a source of information about the CSDP. The site www.portsnorth.com.au/projects/cairnsshippingdevlproj.php included information about the approvals process, the State EIS process, the Australian 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.

A1.11.4.4 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 CSDP, they remain relevant to the Project. These issues are being discussed in the political sphere and the media and this has an impact on people's perception of the CSDP.

That said, discussions with the local stakeholders and community and the community survey results show that local people's perception of the CSDP is quite different to the opinions being expressed broadly in the media. The majority of the local community are keen to see the project progress due to the economic benefits it will bring the region, but acknowledge that the environment needs to be protected at the same time.

See **Appendix B, Stakeholder and Community Engagement Report** for a full summary of engagement outcomes.

A1.12 EIS Methodology

A1.12.1 Study Area

Part B, Technical Chapters and **Part C, Management Plans** of this EIS relate to (a) the immediate footprint of the Project, including the shipping channel, preferred marine placement area and wharf upgrades, as illustrated in **Figure A1.7a** (known as the 'Project Area') and (b) a broader area beyond the immediate development footprint (known as the 'Study Area').

The Project Area is described in detail in **Appendix B, Stakeholder and Community Engagement Report**, and **Chapter A4, Project Description**.

Generally, the local 'study area' encompasses:

- The township of Cairns in regard to consideration of socio-economic aspects of the Project
- Surrounding land uses and residents (e.g. boat owners in Trinity Inlet, nearby accommodation) which may experience impacts to amenity, air quality or noise levels
- The marine environment including the Trinity Inlet, Trinity Bay and surrounding waters including:
 - All waters of Trinity Bay
 - The tidal waters of Trinity Inlet, including landward areas to the boundary of the Fish Habitat Area
 - Double Island
 - The coastline and nearshore waters of Cairns' Northern Beaches
 - Mission Bay
 - The coastline extending to Cape Grafton

For some assessments in particular nature conservation and cumulative impacts, consideration of a wider study area are required. This has been defined as:

- Great Barrier Reef World Heritage Area (GBRWHA) including both nearshore and offshore areas.

Regional Study Area defined as:

- Wet Tropics region of the Great Barrier Reef World Heritage Area, extending north of Cairns to the Bloomfield River and south to Halifax Bay (to the south of Lucinda).

The Study Area may vary dependent on the technical investigation being undertaken. The study area for each technical discipline is defined in methodology section of the relevant Chapter.

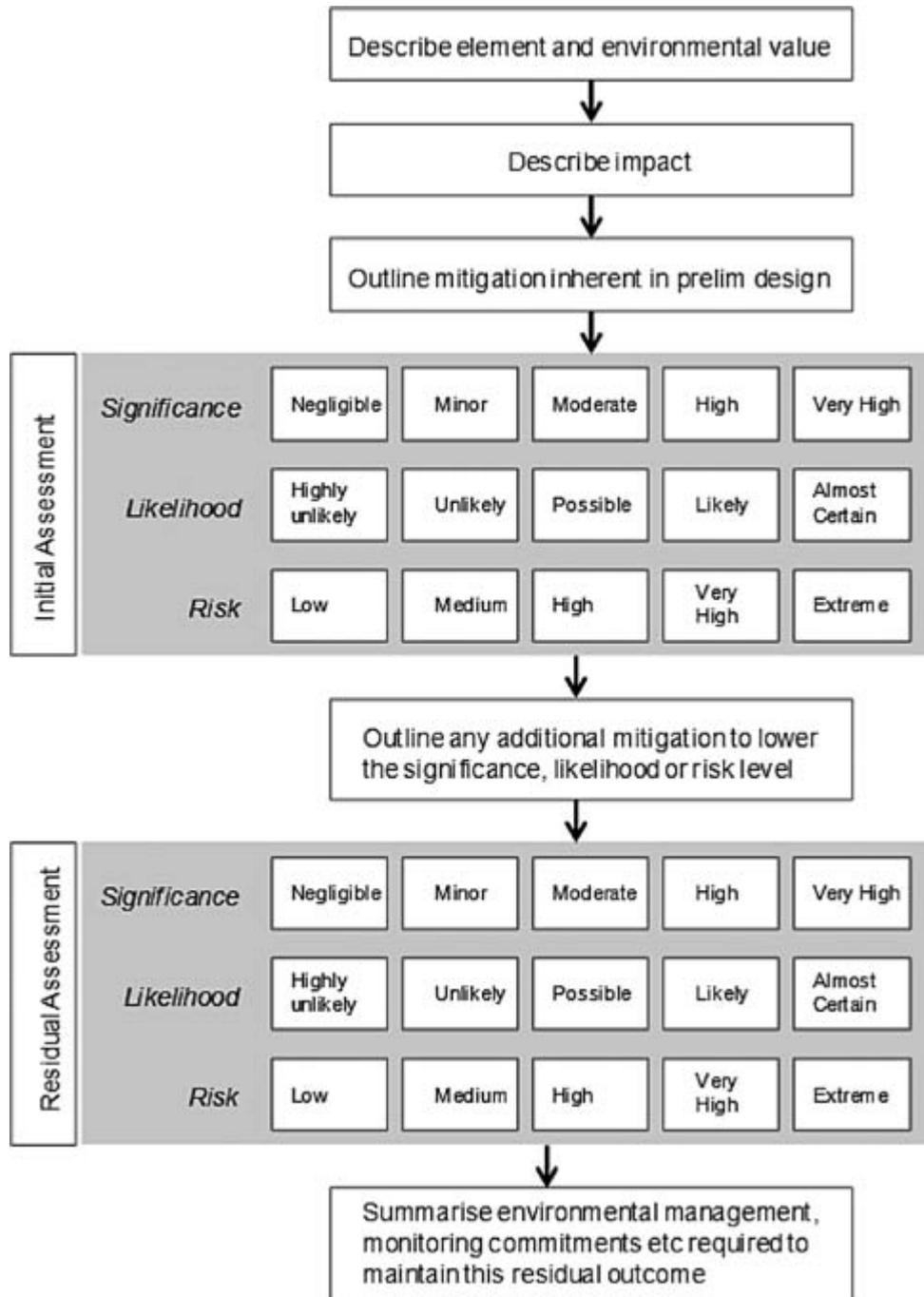
A1.12.2 Structure of the EIS

The EIS requires the identification and assessment of environmental impacts across a range of environmental and socio-economic disciplines. It is structured in five main components:

- Executive Summary
- Part A – Introduction and Project Description
- Part B - Technical Assessments
- Part C – Management Plans
- Part D – East Trinity Environmental Factors.

In order to provide consistency, the following approach to assessing impacts (**Part B, Technical Chapters**) has been used, and is illustrated in **Figure A1.12.2a. Part D, East Trinity Environmental Factors** of the EIS provides a detailed gap analysis on what further information and studies would be required to undertake a full environmental impact assessment for the placement of material at East Trinity. In order to identify information gaps, potential impacts are briefly described, but not quantified or explored in detail.

Figure A1.12.2a EIS Methodology



A1.12.3 Technical Assessments

Each technical assessment (**Part B, Technical Chapters** of the EIS) contains the following:

- Description of relevant legislation and policy
- Description of the methodology used to undertake the technical assessment
- Description of the existing conditions that may be impacted by the Project
- Description of the potential adverse and beneficial impacts of the Project on the existing conditions, taking into account any inherent design features
- Discussion of viable strategies for managing, mitigating or enhancing identified impacts
- Description of any residual impact once mitigation measures have been applied.

A1.12.4 Approach to Assessing Impact Significance

Part B of this EIS adopts a risk-based approach to assessing the significance of identified impacts, which considers the geographical extent, duration of the impact, sensitivity of the receiving environment to the impact and the likelihood of it occurring.

To assist in defining impact significance, each technical assessment (**Part B, Technical Chapters** of the EIS) has utilised the assessment tables below to enable a consistent approach across Chapters to defining impacts and the risk level for comparative purposes. At the end of each technical Chapter, a summary table of impacts and mitigation measures is included.

Consideration of the methodologies and risk matrixes used in other published EISs or by State Agencies was undertaken when determining the approach this EIS would utilise in assessing impact significance. The approach adopted by this EIS is consistent with a number of previously published EISs and with other methodologies used for assessing marine and land-based impacts.

Each technical assessment in **Part B, Technical Chapters** has utilised the significance table as shown in **Table A1.12.4a** below.

Table A1.12.4a Significance Criteria

Impact Significance/ Consequence	Description of Significance
Very High	<p>The impact is considered critical to the decision-making process.</p> <p>Impacts tend to be permanent or irreversible or otherwise long term and can occur over large scale areas.</p> <p>Very high sensitivity of environmental receptors to impact (e.g. national significance – i.e. loss or removal of a population of an EPBC listing status).</p>
High	<p>The impact is considered likely to be important to decision-making.</p> <p>Impacts tend to be permanent or irreversible or otherwise long to medium term. Impacts can occur over large or medium scale areas.</p> <p>High to moderate sensitivity of environmental receptors to impact (e.g. fragmentation or partial loss of populations of EPBC listed threatened flora)</p>
Moderate	<p>The effects of the impact are relevant to decision-making including the development of environmental mitigation measures</p> <p>Impacts can range from long term to short term in duration</p> <p>Impacts can occur over medium scale areas or otherwise represents a significant impact at the local scale</p> <p>Moderate sensitivity of environmental receptors to impact (e.g. removal or significant reduction in the extent of suitable habitat assessed as ‘high suitability’ for EPBC listed threatened flora across the site).</p>
Minor	<p>Impacts are recognisable/detectable but acceptable.</p> <p>These impacts are unlikely to be of importance in the decision making process. Nevertheless, they are relevant in the consideration of standard mitigation measures.</p> <p>Impacts tend to be short term or temporary and/or occur at local scale. (e.g. a reduction in the extent of suitable habitat assessed as ‘high suitability’ for EPBC listed threatened flora across the site, however replacement habitat will be provided.</p>
Negligible	<p>Minimal change to the existing situation. This could include for example impacts which are beneath levels of detection, impacts that are within the normal bounds of variation or impacts that are within the margin of forecasting error.</p>
Positive	<p>Impacts have a positive outcome on the existing situation. This could include for example, an improvement in vegetation management or an improvement in air quality as a result of the Project.</p>

Below, **Table A1.12.4b** outlines the general approach to classifying the duration of identified impacts.

Table A1.12.4b: Classifications of the duration of identified impacts

Relative Duration of Impacts	
Temporary	Days to Months
Short Term	Up to one year
Medium Term	From one to five Years
Long Term	From five to 50 Years
Permanent / Irreversible	In Excess of 50 Years

Table A1.12.4c outlines how the likelihood of an impact occurring has been assessed.

Table A1.12.4c: Likelihood of Impact

Likelihood of Impacts	Risk Probability Categories
Highly Unlikely	Highly unlikely to occur but theoretically possible
Unlikely	May occur during construction of the Project but probability well below 50%; unlikely, but not negligible
Possible	Less likely than not but still appreciable; probability of about 50%
Likely	Likely to occur during construction or during a 12 month timeframe; probability greater than 50%
Almost Certain	Very likely to occur as a result of the proposed Project construction and/or operations; could occur multiple times during relevant impacting period

A risk rating has been generated for the key impacts to environmental values and is summarised at the end of each technical Chapter in **Part B, Technical Chapters**. This has been done by assessing significance versus likelihood within a risk matrix with up to six levels of risk (Negligible, Low, Medium, High, Very High or Extreme) possible. In developing a risk rating for impacts, the matrix in **Table A1.12.4d** has been used.

Table A1.12.4d: 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 A1.12.4e 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

A1.12.5 Management Plans

Part C, Management Plans, of the EIS provides a series of Management Plans addressing construction and operational Environmental Management, Dredging Management, Vessel Traffic and Maritime Operations Management.

A1.12.6 East Trinity Environmental Factors

Part D, East Trinity Environmental Factors of this EIS provides review of environmental factors relating to land based placement of dredge material on East Trinity.

A1.13 Study Team

This EIS has been prepared on behalf of Ports North by Arup Pty as the lead EIS consultant. Arup has been supported by BMT WBM as the technical lead with specific responsibility for the marine based assessments.

Other sub-consultants and professionals were engaged to provide technical advice during the preparation of this EIS or author specific chapters or reports included in the EIS. The study team members are listed in **Appendix F**.

A1.14 Submissions

The Draft EIS is to be made available for public comment in accordance with Section 103 (1) (c) of the *EPBC Act* and Section 33 of the *SDPWO Act*.

The EIS can be viewed online at: <http://www.portsnorth.com.au/>. Hard copies are also available at Queensland State Library (South Brisbane) and Cairns City Library (Abbott St).

Written submissions on the draft EIS may be made to either the Secretary of Department of the Environment or the Queensland Co-ordinator General (or both) at the following addresses:

The Secretary

Department of the Environment
GPO Box 787
Canberra ACT 2601

Email submissions can be made to: epbc.referrals@environment.gov.au

The Coordinator-General

C/- EIS project manager – Cairns Shipping Development Project
Coordinated Project Delivery
Office of the Coordinator-General
PO Box 15517
City East Qld 4002 Australia
Fax: +61 7 3452 7486

Email submissions can be made to: CairnsSDP@coordinatorgeneral.qld.gov.au

For submissions made to the Queensland Co-ordinator General, a properly made submission must:

- Be made to the Co-ordinator General in writing
- Be received on or before the last day of the submission period
- Be signed by each person who made the submission
- Provide the name and address of each person who has made the submission.

Submissions must be made by: Monday, 9th February 2015

Submissions received during the submission period will be collated by the Commonwealth and Queensland Governments and provided to the proponent, Ports North. Where additional information is required to address the submissions, responses will be issued by Ports North, in the form of a Supplementary EIS.

A1.15 Sustainability

Australia's *National Strategy for Ecologically Sustainable Development (1992)* defines ecologically sustainable development as: 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.

The Strategy sets out the following Core Objectives and Guiding Principles:

Core Objectives:

- To enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations
- To provide for equity within and between generations
- To protect biological diversity and maintain essential ecological processes and life-support systems.

Guiding Principles:

- Decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations
- Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- The global dimension of environmental impacts of actions and policies should be recognised and considered
- The need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised
- The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised
- Cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms
- Decisions and actions should provide for broad community involvement on issues which affect them.

By undertaking this EIS, the proponent is providing an assessment of economic, environmental and social considerations to enable an informed and balanced decision on the future of the Project by approval authorities. A sustainable future for the Cairns region and its natural resources is the primary goal of this project, and an assessment of how the project contributes to this goal has been integrated into various sections of the EIS which include:

- The economic costs and benefits for the Cairns region (**Chapter B9, Socio Economic**)
- The social impacts upon Cairns residents, businesses and visitors (**Chapter B9, Socio Economic**)
- The potential impacts to the ecological values and processes of Trinity Inlet and Bay (**Chapter B7, Marine Ecology**)
- Other potential environmental impacts including energy and greenhouse gases (**Chapter B16, Climate Change and GHGs**), waste (**Chapter B15, Waste Management**) air and noise (**Chapters B10, Noise and Vibration** and **Chapter B11, Air Quality**) and water (**Chapter B6, Water Resources**).

