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Economic Impact Assessment: Townsville Ocean Terminal Project

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>> EXECUTIVE SUMMARY

This Executive Summary presents key findings in response to each of the relevant Terms of Reference as outlined in Section 4.15 of the Terms of Reference Document. The findings are often presented as conclusions without reference to detailed evidence. The detail is found in the body of the report.

TOR SECTION 4.15.1 DESCRIPTION OF ENVIRONMENTAL VALUES

TOR: Current local and regional economic trends

- The Townsville regional economy has exhibited sustained growth for the past decade. The economy is diverse and is expected to continue its solid performance into the future.

TOR: Historical description of large-scale developments and their effects on the region

- Over the past decade the Townsville region has experienced a number of significant projects including the development of the zinc refinery and other minerals processing facilities. As well, the city has experienced significant growth in construction-industry activity with numerous residential and commercial developments taking place or in the planning process.
- At the same time, the Strand redevelopment has delivered sustained economic and social benefits to the City and the region. It has been able to assist in the growth in regional tourism and improved city liveability for residents across the Twin Cities.
- As a result of these projects, the region and city's economy have sustained strong economic growth and employment growth, fuelling above-average levels of population growth.

TOR: Economic requirements and identified needs analysis for the various aspects of the project

- Like all construction projects, the TOT project requires access to a range of factor inputs from labour and resource/materials markets. The present study concludes that the regional labour market is tight in terms of supply and demand. Recent growth in employment in construction-related areas points to the attractiveness of the city to skilled workers, and it is likely that the workforce required by the project will be drawn from a combination of locally supplied labour and migrant labour.

TOR: Existing cruise shipping, super yacht, marina, housing and property market at the local, regional and State level

- There is limited dedicated cruise shipping infrastructure in Queensland. This is particularly in Townsville. There is an acknowledged need for such infrastructure to be developed in various areas of Queensland including Townsville so as to position the State to capture the potential that is inherent in the growth of the international cruising industry.
- The superyacht sector has experienced rapid growth (from a small base) over the past 5 years, with significant activity evident in Darwin, Cairns and the Whitsundays. Additional superyacht facilities are in need, in light of the ongoing growth of the sector.
- There is a significant undersupply of general marina facilities in Queensland. Available data indicates that there are at least 2,000 persons on waiting lists (as

of 2004-05) for marina berths in Queensland. We anticipate that this waiting list has increased since that time. Additional marina facilities along the Queensland coast would go a long way towards meeting this need. Facilities being proposed or currently being developed in North and Far North Queensland are a clear response to this market shortage.

- Queensland as a whole and the Townsville region specifically, has been experiencing rapid population growth. This has placed considerable pressure on urban infrastructure and services including housing. In the Townsville region, while the housing market reflects general tight conditions (between supply and demand) via increased prices for housing, the situation in the city is less dire than other areas of Queensland where there is a demonstrable affordability 'crisis' (e.g. Mackay). However, as in all local markets where there are tight supply conditions, the development of additional housing stock would assist in meeting future demand.

TOR: Details of economic activities within the area surrounding the Project site including the current and future activity of the Port of Townsville, commercial uses of other marine infrastructure, tourism and recreational businesses

- The Port of Townsville is located south of the project site, separated by Ross Creek. Adjacent to the project site is the Townsville Casino and Entertainment Complex and future residential development land.

TOR SECTION 4.15.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

TOR: Existing rental accommodation that may be available for project workforce

- The Townsville regional residential rental market is tight, with vacancy rates of less than 1%. Any additional workforce would contribute to anticipated demand for rental accommodation.

TOR: Details of current and future activities of the Port of Townsville, commercial uses of other maritime infrastructure, tourism and recreational businesses

- This report has considered known proposals for future expansion of the Port and the potential impacts of the TOT on such expansion plans. Core concerns amongst Port users relate to what are described as political risks associated with residential/community complaints about Port and/or Port User activities; that is, changes to the legislative or regulatory environment in direct response to increased complaint activity from residents.
- Based on an assessment of available evidence on community or residential complaints about Port or Port User activities, together with a spatial assessment of the proximity of the TOT residential elements and future Port growth, our conclusion is that while complaints from residents are to be expected into the future along similar volumes to recent experience, all other things remaining equal, we do not believe that the likelihood of regulatory changes occasioned by residential complaints in the foreseeable future is high.

TOR: Impacts on existing businesses, commercial premises and the property market during construction and post-construction

- The project will give rise to substantial direct and indirect (flow-on) economic impacts cutting across a broad range of economic sectors in the region. Businesses operating in these sectors will face opportunities to capture some of this activity.

TOR: Opportunities for future businesses, commercial premises and the property market

- The downstream economic impacts of the TOT project will generate demand for a range of products and services from various industries (the details are in the Input-Output tables). The opportunity for future businesses lies in responding to this demand. More broadly the project could have catalytic long-term effects on investment and growth in the city's ocean-based tourism sector e.g. mini-cruisers etc. similar to the sector that emerged in the Whitsundays.
- The project in and of itself offers little new commercial space. However, should downstream economic impacts drive local business growth, demand for commercial premises may increase.
- Similarly, the release of additional ocean-front land for residential development will create significant opportunities for the local development and construction sector.

TOR: The direct and flow-on economic impact of the construction and operational stages of the project

- The table summarises the estimated economic impacts of the project for 2008 and 2009.

TOT Construction Impacts 2008-09	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	209,349,980	87,452,184	74,272,443	371,074,601
Value added ($)	96,701,528	38,364,115	39,808,281	174,873,922
Labour income ($)	62,803,244	20,896,586	17,341,939	101,041,770
Employment*	1,048	446	419	1,913

* Number of jobs (full-time equivalent)

- The Ocean Terminal facility will contribute an important piece of tourism economic infrastructure, which will assist in attracting increased visitations by passenger and naval vessels to Townsville. It is also conceivable that such a facility could catalyse the diversification and deepening of the marine-oriented tourism sector in Townsville similar to the development of the cruising tourism product in places such as Airlie Beach (the Whitsundays). The net annual economic impacts of increased cruise tourism (medium scenario) are as follows:

Cruise Tourism Annual Impacts	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	3,970,496	1,768,161	1,282,741	7,021,398
Value added ($)	1,913,512	803,247	687,519	3,404,279
Labour income ($)	1,039,337	406,222	299,508	1,745,068
Employment*	23.4	8.2	7	38.6

* Number of jobs (full-time equivalent)

- While the construction of the residential elements of Breakwater Cove is not strictly part of the City Pacific Limited investment, we have undertaken an analysis of its economic impacts. The total economic impacts of the construction of residential dwellings on Breakwater Cove (200 detached and 500 units) is as follows:

Breakwater Cove Residential Dwelling Construction	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	168,405,024	76,069,222	38,554,502	283,028,750
Value added ($)	68,575,680	32,576,710	20,664,307	121,816,703
Labour income ($)	25,348,500	18,099,729	9,002,126	52,450,356
Employment*	772.9	370.3	208.9	1,352.10

* Number of jobs (full-time equivalent)

TOR: The potential for direct equity investment in the project by local businesses or communities

- Those seeking to invest in the project can do so indirectly via investing in City Pacific Limited, a public company. Alternatively when development sites become available members of the community will be able to purchase them.

TOR: The cost to government of additional infrastructure

- It is not anticipated that there will be costs to government for additional infrastructure.

TOR: Implications for future development in the locality

- A number of concepts have been floated about future developments in and around the Port-CBD interface, particularly Flinders St East and Palmer Street precinct. The TOT development may act as a catalyst for some of these developments, particularly if a physical connection is established between the TOT/Casino/Entertainment Centre precinct and the south bank.

TOR: The distribution effects of the project to mitigate any negative impact on disadvantaged groups

- This issue is addressed in the Social Impact Assessment.

TOR: Impacts on the local property values

- A broad range of factors impact on local property values. It is possible that the provision of improved amenity for nearby residents will go towards improving property values within the nearby suburbs. However, the release of additional residential product into the market may also exert some downward pressure on price growth, by altering the demand-supply conditions of the local residential market.

TOR: The value of lost opportunities or gained opportunities for other economic activities anticipated in the future

- The net gains to the regional economy are in the order of $2-4.7m of annual value added impact and 23 to 53 full-time equivalent jobs as a result of increased cruise ship visitation to the region. The value added impact represents approximately 0.2-0.46% of annual GRP (2006).

TOR: Potential impacts on future regional development resulting from the proposed use of significant quantities of quarry materials

- Consultation with industry stakeholders have indicated that there are no foreseen adverse impacts on future regional development resulting from the proposed use of significant quantities of quarry material.

TOR: Compatibility with Port

- The assessment concludes that there should be a continuing expectation of complaints from the community about the Port and port user activities, but that it is unlikely that such complaints will substantially change in volume from present levels or as a direct result of the proposed TOT project.
- Amenity and reverse amenity issues related to the proximate location of residential and industrial port uses were also considered. While there is a notional conflict, evidence from local residents' experiences indicates that they are willing to trade-off the dis-amenities against the amenity of proximity to CBD, the Strand and the ocean. Previous port protection instruments utilised to manage the relationship between the Port and nearby residents, to provide the Port and its users with enhanced certainty, are likely to be effective instruments for the TOT development.
- Further, the Port enjoys significant levels of goodwill from the vast majority of the residential population in Townsville and therefore, the political risk of complaint-induced regulatory or legislative change is under present circumstances unlikely.

>> TERMS OF REFERENCE

The Terms of Reference and the relevant sections of this report that addresses each element, is detailed below.

Terms of Reference	Report Sections
Current local and regional economic trends	4
Historical description of large-scale developments and their effects on the region	4.11
Economic requirements and identified needs analysis for the various aspects of the project	2 (2.7), 4.8, 4.9, 5 and 7
Existing cruise shipping, super yacht, marina, housing and property market at the local, regional and State level	4.7, 4.8, 4.9 and 4.10
Details of economic activities within the area surrounding the Project site including the current and future activity of the Port of Townsville, commercial uses of other marine infrastructure, tourism and recreational businesses	2.2, 4.7
Existing rental accommodation that may be available for project workforce	4.9.3
Details of current and future activities of the Port of Townsville, commercial uses of other maritime infrastructure, tourism and recreational businesses	4.7, 9
Impacts on existing businesses, commercial premises and the property market during construction and post-construction	8
Opportunities for future businesses, commercial premises and the property market	6, 8 and 10
Impact for vehicle and cyclist users in journey time savings, particularly in relation to the proposed Ross River Bridge connection	NA*
The direct and flow-on economic impact of the construction and operational stages of the project	8
The potential for direct equity investment in the project by local businesses or communities	2.3
The cost to government of additional infrastructure	2.8,10
Implications for future development in the locality	10
The distribution effects of the project to mitigate any negative impact on disadvantaged groups	NA**
Impacts on the local property values	8.6
The value of lost opportunities or gained opportunities for other economic activities anticipated in the future	8, 9 and 10
Potential impacts on future regional development resulting from the proposed use of significant quantities of quarry materials	8.7
Compatibility with Port	10

*Addressed in separate traffic report

**Addressed in separate social impact assessment report

>> CONTENTS

1 OVERVIEW TO THE ECONOMIC IMPACT ASSESSMENT STUDY

1.1 INTRODUCTION

This is a **draft** Economic Impact Assessment (EIA) Report concerning the economic impacts of the proposed Townsville Ocean Terminal (TOT) development.

1.2 TERMS OF REFERENCE

As the TOT has been deemed a project of State Significance under the *State Development and Public Works Organisation Act (1971)*, the terms of references (TOR) for the EIA were drawn up by the Queensland State Government's Department of Infrastructure (2006) with required levels of community input. Broadly the TOR requires an economic analysis, including a cost-benefit analysis, for the TOT in terms of its impacts from state, regional and local perspectives.

The TOR explicitly identified that the following issues be addressed:

- Current local and regional economic trends;
- Historical description of large-scale developments and their effects on the region;
- Economic requirements and identified needs analysis for the various aspects of the project;
- Existing cruise shipping, super yacht, marina, housing and property market at the local, regional and State level;
- Existing rental accommodation that may be available for project workforce;
- Details of current and future activities of the Port of Townsville, commercial uses of other maritime infrastructure, tourism and recreational businesses;
- Impacts on existing businesses, commercial premises and the property market during construction and post-construction;
- Opportunities for future businesses, commercial premises and the property market;
- Impact for vehicle and cyclist users in journey time savings, particularly in relation to the proposed Ross River Bridge connection;
- The direct and flow-on economic impact of the construction and operational stages of the project;
- The potential for direct equity investment in the project by local businesses or communities;
- The cost to government of additional infrastructure;
- Implications for future development in the locality;
- The distribution effects of the project to mitigate any negative impact on disadvantaged groups;

- Impacts on the local property values;
- The value of lost opportunities or gained opportunities for other economic activities anticipated in the future; and
- Potential impacts on future regional development resulting from the proposed use of significant quantities of quarry materials.

The TOR also specifically required consideration of the potential compatibility of the TOT project with the Townsville Port.

1.3 REPORT STRUCTURE

The order of exposition is quite logical, and deviates from the order of the TOR in parts. In broad terms the report describes the proposed project, then proceeds to describe the current economic environment before moving onto consider the potential impacts. As such, the report is structured as follows:

- **Section 2** summarises the key elements of the proposed TOT project;
- **Section 3** scopes the broad approach to the impact assessment;
- **Section 4** presents detailed data and evidence on the current regional economic situation;
- **Section 5** reviews the literature and evidence on the cruise industry, globally and nationally;
- **Section 6** considers the potential opportunity associated with the national business events sector;
- **Section 7** introduces the Input-Output modelling approach used, and the various input assumptions that are used for the assessment;
- **Section 8** presents the output tables of the Input-Output analysis for each of the project stages. This section also presents detailed consideration of the project's impacts on the regional labour market, the local residential market, regional liveability and attractiveness and any potential catalytic (long term) impacts;
- **Section 9** undertakes an assessment of issues impacting on questions of compatibility of the proposed development – particularly the residential component – and the nearby Townsville Port;
- **Section 10** undertakes a Cost Benefit Analysis; and
- **Section 11** draws the entire document together in the form of a conclusion.

Appendix A provides detailed sector impact tables from the Input-Out analysis.

2 THE PROPOSED TOWNSVILLE OCEAN TERMINAL PROJECT

2.1 OVERVIEW OF THE PROJECT

The TOT project is being developed as a joint venture between TABCORP and City Pacific Limited. Contractual arrangements between these parties and the State were executed in June 2006. However, post approval the development will be entirely managed by City Pacific Limited.

The TOT project involves the development of the following:

- A dedicated *cruise terminal and wharf* located on the Port Western Breakwater, adjacent to the Port of Townsville, to attract cruise ships and military vessels to Townsville;
- An integrated *residential and tourism development* providing residential land parcels of mixed density for development;
- Extended *public access to the Breakwater*, with future open space areas to be reclaimed to the North of the existing Townsville Hotel and Casino Complex, and the Townsville Entertainment Centre; and
- Additional *marina berths for the marine industry*, general recreational vessels and berthing facilities for superyachts.

Image 1 shows the Master Plan for the proposed development.

IMAGE 1: MASTER PLAN

2.2 SITE LOCATION

The project is located in Townsville. Townsville is a city of approximately 164,000 persons located in North Queensland. It is approximately 1,200km from the State's capital of Brisbane. As the largest urban centre in North Queensland, Townsville effectively serves as the administrative hub for the region.

The project site is located on and adjacent to the existing Townsville foreshore. It incorporates the existing Port Western Breakwater and the Northern (offshore) Breakwater, the existing perimeter of the land around the Townsville Hotel and Casino Complex and the Townsville Entertainment Centre.

The project is specifically located to the north-east of Sir Leslie Thiess Drive and Entertainment Drive. Vehicular access for future residential areas will be from Entertainment Drive. The project site is in close proximity to the Strand foreshore, and is directly connected to the Strand precinct for pedestrian access.

To the south of the project site is the existing Townsville Port, separated by Ross Creek. Proximity to the Port and, therefore, impacts on current and future Port economic activities, is considered an important element of this study. This is depicted in Image 2.

IMAGE 2: MONTAGE VIEW TO SOUTH

On either side of Ross Creek are located a number of commercial operations that use maritime infrastructure, namely Suferries (located at Breakwater Terminal, Sir Leslie Thiess Drive) and Fantasea – operators of cruise tours.

2.3 PROJECT PROPONENTS

The project is being developed by City Pacific Limited.

City Pacific Limited is a diversified financial services company, providing finance and investment products.

City Pacific is one of Australia's largest non-bank loan providers. City Pacific Limited has $5 billion in mortgage assets under advice, comprising over $1 billion funds under management in the City Pacific Mortgage Trust, City Pacific Income Fund, City Pacific Managed Fund and City Pacific Private Fund, a residential loan book of $3 billion and commercial mortgage assets under management of approximately $1 billion. City Pacific originates nearly $3 billion per annum in loans to fund residential property, property development, commercial property investment, plant & equipment and business finance.

City Pacific Limited is an Australian based public company that listed on the Australian Stock Exchange in 2001 (ASX Code: CIY).

As a publicly listed company, members of the community that wish to gain equity in the proposed development are able to do so indirectly through the acquisition of shares in City Pacific Limited.

2.4 CRUISE TERMINAL AND WHARF DEVELOPMENT

The development of the cruise terminal and wharf precinct will involve the following key elements:

- Indentation of the Port Western Breakwater and the construction of a dedicated berth;
- Construction of the wharf and the terminal building;
- Land reclamation; and
- Associated road works, car parking and infrastructure services.

2.4.1 Dedicated Berth

The TOT berth will be designed for both military and cruise vessels. The project proponents (City Pacific Limited, 2006) indicated that the operation of the berth will be conducted to minimise disruptions/interruptions to the normal commercial port operations of the Townsville Port.

The berth will be able to accommodate vessels of a size up to the 'Wasp' class naval vessel (overall length = 258m, beam = 32.3m, deck beam = 42m, draft = 8.3m). This includes vessels such as the USS Boxer, Essex and Bonhomme Richard.

As well, the berth will be able to accommodate the State's 'Benchmark Cruise Ship' identified in the *Queensland Shipping Plan* (overall all length = 238m, beam = 33m) on a regular basis.

2.4.2 Wharf Infrastructure and Services

The proposed wharf structure will be 200m in length and 30m wide. The wharf will have the capacity for military tanks up to 65 tonnes and tank/truck trailer combinations up to 95 tonnes. The wharf will provide a range of services, including:

- Electricity;
- Potable water;
- Flood lighting; and
- Sewage and grey water storage and disposal.

2.4.3 Terminal Building

A two-storey terminal building with a gross floor area of 1,000m^2 will be constructed, and will provide space for the following:

- An area for Australian Quarantine Inspection Service (AQIS), Australian Customs Service (Customs) and Department of Immigration and Multicultural Affairs;
- A general arrivals and departure hall area; and
- Space for meeting, greeting and farewelling activities.

The building will also provide offices for operational staff and management, AQIS and

Customs. A small café, of approximately 20m^2, will be provided in the main hall area for visitors and friends. It is envisaged that the café may be licensed.

The future operation of this terminal facility will be undertaken by Townsville Port Authority.

2.4.4 Transport Access and Parking

Vehicle access to the TOT precinct will be via Entertainment Drive, which will be upgraded to a four-lane roadway. The road will cater for public, private and service vehicles. This roadway will also provide access to the precinct for *cyclists*.

Separate set-down areas will be provided for *buses* and *taxis*.

Pedestrian access will be strictly controlled. The precinct will be fully fenced and gated, which will control pedestrian access to the area on non-ship days or as required by the terminal operator. Relevant security arrangements as required by the type of vessel will govern pedestrian access during operational (ship) days.

The development will involve the provision of a range of carparking facilities, including:

- 10 onsite parking spaces for tour and shuttle buses;
- The bus parking area also will provide parking for up to 8 heavy trucks in the event of visitations by navy vessels;
- 100 onsite car-parks for visitors in a designated parking area;
- Reserved uncovered parking for 12 official vehicles; and
- 20 uncovered spaces for VIP and hire vehicles in close proximity to the TOT terminal.

2.5 BREAKWATER COVE PRECINCT

The Breakwater Cove development, to be undertaken on reclaimed land, will provide a residential waterfront community comprising of a mixture of dwelling types. It will include detached and attached dwellings, multiple dwellings and associated uses that relate to each other and service local residential requirements.

The key elements of the Breakwater Cove Precinct are as follows:

- Perimeter Breakwaters;
- Open space areas for public access;
- Approximately 200 detached dwelling sites on the 'fingers', each with access to a private marina berth;
- Approximately 500 residential apartments;
- A 460 berth marina for long-term lease (including 10 superyacht berths); and
- Approximately 1,500m^2 of retail and commercial space.

As well, the development concept includes the construction of a 500 space public car park to the rear of the Townsville Entertainment Centre. This car park effectively replaces public parking space lost as a result of the development of Surplus Casino Land associated with the adjacent residential development being undertaken by Resort Corp.

Image 3 shows an artist impression of the marina, looking north. Also depicted are the residential apartments around the eastern and southern perimeters of the marina.

IMAGE 3: ARTIST IMPRESSION OF MARINA

2.6 CONSTRUCTION TIMEFRAME

The construction of the TOT project as described is expected to take 3 years. This does not include the construction of the residential dwellings (apartments or detached).

The consultants understand that as these sites are ready, City Pacific Limited will sell them for development. We are not aware of any specific timeframes in relation to this procedure, and acknowledge that the timing of any residential construction activity will be conditional on the timing of the sale of available developable land, and prevailing market conditions.

2.7 DEMAND ON RAW MATERIALS

The construction of the TOT project will require significant inputs of labour and raw materials. Of particular concern under the TOR are impacts on the labour market (which are considered in details in the body of this report) and the local rock/sand supply sector.

In terms of rock and sand, the construction will over the 3 years require substantial volumes of such materials. Details of such are contained in the *Townsville Ocean Terminal Construction Methodology Report* (Hyder Consulting, August 2007a – refer to Section 5).

We understand that licensed quarries within the region have the capacity to supply this material.

2.8 INFRASTRUCTURE REQUIREMENTS

The infrastructure requirements of the TOT project have been reviewed by Hyder Consulting (August 2007b) in its report *Townsville Ocean Terminal Infrastructure Report*. A review of this report indicates that there are no anticipated costs to the State associated with project-related infrastructure.

3 SCOPING ECONOMIC IMPACTS AND APPROACH

3.1 PROJECT ELEMENTS

To identify potential impacts, the TOT project has been broken down into a number of component elements. The different elements are derived principally from the construction methodology and approach, as well as the associated timing of each construction and subsequent operational stages. The main elements analysed are:

1. Construction of the Cruise Terminal and Wharf;
2. Construction of the Breakwater Cover precinct (including marina facilities). Note that this element does not include the construction of residential dwellings (detached or apartments);
3. Cruise ship visitation to Townsville (i.e., cruise tourism); and
4. Construction of the residential dwellings.

As noted earlier the construction of the residential dwellings is not proposed by City Pacific Limited as part of this project. The construction of detached dwellings will be undertaken by individual landowners; and construction of apartments will ultimately be undertaken by a relevant developer or developers at a future date. However, for completeness, the impacts of dwelling construction have been considered in the Input-Output analysis (see Sections 3.2 and 7.0 below).

3.2 IMPACTS ASSESSED

The economic impacts of projects such as the proposed TOT are both short- and longer-term in nature. Short-term impacts involve the flow on economic activities and implications that such projects give rise to during their construction. As well, there are direct operational impacts once the project is complete and 'up and running'.

To evaluate these short term impacts, Input-Output analysis has been undertaken. In addition to the impacts assessed via Input-Output analysis, consideration has also been given to potential impacts of the project on:

- The regional labour market;
- The regional property market;
- The distributional impacts on different industries and associated opportunities for local businesses; and
- The operations of the Port.

There are also potential longer term impacts; however these are considerably more difficult to scope and quantify. For example, the development of the TOT is likely to contribute further to the evolving nature of the city and its economy, and positively impact on Townsville's overall competitiveness as a city.

The development of a high quality residential precinct associated with the Ocean Terminal facility is likely to provide high standards of amenity for residents. While this in and of itself warrants merit for the proposed development, the capacity of the project to improve

broader citywide amenity has flow-on benefits for the city's competitiveness for attracting skilled people and investment to the region.

An extensive literature now exists substantiating the link between a city's competitiveness and its ability to offer a high amenity urban lifestyle (Florida, 2005).

As well, the development may act as a catalyst to a range of new investments in the region's tourism infrastructure. For example, feedback from industry stakeholders indicated that the site offers an ideal opportunity for the development of a purpose-built conventions facility to support expansion of the business events market in Townsville. Evidence indicates that Townsville has not captured as much of this market potential as could be the case, and one factor that is cited as a reason for this is the lack of a purpose built facility.

Further, other tourism industry players in Townsville indicated that the development could catalyse investment in diversifying the region's ocean-based tourism product offer. The example of Airlie Beach reef experience 'products' and support infrastructure such as mini-cruisers etc. was cited as a potential direction for Townsville should the berthing facilities be created.

Thus, there are some possible long-ranging implications of the project from an industry diversification point of view. However, the present study has not considered these as it was beyond the specific scope of the exercise. Suffice it to note that the flow-on economic implications over the long run in terms of industry growth and diversification (particularly in the region's tourism sector) could be significant.

3.3 OVERVIEW OF APPROACH

Typical examinations of economic impacts of development projects use forecasting tools such as Input-Output models. Notwithstanding their limitations (discussed at Section 7.0 below), the present study has used a Regional Input-Output model to estimate the potential impacts of the various elements of the integrated TOT project.

In evaluating potential impacts on the labour market and property market, the consultants have reviewed available statistical and market data and evidence, and have undertaken an analysis of potential impacts on the basis of available empirical data.

Finally, the consultants have given consideration to the extent to which the proposed project meets evident needs in the market. In particular the needs evaluations were undertaken for the proposed cruise ship facilities, marina facilities, superyacht berthing facilities and the residential component of the project.

3.4 DATA REQUIREMENTS

In estimating the economic impacts of the various elements of the TOT project, a range of data was required.

The impact identification and data collection process consisted of a combination of desk and field research and a consultation process with industry stakeholders regarding the economic impact of the TOT redevelopment, with particular regard to the construction and tourism services industries (i.e., accommodation, cafés and restaurants, retail trade, and cultural and recreational services).

Key data sources included official government statistics including:

- Australian Bureau of Statistics (various sources);
- Tourism Queensland (RTAM);
- Townsville City Council; and
- Previous related studies.

Additionally, discussions were held with a number of key regional stakeholders, to seek validation of hypotheses and assumptions.

3.4.1 Economic Data Considerations

It is important to understand that in quantifying any economic impacts of project developments such as the TOT development, care must be taken in determining those economic impacts attributable to the development and not to other factors or variables (e.g. housing booms, changes consumer preference for café dining etc.).

For example, in terms of impacts on the residential property market, it must be noted that the Breakwater Cove precinct is located within what can be broadly described as the Strand precinct. The redevelopment of the Strand in 1999 has been credited with boosting building activity within the local area including construction of new units, multiple dwellings, shopping centres commercial premises and refurbishment of existing sites.

Significant increases in property values have been experienced in suburbs adjacent to the new Strand (i.e. North Ward, Belgian Gardens, Yarrawonga and Melton Hill) since its redevelopment. These suburbs, however, have long been considered the most desirable in the Townsville LGA. Whether any future property value improvements in these areas can be ascribed to the flow-on impacts of the Breakwater Cove precinct development must, in this historical context, be addressed with due care and prudence.

4 THE CURRENT REGIONAL ECONOMIC SITUATION

This section describes the existing regional economic situation. The purpose of this description is to provide a basis to understand the conditions impacting on the region's economic performance and trajectory, from which the effects of the TOT project can be anticipated.

In doing so, this section is not intended to be a comprehensive state of the environment report. Rather, its focus is on key economic and social indicators that are relevant to the present study and scope of impacts under consideration.

4.1 THE REGION

The TOT is located in Townsville, the urban heart of the Northern Statistical Division (SD). The Northern SD consists of 6 local government areas, namely:

- Hinchinbrook (S);
- Thuringowa (C);
- Townsville (C);
- Charters Towers (C);
- Burdekin (S); and
- Dalrymple (S).

The Northern SD has a total area of 80,059.2km^2, or 4.6% of the total area of the state.

The local government areas of Townsville City and Thuringowa City form the Townsville-Thuringowa region, which consists of a total land area of approximately 3, 715km^2. The region is bounded by the Coral Sea to the east and by the Shires of Burdekin, Dalrymple and Hinchinbrook to the south, west and north respectively (Townsville-Thuringowa Strategy Plan, 2000).

The Townsville-Thuringowa urban area is the largest in the State outside South East Queensland. It is the primary service centre for a vast catchment that extends along the coast between the Whitsunday Island group in the south to Cardwell in the north, and as far west as the Northern Territory border (Townsville-Thuringowa Strategy Plan, 2000).

4.2 POPULATION

4.2.1 Current

The Northern SD's estimated resident population at 30 June 2006 was 210,943 persons, or 5.2% of the total Queensland population of 4,053,444 persons (OESR, 2007).

It is a rapidly growing region. Between June 2005 and June 2006 the population of the Northern SD increased by 4,654 persons. This represents 6.1% of the State's population growth over this period. The region recorded a population growth rate of 2.3% between June 2005 and June 2006 (compared to 1.9% for Queensland) (OESR, 2007).

The largest increase in population within the region occurred in Townsville City, increasing by 2,301 persons in the year to June 2006. This represented 49.4% of all growth in the Northern SD. The fastest growing local government area between June 2005 and June 2006 was Thuringowa City (3.8%), followed by Townsville City (2.3%) and Burdekin Shire (0.6%) (OESR, 2007).

The urban centre or locality in the Northern SD with the largest population at 30 June 2006 was Townsville-Thuringowa, with a population of 133,762 persons, followed by Charters Towers (8,847 persons) and Ayr (8,658 persons) (OESR, 2006). Population figures released by the Australian Bureau of Statistics (ABS) report Townsville City and Thuringowa City's population at 95,464 and 59,164 persons, respectively, for 2006 (ABS, 2007).

4.2.2 Forecast

OESR population projections for the Northern SD, based on 2001 Census figures of 190,266 persons (5.2% of QLD), forecast the population to increase to 264,834 persons by the year 2026. Due to the projected average annual growth rate between 2001 and 2026 in the region (1.3%) being lower than that for Queensland (1.7%), the region's share of Queensland's population is expected to decrease to 4.7% by 2026 (OESR, 2006).

Townsville City is expected to remain the most populous local government area in the Northern SD, with a projected population of 126,908 persons by 2026. Townsville City's share of the region's population is expected to decline slightly from 48.4% in 2001 to 47.9% in 2026. Thuringowa City (93,228 persons by 2026) and Burdekin Shire (18,096 persons by 2026) are projected to be the second and third most populous local government areas within the region (OESR, 2006).

Thuringowa City is projected to record the highest average annual rate of growth in Northern SD between 2001 and 2026 (2.3%), followed by Townsville City (1.3%), and Hinchinbrook Shire (0.1%) (OESR, 2006).

4.3 REGIONAL ECONOMY

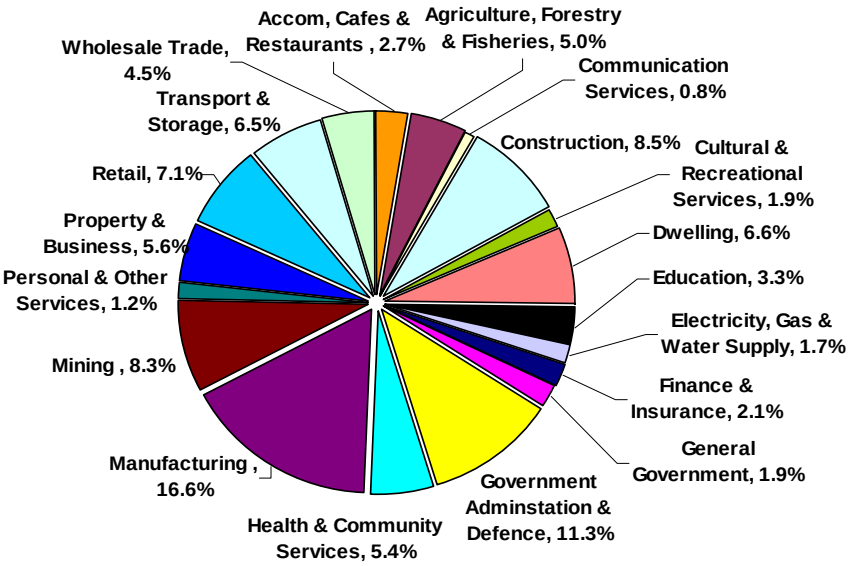
The regional economy is diverse and has exhibited strong growth in the recent past. This is expected to continue into the foreseeable future.

4.3.1 Industry Structure

The economic region of Townsville-Thuringowa also comprises the Shires of Cardwell, Hinchinbrook, Burdekin and Dalrymple, and the city of Charters Towers. Cardwell, Hinchinbrook and the Burdekin are primarily sugar cane producers; Dalrymple and outer Thuringowa are grazing and beef processing regions; Charters Towers is a mining district, also renowned for its high quality boarding schools; and Townsville and Thuringowa collectively form the primary administrative and industrial centre of North Queensland (State Development, 2006).

The Gross Regional Product (GRP) for the Townsville region increased 12% from 2004 to 2005 to $10.2 Billion. This represents 7.2% of Queensland's Gross State Product (GSP). Manufacturing (in particular minerals processing) has contributed 16.6% of GRP. Other major contributors to the GRP are Government Administration and Defence (11.3%) and Construction (8.5%) (Townsville Enterprise Limited, 2005).

FIGURE 1: GROSS REGIONAL PRODUCT, NORTHERN SD 2004-05



Source: Townville Enterprise Limited

4.3.2 Tourism

Tourism is an important but often understated contributor to the region and city's economy. In part, it is overshadowed by more traditional comparative advantages in manufacturing and resources and also by the fact that there are world recognised tourism destinations to the north and south of Townsville, namely Cairns and the Whitsundays respectively.

According to Tourism Queensland (December 2006):

- In the 12 months to December 2006 the Townsville region hosted 1.2m visitors;
    - Of these, 1.07m (or 89%) were domestic visitors and 11% were international visitors;
- A total of 5.39m visitor nights were spent in the Townsville region; and
- Domestic visitors spent an estimated $456m in the Townsville region for the 12 months and international visitors spent an estimated $69m over the same period (total $525m).

The visitation rates for 2006 reflected a 29.5% increase in the previous year.

On average, each domestic visitor spent 3.8 nights in the Townsville region. Holiday and VFR (Visiting Friends and Relatives) visitors stayed longer on average than business visitors (3.8 and 4.3 nights respectively versus 2.7 nights for business visitors). In terms of recent trends, this represents an increase in nights stayed for holiday visitors and no change for VFR visitors.

Between 1998 and 1999 tourism contributed 5.1% (or $290m) of GRP in the Northern region. This was lower than the Queensland average of 6.4% over the same period. In terms of employment, Tourism Queensland reports that 7.2% of all employment (or 5,900 full-time equivalent positions) in the Northern region over the 1998 and 1999 period was related to tourism.

Revenue from tourist accommodation in the region in the 12 months to June 2006 totalled $59.3 million, accounting for 3.4% of the State's takings from accommodation in this period. Takings were highest in Townsville City ($54.2 million), followed by Hinchinbrook Shire ($2.1 million) and Charters Towers City ($0 million) (OESR, 2006).

4.4 MAJOR PROJECTS

The TOR specifically sought background information on Townsville's experience with major projects. Over the past decade there have been a number of major industrial and construction-related projects, which have injected significant investments into the region and created new infrastructure with major flow-on economic and social benefits.

4.4.1 Resources Sector

Sun Metals Zinc Refinery is an example of a major value-adding, export-oriented product that has brought significant economic and employment benefits to the region and the nation. The refinery was built by Sun Metals Corporation Pty Ltd, the Australian subsidiary of Korea Zinc Company Limited that produces 10% of the world's zinc from plants in Korea, the USA and Australia.

The project cost around US$425 million to construct. It was completed on schedule and to budget, and according to company records "*is indicative of meticulous pre-planning and the excellent working relationships that developed between the company, its suppliers and contractors*."(Sun Metals Corporation, 2006)

IMAGE 4: SUN METALS REFINERY, TOWNSVILLE

Source: Sun Metals Corporation

The refinery consumes over 400,000 tonnes of zinc concentrates each year, sourced from North West Queensland and other zinc mining areas in Australia and overseas. These concentrates are converted into approximately 200,000 tonnes of value-added zinc metal, mainly for export, which is considerably higher than the plant's nominal production capacity of 170,000 tonnes of zinc. An important by-product is more than 360,000 tonnes of sulphuric acid which is mainly used in Queensland to produce high quality agricultural fertilisers.

The refinery generates more than $330 million in annual sales of which approximately 80 per cent is export income.

Sun Metals Zinc Refinery directly employs more than 300 staff. About 20 per cent of the employees are trainees undertaking certificate courses.

In addition to those employed directly, more than 1,500 additional jobs have been created in Queensland to service the refinery in areas ranging from road, rail and sea transport and handling to the mining and processing of concentrates, technical support and the supply of other goods and services.

Another major benefit is that the facility, in conjunction with nickel and copper refineries already established in the area, has contributed to Townsville becoming what is arguably Australia's premier centre for non-ferrous metals processing. Furthermore, establishment of the Sun Metals refinery is seen as a catalyst for additional projects in the area such as power generation and downstream metal product industries.

Other extraction industry downstream projects that have taken place in Townsville in the past decade include:

- The *QNI nickel and cobalt refinery*, at Yabulu 25km north of Townsville. This facility is a world leader in nickel extraction technology. Its internationally patented processes include ammoniacal solvent extraction, which successfully separates nickel and cobalt. QNI is a value-adding operation treating imported lateritic ore sourced from New Caledonia, Indonesia and the Philippines to produce high quality nickel and cobalt. The refinery exports to Asia, USA, Europe and South Africa, generating around $450 million in annual export earnings. A $US350 million expansion is underway, increasing production of nickel in the range of 76,000 tonnes per annum; and
- *Xstrata's copper refinery* in Townsville is one of the world's leading electrolytic copper refineries, producing 99.97 percent pure LME Grade A copper cathode. The Townsville refinery treats copper anode from Mount Isa and has an annual capacity of 270,000 tonnes of refined copper. This accommodates the throughput from the Ernest Henry operation (concentrate initially to Mt Isa for smelting), the continuing output for Mount Isa's copper mine and the Enterprise mine.

4.4.2 Social Infrastructure

However, major projects in Townsville have not been constrained to the resources sector. Major residential and community/tourism/lifestyle project have also taken place over the past decade.

The *Townsville Strand* foreshore development officially opened in October 1999. The development evolved due to destructive monsoonal storms in 1997 and 1998. These storms caused significant damage and compromised the integrity of the rock wall. The Townsville City Council decided to redevelop The Strand by developing the beaches as a means of foreshore protection. The decision to proceed was made, notwithstanding the fact that the development would occur directly in a marine environment with significant natural, fisheries and world heritage values.

The aims of the redevelopment were to:

- Secure the coastline with a civil structure designed and constructed to withstand a 1:100 year storm event;
- Restore the foreshore using a technique designed to minimise the need for future wall maintenance and sand replenishment;

- Redevelop by reinstating a beach alignment slightly offshore, providing greater opportunities for improved amenity and passive recreation opportunities;
- Redevelop to create stable "sandy beach" compartments and extend active recreation such as swimming and fishing; and
- Provide all of the above and, at the same time, minimise the risk of environmental harm.

Works were undertaken along the 2.2km stretch of Townsville's main beach. These works included the reconstruction of seawalls, beach renourishment, reclamation of land from the sea, and improved storm protection along the length of the beach. The project involved significant landscaping including the construction of a boulevard, downsizing of roadways, additional pedestrian areas, play areas, foreshore park land, theme lighting, some commercial opportunity and facilities to cater for the wider interest groups within the community with particular emphasis being given to people with disabilities.

The project involved the construction of three headlands, which feature recreational facilities, restaurants and headquarters for lifesavers. The headlands were devised for a dual role. Apart from their public amenities facility, the headlands protect the new seawall and beach. They are in areas that have been most vulnerable to cyclone damage and are designed to trap sand and break the force of waves.

In all 250,000 tonnes of armour rock, 400,000 tonnes of sand, 390,000 tonnes of fill, 70,000 square metres of turf, 16,000 trees and shrubs, 900 palms, and 22,500 native groundcover plants were required to complete the protection program.

The finished project ensures the protection of the beaches and rock wall whilst providing greater opportunities for improved amenity and passive recreation opportunities.

The Strand now offers a friendly and relaxed atmosphere for locals and visitors to Townsville. Its inclusiveness of people of various ages and interests, visual attractiveness, proximity to the sea and city, cleanliness and sense of safety, and range recreational and social opportunities available to the community have all been highlighted as attributes. On an average week over 25,500 people visit the Strand to take advantage of the ambiance and free amenities available for use by the public. Over 1.3 million people visit The Strand each year.

Previous social and economic impact studies of the redeveloped Townsville Strand undertaken by Transpac Consulting (2006) confirmed that the project has delivered significant ongoing benefits to the city in terms of tourism attraction, enhanced liveability and positive impacts on social capital formation in the city.

More recently, Thuringowa City Council has overseen the development of *Riverway*, an integrated residential, commercial and public space development on the banks of the Ross River in Thuringowa. The first stage of the project was completed in 2006, and involved public investments of over $15m. As part of the overall project, high density residential offerings will be developed in 5 stages. The residential project, known as Itara on Riverway comprise approximately 280 luxury 1, 2 and 3 bedroom apartments constructed over 5 stages. Stage 1 which is currently available comprises 52 units and a private pool for residents.

4.5 LABOUR FORCE

Labour force data is available for the North West Statistical Division. This region encompasses the Northern Statistical Region (bordered to the east by the Great Barrier Reef and to the west by the Great Dividing Range) and the North West Statistical Division, which is bounded by the Northern Territory in the west and the Gulf of Carpentaria to the north. Although this section includes the North West Statistical Division it is important to note that only 0.9% of the state's population is represented in this area. Conversely, the population of Townsville-Thuringowa region represents 76.9% of the Northern SD.

Historical and recent data on employment determinants are analysed to allow for a better understanding of the region's economy. Industry and occupation composition, and unemployment rates are observed over time to identify any major changes or trends in the region, with a focus on data concerning construction industry employment and construction-related occupations.

4.5.1 Industry of Employment

The employment structure of the regional economy has changed over the past 10 years.

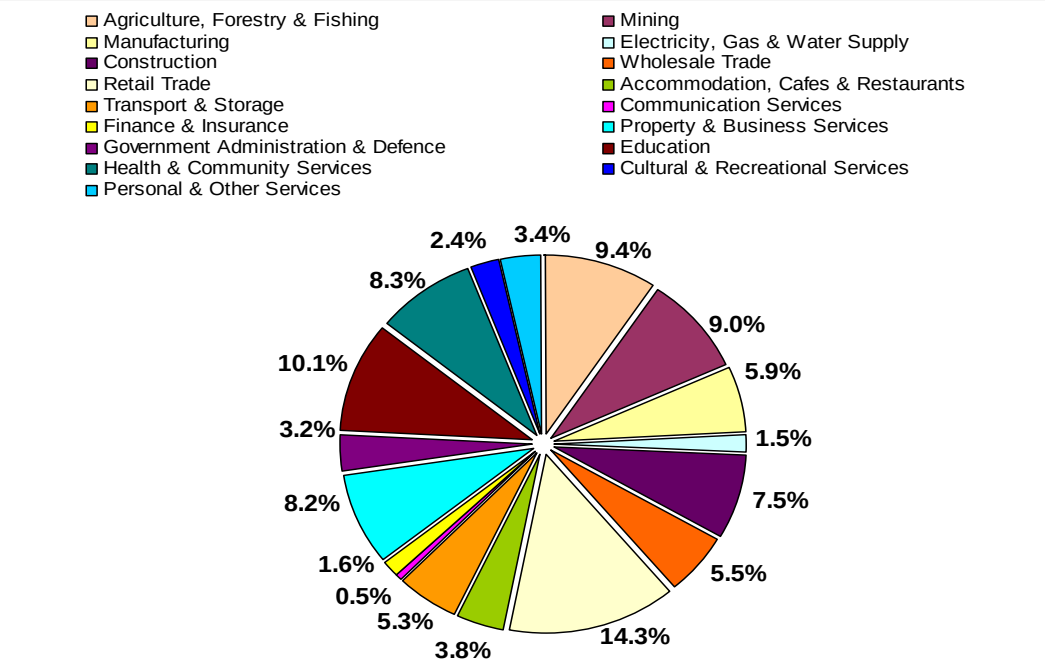
Figures 2 and 3 show the percentage of total employees for the 17 different Industries for the Northern-North West Statistical Region for 1998 and 2007, respectively. In 1998 [Figure 2], the higher employing industries were:

- Retail Trade (14.3%);
- Education (10.1%)
- Agriculture, Forestry and Fisheries (9.4%);
- Mining (9.0%);
- Health and Community Services (8.3%); and
- Property and Business Services (8.2%).

By 2007, however [Figure 3], the higher employing industries were:

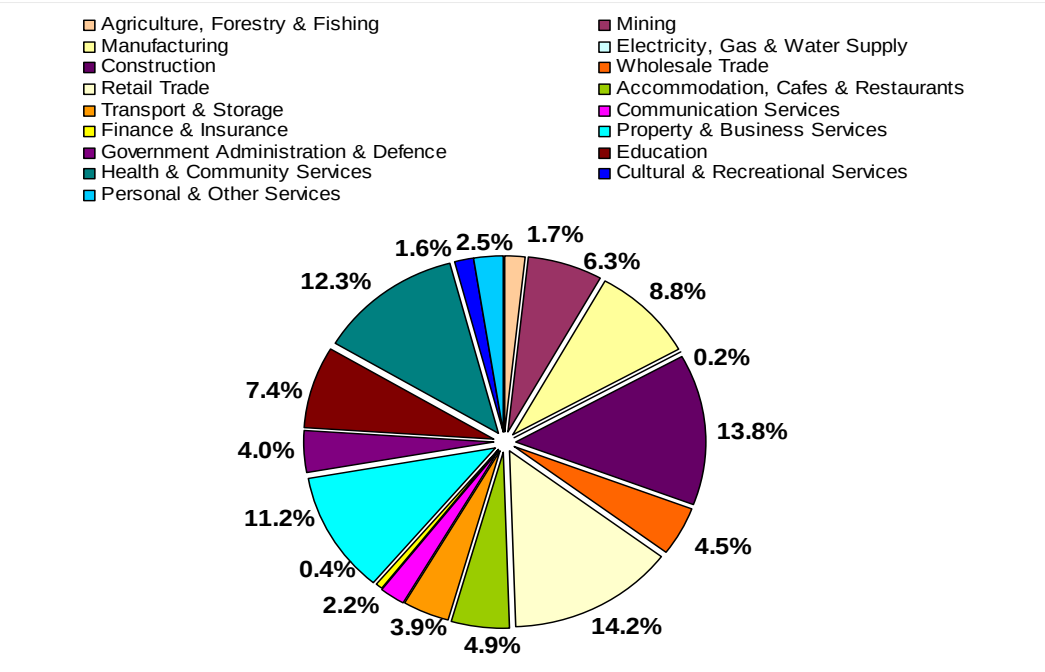
- Retail Trade (14.2 %);
- Construction (13.8%);
- Health and Community (12.3%);
- Property and Business Services (11.2%);
- Manufacturing (8.8%); and
- Property and Business Services (7.4%).

FIGURE 2: NORTHERN-NORTH WEST STATISTICAL REGION INDUSTRY COMPOSITION OF EMPLOYMENT (MAY 1998)



Source: ABS

FIGURE 3: NORTHERN-NORTH WEST STATISTICAL REGION INDUSTRY COMPOSITION OF EMPLOYMENT (MAY 2007)

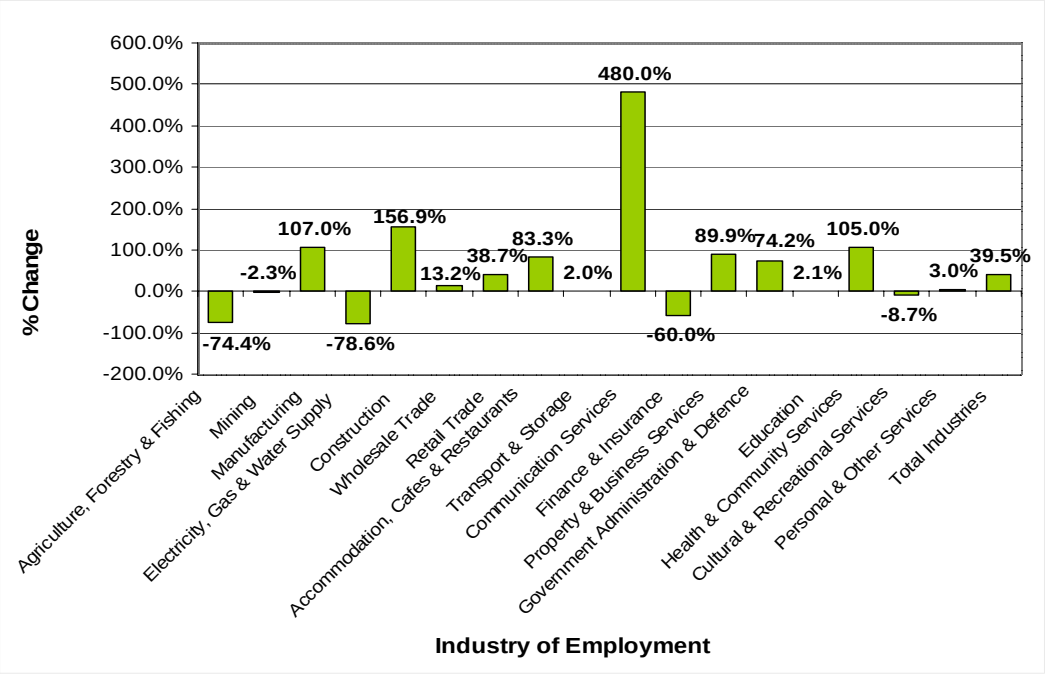


Source: ABS

Figure 4 shows the percentage change in the industry composition of employment from May 1998 to November 2007. The Figure shows that the Northern-North West SD has changed considerably in its industry composition by employment growth.

Overall, total industry employment has grown by almost 40%. Significant increases in employment size are seen in the Communication Services industries with an increase of 480%. Other industries which have grown significantly include: Manufacturing (107%); Health and Community Services (105%); Property and Business Services (89.9%) and Accommodation, Cafes and Restaurants (83.3%). Industries which have decreased in size in terms of its contribution to regional employment include: Electricity, Gas and Water Supply (-78.6%); Agriculture, Forestry and Fisheries (-74.4%); Finance and Insurance (-60%); Cultural (-8.7%) and Mining (-2.3%).

FIGURE 4: NORTHERN-NORTH WEST STATISTICAL REGION INDUSTRY COMPOSITION (% CHANGE MAY 1998/2007)



Source: ABS

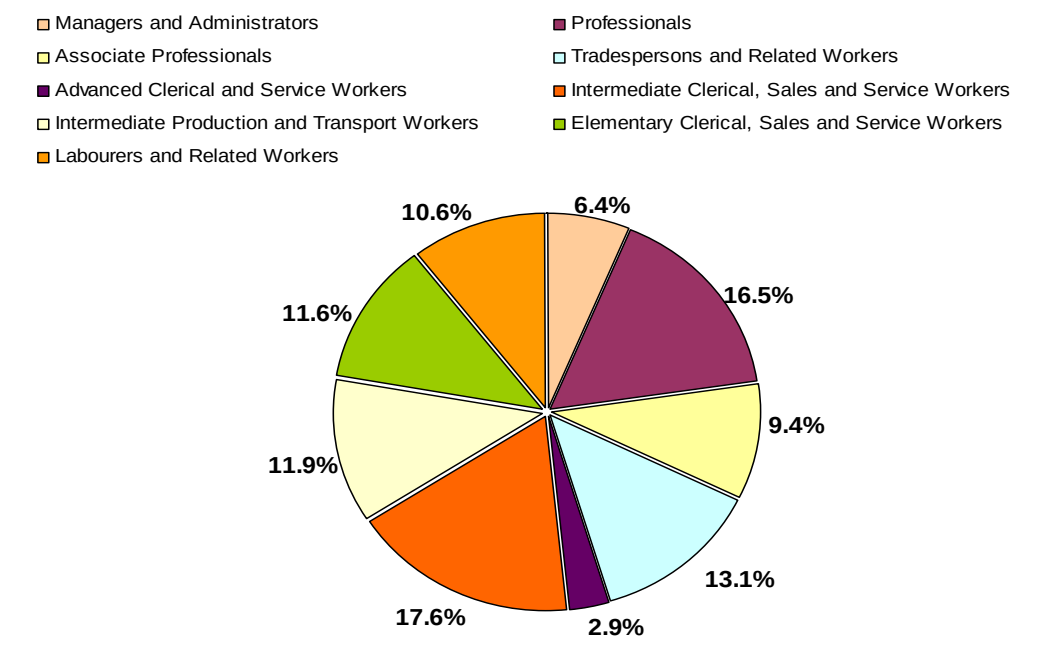
Figures 5 and 6 shows the percentage of total employees for the 9 different occupations for the Northern-North West Statistical Region for 1998 and 2007, respectively.

For May 1998, the higher employing occupations for the Northern – North West Statistical Region were: Intermediate Clerical Sales and Service Workers (17.6%), Professionals (16.5%), Tradespersons and Related Workers (13.1%), Intermediate Production and Transport Workers (11.9%) and Elementary Clerical, Dales and Services Workers (11.6%). In 2007, the higher employing occupations for the Northern-North West Statistical region were Tradespersons and Related Workers (18.6%), Intermediate Clerical Sales and Service Workers (16.8%), Intermediate Production and Transport

Workers (13.2%) Professionals (12.9%) and Associate Professionals (12.9%).

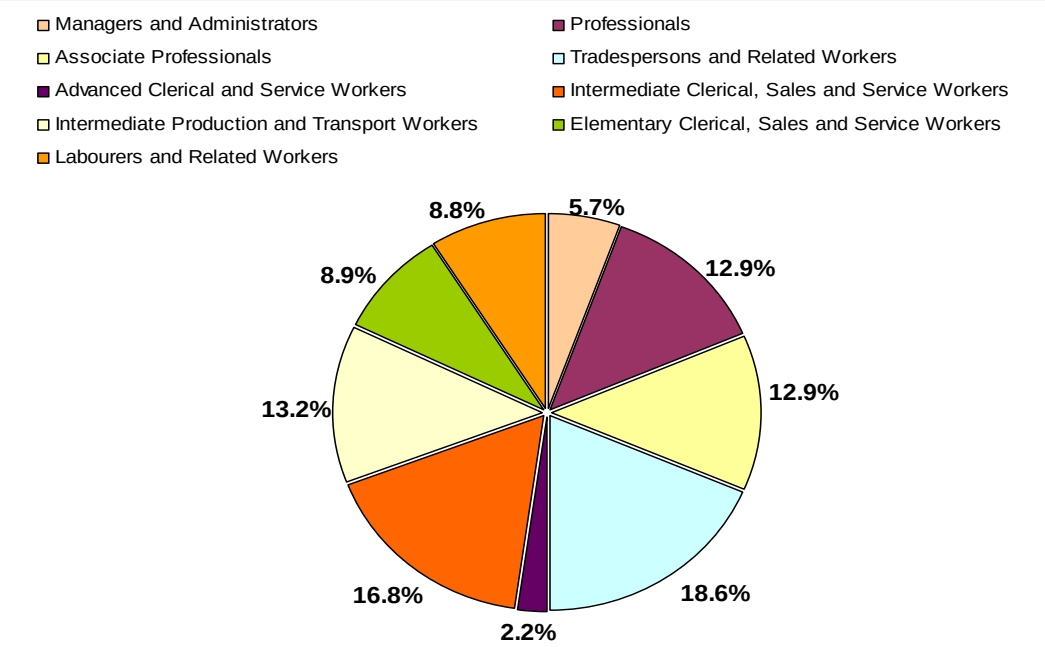
Figure 7 shows the percentage change in the occupation composition of employment from May 1998 to May 2007. The graph shows that the Northern-North West Statistical division workforce has become more skilled over the decade. Overall, total employment for all occupations has grown by almost 40%. All occupations experienced growth from the May quarter 1998 to the May quarter 2007. Significant increases in employment size were in Tradespersons and Related Workers (96.8%) Associate Professionals (91.1%), and Intermediate Production and Transport Workers (55.3%).

FIGURE 5: NORTHERN-NORTH WEST STATISTICAL REGION OCCUPATION COMPOSITION (MAY 1998)



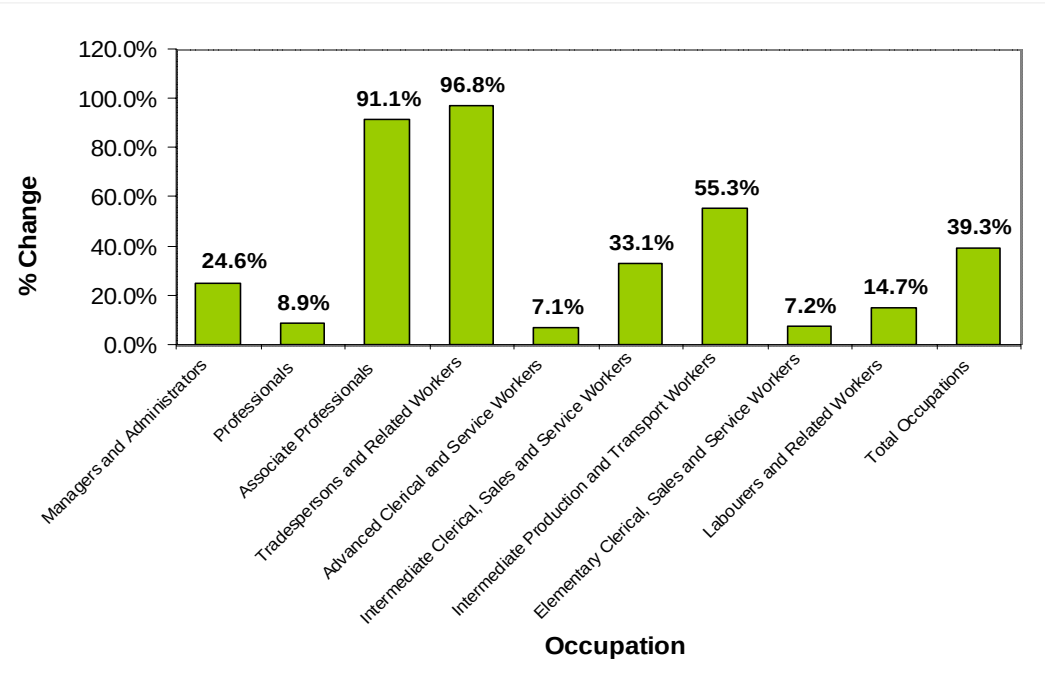
Source: ABS

FIGURE 6: NORTHERN-NORTH WEST STATISTICAL REGION OCCUPATION COMPOSITION (MAY 2007)



Source: ABS

FIGURE 7: NORTHERN-NORTH WEST STATISTICAL REGION OCCUPATION COMPOSITION (% CHANGE MAY 1998/2007)



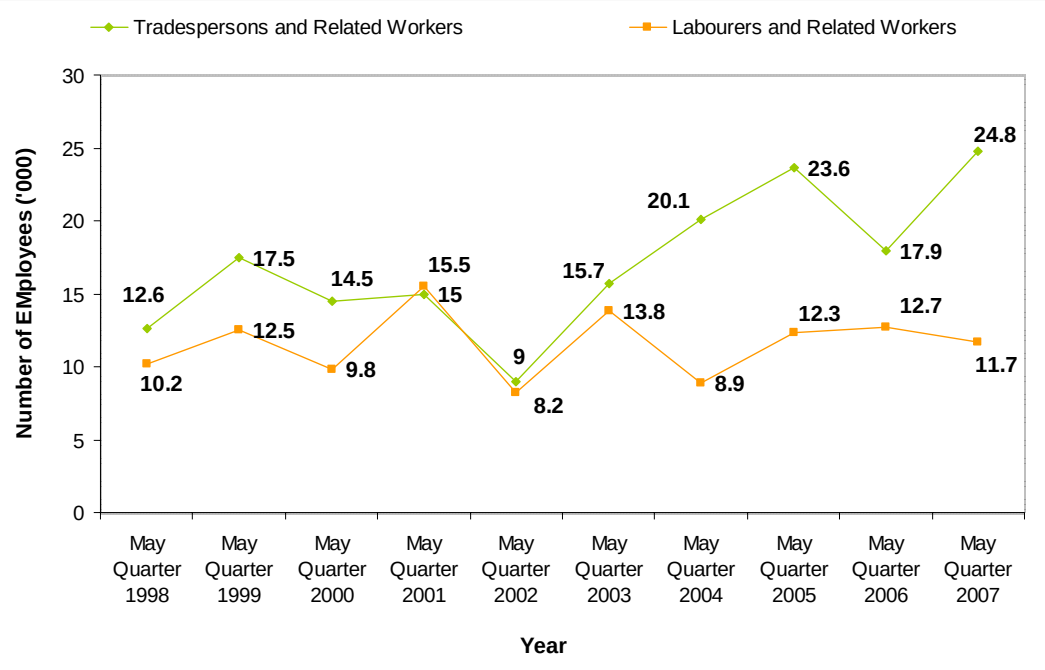
Source: ABS

4.5.2 Construction Related Employment

Figure 8 presents time series data on total employment in the Trades and Labourer occupation sectors for the Northern-North West Statistical Region.

The figure shows that overall employment is higher for Tradespersons than for Labourers. In recent years, employment for Tradespersons has increased from 9,000 persons in May quarter 2002 to 24,800 persons in May quarter 2007. This represents a 168.9%% increase in total employees. In addition, labourer employees have experienced a increase in employee numbers from 8,200 persons in May quarter 2002 to 11,700 persons in May quarter 2007. This represents a increase of approximately 42.7% in total employees.

FIGURE 8: NORTHERN-NORTH WEST STATISTICAL REGION EMPLOYMENT OF TRADEPERSONS AND LABOURERS



Source: ABS

4.5.3 Unemployment Rate

The unemployment rate in the Northern SD for the June quarter 2006 was 5.6%. This figure was higher than that recorded for Queensland as a whole (5.0%).

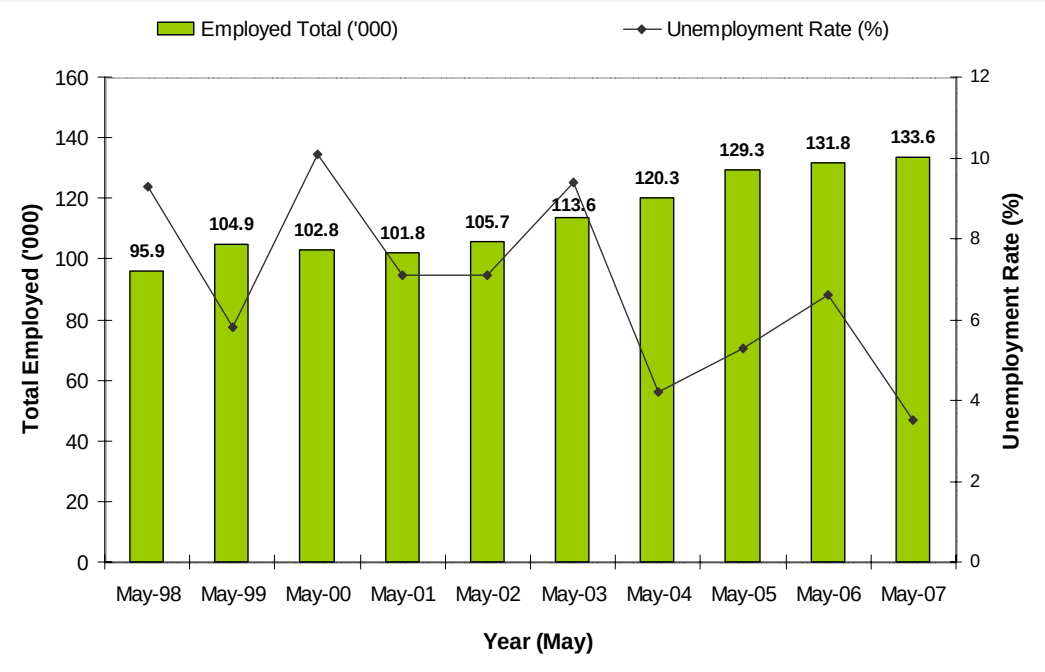
In the June quarter 2006, the highest unemployment rates in the region were recorded in Dalrymple Shire (6.5%) and Charters Towers City (6.3%). The lowest unemployment rates were in Thuringowa City (4.9%) and Burdekin Shire (5.0%).

Of Queensland's total labour force, 5.5% (or 116,598 persons) were located in the Northern SD (OESR, 2006). Townsville City represented the largest proportion of the region's labour force with 50.6% (58,952 persons), followed by Thuringowa City with 27.9% (32,525 persons) and Burdekin Shire with 9.5% (11,132 persons) (OESR, 2006).

Figure 9 shows total employed persons (RHS) and the unemployment rate (LHS) from May 1998 to May 2007 for the Northern-North West Statistical region. The chart shows

that employment in the region has increased by 37,700 persons from May 1998 to May 2007. This represents a 39.3% growth. Over the same period, the unemployment rate for the region fell from 9.3% to 3.5%, a decrease of 62.4%.

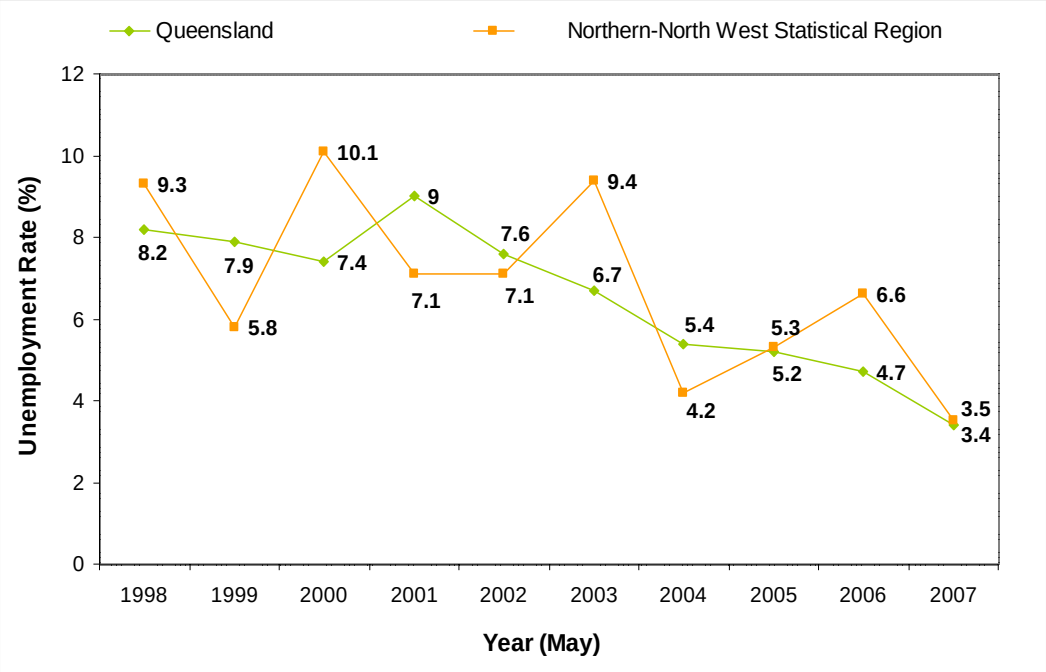
FIGURE 9: EMPLOYED PERSONS AND UNEMPLOYMENT IN THE NORTHERN-NORTH WEST STATISTICAL REGION



Source: ABS

Figure 10 shows the unemployment rate from May 1998 to May 2007 for the Northern-North West Statistical Region and Queensland. The figure indicates that the unemployment rate for the Northern- North West Statistical Region has been somewhat more erratic in comparison to the unemployment rate for Queensland as a whole. Significant spikes were seen in May 2000 (10.1%), May 2003 (9.4%) and May 2006 (6.6%). Over recent years (2005-2007) the unemployment rate fro the Northern-North West Statistical region has been slightly higher than that for the State.

FIGURE 10: NORTHERN-NORTH WEST STATISTICAL REGION AND QUEENSLAND'S UNEMPLOYMENT RATE 1998-2007.



Source: ABS

4.5.4 Job Containment

The proportion of jobs occupied by their own residents in the Townsville-Thuringowa Region was both lower than the majority of its regional counterparts and lower than most LGAs within SEQ.

Both Townsville and Thuringowa LGAs reported lower job containment than the Queensland average of 74.7%. Townsville City (67.3%) experienced a slightly higher job containment than Thuringowa City (65.9%) (PIFU, 2005).

It was estimated that of the 50,000 jobs available in the Townsville-Thuringowa region, one in three (32.8% or 16,366 jobs) jobs were performed by people living outside the LGA in which they worked. It is noted however, that as the Townsville and Thuringowa urban areas are located adjacent to each other, the potential for a resident from one LGA working in another LGA within the region is greatly increased. Consequently the close proximity of urban areas has contributed to the Townsville-Thuringowa region's below-State average job containment levels (PIFU, 2005).

4.5.5 Labour Force Containment

The Labour force containment (proportion of the labour force working in their home LGA) for the region in 2001 was reported at 65.1% for Townsville City and 14.3% for Thuringowa City. The Townsville City region's labour force containment performed above the State average of 55.1% (PIFU, 2005).

Approximately 30,000 people of Townsville's labour force of almost 46,000 people worked

in the City on Census day. Conversely, 21,400 people of Thuringowa City's labour force left their home LGA to go to work. Again, it is cautioned that the reason for these low labour force containment figures is largely due to the close proximity of Townsville as a regional centre with many jobs (PIFU, 2005).

4.6 INCOME

The overall average individual annual income for the Northern SD and average weekly earnings for Industries in the Northern-North-West statistical region are analysed in this section. A particular focus on the construction industry is presented as this allows for an understanding of the demand on the industry, in comparison to all others, which is of particular relevance to understanding the potential impacts of the TOT construction phase on the regional labour market.

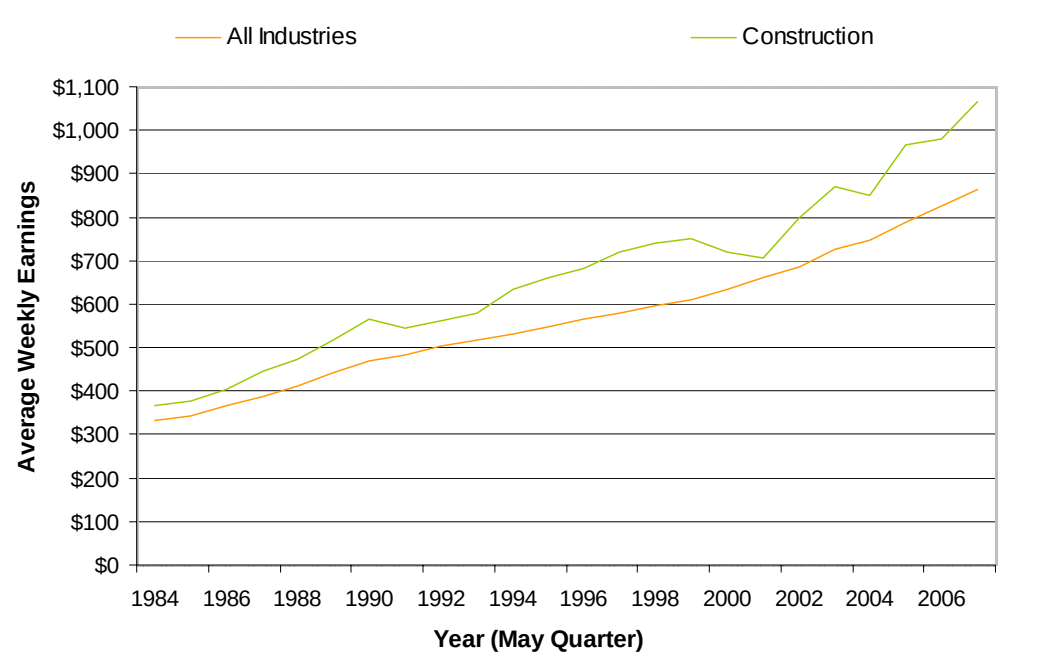
4.6.1 Average Individual Taxable Income

The average individual annual taxable income for Northern SD was $35,726 for 2003. This represented a 4.72 % growth from the year ended June 2003 on year ended June 2002 ($34,037). For year ended June 2001, the major source of personal income was Wage and Salary (67.8%), followed by Government cash benefit (14.0%), own unincorporated business 9.5% and Investment (7.0%) (ABS, 2006).

4.6.2 Average Weekly Earnings

Figure 11 displays the average weekly earnings for the Construction Industry and all Industries in the Northern-North-West Statistical Region from May quarter 1984 to May quarter 2007. The graph shows that average weekly earnings for the Construction Industry have remained above that for all industries in all years.

FIGURE 11: AVERAGE WEEKLY EARNINGS FOR CONSTRUCTION AND ALL INDUSTRIES IN AUSTRALIA

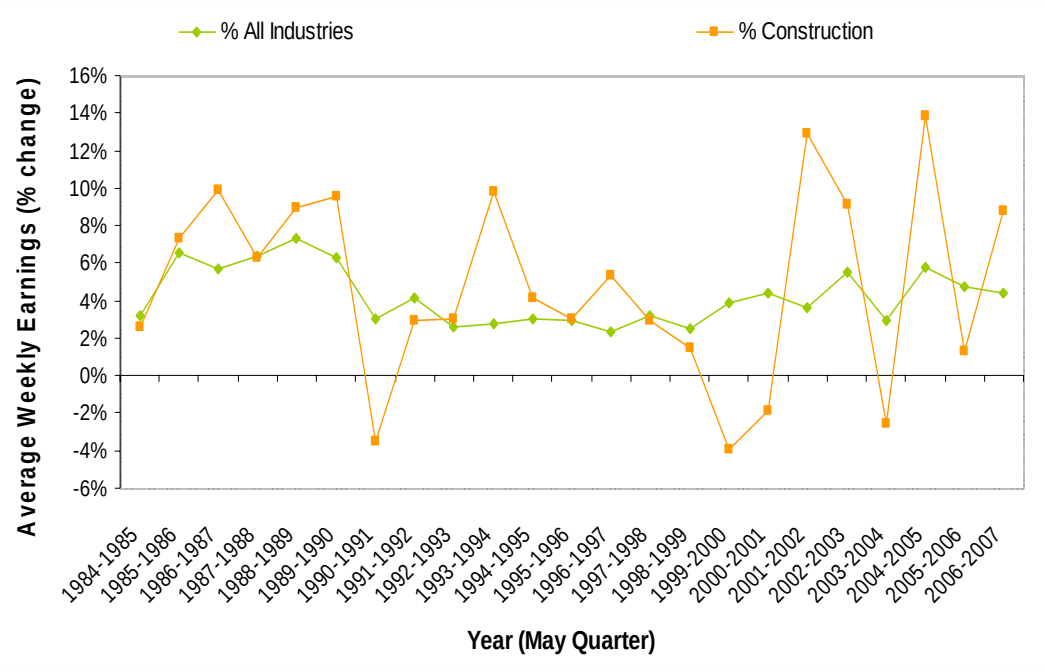


Source: ABS

However, the Construction industry has experienced significant fluctuations over the past two decades, as one would expect, in line with business cycle movements. For example there were evident decreases in average weekly earnings in the May quarter 1999 to November quarter 2001 period when it decreased by 5.7% (from $749.60 to $706.60). Conversely, all Industries in this period experienced positive growth, with average weekly earnings increasing by 8.4% (from $611.10 to $662.60).

Recently, the Construction industry has experienced an increase in average weekly earnings of 8.8%. The average weekly earnings for all industries have experienced a lower growth in weekly earnings of 4.4%, May 2006 to May 2007 [Figure 12].

FIGURE 12: AVERAGE WEEKLY EARNINGS FOR CONSTRUCTION AND ALL INDUSTRIES (% CHANGE)



Source: ABS

4.7 PORT OF TOWNSVILLE

Since the construction of the Port of Townsville's first wharf in 1863, the Port of Townsville has now grown to become Queensland's third largest commercial port (Townsville Port Authority, 2007).

4.7.1 Port Operations

The Port of Townsville is a breakwater harbour with nine operational berths which is managed by the Townsville Port Authority. They are equipped with bulk handling facilities including pipelines for fuel, oil, gas, chemicals, cement, molasses, shiploaders for sugar, mineral and metal concentrates and fertiliser, cranes for containers, refined metals, nickel ore, fertilisers and breakbulk cargo and RORO ramps for rolling stock (Townsville Port Authority, 2006: 12).

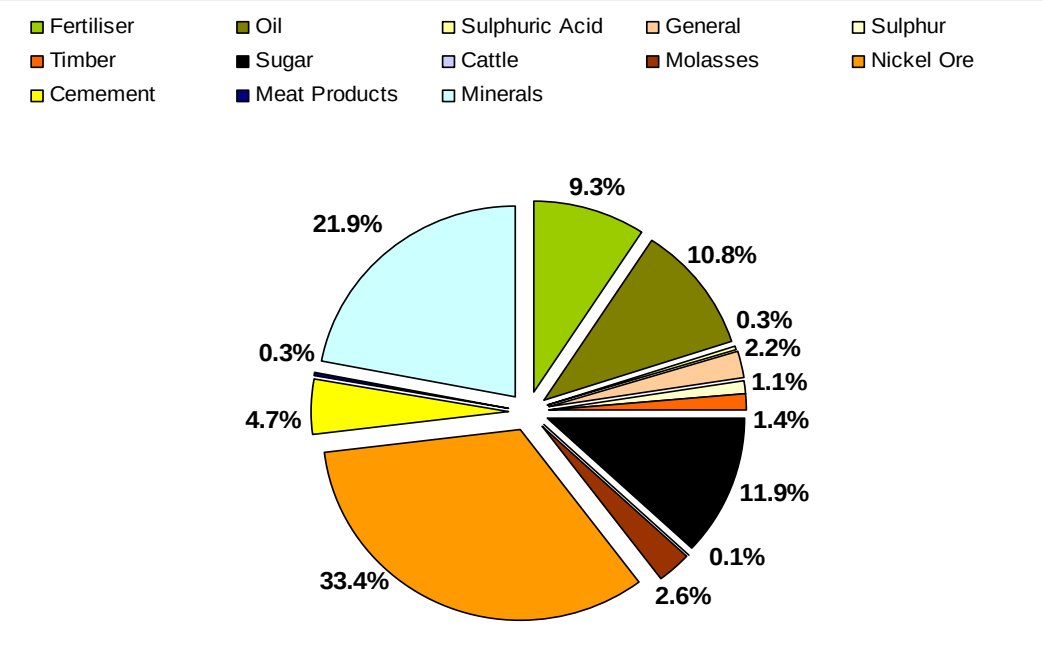
It has a land and sea jurisdiction in excess of 500 square kilometres. Approximately 75 personnel are directly employed by the Townsville Port Authority in a diverse number of fields including:

- Engineering design and supervision;
- Corporate governance;
- Planning and environment;
- Finance;
- Port services;
- Business development;
- Marketing; and
- Maintenance (Townsville Port Authority, 2007).

Townsville Port Authority operates four keys areas which involve industry, trade, community and the environment.

In 2005-06 the Port handled 9.93 million tonnes of cargo. This included an increase in berth tonnage for cement, general purpose oil, Yabulu oil, sulphur, zinc ingots, cattle, copper concentrates, zinc concentrates, fertiliser (high analysis) and timber (TPA, 2006: 28). Figure 13 shows total trade by commodity for 2005/2006.

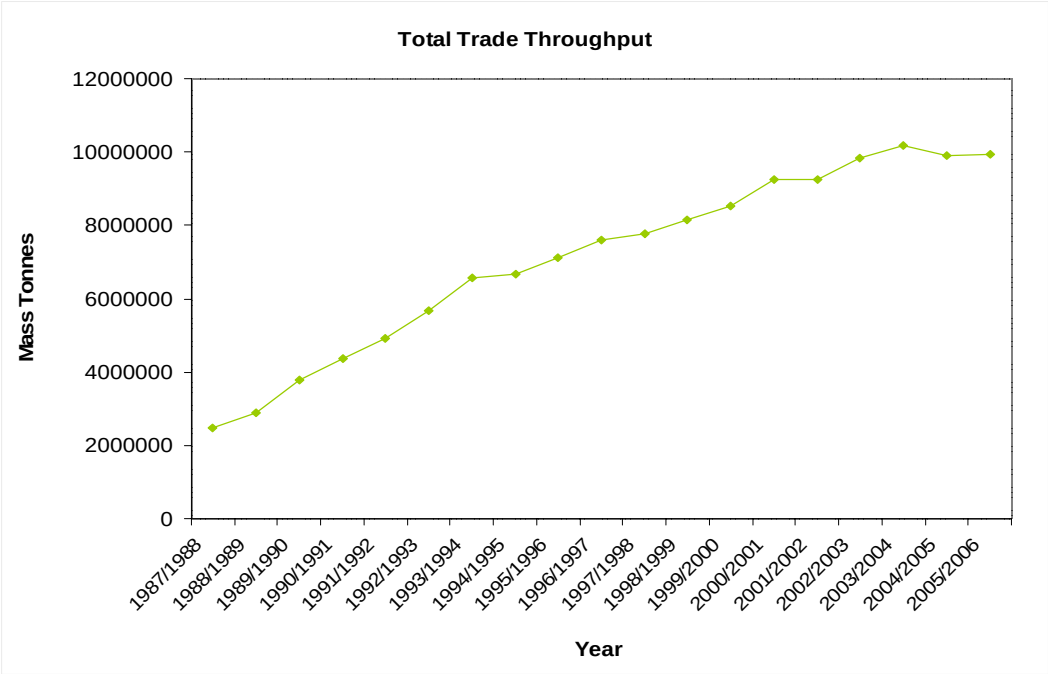
FIGURE 13: TOTAL TRADE BY COMMODITY (9,930,444 TONNES)



Source: TPA 2006a

Figure 14 shows total trade throughput at Townsville Port for each of the financial years since 1988 to 2006. The data shows a consistent increase in total throughput until a record peak at 2004, with moderate declines in the two subsequent years.

FIGURE 14: TOTAL TRADE THROUGHPUT FOR FINANCIAL YEARS 1988 TO 2006



Source: TPA 2006c

4.7.2 Economic Impacts

The Port of Townsville plays a vital role in the regional economy.

Each year, it moves over $3.5 billion worth of exports which amounts to approximately 12% of Queensland's export cargo by value. It has assets worth $201.3 million and almost $30 million of revenue is generated annually.

Port activity and industries utilising the port are responsible for approximately 8,000 regional jobs, with direct and indirect wages and salaries accounting for over $320 million. Furthermore, it plays an important role in supporting the tourism industry hosting over 5,000 cruise passengers and navy personnel each year (Townsville Port Authority, 2007).

Table 1 summarises the findings of the most recent economic impact assessment undertaken for the Port of Townsville (in 2000). While the data is somewhat dated, it is nonetheless apparent that the Port makes a significant contribution to the regional economy in terms of value add and employment.

Given trend growth in port trade activity since 2000, it would be reasonable to expect its impacts to have also increased commensurately.

TABLE 1: ECONOMIC IMPACTS OF PORT OF TOWNSVILLE (2000)

Impact	Value
Economic Output	$1.377m (direct and indirect)
Value Added	$618m or 10.2% of the Northern Queensland's GRP
Household income	$322.5m (wages, salaries and other earnings paid to labour)
Employment effect	7,915 full-time equivalent jobs (10% of the region's full-time employment labour force)

Source: TPA, 2000

4.8 QUEENSLAND MARINAS

4.8.1 Supply Conditions

Table 2 provides a list of marinas all over Queensland that provide berthing for various sizes of vessels.

The smallest sized marina in terms of the number of berths it provides is 18 at the Burnett Heads Marina and 600 in the Bowen Marina. Of the 41 marinas listed in the Table, 8 provide berthing facilities that can accommodate vessels from 50 metres to 80 metres. In total there are 9,114 berths available in the Marinas listed alone (some berths are yet to be developed).

TABLE 2: QUEENSLAND MARINAS

Marina	Location	Status	# Berths	Size
Abel Point Marina	Airlie Beach	*Developed*	500	up to 60m
Bowen International Marina	Bowen	*Proposed*	600	10m-30m
Bundaberg City Marina (Midtown Marina)	Bundaberg	*Developed*	80	N/A
Bundaberg Port Marina	Bundaberg	*Developed*	160	up to 40m
Burnett Heads Marina	Burnett Heads	*Developed*	18	N/A
Cairns Cruising Yacht Squadron Limited	Cairns	*Developed*	24	8m to 12m
Cairns Marlin Marina	Cairns	*Developed*	214	up to 80m
East Coast Marina	Moreton Bay	*Developed*	358	9m to 24m
Fraser Straits Marina	Tin Can Bay	*Proposed*	250	9m to 15m (some berths designed for vessels up to 25m)
Gladstone Marina	Gladstone	*Developed*	203 and 30 berths for charter vessels	N/A
Gold Coast City Marina	Gold Coast	*Developed*	200 and 18 super yacht berths	10m - 50m
Great Sandy Straits Marina	Urangan harbour (Hervey Bay)	*Developed*	176	8m to 30m
Half Moon Bay Marina	Yorkeys Knob	*Developed*	200	10m to 30m
Hope Harbour Marina	Hope Island	*Developed*	275	8m to 45m
Horizon Shores Marina	Woongoolba	*Redeveloped*	550	12m to 16m
Keppel Bay Marina	Rosslyn Bay (Yeppoon)	*Developed*	290	up to 35m

Laguna Quays Marina	Whitsundays	*Developed*	110	up to 60m
Lawries Marina-Kawana	Sunshine Coast	*Developed*	130	N/A
Mackay Marina Village and Shipyard	Mackay	*Developed*	479	up to 50m
Marina Mirage Port Douglas	Port Douglas	*Developed*	122	up to 45m
Mariners Cove	Gold Coast	*Developed*	110	N/A
Mary River Marina	Maryborough	*Developed*	40	up to 15m
Mooloolaba Marina- The Wharf Complex	Mooloolaba	*Redevelopment*	262 including 6 multi-hull berths	up to 10m
Mooloolaba Yacht Club Marina	Mooloolaba	*Developed*	200	N/A
Moreton Bay Trailer Boat Club	Moreton Bay	*Developed*	215	up to 17m
Morris Marina	Brisbane	*Developed*	56	N/A
Newport Waterways Marina	Moreton Bay	*Developed*	210	up to 25m
Noosa Harbour Marine Village	Tewantin	*Developed*	40	up to 15m
Port of Airlie Marina	Boathaven Bay	*Proposed*	240	up to 30m
Rivergate Marina & Shipyard	Brisbane	*Developed*	104	12m-60m
Royal Queensland Yacht Squadron	Manly Harbour	*Developed*	464	up to 25m
Runaway Bay Marina	Gold Coast	*Developed*	300	8m to 20m
Sanctuary Cove Marina	Gold Coast	*Developed*	297	up to 45m
Scarborough Marina	Moreton Bay	*Developed*	220	up to 25m
Southport Yacht Club Marina	Gold Coast	*Developed*	270	up to 70m
Spinnaker Sound Marina	Bribie Island	*Developed*	172	8m to 20m
Tin Can Bay Marina	Tin Can Bay	*Developed*	100	up to 25m
Townsville Breakwater Marina	Townsville	*Developed*	250	up to 50m
Townsville Motor Boat and Yacht Club	Townsville	*Developed*	91	up to 15m
Urangan Marina	Hervey Bay	*Redevelopment*	200	N/A
Wynnum Manly Yacht Club Marina Ltd	Moreton Bay	*Developed*	280	8m to 10m (mono) and 9m to 14m (multi)

Source: Transpac Consulting and QBIA

4.8.2 Demand Side Conditions

There are clearly a substantial number of marina berths in Queensland. However, despite present provisions, the present market conditions would indicate the existence of unmet demand.

Between 2004 and 2005 the Queensland Boating Industry Association (QBIA) periodically surveyed its members in terms of access to marina facilities. At the time of the last survey, there are approximately 2,000 people on a waiting list around Queensland seeking access to a marina berth (Hibberd, B. personal communication, 4th June 2007). The surveys were discontinued when in the view of the QBIA, demand continued to grow while supply lagged requirements. As such, it is still believed that there is considerable under-supply (or unmet demand) amongst Queensland boat owners for berth facilities throughout Queensland.

On the basis of available evidence and industry feedback, we conclude that there is a demonstrable need for additional marina berthing facilities in Queensland.

4.8.3 Superyachts

So far this section has considered the market for marinas and berthing facilities for more typical or standard recreational vessels.

However, strong evidence exists that the *superyacht* industry in Australia is growing at a rapid rate, particularly in visitation of foreign flagged vessels.

The National Marine Safety Committee defines a Superyacht as a *'sailing ship or motor vessel that:*

- *is used for sport or pleasure;*
- *is over 24 metres in load line length; and*
- *does not carry cargo (Superyacht Policy, 2005)*'.

There are approximately 60 Superyachts that are Australian registered vessels and based in Australia. In addition, the Australian Industry is currently servicing 120 yachts. Local ownership continues to grow, with vessels of 80'-100' in size showing growth. The Australian Industry, represented by both yacht construction and visitation, is now worth approximately $500 million. Internationally, there are over 7000 yachts in the world of which Australia is attracting less than 1% (Cushion, 2007).

Visitations of foreign flagged vessels have increased from an average of 4 per annum in 1999 to 60 visitations in 2006. This represented a conservative economic impact of approximately $160 million for the Australian economy. Moreover, the most popular cruising regions are found in Queensland with 80% of time spent in Australia by visiting yachts reported in Queensland (Cushion, 2007).

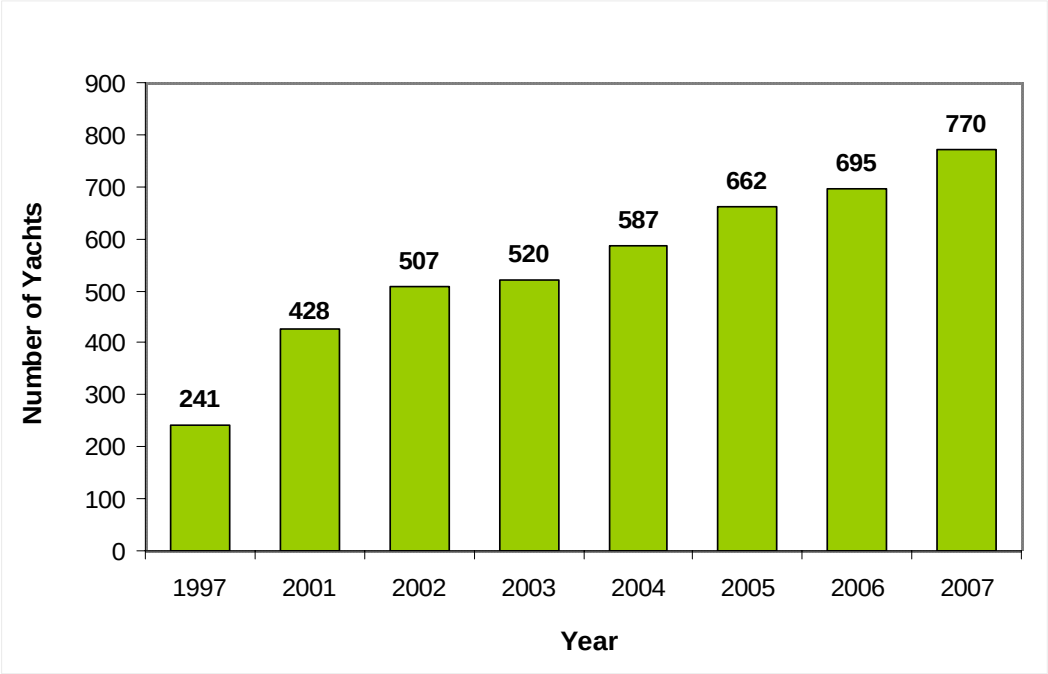
Figure 15 represents the number of yachts being constructed globally per year. Over the recent decade, from 1997-2007, the Industry grew by approximately 220% with an increase of 529 Yachts constructed. Moreover, each year from 2001 to 2007 showed continual growth in the industry.

Domestically, there are 12 Superyachts under construction in Australia with an estimated value of $340 million (Cushion, 2007).

Costs for ongoing repair and maintenance of a Superyacht are generally estimated to be 10% of its capital value per year. Hence, a $10 million vessel will cost $1 million per year for maintenance.

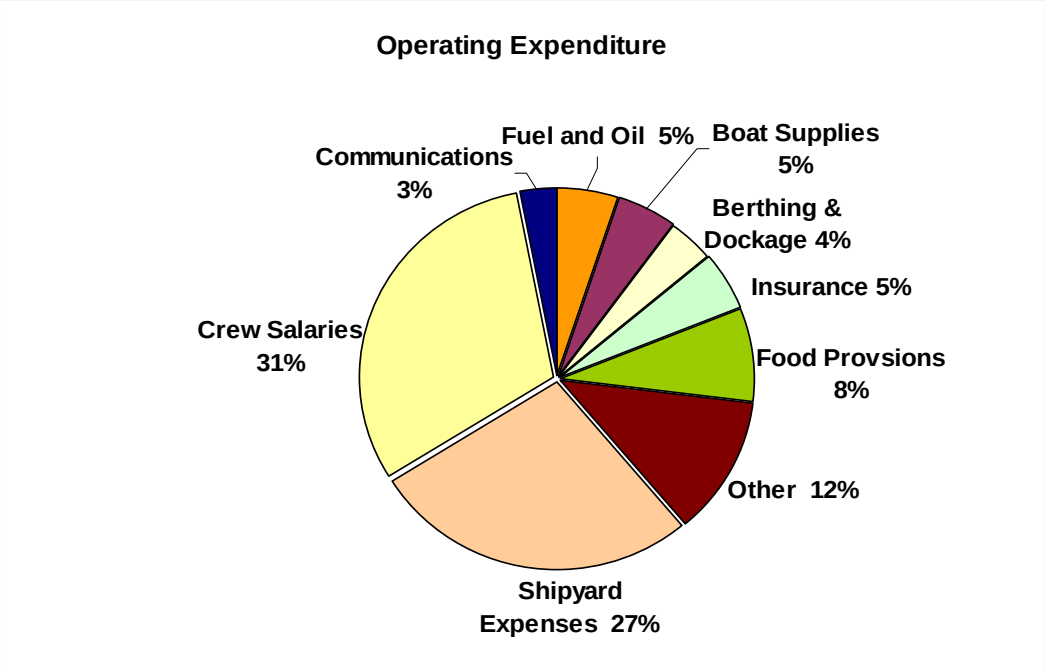
Figure 16 shows the composition of the Operating Expenditures of a Superyacht. Crew Salaries (31%) and Shipyard Expenses (27%) represent the largest sources of expenditure for the Superyacht Industry. On average, it can be expected that direct spending in port by a Superyacht will spend AU$20,000 per week. Spending by Crew members and guests on shore is in addition to this.

FIGURE 15: GLOBAL CONSTRUCTION OF SUPERYACHTS, 1997-2007



Source: Superyacht Base Australia

FIGURE 16: EXPENDITURE ESTIMATES FOR USE IN ECONOMIC IMPACT ANALYSIS OF CRUISE SHIP VISITS TO TOWNSVILLE



Source: Superyacht Base Australia

4.8.3.1 Demand Conditions for Superyacht Marinas

Demand for larger custom Superyachts continues to grow in size, with the average size of a custom yacht under construction in 2000 reported at 40 m. This compares with the current average size of custom yachts at 65m, with yachts of the size of 80m plus not uncommon. As such, berthing facilities provided are not keeping up with this demand, with most marina facilities unable to cater for yachts of 80m in size.

Chief Executive Officer of Superyacht Base Australia and President of the Internationally Superyacht Society, Mr Lance Cushion reports that in order to keep up with demand, larger berthing servicing facilities are needed. Ideally, marina facilities need to be able to cater for the 80m visitor which Mr Cushion states 'can be supplied in the form of two 40m berths in line to maximise the utilisation of the berthing' (Cushion, L. personal communication, 30 March 2007).

The Superyacht Base Australia has established a network of 6 regional clusters to service this growing visitation market. These clusters are located in Western Australia, Darwin, Cairns, Brisbane, Gold Coast and Sydney. Of all these clusters, the Cairns cluster is reportedly the most successful, advantaged by its geographic position in North Queensland with access to the Great Barrier Reef. The Marlin Marina in North Queensland has recently been upgraded to cater for the Superyacht growth. In 2006, it was reported that over 50 Superyacht, both local and international, visited Cairns. This generated an economic impact of over $60 million (reference). With similar geographic characteristics, it can be expected that a new purpose built Superyacht facility in Townsville could also yield positive economic impacts to that of Cairns.

The number of Superyacht visits to Darwin annually varies between 10 to 20 per year. Major influences of visitation of Superyachts to the region largely depend on weather conditions (cyclones) in Darwin and the itinerary of the vessel. Furthermore, the Superyacht facilities in the Darwin region are noted to not be 'user friendly' as the region experiences up to 7m of tidal movements and as such the state of repair of these wharves are in poor condition. Whilst the visitation numbers are comparatively lower to those reported in Cairns, the Darwin region reportedly received in excess of 300 visits a year from cruising vessels that are less than 25 metres in length (Hird, M. personal communication, 11 April 2007).

In addition, the Whitsundays has reported a marked increase in the number of visitations of both Cruise Ships and Superyachts to the region which have had a significant impact on the local economy with both mainland and Island based businesses benefiting financially (Spice, B. Personal communication, 2 May 2007). Hamilton Island Marina Manager, Brett Spice, reports that in the twelve months ending to December 2007, they will see up to 15 Superyachts visit Hamilton Island. In addition, four Superyachts are currently berthed permanently at Hamilton Island. Hamilton Island Enterprises recognises there is a need for expansion within the Marina to accommodate the growing demand for berthing in the region. Currently, the marina has the capability of accommodating 29 vessels of 25m-47m in length.

Rather seen as a 'competitor', the Townsville Ocean Terminal Development, is seen as a 'compliment' in the Cruise Shipping Industry, as it will 'add a significant steeping stone to the itinerary of visiting Superyachts and Cruise ships plying the Whitsunday to Cairns route' (Spice, B. Personal communication, 2 May 2007).

Chief Executive Officer of the Super Yacht Group – Great Barrier Reef, Jacqueline Brinkman, notes that the key impedients to Superyacht visitation to Australia is its 'distance from traditional cruising grounds and the onerous regulatory environment on visiting international Superyachts'. Nonetheless, as expressed by Mr Murray Hird, Director of Industry Development in Northern Territory and representee of the Superyacht Cluster in the Northern Industry, the increased numbers of Superyachts overcrowding the Mediterranean and Caribbean seas has raised opportunities domestically for the Superyacht industry in Australia.

The Boating Industry Association conducted a research study in 2004 and 2005 assessing the demand conditions for marina facilities. Based on survey results from BIAQ marina division members (48 members), the results indicated on both occasions that there were approximately 2000 people on waiting lists around Queensland looking for marinas. In Queensland, over the last 7 years the number of registered vessels over 8 metres, those of which require a berth, has increased from 6,917 to 11,305. This represents an increase of 63.4% which is an average increase of approximately 8% per annum (Hibberd, B. personal communication, 4 June 2007).

Market expectations regarding service, infrastructure, support services and destination are also exceedingly high (Brinkman, J. personal communication, 8 May 2007). Mr Hird reports that preferences amongst Superyacht visitors for docking locations include areas which provide:

- A safe place;
- Good engineering and provisioning support;

- Suitable berthing;
- Reliable EFTPOS; and
- Communication facilities.

Further, Mr Hird stated that the key to positive economic flow on is the length of stay of Superyacht visitors, as increased days in port equate to more fees for the Port Authority and increased recreational and retail spending (Hird, M. personal communication, 11 April 2007).

On the basis of available evidence and industry feedback, we conclude that there is a demonstrable need for superyacht berthing facilities in North Queensland.

4.9 DEMAND AND SUPPLY FOR RESIDENTIAL LAND AND PROPERTIES

This section considers the fundamental issues of supply and demand for residential land and housing including rental properties within the Townsville and Thuringowa region. This review will be an important precursor to the more detailed analysis of the economic impacts of the proposed TOT on the local residential property market both during construction and subsequently during the 'life' of the Breakwater Cove precinct.

4.9.1 Housing Supply

This section reviews the available land for future residential development in the Townsville and Thuringowa region. Table 3 provides a summary of the findings.

TABLE 3: TOWNSVILLE AND THURINGOWA CURRENT AND FUTURE LAND AVAILABILITY AND DWELLINGS

	Townsville	Thuringowa	Total
Broadhectare Stock	1,306 ha	1,981 ha	3,287 ha
Current Dwellings	6,105	15,483	21,588
Future Required Dwellings*	17,300	17,000	34,300
Future Urban Areas	• Rocky Springs	• Bohle Plains • Jensen • Beach Holm • Mount Low	

4.9.1.1 Current Housing Supply

A recent report published by PIFU, *Residential Land Supply and Demand Study - Incorporating Broadhectare Study, Townsville / Thuringowa 2005*, measures land supply for future residential development and its capacity to house resident population in Townsville and Thuringowa.

The report used a broadhectare methodology to measure the availability of potential residential land and then assesses the amount of available land against expected future demand.

PIFU estimated that the total area of Broadhectare land in both Townsville and Thuringowa cities for residential development was 3,287ha. The identified residential land is classified into two categories – (a) urban and (b) lower density residential land (based on the permitted size for lot subdivision under the Council's planning scheme). The quantity of land available in the urban residential land for development is 1,891ha and the Lower density residential land available for development is 1,396ha.

Thuringowa City holds 70% of broadhectare Land for development at urban densities while Townsville City contains the majority of lower density residential land.

An analysis of the potential number of dwellings that could be constructed from broadhectare land in Townsville and Thuringowa Cities is provided in the report. These estimates are based on the planning scheme and dwelling yields currently being obtained

in new developments. It is estimated that broadhectare land can potentially yield more than 21,500 dwellings and urban lot densities will account for 89% of the potential Broadhectare dwelling yield.

4.9.1.2 Future Housing Supply

The vast majority of future urban development in Townsville-Thuringowa is expected to take place in Thuringowa's Northern Beaches area, under current planning scenarios.

According to PIFU, urban residential land supply under high development scenarios (projected on either past lot production scenarios or projected household demand scenario) is estimated to be exhausted within 7 to 9 years in Townsville City (2013 to 2015). A proposed future urban area within Townsville City is Rocky Springs. Rocky Springs and general brownfield sites within Townsville City equate to:

- Area of land under investigation for potential residential use – 1,830ha; and
- Approximate dwelling yield – 17,300 dwellings.

The land within proposed future areas could add between 23 to 34 years to residential land supply in Townsville City depending on the level of production.

In Thuringowa City, Urban residential land supply under the high development scenarios (past lot production scenario or projected household demand scenario) is estimated to be exhausted within 19 to 30 years. There are four proposed future urban areas that can be used:

- Bohle Plains;
- Jensen;
- Beach Holm; and
- Mount Low

These areas are identified largely in accordance with the *Townsville/Thuringowa Strategy Plan* and can potentially yield approximately a total of 17,000 dwellings.

4.9.2 Housing Demand

Housing demand and needs are driven by population growth, and demographic change. Sustained population growth into the future will underpin strong demand for accommodation in Townsville-Thuringowa. Recent demand patterns provide some insights into market dynamics, and possible implications for the market into the future.

The growth of single occupant households is also expected to contribute towards some changes in the composition of housing needs, with growing demand for smaller types of accommodation such as apartments, townhouses and villas.

4.9.2.1 Current Demand

Figure 17 shows median land sale prices and land sales volumes for Townsville-Thuringowa for the period 1998 to 2006.

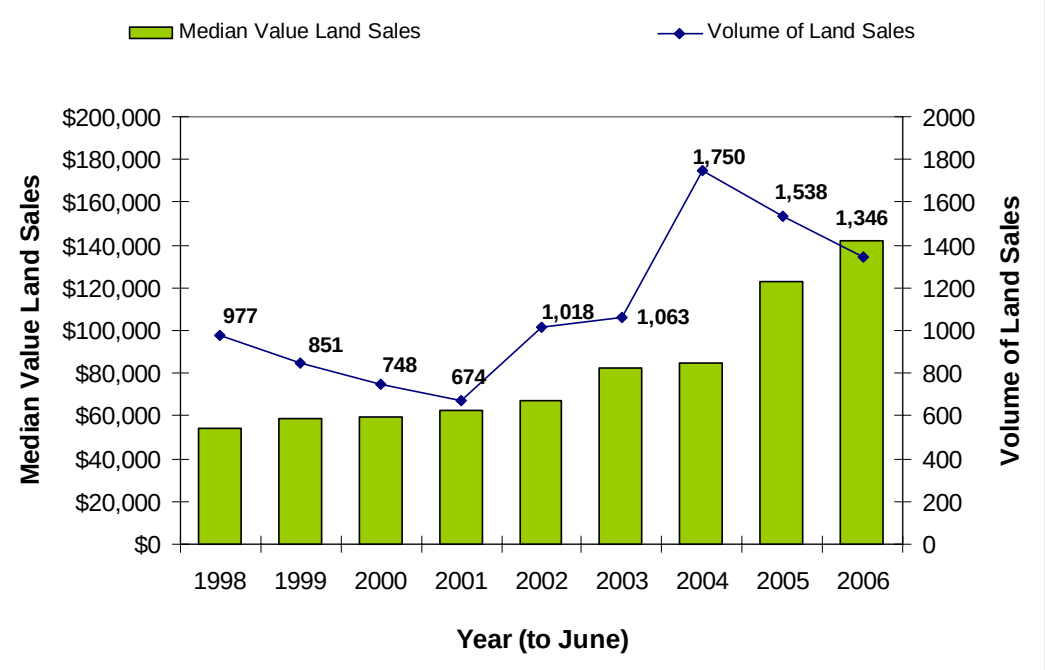
The chart shows that over the past 8 years, the value of land has gradually increased, with median value land sales significantly increasing in 2005 and 2006. From June 2005

to June 2006 there was a 44.24% increase in median value land sales and a 15.74% decrease in land sales by volume.

The data also shows the cyclicality of land sales, as sales volumes interacts with growing land values. As such, after sustained and rapid growth in demand for land between 2001 and 2004, at which point demand peaked at 1,750 allotments, demand for land has declined in the past two years [Figure 17 and Table 4].

Table 4 indicates that between 2003 and 2006, the biggest increase in volume of land sales was from June 2003 to June 2004, where there was a 64.63% increase in land sales. Since then, however, the volume of land sales has decreased by 23.08% from June 2004 to June 2006.

FIGURE 17: MEDIAN VALUE LAND SALES FOR TOWNSVILLE-THURINGOWA



Source: PIFU

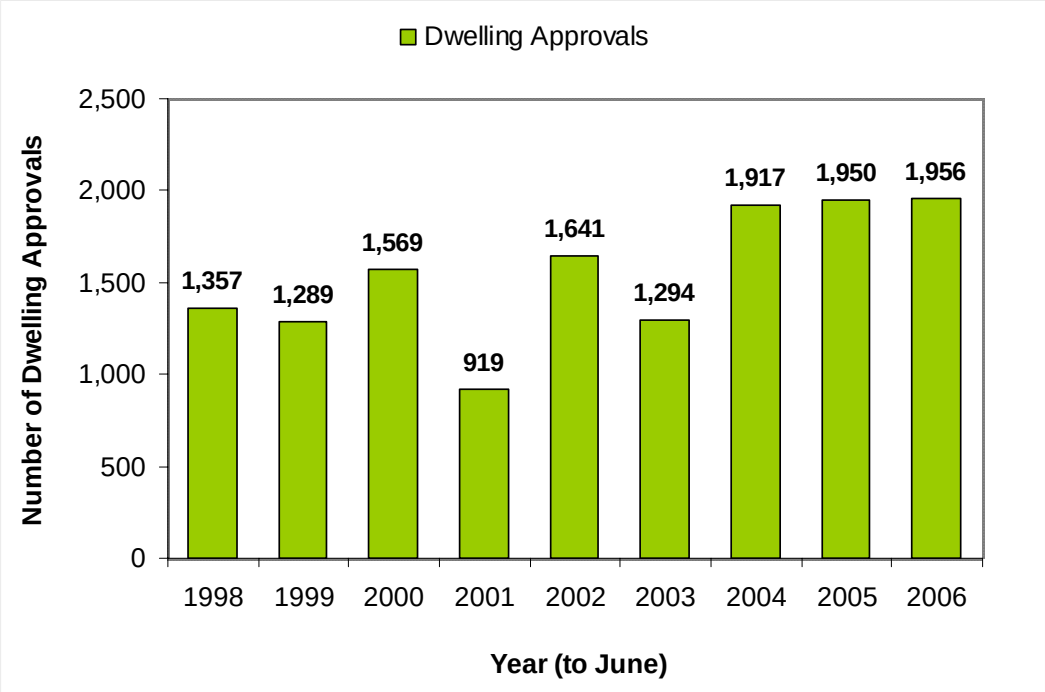
TABLE 4: MEDIUM VALUE LAND SALES, VOLUME LAND SALES AND DWELLING APPROVALS (% CHANGE)

Year	% change median value land sales	% change volume of land sales	% change dwelling approvals
1998/1999	7.55%	-12.90%	-5.01%
1999/2000	2.05%	-12.10%	21.72%
2000/2001	4.87%	-9.89%	-41.43%
2001/2002	7.04%	51.04%	78.56%
2002/2003	23.32%	4.42%	-21.15%
2003/2004	3.03%	64.63%	48.15%
2004/2005	44.24%	-12.11%	1.72%
2005/2006	15.74%	-12.48%	0.31%

Source: PIFU

Figure 18 shows the dwelling activity in the Townsville-Thuringowa region over the years 1998 to 2006. In recent years, from June 2004 to June 2006, dwelling approvals have steadily increased. The biggest increase in dwelling approvals was from June 2001 to June 2002 and June 2003 to June 2004 where there was a 78.56% and 48.15% increase in dwelling approvals [Table 4].

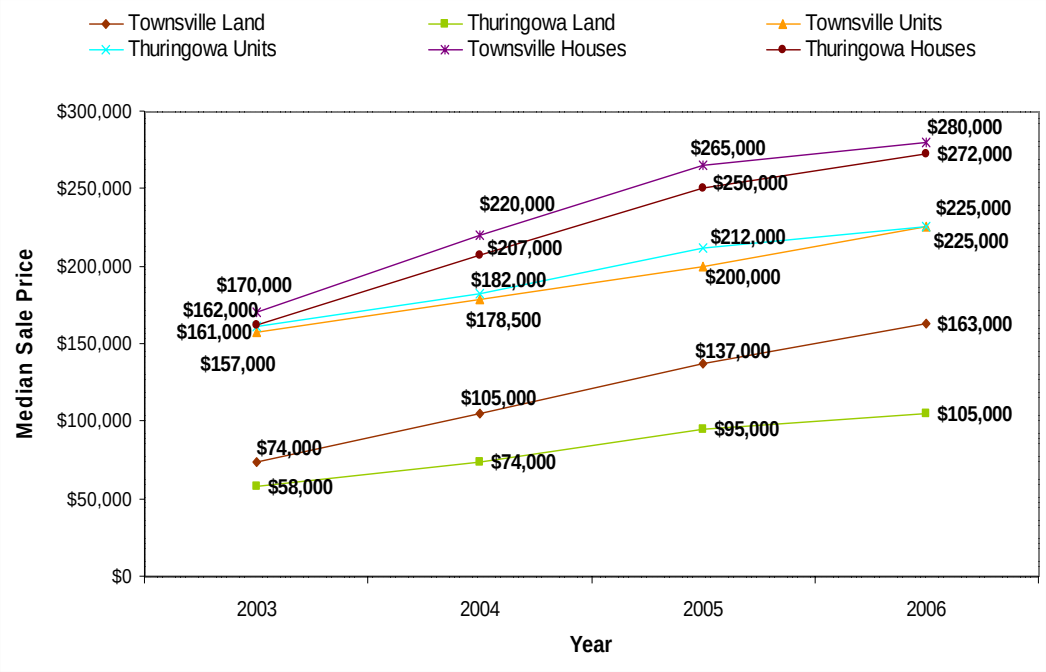
FIGURE 18: DWELLING APPROVALS IN TOWNSVILLE-THURINGOWA



Source: PIFU

Overall, sale prices for Land, Units and Houses have all increased from the years 2003 to 2006. Townsville has performed better in terms of higher selling prices for both Land and Houses. Overall, Thuringowa's Unit sale prices have been slightly higher than Townsville's Unit sale prices from the years 2003 to 2006 [Figure 19].

FIGURE 19: TOWNSVILLE AND THURINGOWA MEDIAN SALE PRICES



Source: QVAS

Increasing sale prices for Land, Units and Houses all indicate that there exists a tight market in the Townsville-Thuringowa region. A shortage in supply and continual increases in consumer demand are reflected in the high selling prices. If current market conditions continue to exist, selling prices can be expected to continue to increase unless there is an expansion in housing supply (all other things being equal).

The Urban Development Institute of Australia (UDIA) has recently argued that there exists an inadequate match of land supply and demand throughout all Australian cities. Subsequently this has lead to an affordability crisis which undermines the socio-economic prosperity of the Australian people (UDIA, 2006).

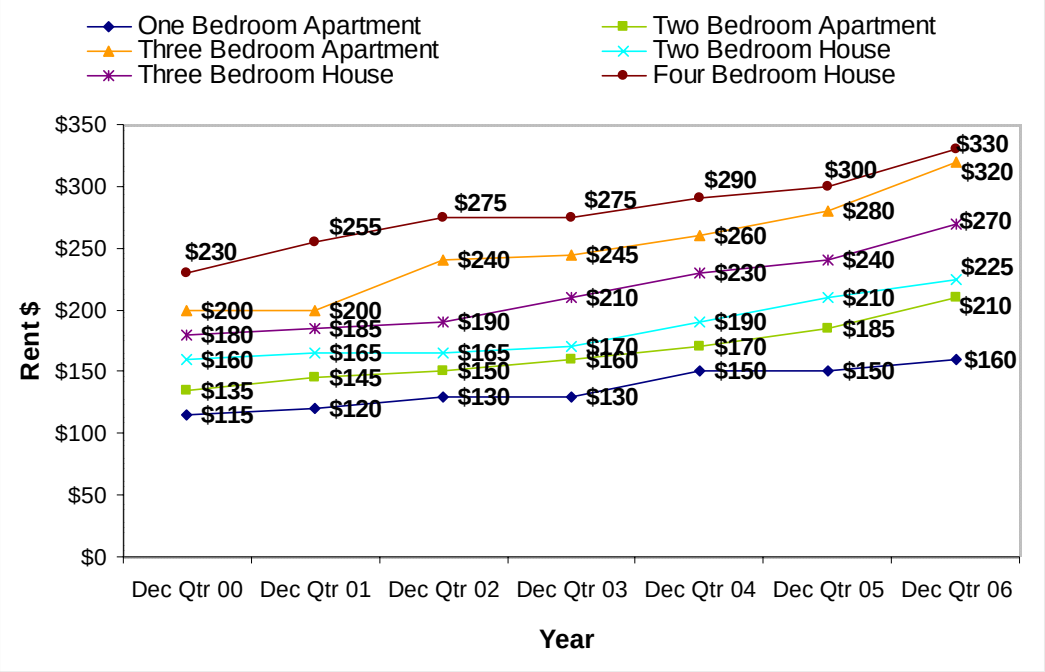
4.9.3 Rental Accommodation Demand

Figure 20 illustrates Townsville's median rental accommodation prices for the years 2000 to 2006 (December Quarter). As illustrated, all types of rental dwellings have experienced continual rental price increases [Table 5].

Figure 21 illustrates Thuringowa's median rental accommodation prices for the years 2000 to 2006 (December quarter). It shows that rental prices for two bedroom houses, three bedroom houses and four bedroom houses have all increased from the years 2000 to 2006. Two bedroom apartments and three bedroom apartments were the only two rental accommodation types that experienced any decrease in prices in any of the years.

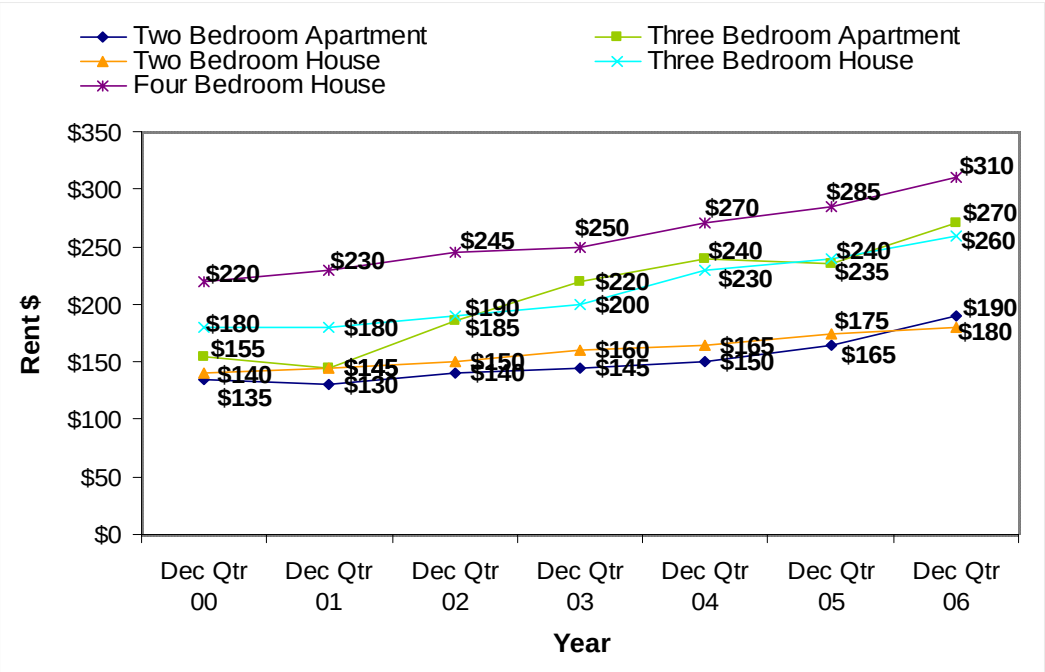
In December 2000 to December 2001 two bedroom apartments and three bedroom apartments experienced a decrease in price by 3.70% and 6.45% respectively. In addition, three bedroom apartments also experienced a decrease in rental prices of 2.08% from December 2005 to December 2006 [Table 6].

FIGURE 20: TOWNSVILLE MEDIAN RENT BY DWELLING TYPES



Source: RTA

FIGURE 21: THURINGOWA MEDIAN RENT BY DWELLING TYPES



Source: RTA

TABLE 5: TOWNSVILLE RENTAL ACCOMODATION COST (% CHANGE)

Year (Dec Qtr)	One Bedroom Apartment	Two Bedroom Apartment	Three Bedroom Apartment	Two Bedroom House	Three Bedroom House	Four Bedroom House
2000/2001	4.35%	7.41%	0.00%	3.13%	2.78%	10.87%
2001/2002	8.33%	3.45%	20.00%	0.00%	2.70%	7.84%
2002/2003	0.00%	6.67%	2.08%	3.03%	10.53%	0.00%
2003/2004	15.38%	6.25%	6.12%	11.76%	9.52%	5.45%
2004/2005	0.00%	8.82%	7.69%	10.53%	4.35%	3.45%
2005/2006	6.67%	13.51%	14.29%	7.14%	12.50%	10.00%
Average	5.78%	7.68%	8.36%	5.93%	7.06%	6.26%

TABLE 6: THURINGOWA RENTAL ACCOMODATION COST (% CHANGE 2000-2006)

Year (Dec Qtr)	Two Bedroom Apartment	Three Bedroom Apartment	Two Bedroom House	Three Bedroom House	Four Bedroom House
2000/2001	-3.70%	-6.45%	3.57%	0.00%	4.55%
2001/2002	7.69%	27.59%	3.45%	5.56%	6.52%
2002/2003	3.57%	18.92%	6.67%	5.26%	2.04%
2003/2004	3.45%	9.09%	3.13%	15.00%	8.00%
2004/2005	10.00%	-2.08%	6.06%	4.35%	5.56%
2005/2006	15.15%	14.89%	2.86%	8.33%	8.77%
Overall	**6.02%**	**10.20%**	**4.29%**	**6.41%**	**5.90%**

4.9.3.1 Vacancy Rates

For the December quarter 2006, Townsville-Thuringowa region recorded a house vacancy rate of 2.4%. This was an increase of 140% from the previous quarter in September 2006 where there was a vacancy rate of 1.0%. This is a significant increase in vacancy rates considering that house vacancy rates reported for the June quarter 2006 were recorded at 1.9%, representing a decrease of 47.4% when compared to the September quarter 2006 vacancy rates (1.0%).

In addition, Unit/Townhouse vacancy rates experienced an increase from the September quarter to the December quarter 2006 where it was reported that vacancy rates were 1.6% and 1.8% respectively. This represents an increase of in vacancy rates of 12.5% which is an improvement considering that vacancy rates for the June quarter 2006 to September quarter dropped from 2.4% to 1.6%, a decrease by 50% (REIQ, Autumn 2007).

Whilst Queensland as a whole has been experiencing tight vacancy rates, regional communities have been experiencing significant decreases in vacancy rates. Townsville and Thuringowa region ranked the third lowest (of total of 31 regions) for Queensland housing vacancy rates (1.0%), with Redcliffe (0.4%) and Maryborough (0.9%) both reporting the lowest vacancy rates for Queensland for September quarter 2006 (REIQ, Summer 2006/2007).

Furthermore, Townsville-Thuringowa region and Bundaberg equally ranked eighth (of total of 26 regions) for the lowest Unit/Townhouse Vacancy rates reported at 1.6%.

Regions which ranked lower included; Banana (0.40%), Brisbane Outer (0.8%), Logan (1.10%), Yeppoon (1.20%), Redland (1.30%), Cairns (1.50%) and Port Douglas (1.50%).

4.9.4 Future Demand for Housing

Demand for residential dwellings in the Townsville-Thuringowa region is dependent on population growth in the region. For the year ended June 2005, net migration accounted for 67% of population growth (2,956 people), reflecting the strong labour market and lifestyle attractions in the region. PIFU projects that the population will grow at over 2% per year to well over 200,000 by 2026 (PIFU, 2006).

Section two of this report present broad evidence of a growing and robust economy. The key to the region's economic stability is its diversity, with a wide range of industry sectors contributing substantially to GRP. With many diverse industries fuelling economic growth and creating employment opportunities, it is highly probable that demand will continue to increase for all dwellings, as the population continues to grow into the future.

Furthermore, average household sizes are forecast to continue to slowly decline in the foreseeable future as a consequence of an increasing incidence of lone person households and households with two adults and no dependants.

The average household size, calculated from the 2001 Census data for Townsville and Thuringowa was 2.5 and 3.0 persons respectively. However, projections of average household size indicate a decline to 2.3 and 2.7 persons in Townsville and Thuringowa respectively (DLGPSR, 2005).

Thus coupled with a growing population and smaller household sizes, more residential dwellings will be needed than in the past to satisfy population increases in the Townsville - Thuringowa region.

Table 7 provides a summary of the key determinants which affect supply and demand for residential dwellings. Based on these determinants, a basic measure of future demand for residential dwellings can be estimated. The forecast population for 2026 is 220,136 persons for the Townsville-Thuringowa region (Townsville 126,908 persons and Thuringowa 93,220 persons). Assuming that this forecast prevails and household sizes are approximately 2.5 for the Townsville- Thuringowa region, then for the next 20 years a total of 88,054 dwellings will be needed to satisfy demand. As current supply is estimated at 61,912, a further 27,794 dwellings will be required over 20 years, which equates to 1,389 dwellings on average each year.

TABLE 7: FUTURE DEMAND AND SUPPLY

	Population 2005	Dwellings at 2006[a]	Population 2026	Dwellings 2026	New Dwellings Required
Thuringowa (C)	61,655	20,551	93,228	34,529	13,978
Townsville (C)	103,404	41,362	126908	55,177	13,815
Townsville-Thuringowa	165,059	61,912	220,136	89,706	27,794

[a] Estimates are based on 2005 population figures divided by household sizes.

4.10 PROPETY MARKET IN THE TOT PRIMARY CATCHMENT

The residential properties in close proximity to the Ocean Terminal development include the suburbs of Belgian Gardens, Castle Hill, North Ward and Townsville City. Property sale information pertaining to these suburbs are analysed below to reveal existing demand conditions. Furthermore, the rental market in the Primary catchment and for Townsville as a whole is analysed, with information presented on medium weekly rents and new bonds created.

4.10.1 Demand for Housing in the Primary Catchment

Figures 22 to 25 present median sale prices on Houses, Units and Townhouses in Belgian Gardens, Castle Hill, North Ward, Townsville City and Townsville LGA (to provide a comparison). The data obtained is from the REIQ which is based on Queensland Land Titles sales records.

Figure 22 reveals that median house sale prices for Belgian Gardens, Castle Hill and North Ward have all been above the median house sale prices for Townsville LGA as a whole, for all 3 quarters in 2006. The December quarter represented the lowest median house sale prices for Belgian Gardens and North Ward (Note: Data on Castle Hill not available).

Annual median house sale prices for 2001 and 2006 (year ending to December 2006) are represented in figure 23. All localities have experienced positive growth over the 5 years. The Townsville LGA, Belgian Gardens and North Ward had increases in median house sale prices by 125%, 109% and 168%, respectively.

Figure 24 reveals that median Unit and Townhouse sale prices for Belgian Gardens and Townsville City have both been above the median Unit and Townhouse sale prices for Townsville LGA as a whole, for most quarters in 2006. North Ward median sale prices were only slightly below Townsville LGA median sale price for the June quarter 2006.

North Ward and Townsville City suburbs have both experienced continual median sale price increases over the June, September and December quarters.

Annual median Unit and Townhouse sale prices for 2001 and 2006 (year ending to December) are represented in figure 25. All localities have experienced positive growth over the 5 years. The Townsville LGA, Belgian Gardens and North Ward had increases in median Unit and Townhouse sale prices by 86%, 143.1%, 108% and 83.3%, respectively.

FIGURE 22: PRIMARY CATCHMENT MEDIAN HOUSE PRICES (QUARTER)

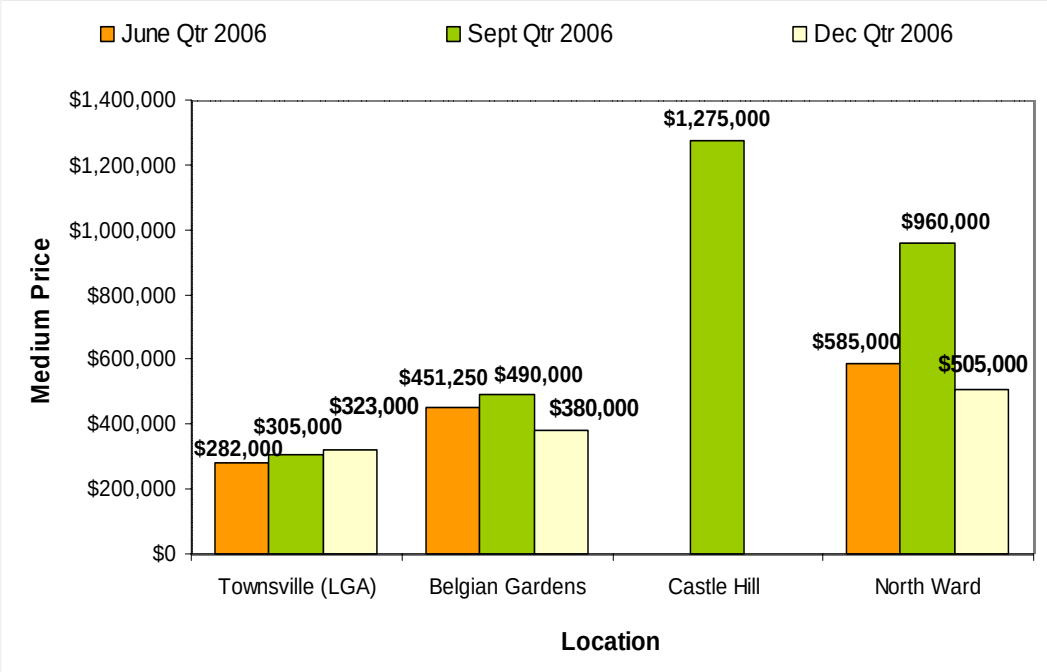
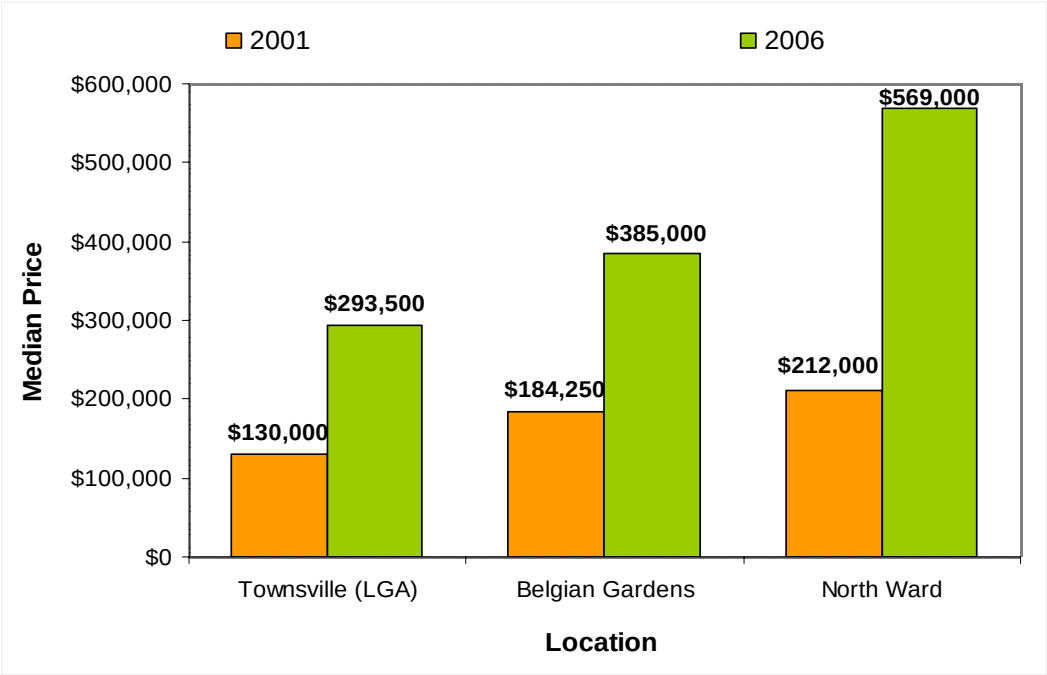


FIGURE 23: PRIMARY CATCHMENT MEDIAN HOUSE PRICES (5 YEARS ON END OF DECEMBER)



**Castle Hill data N/A*

FIGURE 24: PRIMARY CATCHMENT MEDIAN UNIT & TOWNHOUSE PRICES (QUARTER)

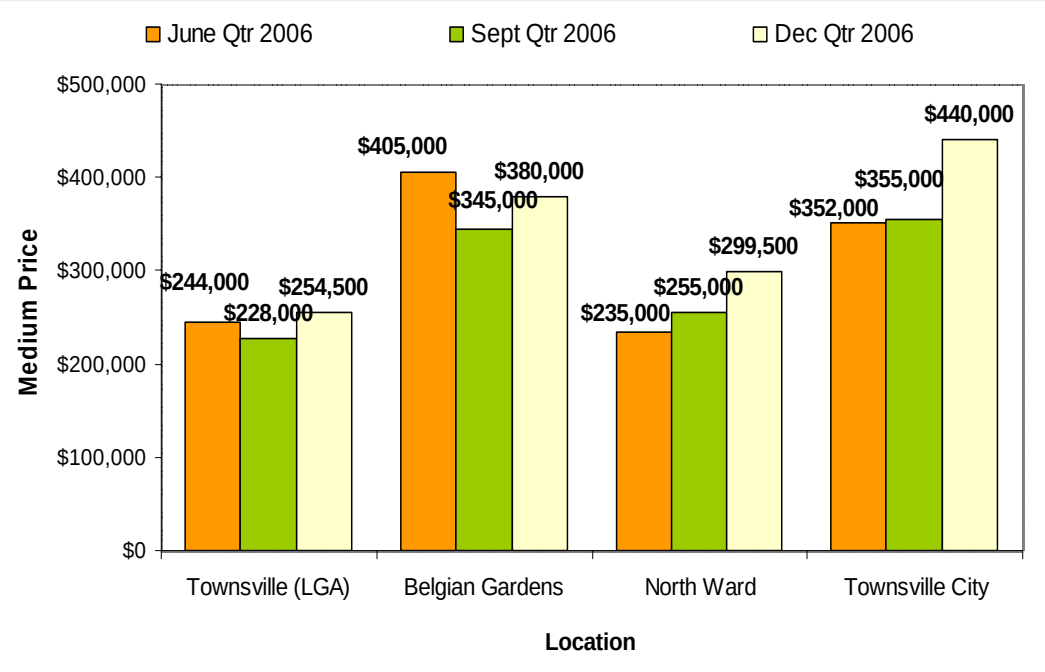
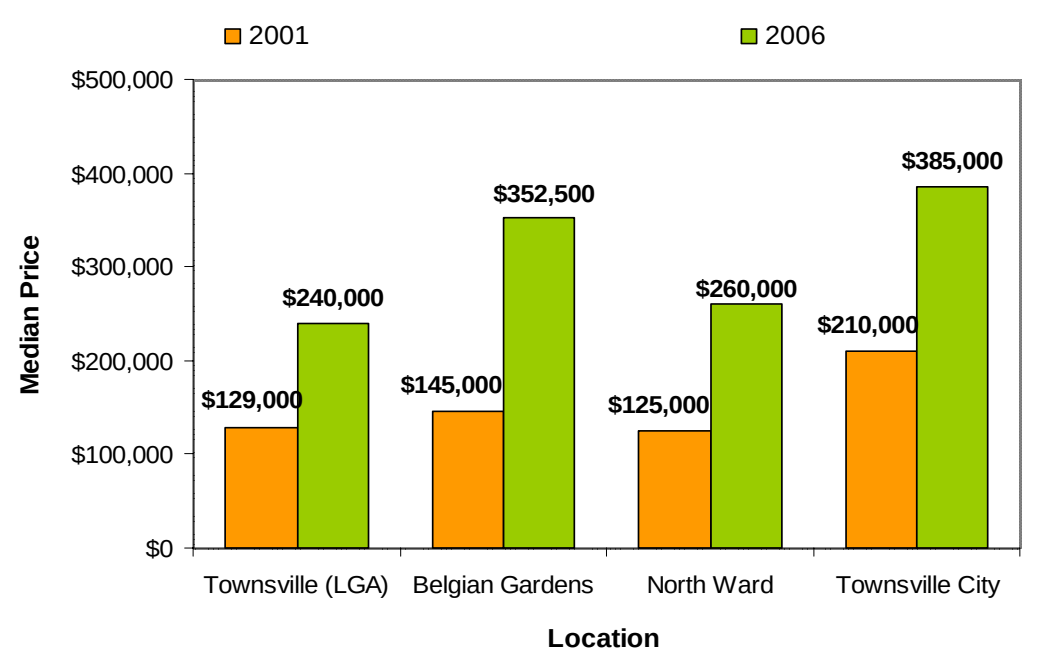


FIGURE 25: PRIMARY CATCHMENT MEDIAN UNIT & TOWNHOUSE PRICES (5 YEARS ON END OF DECEMBER)



4.10.2 Demand for Rental Accommodation in Primary Catchment

Figure 26 shows a comparison of median weekly rental prices for properties in Townsville LGA and localities with the postcode 4810. Properties with this postcode include: Belgian Gardens, Castle Hill, North Ward, Pallarenda, Railway Estate, Townsville City and West End (i.e. TOT Primary Catchment).

Median weekly rents are higher in both quarters and for both accommodation types (3 bedroom house and 2 bedroom units) within the Primary Catchment. Furthermore, median weekly rentals for both accommodation types in the Primary Catchment have increased by a greater proportion over December 2005 to 2006 period. Three bedroom houses in Townsville LGA increased by 11% over the year, whereas 3 bedroom houses in the Primary Catchment increased by 14%. Similarly, median weekly rentals for 2 bedroom Units increased by 15% over the year in the Primary Catchment, higher than the median rental price increase for the Townsville LGA (12%).

FIGURE 26: PRIMARY CATCHMENT MEDIAN WEEKLY RENTS FOR HOUSES AND UNITS

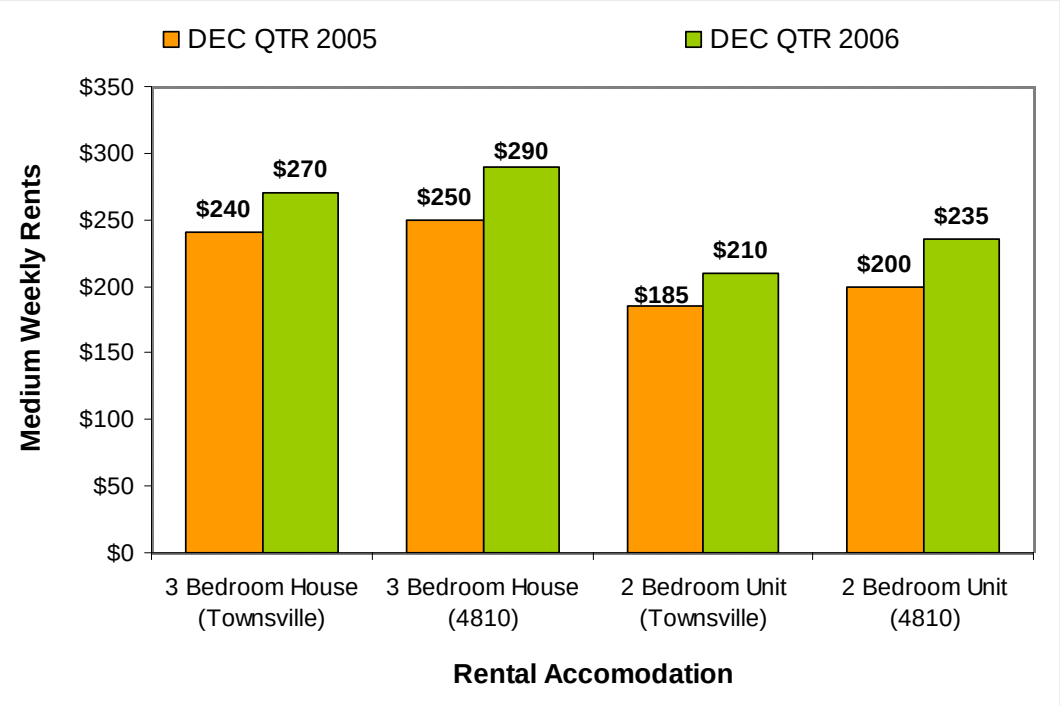


Table 9 (next page) lists the number of new rental bonds for December quarters in 2005 and 2006 for Townsville as a whole and for suburbs defined by postcode. Table 8 lists each postcode and its associated suburb.

TABLE 8: TOWNSVILLE POSTCODES AND ASSOCIATED LOCATALITIES

Postcode	Suburb
4810	• Belgian Gardens • Castle Hill • North Ward • Pallarenda • Railway Estate • Townsville City • West End
4811	• Cluden • Idalia • James Cook Uni • Oak Valley • Oonooba • Partington • Roseneath • Wulguru
4812	• Currajong • Gulliver • Hermit park • Hyde Park • Mundingburra • Mysterton • Pimilico • Rosslea
4814	• Aitkenvale • Cranbrook • Douglas • Garbutt • Heatley • Mt Elliot • Mt Louisa • Murray • Vincent
4819	• Arcadia • Arcadia Bay • Horseshoe Bay • Magnetic Island • Nelly Bay • Picnic Bay

Table 9 shows that the rental market in Townsville for 3 bedroom Houses is expanding, with an increase in new bonds by 5.7% from the previous year. New bonds created over the year in the primary catchment ranked the 2nd highest compared to all other localities. Suburbs with the 4811 postcode ranked the highest in terms of the % of new bonds created.

New bonds created for 2 bedroom Units has decreased overall, from December quarter 2005 to 2006, in Townsville (-3.7%). The primary catchment was the only area which

experienced an increase in new bonds for 2 bedroom Units. Further, the catchment holds the greatest amount of new bonds, compared to all localities in the region, holding 47.2% and 51.8% of new bonds for 2 bedroom Units in Townsville, for December 2005 and 2006, respectively.

TABLE 9: NEW BONDS CREATED (DECEMBER QUARTER)

	4810	4811	4812	4814	4819	Townsville
3 Bedroom House						
DEC QTR 2005	55	19	62	200	12	348
% of Townsville	15.8%	5.5%	17.8%	57.5%	3.4%	100.0%
DEC QTR 2006	65	24	72	199	8	368
% of Townsville	17.7%	6.5%	19.6%	54.1%	2.2%	100.0%
% Change (year)	**18.2%**	**26.3%**	**16.1%**	**-0.5%**	**-33.3%**	**5.7%**
2 Bedroom Unit						
DEC QTR 2005	244	11	177	71	14	517
% of Townsville	47.2%	2.1%	34.2%	13.7%	2.7%	100.0%
DEC QTR 2006	258	5	153	71	11	498
% of Townsville	51.8%	1.0%	30.7%	14.3%	2.2%	100.0%
% Change (year)	**5.7%**	**-54.5%**	**-13.6%**	**0.0%**	**-21.4%**	**-3.7%**

Source: REIQ 2007

5 THE CRUISE INDUSTRY IN PERSPECTIVE

5.1 GLOBAL CONTEXT

The international cruise industry has experience an average growth of 8.4% per annum since 1980, although growth rates experienced in the last ten (10) years have been considerably higher than this average (Dwyer et al., 2004). The Cruise Line Industry Association (CLIA) has predicted the value of international cruising to be excess of $85 billion by the year 2007 with a number of factors fuelling this growth including (CLIA, 2002):

- Expansion of the product base in terms of new ships and their carrying capacity;
- Ongoing development of regional markets following the saturation of tradition markets in the Caribbean, Mediterranean and Baltic area; and
- A growth in market for cruise-based tourism from the 45 year old plus market – those with high disposable incomes and who have no children.

The cruise business remains a major growth area of international tourism, with the dominant world destinations being the Caribbean (50%), Mediterranean (10%) and Alaska (8%), trans Panama Canal (6%) and West Mexico and Northern Europe with 4% each (CLIA, 1995).

While the global growth in cruise industry has been fairly consistent, with the exception of the last decade, the growth in the Pacific Asia cruise business has been much greater with a 123% increase in the past decade, albeit from a lower base. As noted above, much of this can be ascribed to the search for new cruise ship destinations outside the traditional northern hemisphere routes.

The Australian domestic cruise industry has recorded a less spectacular growth over the last five (5) years and remains relatively small at around 50,000 passengers a year (Dwyer et al., 2004). The egress point for most cruise tourism in Australia has historically been Sydney with cruising routes restricted to the South Pacific and Tasman Sea areas, although a small “boutique” cruise ship operates in the Coral Sea between Townsville and Cairns.

The opportunity for growth in the cruise industry market within Australia lies in the prospect of Australia as a “safe and interesting destination”. The challenge has become one of encouraging stopover visits from ships in transit within the region as well as convincing large cruise lines to base their ships in Australia for short seasons.

5.2 AN OVERVIEW OF THE CRUISE SHIP INDUSTRY IN AUSTRALIA

In the context of the global cruise ship industry, Australia is regarded as a single destination as part of a global or continental itinerary with most operators choosing a several ports and anchorages as part of their itineraries. In addition some cruise lines base one of more of their fleet of vessels in Australian ports for a combination of year-round and seasonal itineraries.

In 2004-5, the cruise shipping industry in Australia hosted 23 vessels with a passenger capacity of 21,500 berths and a crew of 9,882 (AEC, 2006). In the same year the global industry comprised 190 vessels and 240,000 berths, indicating the Australian industry captured less than 10% of the global movement of cruise ship passengers in that year. In 2005-06, Australia hosted 28 vessels with a passenger capacity of 25,830 and a crew of 12,031, an increase of 18.8% and 21.7% respectively over the previous year (AEC, 2006).

AEC also noted that the type of vessel in terms of passenger capacity and the number of days these vessels spent in Australian ports changed from the previous year. The number of cruise ship visiting Australian ports with a capacity of 1,000+ passengers increased from 8 to 11, including the largest with a capacity of 2,600 passengers.

In 2005-06, there was a total of 406 cruise ship visits to Australian ports, an increase of 81 over the previous year. Sydney, Brisbane and Melbourne remain the most frequented ports with Fremantle, Hobart and Darwin also recording significant numbers of cruise ship visits. In total, these ports accounted for two-thirds (66.3%) of all cruise ship visits to Australia in 2005-06 (Table 10). A large number of port visits by cruise ships was also recorded for Cairns and the Whitsunday's, although the majority of these port visits are from smaller capacity coastal cruising vessels (Table 11).

TABLE 10: NUMBER OF CRUISE SHIP VISITS TO SELECTED AUSTRALIAN PORTS, 2005-2006

Destination / Port	Number of Visits
Sydney Harbour	97
Melbourne	36
Brisbane	49
Adelaide	13
Fremantle	21
Hobart	22
Burnie	9
Darwin	22
Other [(a)]	137
TOTAL	**406**

[(a)] This includes 79 visits to Cairns and 21 visits to the Whitsunday's by smaller capacity coastal cruising vessels such as the Coral Princess

Source: AEC (2006) Economic Impact of the Cruise Shipping Industry in Australia, 2005-06.

Australia experienced considerable growth in the cruise ship industry, with the number of cruise ship visits to Australian ports from 2004-05 to 2005-6 increasing by 24.9% (AEC, 2006). The exception to this was in Queensland where with the exclusion of Brisbane, port visits declined by 21.3%. The largest decline was in Cairns where port visits fell by 26%, although as noted above the majority of visits are from smaller capacity vessels.

The number of ships visiting Townsville fell from 5 in 2004-05 to 3 in 2005-06.

In 2005-06, there were a total of 395,700 passenger days in port and 171,100 crew days in port associated with the 406 cruise ship visits. This represented an increase in passenger and crew days in port of 40.1% and 49.1% over 2004-05. Again, Sydney, Brisbane and Melbourne dominated the cruise industry in Australia but regional ports such as Fremantle, Hobart and Darwin also recorded significant numbers of passenger visits. In total, these ports accounted for 80.8% of total passenger visits and 80.5% of total crew visits in 2005-06 (Table 11).

TABLE 11: COMPARISON OF AUSTRALIAN CRUISE SHIP INDUSTRY VISITATION FOR SELECTED AUSTRALIAN PORTS, 2005 – 2006

Port	Cruise Visits	Passenger Days	Passenger Days/Ship	Crew Days At Port	Crew Days /Ship
Sydney Harbour	97	132,849	1370	53,765	554
Melbourne	36	47,514	1320	22,391	622
Brisbane	49	56,156	1146	24,005	490
Adelaide	13	14,071	1082	6,464	497
Fremantle	21	18,701	891	7,829	373
Hobart	22	26,809	1219	12,402	564
Burnie	9	9,888	1099	4,723	525
Darwin	22	13,726	624	6,160	280
Other [(a)]	137	75,984	554	33,389	243
TOTAL	**406**	**395,698**	975	**171,128**	421

[(a)] This includes 79 visits to Cairns by smaller capacity coastal cruising vessels such as the Coral Princess

Source: AEC (2006) Economic Impact of the Cruise Shipping Industry in Australia, 2005-06.

From Table 11 it can seen that vessel size and capacity varies across ports with destinations such as Sydney and Melbourne attracting vessels with an average passenger capacity in excess of 1,300 persons while the second tier destinations such as Brisbane, Adelaide, Hobart attracting vessels with an average passenger capacity in excess of between 1,100 and 1,200 persons.

Of the 'Other' ports, average carrying capacity of cruise ships ranged from less than 700 passengers down to approximately 300 passengers. While Cairns was the second most frequented port in Australia in 2005-06, the vessels docking in Cairns were considerably smaller at an average capacity of only 360 passengers.

The three (3) ships visiting Townsville in 2005-06 accounted for 1,664 passengers and 968 crew members, an average of 525 passengers and 323 crew members respectively.

5.3 GROWTH OPPORTUNITIES OF CRUISE SHIPPING IN AUSTRALIA

5.3.1 The Queensland Cruise Shipping Plan

A Queensland *Cruise Shipping Plan* developed in 2003 by Tourism Queensland and the Department of State Development established a framework and strategy to promote Queensland as a berthing point for international cruise ships visiting Australia.

The Australian cruise shipping industry is anticipated to continue to expand in the 2006-07 period with growth being experience both in the number and frequency of cruise ship visits to Australia and associated passenger, crew and operator expenditures. Based on forward estimates, numbers of cruise ship visits are anticipated to increase by more than 15% while passenger numbers and associated spending are anticipated to grow by more than 20%, based on larger ship sizes and increased per day expenditures by passengers in both base and transit ports (AEC, 2006).

With this in mind, the cruise shipping industry in Australia is positioning itself to take advantage of the continued growth in global cruise tourism with the commencement of two major developments:

- The $350m Brisbane Cruise Ship Terminal is anticipated to be operational by 2007, catering for larger ships and making Brisbane more attractive as a base or transit port. It is estimated that as a result of this development the number of different cruise ships visiting Brisbane will increase from 17 to 30 ship annually; and
- The $100m Townsville Cruise and Military Ship Terminal which is being developed in conjunction with adjacent marine and residential development projects. It is anticipated that following its completion in 2009, the terminal will attract significantly more cruise ships.

In 2004-05, five (5) cruise ships visited Townsville comprising a total of 2,678 passengers and 1,414 crew members, while in 2005/06 three (3) cruise ships with a total of 1,664 passengers and 968 crew members made transit stops in Townsville. Cruise ships visiting Townsville to date have been smaller in size than their counterparts in Sydney, Brisbane and Melbourne. On average, cruise ships visiting Townville carry 555 passengers and 322 crew members per vessel as compared to those visiting Sydney and Melbourne that carry approximately 1350 passengers and 600 crew members.

In order to capture the potential opportunities the *Queensland Cruise Shipping Plan* identified a number of actions that were required. Of particular relevance to the TOT project are the following observations and recommendations:

- Townsville is ideally located to capture some of the international cruising trade because it is close to the equatorial routes used by many world cruise vessels (p. 27);
- A key weakness in Queensland's capacity to capture the benefits of the global market in cruise shipping is the lack of cruise ship infrastructure and facilities at key destinations, including Townville (p. 27); and
- The lack of infrastructure contributes to the lack of berth guarantee, which is a

significant detractor for cruise ships that require berth guarantees at the time of booking, which can be up to two years before the arrival date of the ship (p. 30).

5.4 THE ECONOMICS OF CRUISE SHIPPING

Cruise tourism will have a local, regional and national impact arising from the arrival of foreign visitors. The extent of the economic impact will depend on the visitors' direct and indirect expenditure and the extent to which that expenditure relates to goods and services sourced from within the region or from outside the region. This issue of regional versus national distribution of economic impacts will have greater relevance in larger countries such as the United States or Australia.

In order to assess the economic significance of cruise tourism, the first step is to define the scope of the analysis, which for cruise tourism can be regional, state or national, and the relevant economy impacted upon, which in this instance could be the economy of Australia, the economy of Queensland or the economy of Townsville. Dwyer and Forsyth (1998) identify the scope of the impacts of cruise expenditure on regional and national activity [Table 12].

TABLE 12: IMPACTS OF CRUISE TOURISM ON REGIONAL AND NATIONAL ECONOMIES

Source	Expenditure Type		Scope of Impacts
Passenger	International Airfare		National
	Internal Travel		National, large regional
	Add-on expenditure		
		Pre/post accommodation	Regional, small national
		Local transport	Regional
	Port expenditure		Regional
Operator	Port Expenditure		
		Government charges	Regional
		Port charges	Regional
		Towage	National, small regional
		Stevedoring	National, small regional
	Provedoring		
		Bunkering	National, small regional
		Stores	National, large regional
		Services	Regional
	Crewing		
		Local resident	National, large regional
		Crew	Regional
		Crew port expenditure	Regional
	Ship Maintenance		Regional
	Marketing		National
	Taxes		National, Regional

Adapted from Dwyer and Forsyth (1998)

Increased spending associated with cruise tourism usually has a direct effect on the economy, which is typically concentrated in the region where the spending occurs. There will be leakages from the region of interest in respect of the need for regional industries and businesses to source the demand from outside the region, particularly in respect of goods and services to provision vessels and these will need to be subtracted from gross expenditures of the region of interest.

To the extent that previous research has estimated the impacts of cruise tourism on regional economies, passenger-related expenditures from port and stop-over visits make up the greatest contribution to overall economic impacts on the region.

For the purposes of this report, the scope of the analysis will be the Townsville region In determining the economic impacts, this preliminary research will make the assumption of minimal leakage from the region. Expenditure associated with cruise tourism that does not enter the economy of Townsville will be irrelevant to determination of economic impacts.

5.4.1 Classification of Cruise Related Expenditure

There are three broad steps in terms of assessing the economic significance of cruise tourism in the region. These are:

- Classification of expenditure injections into the local economy. Direct expenditures are classified as;
  - Passenger-related expenditure;
  - Crew-related expenditure;
  - Vessel-related expenditure; and
  - Support expenditure;
- Estimate the expenditure amounts for each of the different expenditure classifications. Due to a paucity of available empirical data on spending by cruise visitors to Townsville, a comprehensive review of relevant case studies will be presented;
- Use economic impact analysis tools (i.e. Input-Output analysis) to estimate the direct, indirect and induced effects on the economy from increases in regional cruise tourism expenditure in terms of:
  - Increased outputs from suppliers who sell directly to tourists or cruise operators;
  - Value-added impacts on the economy from flow-on expenditures through the economy;
  - Direct and flow-on wages income; and
  - Direct and indirect employment effects in terms of numbers of jobs created or supported.

5.4.1.1 Passenger-related expenditure

Passenger-related expenditures include both port visit expenditures and those that may occur before and after the cruise trip. Port visit expenditure will include retail spending on attractions and shopping, land-based excursions, local transportation and incidental

expenditure. These may also include incidental expenses on visits to doctors and other health professionals.

Pre- and post-expenditure will usually occur where a non-local passenger either boards or leaves the ship at the port. In such cases, they will usually undertake add-on expenditure on accommodation and meals, retail goods, local transport and land-based excursions in port before cruise begins or following disembarkation but before departing the region for their home. These add-on expenditures can be adjudged as being generated by the cruise.

Provedoring is often included as a passenger-related expenditure. While strictly speaking food purchases by the cruise operator to provide passengers while the cruise in progress are not directly attributable to passengers, the spending by the operator is on behalf of the passengers.

Lastly passengers pay various taxes such as GST of 10% on purchases of goods and services and departure taxes when leaving the country or fuel taxes when flying domestically to or from the port of embarkation or disembarkation. Note that these taxes are regarded as leakages from the regional economy and represent a national impact, and hence are outside the scope of this study.

5.4.1.2 Crew-related expenditure

Expenditure by crew members can include all of the expenditure categories outlined above for passengers including retail spending, pre- and post-cruise expenditure and incidental expenditures.

5.4.1.3 Vessel-related expenditure

Vessel-related expenditures can usually be classified as being local or state and federal in nature. Depending on the nature of visit by the cruise ship and the geo-physical characteristic of the port and surrounding waters expenditures will differ. They can include: port agency fees, storage and bunkering, port charges, pilotage and berthage charges, stevedoring, fuel bunkering, water, waste disposal and dry-dock charges.

Charges levies by the local port authority for use of the terminal and for pilotage and berthage, towage charges for use of the tugs, stevedoring charges and baggage and handling charges will mainly be for services supplied regionally and these expenditures will stay in the region.

Other services paid for including water, electricity, waste disposal will generally come from the region while most fuel supplies which are purchased within the region will come from outside the region. Ship-maintenance, including marine engineering and dry-dock charges will be paid to regionally based firms.

State and federal taxes will vary depending on the type and size of cruise vessel and the waters it traverses. In the case of cruise ship docking in North Queensland ports cruise ships will face levies such as the Oil Pollution Levy, the GBRMPA Environmental Management Charge which is charged for each passenger onboard and charges for the mandatory employment of Reef Pilots while traversing the waters of the inner Great Barrier Reef north of Cairns or the Whitsunday Marine Park.

5.4.1.4 Supporting expenditure

Supporting expenditures may include payments to local agents for office expenses, wages, shipping agent commissions and marketing expenses.

5.5 EMPIRICAL DATA

Previous research on the economic impact of the cruise shipping industry has been carried out for a number of Australian destinations.

In determining the economic impacts from cruise ship visits, it is important to identify whether the port of embarkation or disembarkation is a **base** port or a **transit** port. Average expenditures per passenger are considerably higher for base ports for the reason that passenger related expenditure on accommodation and food and beverage consumption, retail shopping, local transport and land-based excursions incurred pre- and post cruise are included.

Dwyer (1999) estimated passenger and crew expenditure at base ports to be approximately 3.5 and 2 times greater respectively than at transit ports.

5.5.1 Vessel Related Operator Expenditure

As with passenger and crew expenditure the extent of the economic impact will vary depending on whether the scope of the impact is national, state or regional. For example, Dwyer and Forsyth (1998) estimated coastal and international cruise operators to spend $239,000 and $195,000 respectively in the national economy for port charges, stevedoring, provedoring, fuel taxes etc. These expenditures would normally be spread across several ports of call as part of the coastal cruise or international itinerary making estimates of regional impacts challenging to quantify.

Comparisons of average port expenditure by operators in selected Australian ports indicates the larger ‘base’ ports of Sydney, Melbourne and Brisbane generate much higher operator or vessel-related expenditure. Operator expenditure in these ports ranges between $350,000 and $510,000 per vessel per port visit as compared with smaller major ports such as Fremantle and Hobart. Furthermore, regional North Queensland ports generate considerably lower vessel expenditures of between $24,000 and $34,000 per vessel per port visit (AEC, 2006) [Table 13]. The authors of this report acknowledge that the increase in operator expenditures between 2004-05 and 2005-06 is due largely to increased fuel bunkering costs.

As a further comparison, Dwyer et al. (2004) estimate the vessel-related port expenditures including port charges; port agency fees; pilotage, berthage and towage charges; stevedoring water, electricity, waste disposal services and taxes to be approximately $40,500 per visit. In this case, as with many regional port visits, fuel bunkering is not applicable.

While it is possible to make robust estimates of regional expenditure and associated impacts, given most cruise expenditure is incurred in stopover and base ports, some expenditure is national in nature while goods and services may be sourced from outside the region. For example, Dwyer and Forsyth (1998) estimate that of the coastal cruises operators’ total expenditure, more than 15% may be paid in taxes to state or national governments. Furthermore, expenditure on fuel, estimated by Dwyer and Forsyth (1998)

to be around 20% of total operator expenditure may have little impact on regional economies where that fuel is imported into the region.

TABLE 13: OPERATOR TOTAL AND AVERAGE EXPENDITURES FOR SELECTED AUSTRALIAN PORTS FOR 2004-05 AND 2005-06

Port	Total Operator Expenditure ($m)		Number of Vessels		Average Vessel Expenditure ($'000)	
	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06
Sydney	$ 26.8	$ 42.0	76	97	$ 352.6	$ 433.0
Melbourne	$ 8.2	$ 18.5	18	36	$ 455.6	$ 513.9
Brisbane	$ 12.2	$ 16.6	35	49	$ 348.6	$ 338.8
Adelaide	$ 0.2	$ 0.6	4	13	$ 50.0	$ 46.2
Fremantle	$ 2.6	$ 5.6	20	21	$ 130.0	$ 266.7
Hobart	$ 1.0	$ 1.4	12	22	$ 83.3	$ 63.6
Burnie	$ 0.0	$ 0.8	0	9	n/a	$ 88.9
Darwin	$ 2.7	$ 5.0	11	22	$ 245.5	$ 227.3
Cairns	$ 2.5	$ 1.9	11	22	$ 23.8	$ 24.1
Townsville	$ 0.2	$ 0.1	5	3	$ 34.3	$ 33.3
Other [(a)]	$ 0.9	$ 6.2	109	55	$ 8.3	$ 112.7
TOTAL	**$ 57.3**	**$ 93.7**	**325**	**406**	**$ 176.3**	**$ 230.8**

Source: AEC (2006) Economic Impact of the Cruise Shipping Industry in Australia, 2005-06.

5.5.2 Passenger and Crew Related Expenditure

The extent of the economic impact generated by passengers and crew spending will be determined by a number of factors including:

- *The geographic scope of the impact; be it national, state or regional*. If the scope is at the national level, only international passengers and crew will generate economic impacts, with expenditures by Australian passengers and crew regarded as transfer expenditures from one region to another. In terms of estimating regional impacts, as in the case of the Townsville Ocean Terminal, Australian passengers and crew can be considered;
- *The proportion of passengers and crew disembarking at ports of call*. In line with previous research the proportion of passengers disembarking are assumed to be;
    - 90% of passengers for transit ports;
    - 100% of passengers for base ports;
    - 85% of crew for transit ports; and
    - 25% of crew for base ports

A number of surveys estimating base and transit expenditure by passengers and crew have been undertaken in the past five (5) years.

There are few estimates of base port per day passenger expenditures in the literature.

Those available estimates range from $212 to $250 per day (in Australian dollars) to $983 total expenditure over the duration of the passengers pre- and post-trip stay in the base port. Likewise there are few estimates of base port per day crew expenditures with figures ranging from $175 to $321 per day (in Australian dollars) [Table 14].

In terms of passenger expenditures while the vessel is transit or stopping over in port, estimates range from $95 to $160 per day. Within Australia, estimates differ between capital and regional cities with the former accounting for expenditures of $151 and the latter $95 per day. Estimates of crew expenditures range from $79 up top $244 per day with estimates for capital and regional cities in Australia being $75 and $244 respectively [Table 14].

TABLE 14: BASE AND TRANSIT EXPENDITURES BY PASSENGERS AND CREW

		Passenger Expenditure[1]		Crew Expenditure[2]	
Port	**Year**	**Base Port**	**Transit Port**	**Base Port**	**Transit Port**
Hobart [a]	2006	n/a	$ 140	n/a	$ 79
Capital City [b]	2006	$ 983	$ 151	$ 321	$ 244
Regional City [b]	2006	n/a	$ 95	n/a	$ 75
Darwin [c]	2003	n/a	$ 160	n/a	$ 112
Cairns [d]			$ 180		$ 150
New York (US)	2004	$ 250	$ 95	n/a	$ 85
Key West (US) [e]	2005	n/a	$ 45	n/a	$ 85
North England [f]	2001	$ 212	$ 150	$ 175	$ 65
Caribbean (US) [g]	2001	n/a	$ 137	n/a	$ 112
Townsville [h]	1990	n/a	$ 115	n/a	$ 112

[a] Tourism Tasmania (2006)
[b] AEC (2006). Note that base port expenditures are total not per day expenditures
[c] Northern Territory Tourism Commission (2006)
[d] Dwyer et al. (2004)
[e] Murray and Associates (2005). Estimate converted to $A using exchange rate of $0.75
[f] Cruise UK, Cruise Port Statistics (2003). Estimate converted to $A using exchange rate of $0.40
[g] PricewaterhouseCoopers (2001, 2003). Estimate converted to $A using exchange rate of $0.75
[h] Richard Power Enterprises (1990). Estimates have been inflation adjusted to 2004 dollars

[1] Estimates are for overseas visitors to Australia
[2] Estimates are for overseas based crew visiting disembarking at a transit port in Australia

5.5.3 Queensland and Regional Economic Impacts

According to AEC (2006), Queensland is the second largest market for the cruise shipping industry in Australia. It has been estimated that the Queensland cruise industry generated an estimated $89.4m in 2004-05, including $50.6m in direct expenditure, and a further $107.1m in 2005-06, including $61.0m in direct expenditure.

There were 14 fewer cruise ship visits to Queensland in 2005/06, with visits to all regional ports of Cairns, Townsville and the Whitsundays declining, primarily from Cairns where visits fell by 24.8% in 2005-06.

In 2004-05, the cruise ship industry in Cairns and Townsville was estimated to have generated $17.2m ($9.6m in direct expenditure) and $1.2m ($0.7m in direct expenditure) total expenditure respectively. Both destinations suffered downturns in 2005-06 with total expenditure falling to $12.6m in Cairns and $0.5m in Townsville.

The Queensland Cruise Shipping Plan (Tourism Queensland 2003) estimates the different economic impacts at base and transit ports for an 800 and a 1200 berth vessel [Table 15].

TABLE 15: PASSENGER, CREW AND OPERATOR TOTAL EXPENDITURES FOR BASE AND TRANSIT PORTS IN QUEENSLAND

	Passenger		Crew		Operator	
Vessel Berths	Base Port	Transit Port	Base Port	Transit Port	Base Port	Transit Port
800	$ 282,000	$ 76,000	$ 15,000	$ 15,000	$ 397,990	$ 17,000
1,200	$ 424,000	$ 114,000	$ 18,000	$ 18,000	$ 541,990	$ 19,000

Source: Tourism Queensland (2006) Queensland Cruise Shipping Plan.

6 THE BUSINESSS EVENTS SECTOR

This section reviews evidence on the Australian business events sector. While consideration of this sector was not specifically referred to in the TOR, consultations with regional industry stakeholders indicated that there may be considerable potential for the further development of this industry in Townsville.

In particular, consultations indicated that the development of a purpose-designed, dedicated conventions/events facility in the precinct may be of considerable merit. As such, while the discussion below is not predicated on any specific possibility that the TOT precinct may include such a facility, it does highlight the economic potential of this sector for Townsville.

6.1 OVERVIEW OF THE AUSTRALIAN BUSINESS EVENTS SECTOR

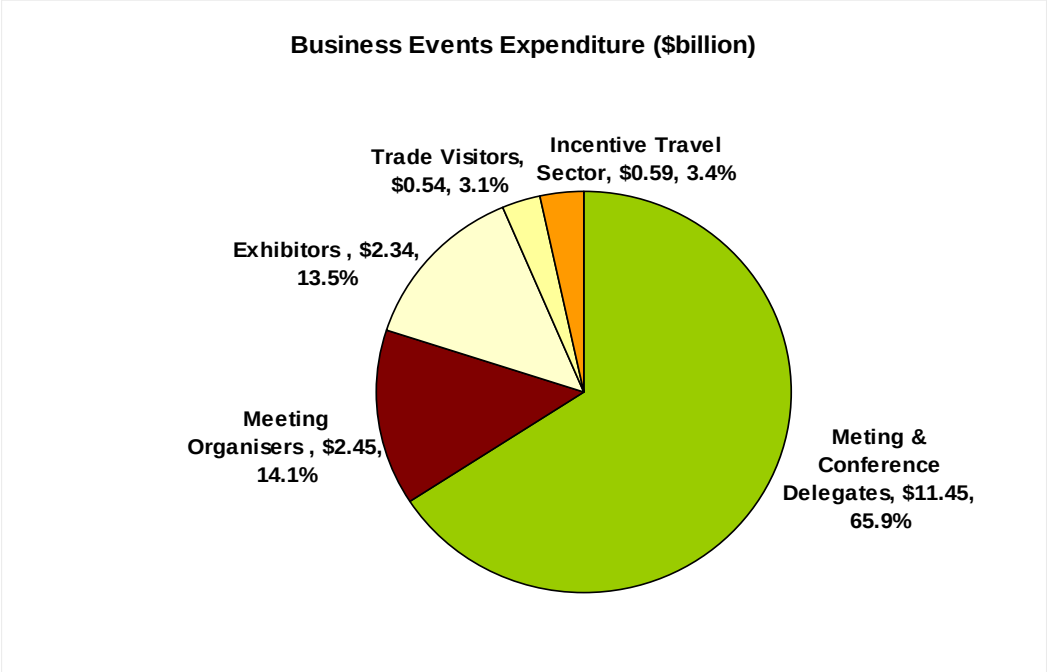
The Business events sector is regarded as a high-yield component of the tourism industry that has direct connections to other key areas such as trade, foreign affairs, education, science, training and communications.

In 1999 Tourism Research Australia released a report on Australia's meeting and exhibitions sector which estimated that the business sector contributed $7 billion to the Australian economy (based on 1996/97 data). This report has recently been revised, *National Business Events Study*, and has estimated that the business sector generates expenditure in excess of $17.36 billion (Deery, Jago, Fredline and Dwyer, 2005). In addition, it is reported that there is an indirect contribution to value added in excess of $5 billion and an indirect contribution to employment of 98 thousand jobs (based on 2002/2003 data).

The *National Business Events* Study investigates all components of the business events sector including exhibitions, meetings and conferences and the incentive travel sectors.

Figure 27 provides a break down of expenditure sources which contribute to the estimated total of $17.36 billion in 2003. The largest contributing event was Meeting and Conference Delegates (65.9%), followed by Meeting Organisers (14.1%) and Exhibitors (13.5%).

FIGURE 27: BUSINESS EVENTS EXPENDITURE 2003

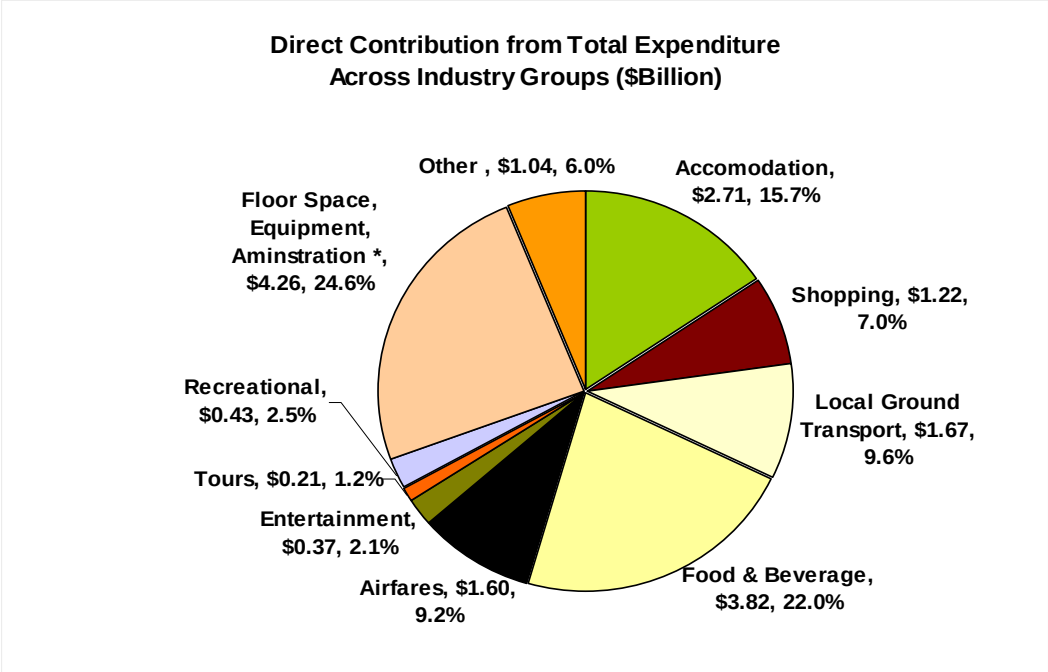


Other findings of the report found that over 316,000 business events were held across Australia in 2003, involving 22.8 million participants. The average daily expenditure of an international meeting or conference delegate was $554. International business accounted for $1.86 billion of overall business events expenditure and Domestic events accounted for $15.5 billion in 2003.

Figure 28 presents the contribution of total expenditure across each industry grouping affected by business event tourism. The largest source of expenditure was Floor space, Equipment etc (24.6%), followed by Food and Beverage (22%) and Accommodation (15.7%).

It was reported that 284 thousand meetings and conferences were held in 2003. Most conferences were held annually with the majority hosting between 100 and 500 delegates.

FIGURE 28: TOTAL EXPENDITURE SOURCES 2003



6.1.1 The Incentive Sector

Within the business events sector is the incentive markets which is defined as "*travel and entertainment provided to employees, distributors or customers as a reward of high productivity or sales"*. A report commissioned by Tourism Australia, *STCRC National Incentive Study 2004,* found that incentive business in Australia broadly delivered around 1600 grants compromising 150,000 delegates and expenditure of approximately $304 million dollars. The reports findings are based on a web based survey of incentive organisers that was conducted from November 2005 to January 2006.

Other findings include:

- Average number of incentive proposals submitted by the survey organisations was 68 and the average success rate was 28;.
- In a typical year approximately 1,600 events occurred, involving more than 150,000 participants;
- The bulk of these participants came from North East Asia (47.1%) and South East Asia (23.8%). Dominant markets in this sector were Japan (27.7%) and USA (11%);
- Main reason for lost business reported by survey respondents was because another destination had been successful (57%);
- Average group size was 214 for business in the market; and
- The most popular State destination was Queensland (52 visits), with 27 visits to Gold Coast and a further 20 to northern parts of the state (12 visits to Cairns).

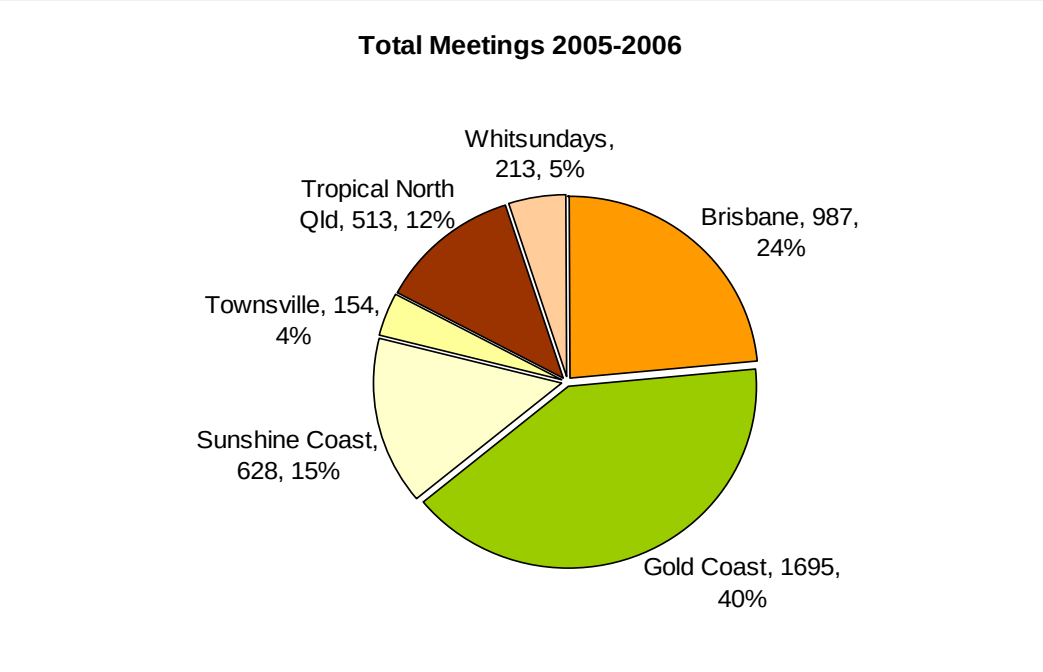
(Fredline, Deery, & Jago, 2006).

6.1.2 The Business Events Sector in North Queensland

Results from a survey conducted by OESR conjointly with Tourism Queensland and the Convention Bureaux - *Business Events Survey*- are summarised in Figures 29 to 31 below. The survey is based on meetings with 15 or more delegates (involving an overnight stay in the region).

In 2005 to 2006 there was a total sum of 4,190 meetings reported. Almost half of these meetings were held in the Gold Coast (40%), followed by Brisbane (24%). The Townsville Region reported only 4% (154 meetings) of total meetings.

FIGURE 29: TOTAL MEETINGS 2005-2006



The total number of delegates for 2005 to 2006 was 415,979. Of this total, Gold Coast (42%) and Brisbane held the greatest proportions of Delegates. Townsville reported the smallest proportion, with 3% of total delegates (23, 396) visiting the region.

Figure 31 represents the proportion of delegate days spent in Queensland regions. For 2005-2006 it was reported that there was a total of 1,665,043 days spent in Queensland by delegates. Of this total, 46% of total days were spent in Gold Coast, with a further 29% in Brisbane. Townsville held the smallest proportion of total days with 2% (67,939 days) of total days spent in the region.

FIGURE 30: TOTAL NUMBER OF DELEGATES 2005-2006

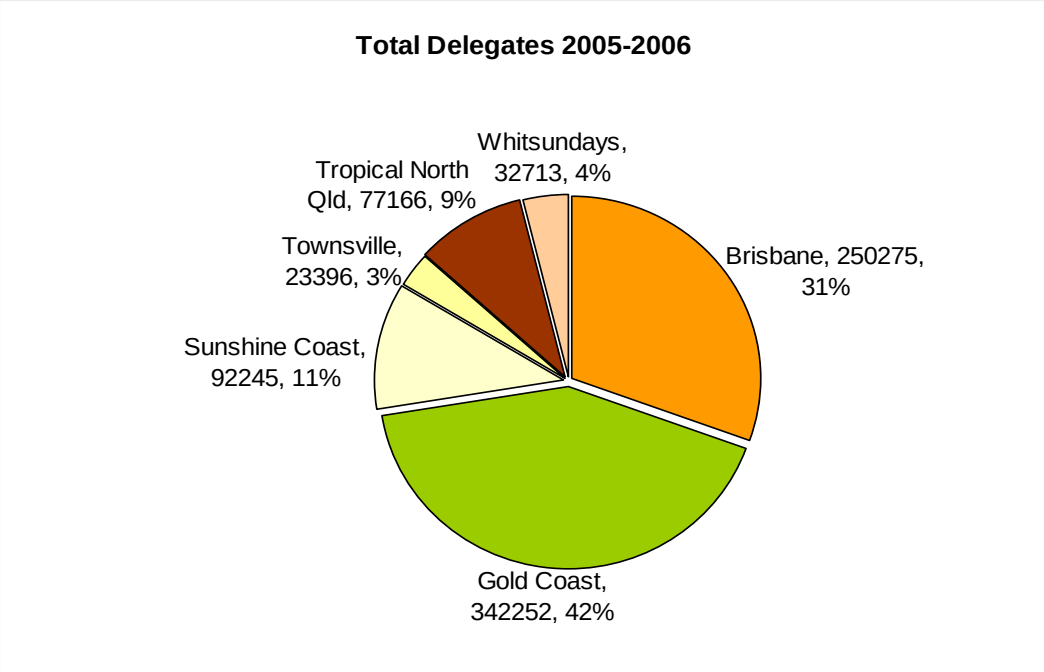
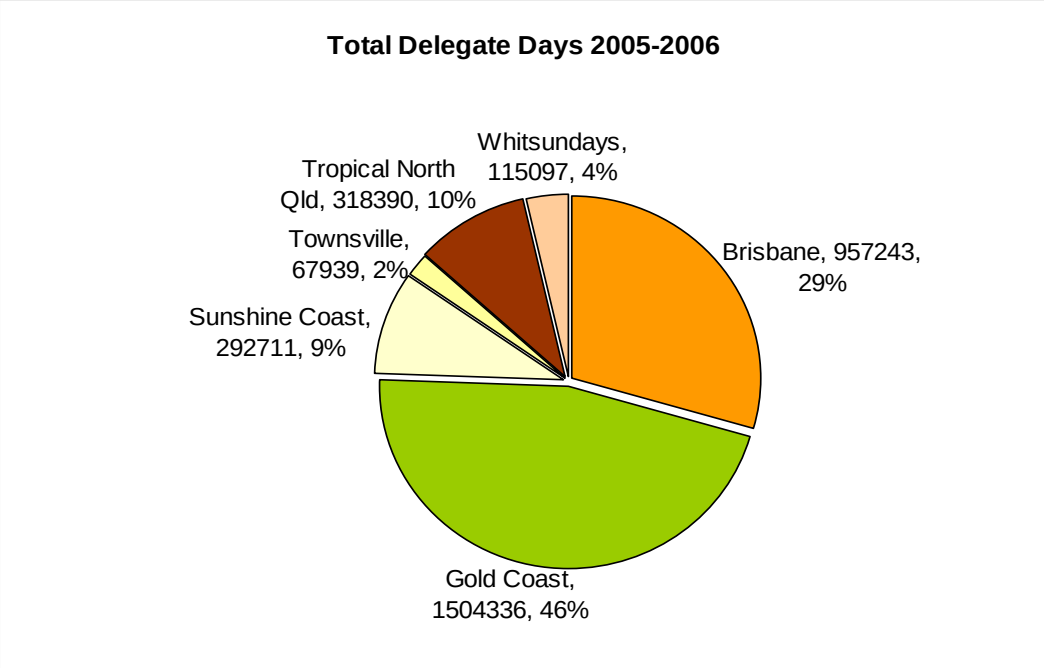


FIGURE 31: TOTAL DELEGATE DAYS 2005-2006



6.1.3 Opportunities for Growth in Townsville's Business Events Sector

The Business events sector is considered a high-yield component of the tourism industry which is estimated to generate expenditure in excess of $17.36 billion (Deery, Jago, Fredline and Dwyer, 2005).

Recent results from the *Business Events Survey* indicate that Townsville represents a negligible proportion of the Meeting Industry. Conference delegates are generally high yield visitors and are reported to spend more within the destination than leisure visitors. The opportunity for the business events industry to expand in the Townsville region is great. The region offers a desirable option to businesses due to its uniqueness geographically, located on the Great Barrier Reef. Further, Townsville is economically robust offering diverse services and infrastructures to its resident and visitors. In addition, the Townsville airport provides more than 18,000 direct airline seats each week with direct flights from Brisbane, Sydney, Melbourne, Cairns and Mackay with more expected to come on-line in the future.

Table 16 lists venues available in Australia and the capacity of their facilities. Of the 11 locations listed Townsville ranks 3rd for Theatre Style 11th for Banquet Style and 6th for Classroom style for total venue capacity.

Cairns, a neighbouring region to Townsville that shares similar geographic characteristics to Townsville, has performed better in terms of the Delegate meeting industry for 2004-2005. Charts 29-31 above showed that Tropical North Queensland (which encompasses Cairns) shared a larger proportion of Delegate days, meetings and persons for 2004-2005.

Limitations to Townsville's expansion in this industry can firstly be due to its venue capacity especially in terms of the banquet style facility, which can only accommodate 1000 persons. Offering additional venue facilities can increase the potential market in Townsville.

TABLE 16: AUSTRALIAN VENUES

Location	Facility Type		
	Theatre Style	**Banquet Style**	**Classroom Style**
Adelaide	5380	3190	1800
Alice Springs	1200	800	720
Brisbane	4000	2740	1209
Cairns	5000	1300	730
Gold Coast	6021	2240	2106
Melbourne	2200	1940	1499
Perth	2500	2500	2100
Sydney	3500	3500	800
Tasmania	1600	1000	750
Townsville	5200	1000	980
Whitsundays	1000	700	650

7 INPUT OUTPUT ECONOMIC IMPACT ANALYSIS: DATA INPUT AND ASSUMPTIONS SUMMARY

7.1 ECONOMIC IMPACT ANALYSIS

The economic analysis utilises the IMPLAN Version 2.0 computer software in order to quantify the economic impact of the construction of the integrated Townsville Ocean Terminal project. The Implan model is based on input-output analysis. Input-output analysis is a well-established econometric technique for estimating economic impact. The total impact of a specific economic activity, such as the construction of the Ocean Terminal, is the sum of the direct effects and the flow-on effects to other sectors of the regional economy.

> *The direct effects involve the initial round of output, income and employment generated by the activity being analysed. The flow-on effects are the other activities in the region that are generated by the initial expenditure (BTE, 2001).*

Economic impacts are measured both in dollar terms as well as in jobs created. Aside from the direct effect, there are two types of ripple effect—indirect and induced effect. The indirect employment effect measures the changes in employment "caused by the iteration of industries purchasing from industries resulting from direct final demand changes" (MIG, 2004). The induced employment effect measures the changes in employment "on all local industries caused by the expenditures of new household income generated by the direct and indirect effects resulting from final demand changes" (MIG, 2004). The total employment effect is the sum of both indirect and induced effect.

The fundamental component of input-output analysis is the transactions table which records the production and disposal of goods and services in an economy over one year. The 1996–97 Queensland Regional input-output tables released by the Office of the Government Statistician in August 2004 were used for this study. Specifically, the Northern Statistical Division table was used (OSG, Table 9).

Using input-output tables, multipliers can be calculated to illustrate the flow on effects of a change in output in an industry on one or more of imports, income, employment or output of in individual industries or in total (ABS, 2004).

7.1.1 Limitations

Input-output analysis is based on the assumption that input requirements are directly proportional to output (the linearity assumption) and that relative prices are fixed. Input-Output multipliers describe average effects, not marginal effects and therefore do not take account of economies of scale, unused capacity or technological change. Generally, average effects are expected to be higher than the marginal effects.

The underlying assumptions of input-output analysis are as follows:

- there is a fixed input structure in each industry, described by fixed technological coefficients;
- all products of an industry are identical or are made in fixed proportions to each other;

- each industry exhibits constant returns to scale in production;
- unlimited labour and capital are available at fixed prices; that is, any change in the demand for productive factors will not induce any change in their cost; and
- there are no other constraints, such as the balance of payments or the actions of government, on the response of each industry to a stimulus (ABS, 2004).

The impact of these assumptions depends on the activity and the region that is analysed. Input-output analysis is most suitable for analysing small regional economies which can readily draw resources from other regions without affecting relative prices.

7.1.2 Methodological Approach

In selecting which sectors would be directly affected by the proposed stages, ABS ANZSIC Industry Classification tables were used to assist in making judgements.

7.1.2.1 Construction

The expenditure amounts reported in Table 17 were used as 'inputs'.

The first stage 'Access roads, breakwaters, bunds and dewatering', was calculated separately in 2008 dollars. The expenditure amount of $47.6m was associated with sector 21: Other construction.

The remaining three stages were placed into the one input-output calculation, in 2009 dollars. The second stage 'Construction of Terminal berth Pocket and building' was associated with sector 21: Other Construction for the amount of $46.2m.The third stage 'Excavation, revetments of Breakwater Precinct' was associated with Sector 10: Other mining, with the expenditure amount of $113.8m. The Final stage 'Strand Breakwater Bridge' was associated with sector 21: Other Construction.

7.1.2.2 Cruise Tourism Impacts

Cruise tourism impacts were calculated from low to high impacts, based on the number of cruise ship visits a year. Table 18 presented in Section 7.3 was used in making expenditure amount assumptions, which is largely based on data collated by AEC in the *Economic Impact of the Cruise Shipping Industry in Australia 2004/2005* report.

The *Economic Impact of the Cruise Shipping Industry in Australia 2004/2005* report (AEC, 2006) estimated that the net total expenditure by international passengers and crew and cruise lines generated by cruise ship visits to Australia was approximately $132.1 million in 2004/2005.

Cruise shipping related expenditure categories and corresponding industry categories, along with their percentage of the total expenditure amount, are:

- Services to Transport; Storage 40.99%;
- Retail Trade 31.35%;
- Accommodation, Cafes and Restaurants 18.46%;
- Road Transport 3.75%;
- Other services 2.48%;

- Other Property Services 1.58%;
- Water Supply, Sewerage and Drainage Services; and
- Motion Picture, Radio and Television service 0.57%.

Using these sectors and corresponding percentages, Table 19 (section 7.3) was derived. These assumptions relate to the distribution of activity across economic sectors for the three visitation scenarios. The sectors listed in column one and the corresponding expenditure amounts for each impact intensity were inputted separately for Input-Output analysis. Impacts were measured in 2010 dollars.

7.1.2.3 Breakwater Cover Residential Construction

It is proposed that the development will include 200 detached dwellings and 500 units. The construction of the Breakwater Cove Residential Precinct is estimated to have a total expenditure of approximately $177,670,000. Section 7.4.1 details the assumptions used to derive this expenditure total.

The estimated expenditure total of $177,670,000 was associated with sector 20: Residential building construction.

7.2 CRUISE TERMINAL AND WHARF AND BREAKWATER COVE PRECINCT CONSTRUCTION

7.2.1 Assumptions

The construction of the cruise terminal and wharf (including the development of the Breakwater Cove precinct *sans* dwellings) is expected to be completed in three years, and has an estimated expenditure total of $209.35m. Table 17 details the proposed construction stages and estimated expenditures amounts.

TABLE 17: PROPOSED CONSTUCTION STAGES

Construction Stage	Expenditure ($m)	Time Span	Estimated # of Employees (FTE)
Access roads, breakwaters, bunds and dewatering	$47.6	10 months (May 2008-March 2009)	120
Construction of Terminal berth Pocket and building	$46.2	16 months (January 2009-May 2010)	180
Excavation, revetments of Breakwater Precinct	$113.8	24 months (March 2009-March 2011)	250
Strand breakwater Bridge	$1.75	5 months (5March 2009 to August 2009)	25
Total	**$209.35**	**3 years (2008-2011)**	**575**

7.3 CRUISE TOURISM IMPACTS

The Cruise Shipping industry is recognised as a high-growth, high yield tourism industry. For 2005/2006, the cruise shipping industry in Australia was estimated to be worth approximately $438 million and approximately $108 million in Queensland (AEC, 2006).

The TOT development is expected to generate considerable employment during the construction phase. Furthermore, upon the completion of construction activities, the operation of the ocean terminal facilities and associated services will generate long-term employment opportunities.

7.3.1 Assumptions

It is assumed that the completion of the new TOT will have a positive impact on both the number of annual cruise ship visiting Townsville and the size of ships visiting Townsville.

AEC Group has estimated that annual passenger numbers in Townsville will increase to around 40,000 passengers (AEC 2006). Assuming the average vessel visiting Townsville is capable of holding 1,000 passengers, this translates to 40 cruise ships per year.

Transpac Consulting estimates and expectations, based on consultations with local industry, are somewhat lower than the AEC forecasts, with the AEC forecasts being treated as a 'peak' or 'high range'.

Recent experiences of 3 or 4 visiting cruise liners per year together with the unlikelihood that this will increase ten-fold to 40 cruise ships per year in the short to medium-term, suggests that less optimistic forecasts are warranted.

In order to provide the project proponents and the State Government with practical and constructive estimates of economic impacts, Transpac Consulting has used a range of estimates of ship visit numbers and sizes to estimate the total number of passengers and crew member disembarking in Townsville on port transit visits. In calculating the economic impact the following assumptions have been made:

- Townsville is a *transit* port only and as such, cruise ships will be assumed to only stopover for one (1) day;
- Once completed the TOT will attract ships ranging in size from 800 to 1,000 person capacity vessels;
- The proportion of passengers and crew members disembarking during these day stopovers are assumed to be 90% and 85% respectively; and
- Vessel-related or operator expenditures will be substantially lower than the major port destinations of Sydney, Brisbane and Melbourne but higher than current estimates based on smaller vessel sizes. For the purposes of this report operator expenditures are assumed to be between $80,000 and $100,000 per visit depending on vessel size [see Table 18].

TABLE 18: EXPENDITURE ESTIMATES FOR USE IN ECONOMIC IMPACT ANALYSIS OF CRUISE SHIP VISITS TO TOWNSVILLE

Expenditure Type	Total Visitor Days		Expenditure Per / Day Annual	
Passenger [1]	**Low**	9,000	$ 120 / day	$ 1,080,000
	Medium	14,300	$135 / day*	$1,930,500*
	High	18,000	$ 150 / day	$ 2,700,000
Crew Member [2]	**Low**	4,500	$ 85 / day	$ 352,500
	Medium	6,800	$100 / day*	$680,000*
	High	9,000	$ 110 / day	$ 990,000
Operator Expenditure [3]	**Low**		–	$ 900,000
	Medium		–	$ 1,360,000
	High		–	$ 1,800,000
Total				**$ 9,182,500 plus**

[1] Estimates of passenger numbers are based on 10 (Low), 15 (Medium) and 20 (High) cruise ship visits annually, with visits comprising a mix of ship sizes, either 800 and 1000 persons capacity

[2] Estimates of crew numbers are based on 10 (Low), 15 (Medium) and 20 (High) cruise ship visits annually, with visits comprising a mix of ship sizes with 400 and 500 crew member capacity.

[2] Estimates of annual operator expenditure are based on 10 (Low), 15 (Medium) and 20 (High) cruise ship visits annually, with visits comprising a mix of ship sizes.

* These are estimates.

The economic impacts of cruise shipping in Townsville will be distributed across industries and businesses in the regional economy. For example, opportunities will exist for additional tourism-related businesses to be created, whilst existing local businesses and service providers will further benefit from the flow on effects of the operational development.

The *Economic Impact of the Cruise Shipping Industry in Australia 2004/2005* report (AEC, 2006) estimated that the net total expenditure by international passengers and crew and cruise lines generated by cruise ship visits to Australia was approximately $132.1 million in 2004/2005.

Cruise shipping related expenditure categories and corresponding industry categories, along with their percentage of the total expenditure amount, are:

- Services to Transport; Storage 40.99%;
- Retail Trade 31.35%;
- Accommodation, Cafes and Restaurants 18.46%;
- Road Transport 3.75%;
- Other services 2.48%;
- Other Property Services 1.58%;
- Water Supply, Sewerage and Drainage Services; and

- Motion Picture, Radio and Television service 0.57%.

An Economic Impact Analysis conducted for the Cruise industry in New York, *New York City Cruise Operations: Economic Impact Analysis 2004,* reported total Output at $579,295,073. These results were based upon a Summer 2001 survey of 1,437 passenger groups.

Of the total Output amount, the following industry categories and their corresponding percentages of the total amount were:

- Transportation, Communications and Utilities 37.38%;
- Wholesale and Retail Trade 20.13%;
- Manufacturing 19.31%;
- Private Services 14.85%;
- Finance, Insurance and Real Estate 6.19%;
- Government Enterprises 1.13%;
- Construction 0.88%; and
- Agriculture and Mining 0.12%.

It is evident that Transport and Storage, Retail and Hospitality industries have received the biggest impact from the cruise shipping industries.

Based on AEC's cruise shipping related expenditure categories and corresponding industry categories, along with their percentage of the total expenditure amount, table 19 was formulated, to estimate low, medium and high impacts of the industry in the North Queensland economy.

TABLE 19: EXPENDITURE ASSUMPTIONS USED FOR ASSESSING THE ECONOMIC IMPACTS OF CRUISE SHIPPING ON THE NORTH QUEENSLAND ECONOMY

Sector	% of Expenditure	Low Impact	Medium Impact	High Impact
Services to Transport; Storage	40.99%	$956,092	$1,627,508	$2,250,351
Retail Trade	31.35%	$731,239	$1,244,752	$1,721,115
Accommodation, Cafes and Restaurants	18.46%	$430,580	$732,954	$1,013,454
Road Transport	3.75%	$87,469	$148,894	$205,875
Other services	2.48%	$57,846	$98,468	$136,152
Other Property Services	1.58%	$36,854	$62,734	$86,742
Water Supply, Sewerage and Drainage Services; and	0.82%	$19,127	$32,558	$45,018
Motion Picture, Radio and Television service	0.57%	$13,295	$22,632	$31,293
Total Annual Expenditure		**$2,332,500**	**$3,970,500**	**$5,490,000**

7.4 BREAKWATER COVER RESIDENTIAL CONSTRUCTION

7.4.1 Assumptions

It is proposed that the development will include 200 detached dwellings and 500 units. The construction of the Breakwater Cove Residential Precinct is estimated to have a total expenditure of approximately $177,670,000.

A number of assumptions were used to derive the expenditure, based on the construction cost index outlined by Rider Hunt in the Riders Digest 2007. They include the following:

- Multi-storey Units up to 10 storeys with lift, Units 90-120m^2. = 1,853-2,616 ($/$m^2$) for Townsville (Index of 109);and
- Single and Double Storey Dwellings (Custom Built) = 1,417-2,398 ($/$m^2$) for Townsville (Index of 109).

Unit Construction Cost = [(1,853 * 100m^2) = $185,300*500] = $92,650,000.

Detached Dwelling Construction Cost = [(1,417*300m^2) =$425,100*200] =$85,020,000.

Total Construction = ($92,650,000+$85,020,000) = $**177,670,000.**

8 ECONOMIC IMPACTS: RESULTS AND OUTPUTS

8.1 OVERVIEW

This section of the report presents and discusses the potential impacts of the proposed TOT development. The main impacts relate to the following key areas:

1. Construction-related impacts of the Cruise Terminal and Wharf and Breakwater Cove precinct (sans dwellings);
2. Impact of cruise ship visits to Townsville;
3. Construction-related impacts of the associated residential development (i.e., dwellings on the Breakwater Cove precinct);
4. Impact of visits on existing industries and businesses;
5. Impacts on the regional labour market, particularly during the construction phases;
6. Impacts on the regional residential market during construction (demand for accommodation for migrant workers); and
7. Medium term impacts on the regional residential market resulting from the supply of additional residential stock into the market.

The results from the Input-Output calculations are presented in tables where the columns report the following impacts: *Direct Effects, Indirect Effects*, *Induced Effects* and *Total.* The rows of the Input-Output tables report the industry indicators, of which impacts are generated for each: *Output, Value Added*, *Labour Income* and *Employment.*

8.1.1 Concepts and Terminology

The stimulus from additional economic activity can be traced through the economic system in several different ways:

- Direct effects arise as the project's capital budget is expended on goods from other industries causing an expansion of output in those industries;
- Indirect effects, arise as industries supplying input to the project increases their purchase to meet the additional demand generated by the project; and
- Induced effects arising from impacts on household expenditures as a result of the direct and indirect effects.

These effects can be represented by multipliers, calculated in aggregate for the regional economy. There are commonly four different types of multipliers, namely:

- Output impacts, which measure the increase in gross sales throughout the entire economy by aggregating all individual transactions (direct and indirect) resulting from the original economic stimulus;
- Income impacts, which measure the additional amount of wages, salaries and supplements paid to households associated with the industry under consideration and with other industries benefiting from the stimulus;

- Employment impacts, which measure the number of full-time equivalent positions for one year directly and indirectly created by the stimulus. It should be noted that the short-term response to increased demand may be that existing employees work overtime. Consequently, actual levels of employment generated will tend to be lower than those estimated by the input-output analysis; and
- Value added or Gross Regional Product (GRP) impacts, which measure only the net activity at each stage of production. GRP is defined as the addition of consumption, investment and government expenditure plus net exports from a region. The value added impacts are the preferred measure for the assessment of contribution to the economy from a stimulus or impact.

8.2 CONSTRUCTION IMPACTS OF THE CRUISE TERMINAL AND WHARF AND BREAKWATER COVE PRECINCT

Using the previously outlined inputs (Section 7), economic impacts of the construction activity were calculated. The results of the Input-output modelling of this activity are shown in Tables 20 to 22.

TABLE 20: ESTIMATED ECONOMIC IMPACTS OF THE CONSTRUCTION OF THE CRUISE TERMINAL AND WHARF ETC. (2008 DOLLARS)

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	47,600,012	16,713,406	13,553,793	77,867,207
Value added ($)	22,747,518	7,237,696	7,264,514	37,249,729
Labour income ($)	11,315,872	3,958,301	3,164,687	18,438,860
Employment*	308.2	87.3	78.5	474

* Number of jobs (full-time equivalent)

TABLE 21: ESTIMATED ECONOMIC IMPACTS OF THE CONSTRUCTION OF THE CRUISE TERMINAL AND WHARF ETC (2009 DOLLARS)

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	161,749,968	70,738,778	60,718,650	293,207,394
Value added ($)	73,954,010	31,126,419	32,543,767	137,624,193
Labour income ($)	51,487,372	16,938,285	14,177,252	82,602,910
Employment*	739.7	359	340	1,438.70

* Number of jobs (full-time equivalent)

TABLE 22: TOTAL ESTIMATED ECONOMIC IMPACTS OF THE CONSTRUCTION OF THE CRUISE TERMINAL AND WHARF ETC FOR 2008 & 2009

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	209,349,980	87,452,184	74,272,443	371,074,601
Value added ($)	96,701,528	38,364,115	39,808,281	174,873,922
Labour income ($)	62,803,244	20,896,586	17,341,939	101,041,770
Employment*	1,048	446	419	1,913

* Number of jobs (full-time equivalent)

It should be noted that these estimates do not account for possible substitution or displacement effects resulting from the construction activity in this project. Such effects may, for example, include the *deferral* or *abandonment* of other construction projects (either as a deliberate commercial decision or as a result of inadvertent delays caused by factors such as labour shortages).

Arguably, construction-related economic impacts arising from specific or discrete projects tend to be seen to add to net additional benefit to a regional economy because if it was not for the project in question, then the investment activity would have been directed towards another project with similar economic impacts (Queensland Treasury, 1997).

8.3 CONSTRUCTION IMPACTS OF THE BREAKWATER COVE RESIDENTIAL PRECINCT (DWELLINGS)

The results of the Input-Output modelling of this activity are shown in Table 23. As noted this aspect is not strictly part of the City Pacific Limited project brief, and will be constructed by third parties once available developable land has been released and subject to prevailing market conditions.

For the purposes of illustration, the Input-Output analysis has assumed that the entire construction of 700 dwellings will be completed in one year (2010). However, it is more likely that such construction will take place over a period of time and as such, the estimated benefits are likely to be spread over that timeframe.

TABLE 23: TOTAL ESTIMATED ECONOMIC IMPACTS OF THE CONSTRUCTION OF BREAKWATER COVE RESENTIAL PRECINT 2010

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	168,405,024	76,069,222	38,554,502	283,028,750
Value added ($)	68,575,680	32,576,710	20,664,307	121,816,703
Labour income ($)	25,348,500	18,099,729	9,002,126	52,450,356
Employment*	772.9	370.3	208.9	1,352.10

* Number of jobs (full-time equivalent)

As is the case for wharf and terminal facilities construction, it is reasonable to observe that the residential construction activity associated with the Breakwater Cove precinct does not add to net levels of economic activity in the regional economy that would have taken place in any case.

A reasonable assessment would, therefore, conclude that a substantial component of the construction-related impacts of both the cruise terminal and wharf facility and the Breakwater Cove residential precinct are likely to involve transfer effects and do not add – in net terms – to the overall level of economic activity within the region.

While noting this, it is evident that the impacts are significant in both value add and employment terms.

8.4 ECONOMIC IMPACTS OF CRUISE SHIP VISITS TO TOWNSVILLE

The results of the Input-Output modelling of cruise ship visitation to Townsville are shown in Tables 24 to 26 (2010 dollars), for each of the scenarios. Low impact is defined by 10 cruise ship visitations a year [Table 24]. Medium impact is defined by 15 cruise ship visitations a year [Table 25]. High Impact is defined by 20 cruise ship visitations a year [Table 26].

TABLE 24: ESTIMATED ECONOMIC IMPACTS OF CRUISE SHIPPING ON THE NORTH QUEENSLAND ECONOMY (LOW IMPACT)

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	2,332,497	1,038,719	753,556	4,124,771
Value added ($)	1,124,107	471,873	403,888	1,999,868
Labour income ($)	610,566	238,638	175,948	1,025,153
Employment*	13.7	4.8	4.1	22.7

* Number of jobs (full-time equivalent)

TABLE 25: ESTIMATED ECONOMIC IMPACTS OF CRUISE SHIPPING ON THE NORTH QUEENSLAND ECONOMY (MEDIUM IMPACT)

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	3,970,496	1,768,161	1,282,741	7,021,398
Value added ($)	1,913,512	803,247	687,519	3,404,279
Labour income ($)	1,039,337	406,222	299,508	1,745,068
Employment*	23.4	8.2	7	38.6

* Number of jobs (full-time equivalent)

TABLE 26: ESTIMATED ECONOMIC IMPACTS OF CRUISE SHIPPING ON THE NORTH QUEENSLAND ECONOMY (HIGH IMPACT)

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	5,490,001	2,444,835	1,773,645	9,708,482
Value added ($)	2,645,812	1,110,649	950,632	4,707,093
Labour income ($)	1,437,091	561,683	414,130	2,412,904
Employment*	32.3	11.4	9.6	53.3

* Number of jobs (full-time equivalent)

8.4.1 Distribution Impacts on Industries and Businesses

8.4.1.1 Industry Impacts

Depending on the nature of the economic activity, its impacts will vary from sector to sector. This is particularly evident when contrasting the sector distribution of impacts for the construction aspects of the development and the cruise ship tourism impacts.

In Appendix A of this report, there are tables presented which provide the distributional effects on industry sectors for the Northern Statistical Division, as measured through Input-Output Analysis. The tables show the sector-by-sector impacts for employment, income output and value add per year. Note that two sets of tables are presented for the sector impacts for the construction phase of the TOT.

The output tables show that the 'ripple' effect of the construction activity is diverse (Tables A1 to A8). In terms of value-added impacts for example, the trade, finance and business services, non-metallic minerals products, road transport and other mining sectors will see substantial indirect impacts.

The flow-on effects across industries is similarly diverse for the construction of residential dwellings at the Breakwater Cove precinct (Tables A9 to A12). Again, in terms of value-added impacts major sectors to benefit from indirect impacts include trade, finance and business services, wood and paper manufacturing, non-metallic minerals products and road transport.

Finally, in terms of the impacts of cruise shipping on economic sectors in the region, major direct beneficiary sectors include accommodation and cafés and restaurants, other transport, trade and personal and other services. Indirect value-added impacts will be experienced by these sectors as well, and the finance and business services sector (Tables A13 to A24).

8.4.1.2 Impacts on Local Businesses

The spatial distribution of impacts is also likely to be a factor, particularly in terms of consumption expenditure-related impacts from cruise tourists disembarking from the Ocean Terminal and visiting nearby areas of Townsville. Specifically, areas within reasonably easy access (by foot or vehicle) include the Townsville CBD, the Strand and the Palmer Street/Flinders St East restaurant and entertainment precincts.

Table 27 provides a summary of the existing businesses in Townsville (C) and the total number of employees in the associated industry division.

TABLE 27: TOWNSVILLE BUSINESS REGISTER (JUNE 2004)

Industry Division Label	Total Employees	Total Businesses
Agriculture, Forestry and Fishing	n.p.	n.p.
Mining	n.p.	n.p.
Manufacturing	48	n.p.
Electricity, Gas and Water Supply	0	0
Construction	97	12
Wholesale Trade	n.p.	n.p.
Retail Trade	197	n.p.
Accommodation, Cafes and Restaurants	78	n.p.
Transport and Storage	40	11
Communications Services	6	0
Finance and Insurance	n.p.	n.p.
Property and Business Services	259	31
Education	n.p.	n.p.
Health and Community Services	84	10
Cultural and Recreational Services	20	10
Personal and Other Services	n.p.	n.p.
Total All Industries	1042	176

n.p. = not available for publication but included in totals where applicable
Source: ABS; Transpac Consulting

The CBD will primarily be the most affected area in terms of demand for local services for both during and post- construction of the Ocean Terminal. This is due to the close proximity of the development area to the CBD Those industries which are expected to receive medium to high impact during construction include; Mining, Manufacturing, Electricity, Gas and Water, Construction, Wholesale Trade, Retail Trade, Accommodation, Cafes and Restaurants, Transport and Storage, Communication

Services and Property and Business services.

Post-construction impacts of medium to high magnitude on industries include; Retail Trade, Property and Business Services, Finance and Insurance, Communication Services, Transport and Storage and Accommodation, Cafes and Restaurants.

Table 28 lists the number of properties which exist in the CBD, that will likely be impacted during and/or post-construction. A total of 191 properties of different land uses are expected to be impacted. It is these businesses that are spatially well positioned to take advantage of any consumer demands that may arise from cruise ship visits to Townsville.

TABLE 28: LIKELY BUSINESSES TO BE IMPACTED ON DURING AND POST-CONSTRUCTION

Land Use Code	Total Properties	Location in CBD
Restaurants	23[a]	Flinders Street Palmer Street
Retail Warehouse	1	Ogden Street
Shops, Main Retail (CBD)	49	Flinders Street Sturt Street Stokes Street
Theatres and Cinemas	1	Sturt Street
Special Tourist Attraction	1	Stokes Street
Shops, Secondary Retail (Fringe CBD – Presence of Service)	24	Stanley Street Sturt Street Flinders Street Walker Street
Hotel, Tavern	12[a]	Flinders Street Sturt Street Palmer Street
Guest House, Private Hotel	7	Wickham Street Sturt Street Walker Street Denham Street Blackwood Street
Motels	2	Flinders Street Wills Street
Professional Offices	68	Flinders Street Sturt Street Denham Street Stokes Street Stanley Street Walker Street Wills Street Hamilton Street Hanran Street

Warehouse and Bulk Stores	3	Hanran Street Flinders Street Stanley Street

[a] These properties were updated by 'on the ground' evaluations

How individual businesses will be impacted by the project depends on how these businesses respond to the additional opportunities and competitive threats. The introduction of additional competition into an economic environment is, in the long run, expected to generate improved economic performance overall through which services and offerings to consumers will be improved.

8.5 IMPACTS ON REGIONAL LABOUR MARKET

The TOT project involves construction activity with an estimated value of more than $209m (excluding the construction of any residential dwellings). The project proponents estimate that it will generate direct employment of 2,868 jobs over 3 years. In addition, the regional economy has relatively low levels of unemployment (5.6%), and is forecast to continue growing strongly, with significant levels of new investments of a potential $7.6billion in major projects anticipated in the near future (Table 29).

TABLE 29: PROJECTS IN TOWNSVILLE-THURINGOWA REGION (2007)

	Underway	Awaiting	Decision Pending	Total Investment (billion)
Heavy Industry	>$ 0.650[a]	NA	>$ 0.400	**>$ 1.050**
Infrastructure	>$ 1.019	>$ 0.749	>$ 0.711	**>$ 2.478**
Property and Construction	>$ 0.397	>$ 1.551	>$ 1.795	**>$ 3.43**
Education and Science	NA	>$ 0.108	NA	**>$ 0.11**
Other	NA	>$ 0.235	NA	**>$ 0.23**
Total Investment	**>$ 2.066**	**>$ 2.643**	**>$2.905**	**> $ 7.614**

[a] XSTRATA Copper, Refinery upgrade investment amount not specified
Source: Townsville Enterprise Limited

The construction of the TOT will, therefore, generate demand for skilled and unskilled labour in what can be characterised as a dynamic construction industry environment. The broader demands for construction-related skills associated with the minerals boom in Central Queensland also contributes to a highly competitive environment for relevant skills.

In this environment, the Housing Industry Association has reported that the construction industry is facing an acute shortage of skilled labour. Nationally the industry is reported to have the highest level of trade vacancies of any sector, with 23% of all trade vacancies and 14% of skilled vacancies (HIA, 2005).

The critical issues for the TOT, therefore, are:

- The capacity of the regional labour market to meet these demands; and

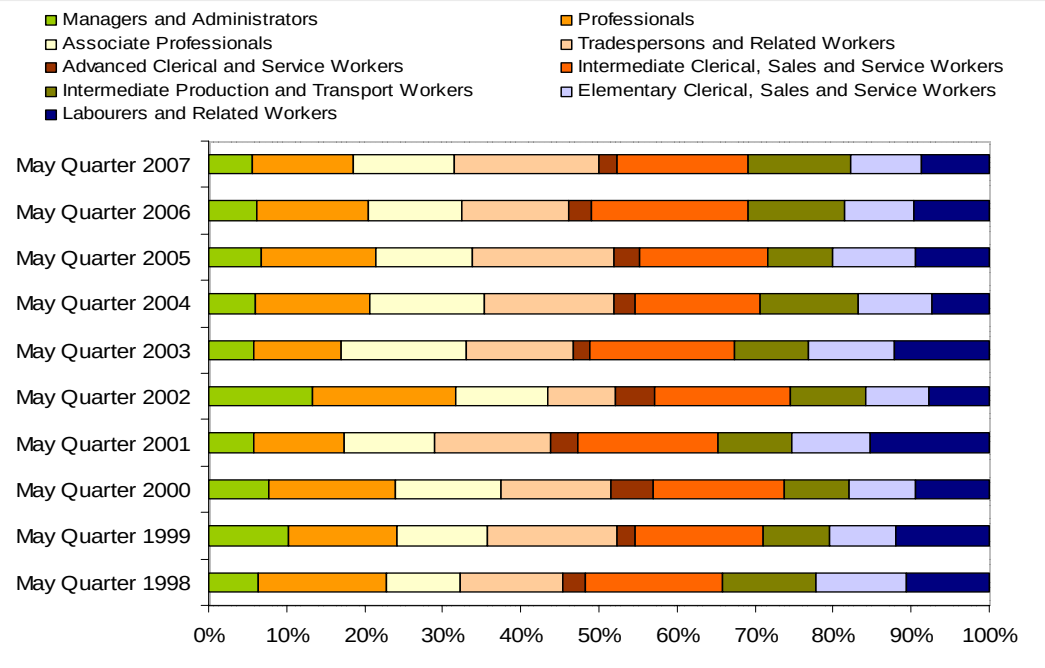
8.5.1 The extent to which these demands will generate inward migration (temporary and permanent) to the Townsville-Thuringowa region.

8.5.1 Availability of Relevant Skills

Section 4.5 above reviewed the changing employment structure of the regional economy over the past decade. The evidence found that the construction industry has grown in importance as an employer in the region. Associated with this trend is evidence that shows the growth in the number of tradespersons and related workers employed in the region.

The occupation composition for the Northern – North West Statistical Region from May Quarter 1998 – May Quarter 2007 is shown in Figure 32. The evidence is that the number of tradespersons and related workers in the region has increased by 96.8% from approximately 12,600 in 1998 to 24,800 in 2007 (also refer to Figures 6 and 7 above). At the same time, the number of labourers and related workers employed in the region significantly increased by 14.7% from 10,200 to 11,700 persons, suggesting an overall increase in the level of construction industry skill in the regional labour market.

FIGURE 32: NORTHERN-NORTH WEST STATISICAL REGION OCCUPATION COMPOSITION MAY QUARTER 1998-2007



Source: ABS

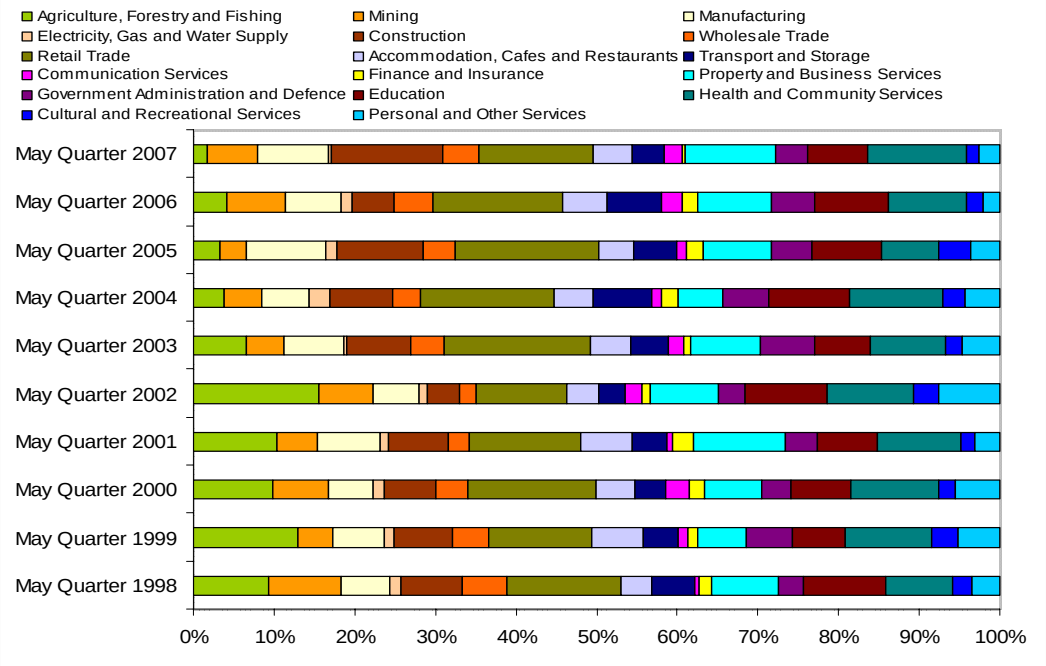
Much of this growth in tradespersons and related workers has been absorbed by the construction industry. The construction industry in the region has fluctuated over the past decade, and its contribution to local employment has reflected this volatility [Figure 33]. The cyclicality of the construction industry has seen recent growth, whereby its contribution to regional employment increased from 5.2% to 13.8% between 2006 and 2007, compared to the annual average for the period, 1998-2007, of 9%).

Given expected levels of construction-related activity in the region for the foreseeable future, including the proposed TOT development, it is likely that the construction industry will continue to employ upwards of 7.5% of the region's labour force.

The historical data confirms that the construction-related skills base of the region has progressively increased. Further, despite the cyclicality of the construction industry as reflected in the fluctuating levels of employment in that industry over the decade, the total number of skilled tradespersons working in the region has increased in real terms.

This suggests that the region has the capacity to supply, attract and retain a high number of relevant skills required to meet the requirements of a rapidly growing economy. However, it is also likely that many of the employees will come from outside the region.

FIGURE 33: NORTHERN-NORTH WEST STATISICAL REGION INDUSTRY COMPOSITION NOVEMBER QUARTER 1998-2007 (% OF TOTAL INDUSTRIES)



Source: ABS

8.5.2 Sources of Labour

To estimate the likely composition of skilled labour to meet the needs of the TOT development, reference is made to overall data on the composition of the region's population growth.

Figure 34 shows the proportion of natural increases (births minus deaths) and assumed net migration (difference between the change in the estimated resident population and natural increase) in the Townsville-Thuringowa region (OESR, 2006). As is evident, from 1999 onwards the largest increases in population growth have been due to migration as opposed to natural increases.

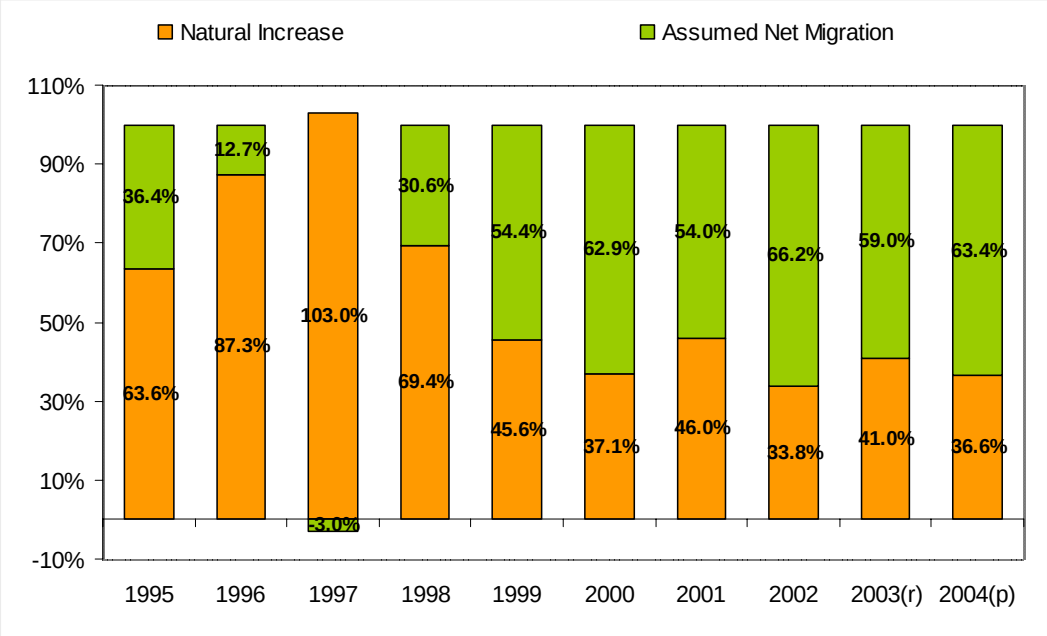
The dynamic is consistent with evidence of motivations for people moving houses. The ABS in its *Housing Motivations and Intentions Queensland 2004* study indicated that the two main reasons given by all households for moving into their current dwelling were to move closer to work or to improve employment prospects, and to live in a better area (both 19%).

On the basis of these trends, it is reasonable to conclude that a proportion of the labour force required to undertake the TOT development (and indeed, other anticipated construction projects in the region) will be sourced from outside of the region.

Based on the average composition of population growth over the past decade, it is estimated that 50.3% of the labour force will consist of workers migrating to the region. On more recent year's trends, the average percentage of migrant workers is 60.1%. That is, if it is expected that 1,900 jobs will be created over the 3 years of construction, then approximately 960 to 1,160 of these jobs will be filled from outside of the Townsville-Thuringowa region.

In making this assessment it should be noted that the modelled employment impacts reflect the sum of annual outputs. As such, it is possible that a significant proportion of the jobs created in one year will continue onto the next. As such, each job created does not necessarily reflect a new individual worker.

FIGURE 34: NATURAL INCREASE AND ASSUMED NET MIGRATION IN TOWNSVILLE-THURINGOWA REGION 1995-2004



It is our understanding that the project proponents will retain the services of significant, well established, and experienced construction contractors to undertake the construction of the project in line with the expectations outlined in the detailed engineering plans and methodology. Ensuring the availability of appropriate skilled personnel to meet the requirements of the construction contracts would therefore be a direct responsibility of the contractor. As a developer, the project proponents would exercise appropriate procurement contract management, and supply performance monitoring methods to ensure contractors are able to meet the contractual obligations. In this situation, it would be expected that the established and experienced contractors will have in place robust and proven human resource management plans that include apprenticeships and skill development for the staff.

8.6 IMPACTS ON LOCAL RESIDENTIAL MARKET

There are two distinct aspects to the potential impacts of the TOT project on the regional residential market:

- The impact of a migrant labour force on demand for accommodation during the construction phases of the project; and
- The ongoing impact on the property market of additional detached and apartment dwelling stock being released into the market.

8.6.1 Impact of a Migrant Labour Force on Housing Demand

As noted in the previous section, it is estimated that between 960 and 1,160 jobs will be filled by workers from outside the region to work on the TOT project over its 3-year construction period. These additional workers will generate demand on existing housing stock.

This being said, it is arguable that these additional residents – whether temporary or permanent – have been accounted for in existing population forecasts, which assume certain levels of economic activity in the region. In this regard, the additional demand for housing generated by TOT construction workers is already factored into housing demand forecasts for the region. On this basis, the conclusion is that the migrant labour force will not have any discernible impact on demand for accommodation in the region above-and-beyond levels expected as a part of existing population forecasts.

However, experiences in other regional centres experiencing major economic booms such as Mackay, suggest that major upsurges in economic activity can give rise to population growth rates that far exceed expectations. Should a similar scenario emerge in Townsville-Thuringowa then existing population growth forecasts are likely to under-estimate the likely growth trajectory and demand for housing.

This notwithstanding, for the purposes of this study, the consultants have assumed that existing population forecast are more likely to prevail and therefore, the additional population associated with a migratory workforce for the TOT development is already accounted for.

The specific accommodation needs of a maximum 960 to 1,160 additional workers over three years will vary, depending upon the demographic and family composition characteristics of this workforce. It is expected that the additional workers will require independent accommodation; therefore, for each additional worker one additional unit of housing will be required. (This expectation places the forecasts at the upper end of the range, as multiple occupancy accommodation options may be taken up by a proportion of the workforce.)

8.6.2 Impact on the Broader Property Market

Section 4.9 of this report highlighted that there is a tight supply of residential dwellings available for current demand. This mismatch in land supply and demand has been recognised for all Australian cities by UDIA (UDIA, 2006), and Townsville-Thuringowa is not alone in this regard.

Increasing sales prices for Land, Units and Houses all indicate that there is growth in demand as housing and land shortages put upward pressure on prices. Townsville rental accommodation prices have also experienced price increases for all types of dwellings in recent years. Thuringowa rental accommodation prices for two bedroom and three bedroom apartments were the only two rental accommodation categories that experienced any decreases in price over the years 2000 to 2006.

Furthermore, dwelling activity continues to remain vibrant with the number of approvals increasing from the years June 2005 to June 2006.

The Breakwater Cove residential development will provide an additional 200 detached dwellings into the property market in a staged process. While these additional dwellings will contribute to the overall supply situation in the residential market, it should be acknowledged that the properties in question will be positioned at the higher range of the pricing spectrum, given their location and unique amenities and private marina features.

This being the case, Transpac Consulting expects that the majority of these dwellings would be acquired by owner-occupiers, rather than being acquired as investment stock. Further, as these dwellings would service a comparatively affluent niche market, the nature of the impact on the property market in the region in general will tend to be restricted to the prestige or above-average property segment.

As well, the Breakwater Cove precinct will also involve some 500 apartment sites. We are advised that City Pacific Limited do not (at this point in time) intend to develop these opportunities but will, instead, develop the sites and sell the opportunities to other builders and developers. The apartment product has the potential to be priced extremely competitively, due to the comparatively cheaper cost of the land development itself. Broad estimates undertaken by Transpac Consulting would suggest that a 2-bedroom apartment in the Breakwater Cove precinct could retail for between $350,000 and $400,000 (2007 dollars).

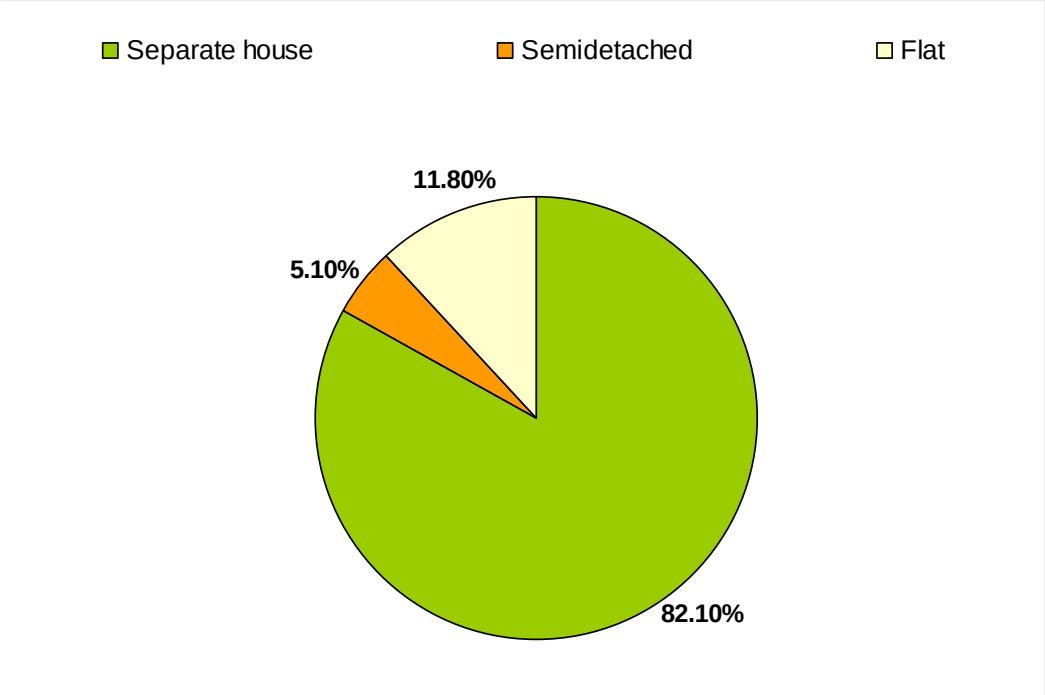
There are as such two main aspects to the impact of the Breakwater Cove development on the property market. First, it is necessary to consider the likely composition of housing needs by dwelling types, to determine the extent to which the proposed development meets an emerging need. Second, the impact of the properties in the development will tend to be quite specific, with demographic and spatial segmentation being prominent.

Previous housing choice patterns for Queensland have been used to make inferences on what type of dwellings will be required for the future (DLGP, 2001).

Figure 35 indicates that 82.1% of persons in Queensland have purchased Separate houses, 11.8% Flats and 5.10% semi-detached dwellings. Based on these estimates of the 27,794 dwellings to be constructed in the Townsville-Thuringowa region over the next 20 years, approximately 22,819 dwellings will be separate houses, 3,280 will be Flats and 14,175 will semi-detached dwellings.

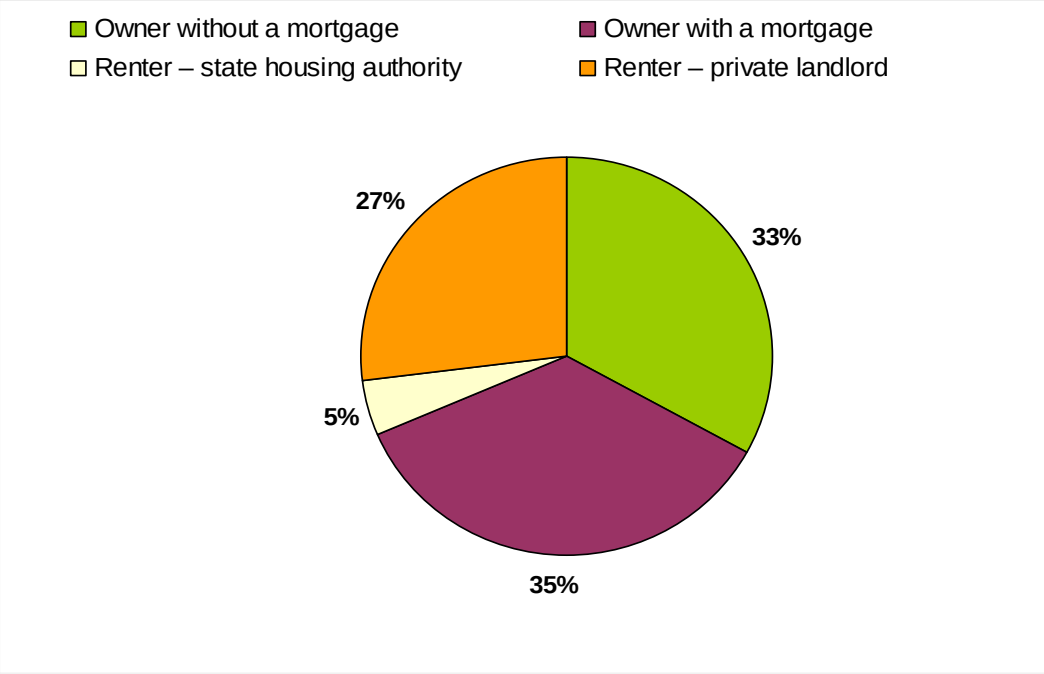
In this regard, the supply of an additional 200 detached dwellings as part of the Breakwater Cove development will contribute no more than 0.87% of future detached dwelling requirements.

FIGURE 35: QUEENSLAND HOUSING CHOICES 2004



In addition, working assumptions can be made on the ownership status of these dwellings by observing past statistics (Figure 36). Based on data shown in Figure 36 it can be inferred that of the 27,794 dwellings that need to be constructed over the 20 years, approximately 18,900 dwellings will be owned and 8,894 will be rented in the Townsville-Thuringowa region.

FIGURE 36: QUEENSLAND HOUSING TRENDS, OWNERSHIP STATUS 2004



Again, given that it is likely that Breakwater Cove will be predominantly owner-occupied, the supply of an additional 500 attached dwellings is not inconsistent with the overall structure of ownership demand.

In terms of volumes, the development timing of the apartments will be subject to prevailing market conditions. It is widely known that there is significant current and expected residential apartment activity in and around the Townsville CBD.

Available evidence shows that there has been rapid population growth in and around the CBD and that this trend is likely to continue into the future barring unforeseeable events adversely impacting on the regional economy and other factors that may dampen the attractiveness of the city.

The CBD and surround inner-city suburbs are shown at Map 1. Also illustrated indicatively on the Map are projects currently under construction and proposed projects. The concentric circles are approximately 100m in diameter.

MAP 1: TOWNSVILLE CBD AND INNER SUBURBS

Projects under Construction (see Table 55)

Proposed Developments (see Table 55)

As shown in Map 1, there are a substantial number of projects that are either under construction or proposed for the CBD and inner-city areas in Townsville. These projects are detailed in Table 55 below. The majority of these projects are located within approximately 150-200m from the centre of Flinders Street Mall, which is considered as a reasonable walking distance. Further, most of them are located in the Palmer Street precinct, to the south of the CBD proper, with direct connectivity to the CBD (and Mall) via Victoria Bridge and the Denham Street Bridge.

8.6.2.1 Recent Population Trends

Since 2001 the Townsville CBD has experienced rapid population growth, reflecting a significant trend in the city's heart of public and private investment in so-called inner-city renewal projects.

Table 30 shows the population for the Townsville CBD for 2001 and 2006, together with the population for the surround inner-city suburbs.

TABLE 30: INNER TOWNSVILLE POPULATION TRENDS, 2001 AND 2006

SUBURB	2001	2006	CHANGE	CHANGE %
South Townsville	2,017	2,228	211	10.5%
Castle Hill/North Ward	5,511	5,948	437	7.9%
Townsville City (CBD)	**1,627**	**2,778**	**1,151**	**70.7%**
Belgian Gardens	2,378	2,405	27	1.1%
TOTAL	**11,533**	**13,359**	**1,826**	**15.8%**

Source: ABS 2001 Census and Updates

As Table 30 shows, the CBD has experienced population growth rates considerably higher than surrounding suburbs. In fact, as a proportion of total population growth in the inner-suburbs, CBD growth accounts for approximately 63%. This growth trend continues and to some extent expands on changes that became evident between 1996 and 2001, at which time inner suburbs began to experience a process of gentrification.

8.6.2.2 Known Future Projects

Data available on known and anticipated future residential developments in and around the CBD confirms that the inner-city will continue to grow rapidly into the future.

As shown in Table 31, at present there are four residential developments under construction worth approximately a total of $242.25 million dollars. A further $1,296.7 billion dollars worth of proposed developments are to be constructed in the future in the Townsville CBD.

Developments under construction include a total of:

- 18 one bedroom units;
- 654 two bedroom units/apartments*; and
- 29 three bedroom units/apartments.

Proposed developments for construction include a total of:

- 46 one bedroom units;
- 1,853 two bedroom units/apartments/townhouses*;
- 183 three bedroom units/apartments/townhouses; and
- 2 four bedroom.

** Where developments do not state number of bedrooms an assumption of 2 bedroom units has been made.*

As can be seen there is a substantial volume of inner city residential stock being considered in Townsville.

TABLE 31: TOWNSVILLE CBD DEVELOPMENTS – UNDER CONSTRUCTION AND PROPOSED

DEVELOPMENT	ADDRESS	DEVELOPER	ESTIMATED COST ($MILLION)	TIMELINE	DETAILS
Under Construction					
T1	151-173 Sturt Street	Hedley Constructions	$25	Commenced construction in November 2005. Target completion date is July 2007	• 24 two bedroom units • 24 three bedroom units • 5 three bedroom penthouses • 2 shops over 18 storeys
	8 Palmer Street	Thompson Properties	$12	Modified decision pending. DA Effective December 2005, revised application for larger development lodged	• 18 one bedroom • 18 two bedroom units • shops and restaurants
	19 McIlwraith Street	Tardwin and Tabcam, Brazier Motti	$5.25	Construction commenced in October 2005, and to be completed in 2007	• 12 two bedroom holiday apartments
QR North Yards	Flinders Street West	Honeycombes Property Group and HIGB Pty Ltd	$200 (Stage 1 - $30)	DA submitted June 2006 for Stage 1, Infrastructure Agreement and Local Area Codes finalised, Stage 1 expected to be completed in 2008, 9 years to deliver remaining six stages	• Stage 1: 86 residential units • 600sqm of commercial • 3000sqm three level commercial building • six additional stages • eventually 600 new units
Proposed Developments					
	60-62 McIlwraith Street	MacCallum and Partners Architects	$13.5	Building approval was issued in September 2005	• 34 two bedroom • 17 three bedroom home units
	1-13 Sturt Street	Fortia Funds Management Ltd and Phil Dance Planning	$50	DA Effective September 2005, demolition to have taken place in September 2006 and target completion to be June 2008	• 39 one bedroom • 64 two bedroom • 8 three bedroom home units • commercial premises and shops

Glen Alpine Crown Hotel	69-77 Palmer Street	Glen Alpine Developers	$45	Demolition to take place in November 2006 with construction starting in early 2007, pending negotiations over the bridge	• 72 home units, • a restaurant and a pub
	37-43 Palmer Street	Thompson Properties	$18	Decision Pending. Expected to commence construction in early 2007, with completion date being mid-2007	• 32 three bedroom home units • commercial premises
	122-148 Walker Street	Benchmark Development Company Pty Ltd	$32	Target completion is still late 2007	• 39 two bedroom • 5 three bedroom and • 2 four bedroom residential units • catering and shops
	34-36 Morehead Street	Brazier Motti	$4.5	DA Effective December 2006 with construction to be completed in early 2007	• 15 three bedroom home units
	209 Wills Street	Property NQ Pty Ltd	$2.9	DA Effective was August 2005	• 8 two bedroom home units
	3-5, 7 Morehead Street	Brazier Motti, Trevor Janke	$4 for 3-5 Morehead St, and $1.5 for 7 Morehead St	7 Morehead is expected to commence in early 2007, and 3-5 Morehead will begin on completion of number 7.	• 15 three bedroom townhouses • 6 three bedroom units
	20-28 Palmer Street	Brazier Motti	$12	Due to commence construction for Stage 1 in early 2007	• 56 units • four restaurants
	201-209 Sturt Street	MacCallum and Partners Architects with Philmar	$9	DA Effective was February 2005. Currently on hold	• 18 three bedroom home units
	222-230 Sturt Street	MacCallum and Partners Architects	$36	DA Effective was May 2005. Currently on hold	• 43 two bedroom • 23 three bedroom home units • shops
Townsville Motor Boat and Yacht Club	Plume Street	Gordon Property Developments	$45	DA Effective was May 2005. Proposed commencement of development in 2006 with a target completion of first phase in 2007. Currently in litigation.	• 69 home units • 7 one bedroom • 33 two bedroom • 21 three bedroom • licensed Club House

	38 Morehead Street	MacCallum & Partners Architects	$23	On hold. Due to commence in late 2006, with a completion date of December 2007	• 28 two bedroom • 22 three bedroom home units
	4 Oxley Street	Mark Alderson	$2.3	Due to commence construction in late 2006, with a completion date set for early 2007	• 3 two bedroom • 1 three bedroom units
	2 Dibbs Street	PJ Group Pty	$48	Completion was scheduled for July 2006, but the development is currently on hold	• 112 units • restaurants, shops and a function room
Mariners Peninsula	Land surrounding Mariners North	Breakwater Pacific (a JV between City Pacific and Mirvac)	$50	Approval for Stage 1 (100 residential units) received in June 2007	• 9 beach-front townhouses • 200 residential units • 5 ocean-front single dwellings
	Land surrounding the Casino Precinct	Consolidated Properties	$250	Commencing January 2007	• 30 small marina single dwellings
		Resortcorp	Unknown	Application expected shortly	• 650 residential units
		Tabcorp and Consolidated Properties (managed by City Pacific)	$650	Subject to EIS and State approval	• 500 residential units • 200 canal estate single dwellings • Ocean Terminal

Source: Townsville City Council; Transpac Consulting

8.7 DEMAND ON LOCAL RESOURCES

As noted earlier, the construction of the TOT will require substantial volumes of rock and sand supplied from local quarry sources. The TOR specifically seeks feedback on whether such demand will have implications for future construction projects in the region. To assess this, Transpac Consulting undertook a series of consultation meetings with likely users of such resources in the region, specifically Department of Main Roads and the UDIA (representing the property development sector). The consultants also consulted the local Department of State Development on this issue.

Interviews with representatives of both bodies indicated that they did not believe there would be deleterious impacts on future development activities as a result of the demand for such resources by the TOT project. We understand that from Main Road's perspective, the materials being used by TOT are typically not those that would be required for road construction. The development sector also did not indicate any concerns about possible impacts on future availability of such resources.

9 COST BENEFIT ASSESSMENT

A cost-benefit analysis is the appraisal of an investment project that includes all social and financial costs and benefits accruing to the project. A primary purpose of a cost-benefit analysis is to evaluate the net benefits of proceeding with an investment compared with a specified alternative case. The alternative may be to do nothing, the status quo or an alternative competing project. The relevant tangible costs are the directly attributable cash costs incurred as a result of the project proceeding. Intangible costs such as adverse environmental impacts and increases in risk should be identified (Boardman, 2001).

A project is economically viable if the benefits it yields over the assumed project life exceed its costs.

In order to calculate the Ocean Terminal Project benefits, the net present value is calculated. Present value is the discounted value of a financial sum arising at some future period. The net present value is the difference between the present value of a future flow of projects arising from a project and the capital cost of the project. The net present value of a project is defined below:

$$NPV = \sum_{t=0}^{n} \frac{B_t}{(1+i)^t} - \sum_{t=0}^{n} \frac{C_t}{(1+i)^t}$$

Section 8 of this report provided an economic impact analysis measured through the use of Input-Output analysis. The purpose of an economic impact analysis is to quantify and describe the pertinent impacts, such as the number of jobs created of amount of income generated. However these estimates described economic impact and do not alone indicate the magnitude of the benefits and costs and whether the project is desirable from a public or social viewpoint. In summary, an economic impact analysis attempts to predict, but not evaluate, the effects of a project (ERA, 2005).

9.1 ASSUMPTIONS

A Cost Benefit Analysis was undertaken for two project scenarios:

- The Ocean Terminal Project without the residential component of the project [Project A]; and
- The Ocean Terminal together with the Breakwater Cove residential precinct [Project B].

The following assumptions have been made in this Cost-Benefit Analysis:

1. There are no project alternatives. That is, no other competing projects.
2. The annual discount rate is 7%.
3. There are no other tangible or intangible costs except for the initial investment.
4. The benefits estimated for **Project A** (Ocean Terminal only) are the total Value Added estimates in the Input Output Analysis for Cruise Shipping.

It is assumed that in years 1 to 3 there will be a $1,999,868 p.a. benefit, in years 4 to 8 there a $3,404,279 p.a. benefit and from 9 years and beyond an annual benefit of 4,707,903. These three benefit amounts reflect low, medium and high Cruise Shipping impacts of 10, 15 and 20 ships a year, respectively.

5. There is an initial cost of $50,000,000 (at time zero) **Project A**.
6. The benefits estimated for **Project B** (inclusive of the residential component), conservative scenario, are the same of that for Project A; however it also includes a stream of benefits in years 1 to 4 of $37,500,000 p.a. which represent the sales of the 200 detached dwellings (50 per year) at $750,000 each and in year 1 and year 4, an additional benefit of $25,000,000 per year to reflect the sale of land sites for units at $100,000 each for 250 sales per year. An NPV analysis has also been calculated for a non-conservative scenario, where a stream of benefits occur in years 1 to 4 of $50,000,000 p.a. which represent the sales of the 200 detached dwellings (50 per year) at $1,000,000 each and in year 1 and year 4, an additional benefit of $37,500,000 per year to reflect the sale of land sites for units at $150,000 each 250 sales per year.
7. There is an initial cost of $209,350,000 (at time zero) for **Project B**.

9.2 RESULTS

The results from the Net Present Value analysis of **Project A** estimate that by year 37 the net present value will be positive.

$$NPV = \frac{\$50,277,907.39}{(1+.07)^{37}} - \frac{50,000,000}{(1+.07)^{37}}$$
$$NPV = \$277,907.39$$

The results from the Net Present Value analysis of **Project B,** conservative scenario, estimate that by year 22 the net present value will be positive.

$$NPV = \frac{\$210,058,466.50}{(1+.07)^{22}} - \frac{\$209,350,000.00}{(1+.07)^{22}}$$
$$NPV = \$708,466.50$$

A non-conservative scenario for **Project B,** estimates that by year 4, the net present value will be positive.

$$NPV = \frac{\$240,861,256.08}{(1+.07)^{4}} - \frac{\$209,350,000.00}{(1+.07)^{4}}$$
$$NPV = \$31,511,256.08$$

Based on this assessment, it is clear that the project's economic viability is significantly enhanced by the inclusion of the Breakwater Cove residential precinct, which brings forward a positive NPV to at most an estimated 22 years, on conservative dwelling and apartment site sales expectations. On more bullish residential sales expectations, a positive NPV for the entire project could be achieved as quickly as 4 years.

Taking a time horizon of 22 years as a base line, when a positive NPV is achieved for the integrated project on conservative residential sales expectations, the NPV for Project A (Ocean Terminal only) is estimated to be -$9.3m. On this basis, assuming the validity of the time horizon used, the Ocean Terminal project by itself would not be economically viable.

In strict cost-benefit terms, the proposed TOT development represents a new opportunity for economic activity in Townsville. The real 'cost' of the project is the foregone opportunity that would result from not proceeding with it.

To provide a basis for estimating a benefit-cost ratio for the two project scenarios, a time horizon of 30 years has been applied to both. The analysis concludes that for:

- Project A has a BCR of 0.94; and
- Project B (conservative) has a BCR 1.034.

10 COMPATIBILITY WITH PORT OF TOWNSVILLE

The Port of Townsville has been a significant contributor to the regional economy. Given the relative proximity of the proposed TOT project and the Port, the TOR explicitly required the EIS to consider the potential impacts of the project on the future operations of the Port. Specifically the TOR seeks an assessment of "the impacts of the TOT project on the future expansion and operations of the port to at least 2050 including:

- Potential limitations on future expansion of port facilities and other proposed capital works;
- Limitations on current or future operations that may arise from nuisance complaints and/or legal action including (but not limited to) dust, odour, noise, lighting, visual amenity, electromagnetic radiation/interference; and
- The potential for higher environmental compliance costs for the Townsville Port Authority or port users as a result of the project."

10.1 THE PORT MASTER PLAN

The Port anticipates significant and sustained growth in activity over the next 20 to 25 years, possibly by a factor of 3. In planning for this forecast growth, a master plan is being prepared. The master plan addresses both the transportation requirements to-and-from the Port as well as developments of additional or new facilities on Port land. We understand that the master plan has now been submitted for Ministerial consideration.

Insofar as the master plan is directly relevant to considerations about the compatibility of the TOT, it can be noted that the plan in effect involves the seaward development of the Port with additional berthing facilities envisaged for reclaimed land north-east from the existing port, further intensification of infrastructure and trade activity in existing berth areas and some rationalisation of activities within the existing Port area.

Key elements of the Port master plan include:

- The construction of up to 6 new berths to the north-east of existing Berth #11, to handle bulk minerals in the future;
- The relocation of a range of activities in an easterly direction (from present Berths 6 and 7, which are more or less directly opposite Ross Creek from the Entertainment Centre) and the decommissioning of Berth 7;
- An upgrade of Berth 4 so that it can handle the full range of general cargo; and
- An upgrade and extension of Berth 10 to handle larger vessels (up to 230m in length), which will enhance the overall flexibility of berthing infrastructure to handle a broad range of cargo requirements. The upgrade of Berth 10 would enable that berth to handle scrap metal, general cargo containers and live cattle for example. It is expected that trade through Berth 10 will double in the next 12 months as a result of upcoming changes to the Berth lessee.

We understand that engineering design work is soon to commence.

10.2 PORT-CBD INTERFACE (STRATEGIC PLAN)

Urban encroachment is a major factor impacting upon the operations of ports across the world. Australian Ports such as Melbourne, Geelong, Hastings, Portland, Bunbury, Fremantle and Esperance, as well as Sydney Harbour are amongst those that are experiencing a need to address the impacts on urban encroachment on future port activities.

In Townsville, the interface between the Port and surrounding residential and commercial areas is being addressed through the development of the *City-Port Strategic Plan*. The Strategic Plan acknowledges the future importance of the Port to the region's economic wellbeing, and sees the Port infrastructure as a critical asset within the *Northern Economic Triangle* blueprint.

The proposed TOT falls within the spatial purview of the *City-Port Strategic Plan*.

10.3 EXISTING PORT PROTECTION MEASURES

There are several documents, when combined together, provide for the protection and continuation of existing and future Port operations and ensure that any complaints against the Port Users are restricted.

These include the Port Protection Agreement, Port Protection Code, Community Management Scheme for the Development and contractual protection.

The Port Protection Measures (PPM) contemplated in the above documents have several layers of protection as follows:

- Disclosure to buyers of the Port operations;
- Flagging the Port operations and the PPM to subsequent buyers;
- Measures that limit individual and group actions against the Port;
- Controls that regulate development designed to mitigate impacts on Port operations.

The overall objectives and outcomes of PPM are:

- Acknowledge the Port operations and their importance;
- Make initial and subsequent buyers abundantly aware of the Port and its potential nuisance;
- Remove body corporate rights to complain about or sue the Port; and
- Regulate the building design to mitigate any impacts.

As a result of the PPM, landowners will be required to overcome a number of protective measures prior to having the right to subsequently complain against the Port operations or Port Users.

10.4 ISSUES

People who use land in particular ways have *expectations* of amenity that relate to that use. Residents, for example, will typically expect higher standards of amenity than people at work in an industrial area. Central to the issue of compatibility between the proposed TOT and the Port of Townsville is *the issue of expectations*, to which this paper will return below.

Incompatibility of land uses is of concern to both existing residential and industrial users as well as future users as it could result in long-term loss of amenity (and therefore value) and/or constraints on future use rights or conditions.

It is often assumed as a matter of land use planning principle that the proximate location of industrial and residential land uses is incompatible to the extent that residential uses are seen as highly sensitive. As a result urban 'encroachment' is often assessed as a risk to future industrial activity. In these case, should proximate location be warranted appropriate land use buffers and planning controls are required that provide a land use transition between the various uses. In effect, the transition 'zone' is a 'step down' from intensive (industrial) uses and nearby sensitive residential uses.

The purpose of this planning approach is to ensure that (a) current and future industrial activities do not unreasonably adversely impact on residential amenity and (b) that any evident residential dis-amenity does not result in constraints on industrial activity via the emergence of political risk.

10.5 POLITICAL RISK

Political risk relates to the possibility that resident complaints about industrial activities will cause changes in operational or environmental regulations and/or legislations that would impose additional costs on the port and/or port users. There are clearly two elements:

- The risk of complaints; and
- The risk that complaints will result in regulatory or legislative changes.

There are also risks associated with less formal interventions from civic and political representatives that result from possible reactions to community or residential complaints. Such interventions would not take the form of more formal regulatory or legislative changes, but through informal interventions may adversely impact on the day-to-day operational imperatives of the Port.

10.5.1 Drivers of Complaints

The *risk of complaints* is a function of a number of factors including the actual and perceived level of amenity impacts caused by industrial activities, developments in the sciences particularly in relation to the potential impacts of industrial activities on public health and the proximity of port activities to residents and the prevalence of buffers that militate against the impacts. Historical complaint activity also provides a guide into the prevailing 'balance of forces'.

The most direct driver of public complaints about Port activities relate to the actual amenity and environmental impacts given rise by such activities. Acceptable levels of

impacts are governed by a range of regulatory conditions over the activities, many of which were imposed at least 10 years ago. Substantial changes to such activities would occasion a review of the relevant operating conditions and compliance requirements, whereby compliance with more recent standards would be required. It can be noted that as a general observation, more recent environmental compliance standards are typically stricter than previous standards.

The capacity of residents to make complaints is a civil right, arguably inalienable. (This matter is considered in the associated *Social Impact Assessment* report.) Whether such complaints lead to punitive actions by regulatory bodies is a function of the extent to which those complaints are supported by evidence of clear breaches or failures to comply with regulatory requirements. Should complaints prove to the unfounded, due to the activity being demonstrated to be lawful, the likelihood that such complaints will lead to more onerous and costly regulations is minimal. Arguably, repeated complaints that ultimately prove to be unsubstantiated would be deemed to be a 'nuisance' in nature, and would result in the credibility of any future complaints of a similar nature to be open to question.

The recent high-profile case in point relates to so-called 'black dust'. While there has been substantial media coverage on the matter, testing undertaken by the EPA has not been able to attribute the dust to any activity associated with the Port. Additionally, given the absence of evidence to the contrary all indications from legislators and regulators is that there is no intention to alter the current regulatory framework governing port activities.

In spatial terms, future layout options will involve the expansion over the next 25 years of the Port's operational footprint seaward in a north-easterly direction with additional storage facilities and loading berths. An analysis of this reconfiguration leads to the following proposals:

- The present Berths 6 and 7 are located approximately 4-500m from the nearest residential development opportunity on the TOT project site;
- The proposed new bulk storage facilities (Stage 1 and Stage 2) are some 800m east of the present Berths 6 and 7; and
- The proposed new bulk storage facilities are some 900m to 1,000m from the nearest residential site on the TOT project site.

On this basis, the Port's development master plan would see future new development and activity occur further away from existing and proposed residential dwellings. The further the activity is from residences the less likely it is that the impacts of such activities will be severe, giving rise to complaints; and in any case, distance tends to dissipate the compliance costs associated with the management or mitigation of amenity-related impacts such as noise, dust etc.

As for complaint activity, available historical data indicates that there have been limited instances of formal complaints made by Townsville residents about Port-related activities and amenity consequences. This is discussed in greater detail below.

However, while there are plans for the seaward expansion of the port, particularly for bulk minerals cargo, the master plan also envisages the intensification of cargo activity in existing berths. As noted above, proposed upgrades to Berths 10 and 4 are likely to see increased cargo handling activity. Depending on the nature of that cargo, amenity impacts

on nearby residents may be heightened.

10.5.2 Drivers of Regulatory Change

Regulatory or legislative changes are driven by a number of factors including any event of unlawful activities by the port or port users (e.g. breach of existing conditions), developments in the relevant sciences particularly as they relate to the impact of industrial activities on public health, changes in community sentiments and values towards urban amenity expectations and changes in community sentiments and values towards industrial-related activities in Townsville.

The potential for changes in the regulatory environment impacting on Port of Townsville and port user operations will depend on the extent to which these drivers are impacted by the proposed TOT development.

10.6 HYPOTHESIS

Research shows that residents make trade-off decisions about the amenities and disamenities of particular dwellings and locations. In relation to the compatibility of the Port and nearby residences, the following hypothesis has been tested:

> *Nearby residents on the whole tend to accept the amenity benefits of their location over the disamenities associated with proximity to an operational Port. Evidence of this can be found in:*
>
> - *High levels of stated amenity preferences;*
> - *Comparative residential turnover rates measured through re-sales rates;*
> - *High property values (actual and relative) indicating relative desirability of the location and dwelling; and*
> - *Low levels of complaint activity.*

Should this be the case, provided that the noise and air quality impacts more-or-less remain unchanged into the future, it is reasonable to extrapolate that future residents of the Breakwater Cove precinct will exhibit similar trade-off behaviour provided that there are no major or catastrophic changes to the operations of the Port or port user activities that will generate observable increases in disamenity and/or significantly affect perceptions about amenity expectations.

In other words, provided that the prevailing ‘order of things’ continues into the future, and that residents *are aware of and therefore expect* that certain levels of port activity and growth are to take place, it is unlikely that the proximate location of new residential dwellings and the Port will amount to a irreconcilable incompatibility.

10.7 THE EVIDENCE

10.7.1 Stated Amenity Preferences

The survey of nearby residents found that residents acknowledged the amenity benefits of their locality in terms of proximity to the ocean, the CBD and The Strand. Accessible parking was also cited as an important amenity of their location. At the same time, the same residents indicated that they had from time to time experienced disamenities including noise and dust pollution.

Analysis of the response data indicated that respondents chose to continue in their place of residents because they valued the amenity benefits over the locational disamenities. Refer to the *Economic Impact Assessment* and *Social Impact Assessment* reports for details.

10.7.2 Residential Turnover

The same survey also found that a significant proportion of residents had lived in their place of residence for 2 or more years. Concerned that there may be self-selection biases in the response set, an examination of available objective data on duration of residence and sales activity was conducted.

Table 32 summarises sales data for each of four buildings in The Strand and Breakwater precincts (the subject properties), which are located in close proximity to the Port. The data shows that of the 136 dwellings in question, there remain 35 original owners (25.7%). Since the buildings were constructed there have been a total 287 sales, of which 151 have been re-sales.

TABLE 32: SALES SUMMARY FOR SELECTED BUILDINGS (STRAND AND BREAKWATER PRECINCT)

BUILDING	APPROX. YEAR BUILT	No. of Units	No. of Re-Sales	No. of Original Owners
No. 1 THE STRAND	2002	26	20	10
No. 3 THE STRAND	1993	38	65	5
BREAKWATER VILLAS	2000	22	14	10
BREAKWATER QUAYS	2001	50	52	10
TOTAL		**136**	**151**	**35**
TOTAL SALES (INC. ORIGINAL SALE)			**287**	

Detailed sales activity for each of these properties is shown in Tables 33-36.To place the re-sales data into context, it can be noted that according to Census Data for Townsville, each year approximately 26.9% of residents move address (Census 2001).

As shown in Table 33, there have been 20 re-sales at No. 1 The Strand at an average of 4 re-sales per year. In percentage terms, this represents re-sale rate of 15.4% per year – some 11.5% less than the average rate of annual change of address in Townsville as a whole.

TABLE 33: SALES ACTIVITY AT SELECTED BUILDINGS (NO. 1 THE STRAND)

Unit No.	Plan No.	Area M^2	Original Sale Date	Original Sale Price	No. of Re-sales	Latest Sale Date	Latest Sale Price
24	SP146643	132	7/01/2002	$280,000	0	7/01/2002	$280,000
18	SP146643	151	29/01/2002	$300,000	0	29/01/2002	$300,000
13	SP146643	159	5/02/2002	$290,000	0	5/02/2002	$290,000
4	SP146643	160	1/03/2002	$285,000	0	1/03/2002	$285,000
15	SP146643	133	4/03/2002	$270,000	0	4/03/2002	$270,000
10	SP146643	138	2/04/2002	$260,000	0	2/04/2002	$260,000
6	SP146643	160	16/05/2002	$260,000	0	16/05/2002	$260,000
14	SP146643	122	27/06/2002	$245,000	0	27/06/2002	$245,000
20	SP146643	267	6/09/2002	$399,000	0	6/09/2002	$399,000
12	SP146643	156	2/12/2002	$275,000	0	2/12/2002	$275,000
8	SP146643	186	1/03/2002	$285,000	1	26/09/2003	$400,000
16	SP146643	128	20/03/2002	$270,000	1	14/11/2003	$350,000
3	SP146643	156	25/01/2002	$278,000	1	25/01/2004	$420,000
5	SP146643	146	20/12/2001	$235,000	1	29/02/2004	$340,000
22	SP146643	286	16/05/2002	$415,000	1	16/05/2004	$470,000
7	SP146643	149	4/09/2001	$195,000	1	16/07/2004	$355,000
1	SP146643	138	21/02/2003	$245,000	1	17/09/2004	$310,000
19	SP146643	262	16/05/2002	$390,000	1	3/06/2005	$650,000
26	SP146643	183	13/12/2001	$295,000	1	1/11/2005	$565,000
9	SP146643	156	9/04/2002	$290,000	1	8/11/2005	$470,000
21	SP146643	283	24/05/2002	$430,000	2	11/07/2006	$655,000
25	SP146643	128	13/04/2002	$280,000	2	19/07/2006	$485,000
11	SP146643	130	11/01/2002	$260,000	2	8/11/2006	$450,000
2	SP146643	130	19/02/2002	$250,000	1	20/01/2007	$447,000
23	SP146643	122	20/12/2001	$250,000	2	21/01/2007	$491,000
17	SP146643	127	20/12/2001	$290,000	1	16/03/2007	$565,000

Table 34 shows that there were 65 re-sales over 13 years at No. 3 The Strand, at an annual average of 5 re-sales. This represents an annual re-sale rate of 13%.

TABLE 34: SALES ACTIVITY AT SELECTED BUILDINGS (NO. 3 THE STRAND)

Unit No.	Plan No.	Area M^2	Original Sale Date	Original Sale Price	No. of Re-sales	Latest Sale Date	Latest Sale Price
7	BUP100251	136	15/03/1994	$185,000	0	15/03/1994	$185,000
8	BUP100251	134	16/05/1994	$195,000	0	16/05/1994	$195,000
21	BUP100251	118	26/08/1994	$225,000	0	26/08/1994	$255,000
10	BUP100251	120	19/01/1995	$201,000	0	19/01/1995	$201,000
3	BUP100251	124	14/09/1995	$140,000	0	14/09/1995	$140,000
35	BUP100251	120	15/12/1995	$200,000	1	27/10/1997	$250,000
22	BUP100251	120	1/02/1994	$200,000	2	26/02/1999	$240,000
37	BUP100251	240	10/10/1993	$400,000	1	11/06/1999	$500,000
33	BUP100251	118	31/05/1996	$265,000	1	6/10/1999	$230,000
23	BUP100251	120	4/08/1994	$240,000	3	7/10/1999	$240,000
2	BUP100251	124	6/02/1994	$160,000	1	15/12/1999	$190,000
5	BUP100251	134	12/05/1994	$190,000	1	29/11/2000	$195,000
4	BUP100251	210	5/08/1994	$200,000	1	11/01/2001	$190,000
27	BUP100251	120	16/02/1994	$265,000	1	20/07/2001	$250,000
11	BUP100251	120	26/07/1994	$195,000	1	23/10/2001	$178,000
16	BUP100251	118	22/12/1995	$165,000	2	2/04/2002	$185,000
1	BUP100251	219	16/09/1994	$177,000	1	22/04/2002	$176,000
17	BUP100251	118	15/12/1995	$200,000	2	20/07/2002	$220,000
38	BUP100251	240	14/01/1994	$400,000	1	7/11/2002	$166,667
32	BUP100251	118	15/12/1995	$205,000	2	11/11/2002	$235,000
20	BUP100251	118	9/06/1994	$220,000	2	15/01/2003	$212,000
24	BUP100251	118	14/10/1993	$240,000	2	18/02/2003	$230,000
34	BUP100251	120	27/09/1994	$315,000	1	25/03/2003	$300,000
31	BUP100251	120	15/12/1995	$210,000	3	7/04/2003	$295,000
30	BUP100251	120	8/08/1994	$255,000	2	21/05/2003	$285,000
25	BUP100251	118	15/12/1995	$200,000	2	19/06/2003	$265,000
12	BUP100251	118	10/11/1993	$195,000	1	6/02/2004	$263,000
9	BUP100251	118	5/08/1994	$195,000	3	25/04/2004	$229,000
18	BUP100251	120	5/09/1993	$220,000	3	7/06/2004	$375,000
13	BUP100251	118	21/09/1993	$202,213	4	14/08/2004	$287,000
14	BUP100251	120	20/08/1993	$205,000	3	30/09/2004	$360,000
26	BUP100251	120	15/12/1995	$210,000	3	13/11/2004	$435,000
28	BUP100251	118	15/12/1995	$200,000	3	6/01/2005	$413,000
29	BUP100251	118	15/12/1995	$205,000	2	22/03/2005	$415,000
19	BUP100251	120	17/08/1993	$220,000	1	30/04/2005	$420,000
15	BUP100251	120	1/07/1995	$185,000	4	20/07/2005	$430,000
6	BUP100251	136	26/10/1994	$180,000	3	10/08/2006	$445,000
36	BUP100251	118	16/12/1995	$200,000	2	6/11/2006	$495,000

Table 35 shows that there were 14 re-sales over 7 years at Breakwater Villa, at an annual average of 2 re-sales. This represents an annual re-sale rate of 9%.

TABLE 35: SALES ACTIVITY AT SELECTED BUILDINGS (BREAKWATER VILLAS, 16 SIR LESLIE THIESS DRIVE)

Lot No.	Plan No.	Area M^2	Original Sale Date	Original Sale Price	No. of Re-Sales	Latest Sale Date	Latest Sale Price
4	GTP105102	230	13/11/1996	$480,000	0	13/11/1996	$480,000
2	GTP105102	265	10/10/1997	$430,000	0	10/10/1997	$430,000
1	GTP105102	276	10/03/1998	$385,000	0	10/03/1998	$385,000
3	GTP105102	279	12/03/1998	$395,000	0	12/03/1998	$395,000
14	SP135429	133	25/07/2000	$280,000	0	25/07/2000	$280,000
6	SP100819	200	15/06/1998	$370,000	1	8/08/2000	$360,000
21	SP135429	120	21/08/2000	$255,000	0	21/08/2000	$255,000
17	SP135429	120	25/09/2000	$250,000	0	25/09/2000	$250,000
11	SP135429	133	29/09/2000	$280,000	0	29/09/2000	$280,000
7	SP135429	133	4/10/2000	$275,000	0	4/10/2000	$275,000
18	SP135429	133	30/10/2000	$280,000	0	30/10/2000	$280,000
16	SP135429	120	25/09/2000	$250,000	1	17/11/2001	$325,000
22	SP135429	133	26/09/2000	$285,000	1	12/06/2002	$365,000
20	SP135429	120	17/08/2000	$255,000	1	18/07/2002	$330,000
12	SP135429	120	16/08/2000	$250,000	1	11/11/2002	$320,000
9	SP135429	120	16/08/2000	$245,000	1	18/11/2002	$320,000
10	SP135429	133	7/08/2000	$275,000	1	7/04/2003	$410,000
13	SP135429	120	7/08/2000	$250,000	1	17/12/2003	$400,000
5	SP100819	302	29/09/1997	$370,000	2	4/08/2005	$1,125,000
19	SP135429	133	25/07/2000	$285,000	1	24/09/2005	$700,000
15	SP135429	133	4/09/2000	$280,000	2	24/01/2006	$700,000
8	SP135429	120	22/09/2000	$245,000	1	27/07/2006	$655,000

Table 36 shows that there were 52 re-sales over 6 years at Breakwater Quays, at an annual average of 8.7 re-sales. This represents an annual re-sale rate of 17%.

TABLE 36: SALES ACTIVITY AT SELECTED BUILDINGS (BREAKWATER QUAYS, 18 SIR LESLIE THIESS DRIVE)

Lot No.	Plan No.	Area M^2	Original Sale Date	Original Sale Price	No. of Re-Sales	Latest Sale Date	Latest Sale Price
4	SP141327	168	12/10/2000	$305,000	0	12/10/2000	$305,000
7	SP141327	168	28/11/2000	$300,000	0	28/11/2000	$300,000
1	SP141327	172	6/12/2000	$295,000	0	6/12/2000	$295,000
26	SP141334	141	22/01/2001	$195,000	0	22/01/2001	$195,000
12	SP141327	168	7/02/2001	$325,000	0	7/02/2001	$325,000
35	SP141341	142	1/05/2001	$185,000	0	1/05/2001	$185,000
39	SP141341	134	15/05/2001	$185,000	0	15/05/2001	$185,000
41	SP141341	134	21/06/2001	$185,000	0	21/06/2001	$185,000
44	SP141341	133	21/08/2001	$190,000	0	21/08/2001	$190,000
33	SP141341	158	19/10/2001	$180,000	0	19/10/2001	$180,000
11	SP141327	168	17/04/2001	$310,000	1	10/01/2002	$375,000
2	SP141327	168	4/01/2001	$290,000	1	2/04/2002	$382,500
3	SP141327	168	4/12/2000	$290,000	1	22/07/2002	$385,000
8	SP141327	168	26/06/2001	$229,000	1	5/11/2002	$400,000
36	SP141341	134	22/05/2001	$185,000	1	29/11/2002	$200,000
19	SP141334	164	3/04/2001	$220,000	1	3/12/2002	$292,000
5	SP141327	168	27/04/2001	$310,000	1	16/01/2003	$395,000
6	SP141327	168	30/11/2000	$300,000	1	17/04/2003	$410,000
21	SP141334	163	2/01/2001	$215,000	1	23/06/2003	$300,000
29	SP141334	141	19/02/2001	$195,000	1	11/07/2003	$290,000
16	SP141334	163	29/01/2001	$212,000	1	16/09/2003	$312,000
10	SP141327	168	8/06/2001	$310,000	1	23/12/2003	$500,000
37	SP141341	134	30/06/2001	$185,000	1	8/01/2004	$275,000
48	SP141341	133	3/08/2001	$190,000	1	29/03/2004	$297,000
32	SP141341	158	5/06/2001	$180,000	1	19/05/2004	$255,000
20	SP141334	141	3/04/2001	$190,000	1	21/05/2004	$340,000
42	SP141341	134	8/05/2001	$185,000	1	24/05/2004	$292,500
49	SP141341	133	8/05/2001	$190,000	1	3/06/2004	$299,000
17	SP141334	141	13/11/2000	$185,000	1	15/06/2004	$325,000
43	SP141341	140	27/04/2001	$190,000	1	16/09/2004	$307,500
28	SP141334	163	17/01/2001	$220,000	2	30/09/2004	$385,000
34	SP141341	158	27/08/2001	$180,000	2	28/01/2005	$315,000
22	SP141334	163	29/01/2001	$217,000	1	1/04/2005	$387,500
25	SP141334	164	22/01/2001	$220,000	1	10/06/2005	$392,000
23	SP141334	141	22/02/2001	$190,000	1	20/06/2005	$330,000
47	SP141341	133	15/05/2001	$190,000	1	15/08/2005	$315,000
15	SP141334	163	15/05/2001	$210,000	2	20/09/2005	$400,000
30	SP141334	164	2/12/2000	$225,000	1	12/10/2005	$400,000
45	SP141341	133	19/06/2001	$190,000	2	20/10/2005	$325,000

50	SP141341	133	9/05/2001	$190,000	1	29/10/2005	$360,000
9	SP141327	168	29/01/2001	$302,000	2	28/04/2006	$695,000
40	SP141341	134	26/06/2001	$186,500	2	22/05/2006	$359,000
24	SP141334	164	21/03/2001	$220,000	1	12/06/2006	$430,000
14	SP141334	141	13/11/2000	$185,000	2	5/10/2006	$395,000
13	SP141334	164	1/06/2001	$215,000	1	10/10/2006	$420,000
18	SP141334	164	3/04/2001	$215,000	2	21/12/2006	$460,000
27	SP141334	163	8/02/2001	$222,000	3	23/01/2007	$463,000
46	SP141341	133	15/05/2001	$190,000	2	25/01/2007	$432,500
38	SP141341	134	31/06/2001	$185,000	2	31/01/2007	$435,000
31	SP141341	159	15/06/2001	$180,000	1	26/03/2007	$440,000

Overall, the re-sales data shows re-sales rates considerably lower than the rate of annual address change in Townsville. While the two measures are not directly comparable, using re-sales as a proxy for residential churn the analysis finds that annual re-sales rates averaged 13.6% for the 4 subject properties compared to an annual churn of address rate of 26% for Townsville as a whole.

From this, it can be inferred to some extent that the residential population in properties near to the Port is comparatively stable.

10.8 PROPERTY VALUES

The general desirability of these residences – notwithstanding their proximate location to the port – is ultimately reflected in relative property values.

Table 37 shows summary sales value data for all sales in the subject buildings. It shows that between 2000 and 2005, sales values have increased significantly in all properties:

- Breakwater Quays growth over five years = 121%, the 2006 median price being $420,000;
- Breakwater Villas = 118% (approx.) growth, with the median price being $400,000 in 2003 (last recorded sale);
- No. 1 The Strand = 94%, with the 2007 median price being $491,000; and
- No. 3 The Strand = 71% with the 2006 median price being $445,000.

Over a similar period (2001 to 2006) the median price of units in Townsville has grown by 81.5% to $245,000 (Table 38). On the basis of available data, all dwellings in the subject properties show median prices in excess of the median for Townsville units/apartments with an average across the 4 subject properties of $436,000 (or 178% of the Townsville figure) in 2006. Price growth over the past 5 years in the subject properties was 161.6% compared with 81.5% for Townsville units/apartments over the same period.

If port-related disamenities are supposed to be a disincentive for people living in close proximity to the Port, market prices would suggest that there are buyers willing to pay substantial prices for nearby properties.

TABLE 37: SALES VALUE SUMMARY FOR SELECTED BUILDINGS (STRAND AND BREAKWATER PRECINCT)

Year	Total Units	No. of Sales	Sales %	Median	Growth % (5 YEARS)
BREAKWATER QUAYS					
2000	50	7	14.00%	$290,000	
2001	50	42	84.00%	$190,000	
2002	50	10	20.00%	$292,000	
2003	50	9	18.00%	$300,000	
2004	50	11	22.00%	$299,000	
2005	50	10	20.00%	$360,000	
2006	50	8	16.00%	$420,000	121.00%
2007#	50	5	10.00%	$435,000	
BREAKWATER VILLAS					
PRESALES	0	6			
2000	22	16	72.73%	$275,000	
2001	22	2	9.09%	$300,000	
2002	22	4	18.18%	$320,000	
2003	22	3	13.64%	$400,000	
2004	22	1	4.55%	nsr	
2005	22	2	9.09%	nsr	
2006	22	2	9.09%	nsr	118% (Approx.)
2007#	22	0	0.00%	nsr	
Current Sale Price is between $655,000 - $700,000					
NO. 1 THE STRAND					
2001	26	5	19.23%	$250,000	
2002	26	20	76.92%	$280,000	
2003	26	1	3.85%	nsr	
2004	26	5	19.23%	$355,000	
2005	26	3	11.54%	$565,000	
2006	26	3	11.54%	$485,000	94.00%
2007#	26	3	11.54%	$491,000	

Continued …

TABLE 37 CONTINUED…

NO. 3 THE STRAND					
Year	Total Units	No. of Sales	Sales %	Median	Growth % (5 YEARS)
1993	38	7	18.42%	$220,000	
1994	38	17	44.74%	$200,000	
1995	38	13	34.21%	$200,000	
1996	38	6	15.79%	$245,000	
1997	38	5	13.16%	$220,000	
1998	38	8	21.05%	na	
1999	38	5	13.16%	$240,000	
2000	38	7	18.42%	na	
2001	38	6	15.79%	$260,000	
2002	38	8	21.05%	$220,000	
2003	38	7	18.42%	$265,000	
2004	38	6	15.79%	$287,000	
2005	38	5	13.16%	$420,000	
2006	38	3	7.89%	$445,000	71.00%
2007#	38	0	0.00%		

TABLE 38: SALES SUMMARY FOR UNITS IN TOWNSVILLE, 1991 TO 2006

Year	Total Units*	No. of Sales	Sales %	Median	Growth % pa	Growth % (5 YEARS)
1991	**5163**	**338**	**6.55%**	**$87,550**	**na**	
1992	*5288*	449	8.49%	$95,000	8.51%	
1993	*5413*	538	9.94%	$98,500	3.68%	
1994	*5538*	412	7.44%	$112,810	14.53%	
1995	*5663*	350	6.18%	$100,000	-11.36%	
1996	**5788**	**245**	**4.23%**	**$108,000**	**8.00%**	
1997	*5940*	351	5.91%	$115,000	6.48%	
1998	*6092*	418	6.86%	$125,000	8.70%	
1999	*6244*	483	7.74%	$127,000	1.60%	
2000	*6395*	692	10.82%	$189,000	48.82%	
2001	**6547**	**616**	**9.41%**	**$135,000**	**-28.57%**	
2002	*6702*	817	12.19%	$140,000	3.70%	
2003	*6857*	1319	19.24%	$166,000	18.57%	
2004	*7012*	1155	16.47%	$189,000	13.86%	
2005	*7167*	957	13.35%	$218,000	15.34%	
2006	**7323**	**1003**	**13.70%**	**$245,000**	**12.39%**	**81.50%**
2007#	7478	333#	na	$267,500	9.18%	

Sales Data from QVAS database
 # = YEAR TO DATE
** TOTAL UNITS = Flats, Units & Apartments from ABS Census Data. Data in italics (between Census Years is estimated.*

10.9 COMPLAINT ACTIVITY

Four sources of evidence on complaint activity were examined.

1. The survey of local residents found that from time to time almost half of the respondents had made complaints about the Port or port user activities. The complaints tended to related to disamenities such as noise and dust pollution.
2. Data on complaints presented in the annual reports of Townsville Port Authority over the past 5 years showed that complaints in the last three years averaged 46 per year. One-third of complaints related to noise and dust, 5% related to rubbish and 13.8% related to boat ramps and boat ramp parking tickets.
3. Data provided by Townsville Port Authority (correspondence dated 21st August 2007), which indicated that since 2000 a total of 84 complaints were made to the Port Authority about amenity issues. Of these, 8 were from the Strand precinct and 51 were from South Townsville. Of those complaints made by residents located in the Strand precinct, 3 related to noise, 2 to rubbish and the others concerned "trees growing near their land", light from a research vessel and red dust.
4. Data provided to the consultants from the EPA (Townsville) showed that in the past 24 months there were:
    a. 5 noise complaints from residents in the South Townsville and CBD areas;
    b. Less than 5 odour complaints – South Townsville Area; and
    c. About 20 dust complaints from the areas of South Townsville, CBD, Northward, West End, and Castle Hill/Yarrawonga.

It should be noted that while there have been some complaints about dust, no evidence has been confirmed that indicates that the Port is the source of the dust.

Table 38 shows the number of complaints formally registered with Townsville Port Authority for the years 2001-2006. Over the 5 years there have been a total of 153 registered complaints, of which 143 have been resolved. In the financial year 2005-2005, the highest number of complaints was registered, with 54 complaints. The main complaint has been registered for 'Other', receiving a total of 54 complaints over the 5 years.

This is followed by complaints about 'dust, noise and vehicles' (49) over the 5 year period. It can be noted that in terms of total complaints, there appears to have been a marked increase from 2002-03 (6) and subsequent years (average 46 per year). This increase has been driven by complaints about 'dust, noise and vehicles' and 'other' matters.

However, while there has been an observable increase in the number of complaints, in a citywide population of 164,000 persons (and an immediate precinct population of 14,000) to receive less than 50 formal complaints per year would suggest that complaint activity is comparatively small in proportion.

Of further note is that according to Port records, almost all complaints have been addressed or resolved (92.9%). Finally the number of complaints may have been made by a smaller number of persons (repeat or multiple complaints).

TABLE 38: REGISTERED COMPLAINTS

	2001/02	2002/03	2003/04	2004/05	2005/06	Total
Dust, Noise and vehicles		3	23	18	5	**49**
Rubbish					7	**7**
Boat ramps				8	7	**15**
Boat ramp parking tickets					4	**4**
Prices and charges				9		**9**
Small boat harbours	2					**2**
Picnic Bay jetty	3					**3**
Customer complaint	1					**1**
Environmental – general					6	**6**
Safety					3	**3**
Other	2	3	20	19	10	**54**
TOTAL	**8**	**6**	**43**	**54**	**42**	**153**
Addressed and Resolved	7	4	39	51	42	143

Source: Townsville Port Authority Annual Report (various years)

Transpac Consulting also independently surveyed residents of apartments and townhouses located on the Strand directly across Ross Creek from the Port and on Sir Leslie Thiess Drive, in relation to their experiences of living in proximity to the Port.

The survey outcomes (details are in the Social Impact Assessment Report) found that while residents had periodically experienced amenity impacts associated with Port activities, they consciously traded these impacts off against the benefits of their location and the accommodation standard that they were able to have.

Finally, it should be noted that some activities may be both an amenity and a dis-amenity. In particular, an active and lit port at night can be considered to be both a polluting dis-amenity as well as being of significant value. Townsville Port Authority's recent Statement of Proposal document specifically identifies the Port of Townsville port facilities (including active berths) as having "high scenic value" (2006: p. 19).

Available data would therefore suggest that complaint activity has been low, particularly from residents located north of the Port (i.e., on the northern banks of Ross Creek) and that the majority of complaint activity has come from South Townsville, where traffic impacts particularly have drawn residential reactions.

10.10 CONCLUSION

10.10.1 State of Play

Environmental laws have tended to emerge as a response to risks posed by industrial societies, emerging from a combination of public fears, as reflected through political movements and institutions, science, ethics and established legal practice (see Nicolas de Sadeleer (2005) *Environmental Principles: from political slogans to legal rules*). Any changes to environmental laws governing port and port user activities are likely to be driven by broader factors, rather than a narrow band of residential complaints in the local environment.

In this context, it is also worth noting that reputation sensitive firms tend to proactively establish voluntary regimes to govern environmental practice and impacts. Typically larger firms are more inclined to take this approach whereas small and medium sized enterprises are more likely to require 'command and control' approaches (Gunnigham, 2002). Sustaining evident levels of community goodwill towards the port and its role in the regional economy would undoubtedly be enhanced should greater public awareness be achieved of the port and port users' environmental practices, assuming that they are 'ahead of the game'.

Based on available evidence, we are confident that the hypothesis outlined above has been substantiated. On this analysis, it is reasonable to conclude that potential conflicts of uses between residential and industrial requirements are not irreconcilable. The extent to which residents are sensitive to industrial amenity impacts is in part a function of their expectations. Provided that such expectations are (a) properly informed and (b) reasonable met, it is unlikely that residents will have cause to increase their level or volume of complaint activity in the future.

Local residents have from time to time made complaints about Port or port user activities insofar as they have impacted adversely on amenity. However, complaint levels have been low by any reasonable standard, particularly from residents north of the Port.

Objective evidence on re-sale activity reflects a typical ownership environment in the area, with original buyers comprising 25.7% of owners. Compared to annual moves of address in Townsville as a whole, the re-sales rate (as a proxy for residential churn) in the subject properties is significantly lower than the churn rate experienced in the city generally. That is, people living near the port churn less frequently that the residents of Townsville generally.

This is further substantiated by survey data that indicates that while residents have from time to time experienced disamenities, they value more the locational benefits and amenities of the area, specifically its proximity to the CBD, the Strand and the ocean.

The general desirability of these residences – notwithstanding their proximate location to the port – is ultimately reflected in relative property values. The evidence shows that the median price in 2006 of the 4 subject properties in closest proximity to the Port was $436,000, significantly higher than the median price of units and apartments in Townsville as a whole of $245,000. Sales evidence also shows that price growth over the period 2001 to 2006 in the 4 subject properties was 161% compared to 81.5% for Townsville units/apartments as a whole.

As such, provided that the prevailing 'order of things' continues into the future, and that current and future residents expect that certain levels of port activity and growth are to take place, it is highly unlikely that the proximate location of new residential dwellings and the Port will amount to a irreconcilable incompatibility.

10.10.2 Factors Affecting the Prevailing Order of Things

The Noise and Vibration Assessments undertaken by Hyder Acoustics found that:

In summary, the report concludes that:

1) Current noise levels emitted from the Port of Townsville are considered to be within acceptable levels. Noise and vibration impacts that may arise as a result of construction activities undertaken within the TOT project site will be controlled by mitigation measures proposed by this report and included in the project EMP; and

2) Future noise levels emitted from the Port are expected to increase slightly as a result of proposed Port expansions. However, the design measures and noise attenuation measures to be incorporated within the TOT project site will ensure that adverse amenity impacts on nearby residents within the Breakwater Cove precinct will be appropriately mitigated.

10.10.3 Mitigation and Management

Additional ameliorative measures can be further considered to militate against potential amenity impacts – particularly noise impacts arising from current and importantly future port activities. These include the application of good planning principles in the form of land use buffers and planning controls that provide for some form of transition between the various uses.

Good planning principles would dictate that some form of buffer be created as a 'step down' between the intensive industrial uses of the port and the more sensitive urban developments that are proposed. The proposed Ocean Terminal facility could act as such as 'step down' or transitional use, and at the same time provide a physical barrier to noise. It is noted that the Ocean Terminal facility will generate its own noise impacts, but these will be periodic rather than regular and will take place when vessels are in port.

Similarly the proposed multi-level carpark could also act as a transitional use separating the residential elements with the industrial uses at the port. Finally, proposed raised open spaces could effectively act as a transitional 'zone' between the detached marina dwelling area and the future port growth areas. Certainly it is expected that the raised open space will effectively form a line-of-sight barrier between the detached residential dwellings on the marina 'fingers' and the current and future port infrastructure.

Finally, the application of design-related conditions that buffer and mitigate amenity impacts should be encouraged. Such conditions would include, but not be limited to, the use of noise dampening materials and sensible building orientation to optimise vistas etc.

On balance, therefore, the historical evidence points strongly to the fact that proximity to the port has not adversely impacted on residents' preferences for living in its vicinity in light of other locational amenity benefits. Absolute and relative sales prices and growth in recent years underscores this reality. Further, the evidence points to the unlikelihood that port-related disamenities will give rise to political risks and associated regulatory or

legislative changes; and that, should there be any perceived conflict between the proposed residential uses of the Breakwater Cove precinct and the existing and future port footprint, such conflicts are:

1. Effectively tempered by clear expectations that living in close proximity to the port will involve a trade-off between other locational amenities and benefits and port-related dis-amenities; and
2. Managed through the step-down or buffering effect of the proposed Ocean Terminal, public open space and multi-level carpark that sit between the proposed residential development and existing and future port activities.

10.11 EXPERIENCES ELSEWHERE

There are numerous global and national examples of proximate development of industrial and residential uses. Industrial uses pertain not only to maritime uses, but other land-based uses. In these experiences, the compatibility between these various activities is very much achieved as a result of community understanding and expectations of the consequences of living close to such activities.

For example, while the scale and intensity of the following cases may differ from that of the proposed TOT development, the common feature of them all is that residential uses co-exist with varying degrees of industrial-related impacts on residential amenity:

- Airports. Throughout urbanised Australia (and elsewhere in the industrialised world) major airports and residential precincts are closely located;
- Port cities. There a numerous international and national examples of port/urban interfaces. Major port cities in Australia include Sydney and Newcastle, where residential dwellings are closely located to commercial and industrial port uses. In regional Australia examples include Mackay Port. We are also aware of planned integrated residential-marina developments near major ports in places like Darwin and Port Adelaide; and
- Industrial-urban interface. Local examples in Townsville can be found in a number of areas such as the suburb or Garbutt where residential areas are located in close proximity to industrial activities. Similarly residents in South Townsville are located in close proximity to Townsville Port.

The consultants draw attention to these examples to illustrate the reality that residential-industrial interfaces are not unusual in Australian cities. The examples exist in both major capital city environments and regional urban situations. That residents are able to co-exist with nearby commercial and industrial activity gives confidence that an effective interface between the proposed TOT residential precinct and nearby industrial/commercial uses can be achieved.

On the basis of the available evidence on the critical drivers of complaint activity, it is our conclusion that the likelihood of residential complaints will be limited to similar levels as that experienced historically. It would be reasonable to expect periodic community complaints in volumes consistent with recent trends provided that the Port and port users continue their activities and develop their activities in ways that are consistent with community expectations as reflected in current environmental regulations and operational conditions.

The ongoing success of the Port in resolving or addressing complaints is further cause for optimism that any amenity impacts on residents can be readily and effectively resolved.

10.12 CONCLUDING OBSERVATIONS

While there can rarely be absolute certainty in relation to matters associated with political risk, the prevailing conditions in Townsville and Queensland generally would suggest that there is generally a supportive environment of community sentiment towards the port and its contribution to the regional economy.

The Queensland Government in its recently released *Northern Economic Triangle Infrastructure Plan 2007-2012* explicitly considers the importance of ensuring the long-term integrity and viability of the Port of Townsville as a gateway for North, North-West and Far North Queensland. This provides a basis of confidence in existing Government policy commitments to the ongoing operations of the Port.

The presence of political risk by definition introduces an element of uncertainty about future investment and business activities. However, it is reasonable to conclude on the basis of available evidence that:

- There is strong community support for the Port and its contribution to the region (that is, there is substantial good will from the community);
- There is a history of limited community complaints about the Port and port user activities;
- Nearby residents trade-off reasonable dis-amenity associated with proximity to the Port with the amenity benefits of being close to the CBD and the Strand/ocean; and
- There is no history of systematic failures of the Port or port users to comply with their operational, regulatory and legislative obligations.

Under these circumstances, the risk of regulatory or legislative change that will give rise to increased compliance cost to the Port and its users as a result of community complaints from nearby residents is, in our opinion, unlikely.

11 CONCLUSIONS

This study has examined the potential economic impacts of the proposed integrated Townsville Ocean Terminal development (incorporating the Breakwater Cove residential precinct). Based on the analysis, the following conclusions have been reached:

Regional Impacts

1. The proposed TOT development will generate substantial economic benefits for Townsville and the North Queensland regional economy. The gross economic impacts of the construction phases are estimated to be as follows for the years 2008 and 2009:

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	209,349,980	87,452,184	74,272,443	371,074,601
Value added ($)	96,701,528	38,364,115	39,808,281	174,873,922
Labour income ($)	62,803,244	20,896,586	17,341,939	101,041,770
Employment*	1,048	446	419	1,913

* Number of jobs (full-time equivalent)

2. The Ocean Terminal facility will contribute an important piece of tourism economic infrastructure, which will assist in attracting increased visitations by passenger and naval vessels to Townsville. It is also conceivable that such a facility could catalyse the diversification and deepening of the marine-oriented tourism sector in Townsville similar to the development of the cruising tourism product in places such as Airlie Beach (the Whitsundays). The net economic impacts of increased cruise tourism (medium scenario) are as follows:

	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	3,970,496	1,768,161	1,282,741	7,021,398
Value added ($)	1,913,512	803,247	687,519	3,404,279
Labour income ($)	1,039,337	406,222	299,508	1,745,068
Employment*	23.4	8.2	7	38.6

* Number of jobs (full-time equivalent)

3. While the construction of the residential elements of Breakwater Cove is not strictly part of the City Pacific Limited investment, we have undertaken an

analysis of its economic impacts. The total economic impacts of the construction of residential dwellings on Breakwater Cove (200 detached and 500 units) is as follows:

Breakwater Cove Residential Dwelling Construction	Direct effects	Indirect Effects	Induced	Total Impacts
Output ($)	168,405,024	76,069,222	38,554,502	283,028,750
Value added ($)	68,575,680	32,576,710	20,664,307	121,816,703
Labour income ($)	25,348,500	18,099,729	9,002,126	52,450,356
Employment*	772.9	370.3	208.9	1,352.10

* Number of jobs (full-time equivalent)

4. The flow on economic impacts across various industry sectors can be extensive. The extent to which local businesses benefit from the flow on impacts is a function of their ability to respond to meet emerging market needs.
5. Private (long term lease) marina facilities proposed as part of the TOT project meet an evident need in the market for marina facilities.
6. The proposed Superyacht berthing facilities (12) will also meet an emerging and growing demand for such facilities in Australia. The proposed facilities in Townsville is expected to complement the facilities already developed in Cairns and the Whitsundays, thereby strengthening the attractiveness of North and Far North Queensland to this lucrative niche in global tourism.
7. Any reputation-related impacts associated with improvements to Townsville's yachting and maritime-related tourism opportunities are difficult to quantify in the short-term; but it is reasonable to expect that the TOT project can contribute positively to the ongoing evolution of perceptions of the region's economic 'identity'. An extensive international literature confirms that cities with high amenity values, towards which the TOT project would contribute, are very attractive to highly skilled professionals thereby improving the global competitiveness of such cities.
8. The TOT infrastructure also has the potential to catalyse growth in other aspects of the regional tourism sector including the business events market (with the construction of a dedicated facility) and investments in ocean-based tourism activities e.g. mini-cruisers etc. similar to the services and 'product' that is now available in the Whitsundays. These are long term benefits that are not readily quantifiable.

Labour Market Impacts

9. The project is likely to contribute to ongoing pressures within the construction-related labour market, where current conditions are characterised by tight supply-demand. In this environment, the market implications would likely involve:

a. Upward pressure on construction costs for the region as a whole are likely to continue;

b. Potential time delays on projects in the region to the extent that there is tight supply of input factors (both labour and other); and

c. Increased migration of skilled workers to the region.

10. Labour requirements for the project will be met in part by the existing skilled workforce in the Townsville-Thuringowa area, but it is reasonable to expect projects such as TOT (together with other construction activity in the region) to attract workers from elsewhere in Australia. It is estimated that of a total number of jobs generated by the TOT project of up to 1,900. At a maximum, some 960-1,160 of these jobs are likely to be filled migrants.

Housing Market Impacts

11. Population growth expectations for Townsville-Thuringowa already factor in a certain level of economic activity. As such, we have worked on the basis that official forecasts in effect incorporate population growth that can be reasonably expected to result from economic migration of people to the Twin Cities. In terms of the capacity of the regional housing market to accommodate this growth, this report has found that:

    a. The rental accommodation market in Townsville-Thuringowa is tight, and is likely to continue being tight for the foreseeable future. Additional temporary migrants requiring rental accommodation will continue to place demand pressures on the rental market;

    b. Within Townsville-Thuringowa there is available a wide range of development capacity to meet expected population growth-driven demand over the next 5 years We can observe that the Townsville-Thuringowa residential market is considerably less tight than other regional centres in Queensland, particularly Mackay, and while there are affordability issues the situation is significantly less intense than other regional markets; and

    c. In any case, as the construction-related impacts are usually considered to be substitutional in nature (that is, if the impacts were not generated by the TOT project they would be generated by some other similar activity in the region), the same can be said in relation to impact on the accommodation market. Population growth expectations for the region already presuppose a certain level of economic activity; the TOT project is potentially one of the activities that will contribute to regional population growth.

12. Additional dwellings to be developed as part of the Breakwater Cove precinct of the TOT will meet a range of housing needs that are reasonably expected into the future:

    a. Detached marina dwelling sites are likely to be attractive to boat owners in Australia, who are experiencing a significant shortage of adequate marina berthing facilities for private leisure craft. This kind of residential product is effectively a unique offering in the Townsville market and we

would expect it to have minimal impact on property values at the higher end of the market;

b. The development of 500 medium to high density apartments in the precinct, with possible price points in and around $400,000 (2007 dollars), would be attractive to a cross section of younger professionals further enhancing the city's attractiveness as a work and residential destination; and

c. Generally improved amenity is associated with relative improvements in property values. We would expect that the improved public amenity associated with the TOT project may have positive implications for property values in nearby neighbourhoods.

Demand on Raw Materials

13. The TOT construction will require significant volumes of rock and sand. These demands will be met by local quarry suppliers. Consultations with key stakeholders indicated no prevailing concerns about the possible impact of such demand on future development activity.

Compatibility with Port of Townville

14. Specific assessment of issues impacting on future Port activities conclude that while community complaints about port activities are unlikely to change in the future, provided that all other things remaining equal conditions such as port activity continues to comply with relevant standards and regulatory/legislative requirements continue, the likelihood that such complaints will result in additional compliance costs for the port and its user is minimal. Available evidence on complaint activity indicates that the number of complaints received by the Port is no more than around 50 each year for the past 3 years and no more 5 over the past few years by the EPA. This number of complaints is miniscule given the city's population of around 164,000 persons.

15. The management of any risks of nuisance complaints can be achieved through a combination of amenity-enhancing measures e.g. noise abatement and a range of legal instruments governing the relationship between the Port and its residential and commercial neighbours in the Casino and TOT precinct. Agreements already in place for adjacent developments on Surplus Casino Land potentially form the basis of a model arrangement.

16. Any changes to relevant public policy regimes are likely to be driven by a combination of changes in scientific discoveries (pertaining to health impacts on particular), broader community values concerning sustainable economic activity (viz. concerns for greenhouse emissions and global warming) and demonstrable failures by the port and/or its users to comply with existing conditions. Under prevailing conditions, our assessment is that the political risks to existing Port users, associated with the proposed integrated development, are limited.

Cost-Benefit Assessment

17. There are substantial economic benefits associated with the proposed TOT development. This study has quantified these in terms of direct and indirect impacts on output, employment, income and value add to the regional economy.

A number of possible longer term benefits were also identified. Assuming a project lifespan of 30 years, the assessment estimates that the project will on conservative assumptions have a Benefit Cost Ratio of 1.034.

18. The development of the TOT may, given tight labour market conditions in particular, impact on the timing of other projects being considered in the region. Similarly, however, other activities demanding competing resources may impact on some aspects of the TOT proposal e.g. timing and cost. Demand for skilled labour especially has been reflected in recent wages growth for this occupation group and there is general concern amongst the development and construction industry that skills and labour shortages will act as something of a bottleneck and constrain the rate of activity in the region.

19. In this environment, the construction related activities are generally considered from an economic point of view as 'gross' impacts on the economy. That is, the construction-related impacts associated with the TOT merely substitute for some other construction activity that would otherwise have taken place. In this regard, therefore, there are no net losses of the TOT proceeding.

20. However, the TOT project does inject unique economic activity into the region by developing a significant piece of tourism infrastructure that will support growth in cruise tourism. The analysis undertaken above indicates that the annual impacts of increased cruise tourism can range from some $2-4.7m in value add to the regional economy (approximately between 0.2 and 0.46% of GRP) and 22.7 to 55 full-time equivalent jobs.

21. The main economic downside of the project would eventuate should the proposed TOT significantly adversely affect the Port of Townsville and port users in their future growth and development. While we note that some port users have expressed concerns about what is seen as an encroachment of urban development upon the port, and are therefore concerned about the political risks associated with the potential conflict between port user and residential expectations, our assessment is that under present conditions the risk of regulatory change that adversely impacts on port users is minimal.

22. Having said that, the presence of such political risk represents a certain degree of uncertainty for port users. Such uncertainty about potential community complaints resulting in increased environmental compliance costs are most likely best addressed through a range of legal instruments that seek to protect port users from nuisance complaints. (These measures would not militate against legitimate complaints, particularly in the event that operational conditions or legislative/regulatory conditions are being breached.)

23. Without contrary evidence, we are of the opinion therefore that the extent of conflict is not significant and certainly is manageable. As such, the present capacity of the port and its users to expand their operations with confidence should all other things remaining equal prevail into the foreseeable future.

24. From an economic perspective, therefore, our conclusion is that on the weight of evidence available the proposed integrated TOT development not only meets evident needs in a number of areas, but will also generate substantial economic impacts into the regional economy.

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>> APPENDIX A

TABLE A1: CONSTRUCTION IMPACTS ON NSD INDUSTRY SECTORS [EMPLOYMENT IMPACTS 2008]

	Industry	Direct*	Indirect*	Induced*	Total*
1	Sheep	0	0	0	0
2	Grains	0	0	0	0
3	Beef Cattle	0	0	0.3	0.3
4	Dairy cattle and pigs	0	0	0	0
5	Other agriculture	0	1.8	1.8	3.7
6	Sugar cane	0	0.2	1.8	2
7	Forestry and fishing	0	0.1	0.2	0.3
8	Coal and oil and gas	0	0.2	0.1	0.3
9	Non-ferrous metal ores	0	0.1	0	0.1
10	Other mining	0	2.6	0.1	2.6
11	Food manufacturing	0	0.2	1.4	1.6
12	Textiles and clothing and footwear	0	0.1	0.3	0.4
13	Wood and paper manufacturing	0	2.3	1.1	3.4
14	Chemicals and petro and coal	0	0.4	0.2	0.6
15	Non-metallic mineral products	0	4.8	0.1	4.8
16	Metals and metal products	0	0.4	0	0.4
17	Machinery and equipment	0	1.1	0.1	1.3
18	Miscellaneous manufacturing	0	0.3	0.3	0.7
19	Electricity and gas and water	0	0.7	1.2	1.8
20	Residential building construction	0	0.1	0.3	0.4
21	Other construction	308.2	0.2	0.1	308.5
22	Trade	0	27.2	29.9	57.1
23	Accommodation and cafes and restaurants	0	2.4	5.9	8.2
24	Road transport	0	6.6	1.8	8.4
25	Rail and pipeline transport	0	2.1	0.8	2.9
26	Other transport	0	2	1	3
27	Communication services	0	1.1	1.2	2.3
28	Finance and RE and business services	0	27.7	9.6	37.3
29	Ownership of dwellings	0	0	0	0
30	Government admin and defence	0	1.5	0.7	2.2
31	Education	0	0.4	3.1	3.4
32	Health and community services	0	0.2	7.7	7.9
33	Cultural and recreation services	0	0.3	3.5	3.8
34	Personal and other services	0	0.3	4	4.3
35	Imports	0	0	0	0
25,001	Foreign Trade	0	0	0	0
28,001	Domestic Trade	0	0	0	0
	Total	**308.2**	**87.3**	**78.5**	**474**

TABLE A2: CONSTRUCTION IMPACTS ON NSD INDUSTRY SECTORS [LABOUR INCOME IMPACTS 2008]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.38
2	Grains	0	0	0	0	1.38
3	Beef Cattle	0	768	5,842	6,610	1.38
4	Dairy cattle and pigs	0	1	4	5	1.38
5	Other agriculture	0	30,711	30,674	61,385	1.38
6	Sugar cane	0	5,014	37,211	42,225	1.38
7	Forestry and fishing	0	1,692	4,590	6,282	1.38
8	Coal and oil and gas	0	24,357	8,291	32,648	1.38
9	Non-ferrous metal ores	0	6,065	747	6,812	1.38
10	Other mining	0	224,897	5,811	230,708	1.38
11	Food manufacturing	0	12,745	94,580	107,325	1.38
12	Textiles and clothing and footwear	0	3,130	14,720	17,850	1.38
13	Wood and paper manufacturing	0	121,638	57,247	178,885	1.38
14	Chemicals and petro and coal	0	39,706	23,099	62,805	1.38
15	Non-metallic mineral products	0	288,922	4,188	293,110	1.38
16	Metals and metal products	0	30,506	1,585	32,092	1.38
17	Machinery and equipment	0	59,239	6,849	66,088	1.38
18	Miscellaneous manufacturing	0	12,820	13,690	26,510	1.38
19	Electricity and gas and water	0	33,332	56,943	90,275	1.38
20	Residential building construction	0	1,637	10,138	11,775	1.38
21	Other construction	11,315,872	8,035	3,039	11,326,946	1.38
22	Trade	0	999,394	1,101,618	2,101,012	1.38
23	Accommodation and cafes and restaurants	0	70,872	176,130	247,003	1.38
24	Road transport	0	188,227	51,205	239,432	1.38
25	Rail and pipeline transport	0	130,969	46,525	177,493	1.38
26	Other transport	0	143,337	73,981	217,318	1.38
27	Communication services	0	73,934	77,539	151,473	1.38
28	Finance and RE and business services	0	1,313,695	453,906	1,767,601	1.38
29	Ownership of dwellings	0	0	0	0	1.38
30	Government admin and defence	0	81,679	39,231	120,910	1.38
31	Education	0	18,050	153,966	172,015	1.38
32	Health and community services	0	8,442	313,911	322,352	1.38
33	Cultural and recreation services	0	11,960	125,183	137,143	1.38
34	Personal and other services	0	12,529	172,242	184,772	1.38
35	Imports	0	0	0	0	0.93
25001	Foreign Trade	0	0	0	0	0.93
28001	Domestic Trade	0	0	0	0	0.93
	Total	**11,315,872**	**3,958,301**	**3,164,687**	**18,438,860**	

TABLE A3: CONSTRUCTION IMPACTS ON NSD INDUSTRY SECTORS [OUTPUT IMPACTS 2008]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.38
2	Grains	0	0	0	0	1.38
3	Beef Cattle	0	4,740	36,047	40,787	1.38
4	Dairy cattle and pigs	0	3	19	21	1.38
5	Other agriculture	0	191,798	191,566	383,363	1.38
6	Sugar cane	0	52,085	386,531	438,616	1.38
7	Forestry and fishing	0	17,864	48,451	66,314	1.38
8	Coal and oil and gas	0	141,950	48,320	190,270	1.38
9	Non-ferrous metal ores	0	39,850	4,905	44,755	1.38
10	Other mining	0	638,422	16,497	654,919	1.38
11	Food manufacturing	0	100,665	747,053	847,718	1.38
12	Textiles and clothing and footwear	0	10,823	50,906	61,728	1.38
13	Wood and paper manufacturing	0	436,582	205,471	642,053	1.38
14	Chemicals and petro and coal	0	178,277	103,713	281,990	1.38
15	Non-metallic mineral products	0	1,821,350	26,403	1,847,753	1.38
16	Metals and metal products	0	352,378	18,311	370,689	1.38
17	Machinery and equipment	0	284,417	32,884	317,301	1.38
18	Miscellaneous manufacturing	0	45,985	49,106	95,091	1.38
19	Electricity and gas and water	0	250,527	427,985	678,512	1.38
20	Residential building construction	0	10,877	67,351	78,228	1.38
21	Other construction	47,600,012	33,800	12,784	47,646,592	1.38
22	Trade	0	3,045,612	3,357,137	6,402,749	1.38
23	Accommodation and cafes and restaurants	0	260,572	647,569	908,142	1.38
24	Road transport	0	1,140,490	310,257	1,450,747	1.38
25	Rail and pipeline transport	0	324,949	115,434	440,383	1.38
26	Other transport	0	705,779	364,278	1,070,057	1.38
27	Communication services	0	327,994	343,988	671,982	1.38
28	Finance and RE and business services	0	5,996,267	2,071,822	8,068,089	1.38
29	Ownership of dwellings	0	0	2,214,653	2,214,653	1.38
30	Government admin and defence	0	193,749	93,059	286,809	1.38
31	Education	0	24,585	209,712	234,297	1.38
32	Health and community services	0	15,922	592,085	608,007	1.38
33	Cultural and recreation services	0	41,274	432,016	473,290	1.38
34	Personal and other services	0	23,822	327,479	351,301	1.38
35	Imports	0	0	0	0	0.93
25001	Foreign Trade	0	0	0	0	0.93
28001	Domestic Trade	0	0	0	0	0.93
	Total	**47,600,012**	**16,713,406**	**13,553,793**	**77,867,207**	

TABLE A4: CONSTRUCTION IMPACTS ON NSD INDUSTRY SECTORS [TOAL VALUE ADDED IMPACTS 2008]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.38
2	Grains	0	0	0	0	1.38
3	Beef Cattle	0	2,243	17,060	19,303	1.38
4	Dairy cattle and pigs	0	2	13	14	1.38
5	Other agriculture	0	83,540	83,439	166,980	1.38
6	Sugar cane	0	23,396	173,628	197,025	1.38
7	Forestry and fishing	0	6,528	17,706	24,234	1.38
8	Coal and oil and gas	0	74,818	25,468	100,286	1.38
9	Non-ferrous metal ores	0	20,885	2,571	23,455	1.38
10	Other mining	0	286,332	7,399	293,731	1.38
11	Food manufacturing	0	22,886	169,841	192,726	1.38
12	Textiles and clothing and footwear	0	4,004	18,834	22,838	1.38
13	Wood and paper manufacturing	0	188,430	88,682	277,111	1.38
14	Chemicals and petro and coal	0	65,291	37,983	103,274	1.38
15	Non-metallic mineral products	0	607,144	8,802	615,945	1.38
16	Metals and metal products	0	71,557	3,718	75,275	1.38
17	Machinery and equipment	0	86,301	9,978	96,279	1.38
18	Miscellaneous manufacturing	0	18,184	19,418	37,602	1.38
19	Electricity and gas and water	0	155,627	265,863	421,490	1.38
20	Residential building construction	0	4,429	27,426	31,855	1.38
21	Other construction	22,747,518	16,152	6,109	22,769,780	1.38
22	Trade	0	1,464,011	1,613,759	3,077,770	1.38
23	Accommodation and cafes and restaurants	0	121,430	301,774	423,204	1.38
24	Road transport	0	511,421	139,126	650,547	1.38
25	Rail and pipeline transport	0	186,644	66,303	252,946	1.38
26	Other transport	0	337,299	174,092	511,391	1.38
27	Communication services	0	212,090	222,432	434,521	1.38
28	Finance and RE and business services	0	2,500,735	864,051	3,364,785	1.38
29	Ownership of dwellings	0	0	1,800,599	1,800,599	1.38
30	Government admin and defence	0	95,875	46,049	141,924	1.38
31	Education	0	20,978	178,944	199,922	1.38
32	Health and community services	0	11,200	416,492	427,693	1.38
33	Cultural and recreation services	0	21,068	220,519	241,587	1.38
34	Personal and other services	0	17,199	236,438	253,637	1.38
35	Imports	0	0	0	0	0.93
25001	Foreign Trade	0	0	0	0	0.93
28001	Domestic Trade	0	0	0	0	0.93
	Total	**22,747,518**	**7,237,696**	**7,264,514**	**37,249,729**	

TABLE A5: CONSTRUCTION IMPACTS ON NSD INDUSTRY SECTORS [EMPLOYMENT IMPACTS 2009]

	Industry	Direct*	Indirect*	Induced*	Total*
1	Sheep	0	0	0	0
2	Grains	0	0	0	0
3	Beef Cattle	0	0.2	1.2	1.4
4	Dairy cattle and pigs	0	0	0	0
5	Other agriculture	0	2.9	7.9	10.9
6	Sugar cane	0	1.4	7.8	9.2
7	Forestry and fishing	0	0.3	0.8	1.1
8	Coal and oil and gas	0	0.5	0.3	0.8
9	Non-ferrous metal ores	0	2.5	0	2.6
10	Other mining	439.6	8.5	0.3	448.4
11	Food manufacturing	0	1.1	6.1	7.2
12	Textiles and clothing and footwear	0	0.2	1.5	1.7
13	Wood and paper manufacturing	0	4.9	4.6	9.5
14	Chemicals and petro and coal	0	4.1	0.9	5
15	Non-metallic mineral products	0	5.3	0.3	5.6
16	Metals and metal products	0	0.5	0.1	0.6
17	Machinery and equipment	0	18.9	0.6	19.5
18	Miscellaneous manufacturing	0	3.4	1.5	4.9
19	Electricity and gas and water	0	2.1	5	7.2
20	Residential building construction	0	0.3	1.4	1.7
21	Other construction	300.1	1.4	0.4	301.8
22	Trade	0	100	129.7	229.7
23	Accommodation and cafes and restaurants	0	22	25.4	47.3
24	Road transport	0	31.4	7.8	39.2
25	Rail and pipeline transport	0	4.7	3.3	8
26	Other transport	0	15.7	4.5	20.2
27	Communication services	0	6.6	5.1	11.7
28	Finance and RE and business services	0	103.7	41.5	145.2
29	Ownership of dwellings	0	0	0	0
30	Government admin and defence	0	10.1	3	13.1
31	Education	0	2.3	13.3	15.6
32	Health and community services	0	0.7	33.3	34
33	Cultural and recreation services	0	1.7	15.2	16.9
34	Personal and other services	0	1.7	17.3	19
35	Imports	0	0	0	0
25,001	Foreign Trade	0	0	0	0
28,001	Domestic Trade	0	0	0	0
	Total	**739.7**	**359**	**340**	**1,438.70**

TABLE A6: CONSTRUCTION IMPACTS ON NSD INDUSTRY SECTORS [LABOUR INCOME IMPACTS 2009]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.43
2	Grains	0	0	0	0	1.43
3	Beef Cattle	0	4,607	26,171	30,778	1.43
4	Dairy cattle and pigs	0	4	18	21	1.43
5	Other agriculture	0	50,822	137,414	188,236	1.43
6	Sugar cane	0	29,984	166,698	196,683	1.43
7	Forestry and fishing	0	6,738	20,563	27,301	1.43
8	Coal and oil and gas	0	59,200	37,143	96,343	1.43
9	Non-ferrous metal ores	0	220,665	3,344	224,009	1.43
10	Other mining	40,088,300	776,005	26,035	40,890,340	1.43
11	Food manufacturing	0	76,212	423,702	499,914	1.43
12	Textiles and clothing and footwear	0	10,489	65,945	76,434	1.43
13	Wood and paper manufacturing	0	269,146	256,457	525,603	1.43
14	Chemicals and petro and coal	0	449,901	103,480	553,380	1.43
15	Non-metallic mineral products	0	331,097	18,763	349,860	1.43
16	Metals and metal products	0	38,999	7,102	46,101	1.43
17	Machinery and equipment	0	1,026,283	30,682	1,056,966	1.43
18	Miscellaneous manufacturing	0	139,516	61,329	200,845	1.43
19	Electricity and gas and water	0	106,730	255,094	361,824	1.43
20	Residential building construction	0	9,309	45,415	54,724	1.43
21	Other construction	11,399,072	52,954	13,617	11,465,644	1.43
22	Trade	0	3,806,936	4,935,059	8,741,995	1.43
23	Accommodation and cafes and restaurants	0	682,544	789,034	1,471,578	1.43
24	Road transport	0	927,163	229,390	1,156,553	1.43
25	Rail and pipeline transport	0	296,673	208,423	505,097	1.43
26	Other transport	0	1,160,487	331,423	1,491,909	1.43
27	Communication services	0	448,315	347,362	795,677	1.43
28	Finance and RE and business services	0	5,082,452	2,033,421	7,115,872	1.43
29	Ownership of dwellings	0	0	0	0	1.43
30	Government admin and defence	0	585,591	175,748	761,339	1.43
31	Education	0	120,782	689,740	810,522	1.43
32	Health and community services	0	30,339	1,406,265	1,436,604	1.43
33	Cultural and recreation services	0	61,822	560,800	622,622	1.43
34	Personal and other services	0	76,519	771,616	848,135	1.43
35	Imports	0	0	0	0	0.91
25001	Foreign Trade	0	0	0	0	0.91
28001	Domestic Trade	0	0	0	0	0.91
	Total	**51,487,372**	**16,938,285**	**14,177,252**	**82,602,910**	

TABLE A7: CONSTRUCTION IMPACTS ON NSD INDUSTRY SECTORS [OUPUT IMPACTS 2009]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.43
2	Grains	0	0	0	0	1.43
3	Beef Cattle	0	28,426	161,484	189,911	1.43
4	Dairy cattle and pigs	0	17	84	101	1.43
5	Other agriculture	0	317,398	858,182	1,175,579	1.43
6	Sugar cane	0	311,465	1,731,593	2,043,058	1.43
7	Forestry and fishing	0	71,124	217,051	288,175	1.43
8	Coal and oil and gas	0	345,014	216,464	561,478	1.43
9	Non-ferrous metal ores	0	1,449,873	21,973	1,471,846	1.43
10	Other mining	113,799,976	2,202,870	73,907	116,076,752	1.43
11	Food manufacturing	0	601,971	3,346,669	3,948,640	1.43
12	Textiles and clothing and footwear	0	36,273	228,048	264,322	1.43
13	Wood and paper manufacturing	0	966,019	920,475	1,886,494	1.43
14	Chemicals and petro and coal	0	2,020,013	464,615	2,484,629	1.43
15	Non-metallic mineral products	0	2,087,221	118,282	2,205,503	1.43
16	Metals and metal products	0	450,481	82,032	532,513	1.43
17	Machinery and equipment	0	4,927,407	147,313	5,074,720	1.43
18	Miscellaneous manufacturing	0	500,443	219,988	720,430	1.43
19	Electricity and gas and water	0	802,190	1,917,300	2,719,489	1.43
20	Residential building construction	0	61,845	301,721	363,567	1.43
21	Other construction	47,949,992	222,752	57,278	48,230,020	1.43
22	Trade	0	11,601,482	15,039,391	26,640,874	1.43
23	Accommodation and cafes and restaurants	0	2,509,472	2,900,999	5,410,470	1.43
24	Road transport	0	5,617,790	1,389,898	7,007,688	1.43
25	Rail and pipeline transport	0	736,083	517,125	1,253,208	1.43
26	Other transport	0	5,714,151	1,631,901	7,346,053	1.43
27	Communication services	0	1,988,870	1,541,007	3,529,877	1.43
28	Finance and RE and business services	0	23,198,488	9,281,404	32,479,892	1.43
29	Ownership of dwellings	0	0	9,921,262	9,921,262	1.43
30	Government admin and defence	0	1,389,069	416,889	1,805,958	1.43
31	Education	0	164,514	939,475	1,103,989	1.43
32	Health and community services	0	57,224	2,652,436	2,709,660	1.43
33	Cultural and recreation services	0	213,351	1,935,356	2,148,706	1.43
34	Personal and other services	0	145,484	1,467,050	1,612,534	1.43
35	Imports	0	0	0	0	0.91
25001	Foreign Trade	0	0	0	0	0.91
28001	Domestic Trade	0	0	0	0	0.91
	Total	**161,749,968**	**70,738,778**	**60,718,650**	**293,207,394**	

TABLE A8: CONSTRUCTION IMPACTS ON NSD INDUSTRY SECTORS [TOTAL VALUE ADDED IMPACTS 2009]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.43
2	Grains	0	0	0	0	1.43
3	Beef Cattle	0	13,453	76,425	89,879	1.43
4	Dairy cattle and pigs	0	11	56	68	1.43
5	Other agriculture	0	138,247	373,794	512,041	1.43
6	Sugar cane	0	139,909	777,826	917,734	1.43
7	Forestry and fishing	0	25,991	79,318	105,309	1.43
8	Coal and oil and gas	0	181,847	114,092	295,939	1.43
9	Non-ferrous metal ores	0	759,855	11,516	771,370	1.43
10	Other mining	51,039,240	987,986	33,147	52,060,372	1.43
11	Food manufacturing	0	136,857	760,857	897,713	1.43
12	Textiles and clothing and footwear	0	13,420	84,371	97,791	1.43
13	Wood and paper manufacturing	0	416,936	397,279	814,215	1.43
14	Chemicals and petro and coal	0	739,793	170,157	909,950	1.43
15	Non-metallic mineral products	0	695,772	39,429	735,201	1.43
16	Metals and metal products	0	91,478	16,658	108,136	1.43
17	Machinery and equipment	0	1,495,136	44,700	1,539,835	1.43
18	Miscellaneous manufacturing	0	197,889	86,989	284,879	1.43
19	Electricity and gas and water	0	498,318	1,191,021	1,689,338	1.43
20	Residential building construction	0	25,184	122,863	148,047	1.43
21	Other construction	22,914,770	106,451	27,372	23,048,592	1.43
22	Trade	0	5,576,776	7,229,361	12,806,136	1.43
23	Accommodation and cafes and restaurants	0	1,169,441	1,351,897	2,521,337	1.43
24	Road transport	0	2,519,141	623,261	3,142,402	1.43
25	Rail and pipeline transport	0	422,790	297,025	719,815	1.43
26	Other transport	0	2,730,851	779,902	3,510,753	1.43
27	Communication services	0	1,286,055	996,455	2,282,509	1.43
28	Finance and RE and business services	0	9,674,897	3,870,797	13,545,694	1.43
29	Ownership of dwellings	0	0	8,066,370	8,066,370	1.43
30	Government admin and defence	0	687,364	206,292	893,656	1.43
31	Education	0	140,377	801,640	942,017	1.43
32	Health and community services	0	40,253	1,865,813	1,906,067	1.43
33	Cultural and recreation services	0	108,903	987,887	1,096,790	1.43
34	Personal and other services	0	105,038	1,059,200	1,164,238	1.43
35	Imports	0	0	0	0	0.91
25001	Foreign Trade	0	0	0	0	0.91
28001	Domestic Trade	0	0	0	0	0.91
	Total	**73,954,010**	**31,126,419**	**32,543,767**	**137,624,193**	

TABLE A9: BREAKWATER RESIDENTIAL PRECINT IMPACTS ON NSD INDUSTRY SECTORS [EMPLOYMENT IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*
1	Sheep	0	0	0	0
2	Grains	0	0	0	0
3	Beef Cattle	0	0.1	0.7	0.9
4	Dairy cattle and pigs	0	0	0	0
5	Other agriculture	0	3.5	4.9	8.4
6	Sugar cane	0	0.9	4.8	5.7
7	Forestry and fishing	0	0.3	0.5	0.8
8	Coal and oil and gas	0	1.1	0.2	1.3
9	Non-ferrous metal ores	0	0.3	0	0.3
10	Other mining	0	7.4	0.2	7.6
11	Food manufacturing	0	0.7	3.7	4.4
12	Textiles and clothing and footwear	0	0.5	0.9	1.4
13	Wood and paper manufacturing	0	45.1	2.9	48
14	Chemicals and petro and coal	0	1.8	0.6	2.3
15	Non-metallic mineral products	0	27.9	0.2	28
16	Metals and metal products	0	2.1	0.1	2.1
17	Machinery and equipment	0	2.9	0.3	3.2
18	Miscellaneous manufacturing	0	0.7	0.9	1.7
19	Electricity and gas and water	0	2.3	3.1	5.4
20	Residential building construction	772.9	0.2	0.9	774
21	Other construction	0	1.1	0.2	1.3
22	Trade	0	118.3	79.7	197.9
23	Accommodation and cafes and restaurants	0	10.2	15.6	25.8
24	Road transport	0	32	4.8	36.8
25	Rail and pipeline transport	0	8	2	10.1
26	Other transport	0	5	2.8	7.8
27	Communication services	0	4.1	3.1	7.2
28	Finance and RE and business services	0	83.3	25.5	108.8
29	Ownership of dwellings	0	0	0	0
30	Government admin and defence	0	6	1.9	7.9
31	Education	0	1.5	8.2	9.7
32	Health and community services	0	0.7	20.4	21.1
33	Cultural and recreation services	0	1.2	9.3	10.6
34	Personal and other services	0	1	10.6	11.6
35	Imports	0	0	0	0
25,001	Foreign Trade	0	0	0	0
28,001	Domestic Trade	0	0	0	0
	Total	**772.9**	**370.3**	**208.9**	**1,352.10**

TABLE A10: BREAKWATER RESIDENTIAL PRECINT IMPACTS ON NSD INDUSTRY SECTORS [LABOUR INCOME IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	2,980	16,618	19,598	1.48
4	Dairy cattle and pigs	0	2	11	14	1.48
5	Other agriculture	0	63,382	87,254	150,636	1.48
6	Sugar cane	0	19,433	105,848	125,282	1.48
7	Forestry and fishing	0	9,186	13,057	22,243	1.48
8	Coal and oil and gas	0	143,999	23,584	167,584	1.48
9	Non-ferrous metal ores	0	29,404	2,123	31,527	1.48
10	Other mining	0	700,842	16,531	717,373	1.48
11	Food manufacturing	0	49,395	269,038	318,432	1.48
12	Textiles and clothing and footwear	0	22,045	41,873	63,918	1.48
13	Wood and paper manufacturing	0	2,574,743	162,843	2,737,586	1.48
14	Chemicals and petro and coal	0	203,472	65,707	269,178	1.48
15	Non-metallic mineral products	0	1,809,141	11,914	1,821,055	1.48
16	Metals and metal products	0	172,925	4,509	177,434	1.48
17	Machinery and equipment	0	160,295	19,482	179,777	1.48
18	Miscellaneous manufacturing	0	31,333	38,942	70,275	1.48
19	Electricity and gas and water	0	120,110	161,977	282,086	1.48
20	Residential building construction	25,348,500	6,611	28,837	25,383,950	1.48
21	Other construction	0	41,735	8,646	50,381	1.48
22	Trade	0	4,652,635	3,133,613	7,786,248	1.48
23	Accommodation and cafes and restaurants	0	326,881	501,013	827,894	1.48
24	Road transport	0	977,789	145,656	1,123,444	1.48
25	Rail and pipeline transport	0	524,443	132,343	656,786	1.48
26	Other transport	0	383,258	210,443	593,701	1.48
27	Communication services	0	288,553	220,564	509,117	1.48
28	Finance and RE and business services	0	4,219,936	1,291,161	5,511,096	1.48
29	Ownership of dwellings	0	0	0	0	1.48
30	Government admin and defence	0	361,250	111,595	472,845	1.48
31	Education	0	82,297	437,964	520,261	1.48
32	Health and community services	0	30,874	892,936	923,810	1.48
33	Cultural and recreation services	0	46,227	356,091	402,319	1.48
34	Personal and other services	0	44,555	489,953	534,508	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**25,348,500**	**18,099,729**	**9,002,126**	**52,450,356**	

TABLE A11: BREAKWATER RESIDENTIAL PRECINT IMPACTS ON NSD INDUSTRY SECTORS [OUTPUT IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	18,389	102,538	120,927	1.48
4	Dairy cattle and pigs	0	11	53	64	1.48
5	Other agriculture	0	395,836	544,919	940,755	1.48
6	Sugar cane	0	201,866	1,099,509	1,301,376	1.48
7	Forestry and fishing	0	96,960	137,821	234,781	1.48
8	Coal and oil and gas	0	839,214	137,448	976,662	1.48
9	Non-ferrous metal ores	0	193,196	13,952	207,149	1.48
10	Other mining	0	1,989,503	46,926	2,036,430	1.48
11	Food manufacturing	0	390,150	2,125,034	2,515,183	1.48
12	Textiles and clothing and footwear	0	76,234	144,804	221,038	1.48
13	Wood and paper manufacturing	0	9,241,260	584,474	9,825,734	1.48
14	Chemicals and petro and coal	0	913,569	295,017	1,208,586	1.48
15	Non-metallic mineral products	0	11,404,742	75,106	11,479,848	1.48
16	Metals and metal products	0	1,997,453	52,088	2,049,540	1.48
17	Machinery and equipment	0	769,610	93,539	863,149	1.48
18	Miscellaneous manufacturing	0	112,391	139,686	252,076	1.48
19	Electricity and gas and water	0	902,750	1,217,427	2,120,178	1.48
20	Residential building construction	168,405,024	43,922	191,580	168,640,528	1.48
21	Other construction	0	175,557	36,371	211,927	1.48
22	Trade	0	14,178,714	9,549,557	23,728,270	1.48
23	Accommodation and cafes and restaurants	0	1,201,825	1,842,047	3,043,872	1.48
24	Road transport	0	5,924,533	882,544	6,807,077	1.48
25	Rail and pipeline transport	0	1,301,209	328,358	1,629,567	1.48
26	Other transport	0	1,887,134	1,036,208	2,923,341	1.48
27	Communication services	0	1,280,113	978,493	2,258,606	1.48
28	Finance and RE and business services	0	19,261,594	5,893,411	25,155,006	1.48
29	Ownership of dwellings	0	0	6,299,702	6,299,702	1.48
30	Government admin and defence	0	856,915	264,712	1,121,627	1.48
31	Education	0	112,095	596,538	708,633	1.48
32	Health and community services	0	58,232	1,684,217	1,742,449	1.48
33	Cultural and recreation services	0	159,533	1,228,892	1,388,426	1.48
34	Personal and other services	0	84,712	931,533	1,016,245	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**168,405,024**	**76,069,222**	**38,554,502**	**283,028,750**	

TABLE A12: BREAKWATER RESIDENTIAL PRECINT IMPACTS ON NSD INDUSTRY SECTORS [TOTAL VALUE ADDED IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	8,703	48,528	57,231	1.48
4	Dairy cattle and pigs	0	7	36	43	1.48
5	Other agriculture	0	172,412	237,348	409,760	1.48
6	Sugar cane	0	90,678	493,896	584,573	1.48
7	Forestry and fishing	0	35,433	50,364	85,797	1.48
8	Coal and oil and gas	0	442,326	72,445	514,771	1.48
9	Non-ferrous metal ores	0	101,251	7,312	108,563	1.48
10	Other mining	0	892,291	21,046	913,338	1.48
11	Food manufacturing	0	88,700	483,121	571,821	1.48
12	Textiles and clothing and footwear	0	28,204	53,573	81,778	1.48
13	Wood and paper manufacturing	0	3,988,549	252,260	4,240,810	1.48
14	Chemicals and petro and coal	0	334,578	108,045	442,623	1.48
15	Non-metallic mineral products	0	3,801,751	25,036	3,826,787	1.48
16	Metals and metal products	0	405,619	10,577	416,196	1.48
17	Machinery and equipment	0	233,525	28,383	261,907	1.48
18	Miscellaneous manufacturing	0	44,443	55,236	99,678	1.48
19	Electricity and gas and water	0	560,786	756,262	1,317,048	1.48
20	Residential building construction	68,575,680	17,885	78,013	68,671,584	1.48
21	Other construction	0	83,897	17,381	101,278	1.48
22	Trade	0	6,815,638	4,590,425	11,406,063	1.48
23	Accommodation and cafes and restaurants	0	560,064	858,413	1,418,477	1.48
24	Road transport	0	2,656,691	395,752	3,052,443	1.48
25	Rail and pipeline transport	0	747,385	188,602	935,987	1.48
26	Other transport	0	901,880	495,214	1,397,095	1.48
27	Communication services	0	827,754	632,719	1,460,473	1.48
28	Finance and RE and business services	0	8,033,021	2,457,839	10,490,860	1.48
29	Ownership of dwellings	0	0	5,121,901	5,121,901	1.48
30	Government admin and defence	0	424,034	130,989	555,024	1.48
31	Education	0	95,649	509,017	604,666	1.48
32	Health and community services	0	40,963	1,184,735	1,225,698	1.48
33	Cultural and recreation services	0	81,432	627,278	708,711	1.48
34	Personal and other services	0	61,161	672,560	733,721	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**68,575,680**	**32,576,710**	**20,664,307**	**121,816,703**	

TABLE A13: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [EMPLOYMENT LOW IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*
1	Sheep	0	0	0	0
2	Grains	0	0	0	0
3	Beef Cattle	0	0	0	0
4	Dairy cattle and pigs	0	0	0	0
5	Other agriculture	0	0.1	0.1	0.2
6	Sugar cane	0	0.1	0.1	0.2
7	Forestry and fishing	0	0	0	0
8	Coal and oil and gas	0	0	0	0
9	Non-ferrous metal ores	0	0	0	0
10	Other mining	0	0	0	0
11	Food manufacturing	0	0.1	0.1	0.2
12	Textiles and clothing and footwear	0	0	0	0
13	Wood and paper manufacturing	0	0.1	0.1	0.1
14	Chemicals and petro and coal	0	0	0	0
15	Non-metallic mineral products	0	0	0	0
16	Metals and metal products	0	0	0	0
17	Machinery and equipment	0	0.1	0	0.1
18	Miscellaneous manufacturing	0	0	0	0
19	Electricity and gas and water	0	0.1	0.1	0.2
20	Residential building construction	0	0	0	0
21	Other construction	0	0	0	0
22	Trade	6.1	1.3	1.6	8.9
23	Accommodation and cafes and restaurants	3.6	0.2	0.3	4.1
24	Road transport	0.5	0.3	0.1	0.8
25	Rail and pipeline transport	0	0.1	0	0.1
26	Other transport	2.5	0.5	0.1	3.1
27	Communication services	0	0.1	0.1	0.2
28	Finance and RE and business services	0.2	1.5	0.5	2.1
29	Ownership of dwellings	0	0	0	0
30	Government admin and defence	0	0.1	0	0.2
31	Education	0	0	0.2	0.2
32	Health and community services	0	0	0.4	0.4
33	Cultural and recreation services	0.1	0.1	0.2	0.3
34	Personal and other services	0.7	0	0.2	0.9
35	Imports	0	0	0	0
25,001	Foreign Trade	0	0	0	0
28,001	Domestic Trade	0	0	0	0
	Total	**13.7**	**4.8**	**4.1**	**22.7**

TABLE A14: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [LABOUR INCOME LOW IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	336	325	661	1.48
4	Dairy cattle and pigs	0	0	0	0	1.48
5	Other agriculture	0	1,874	1,705	3,580	1.48
6	Sugar cane	0	2,198	2,069	4,267	1.48
7	Forestry and fishing	0	630	255	886	1.48
8	Coal and oil and gas	0	2,034	461	2,495	1.48
9	Non-ferrous metal ores	0	97	42	139	1.48
10	Other mining	0	849	323	1,172	1.48
11	Food manufacturing	0	5,587	5,258	10,845	1.48
12	Textiles and clothing and footwear	0	398	818	1,216	1.48
13	Wood and paper manufacturing	0	4,772	3,183	7,955	1.48
14	Chemicals and petro and coal	0	3,271	1,284	4,555	1.48
15	Non-metallic mineral products	0	255	233	488	1.48
16	Metals and metal products	0	108	88	197	1.48
17	Machinery and equipment	0	2,991	381	3,372	1.48
18	Miscellaneous manufacturing	0	340	761	1,101	1.48
19	Electricity and gas and water	2,545	3,671	3,166	9,382	1.48
20	Residential building construction	0	58	564	621	1.48
21	Other construction	0	1,138	169	1,307	1.48
22	Trade	239,950	50,507	61,247	351,705	1.48
23	Accommodation and cafes and restaurants	117,112	5,686	9,792	132,591	1.48
24	Road transport	14,436	8,378	2,847	25,660	1.48
25	Rail and pipeline transport	0	5,448	2,587	8,035	1.48
26	Other transport	194,172	40,536	4,113	238,821	1.48
27	Communication services	0	10,410	4,311	14,721	1.48
28	Finance and RE and business services	8,074	73,476	25,236	106,786	1.48
29	Ownership of dwellings	0	0	0	0	1.48
30	Government admin and defence	0	7,685	2,181	9,866	1.48
31	Education	0	1,777	8,560	10,337	1.48
32	Health and community services	0	828	17,453	18,281	1.48
33	Cultural and recreation services	3,852	2,122	6,960	12,934	1.48
34	Personal and other services	30,425	1,177	9,576	41,178	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**610,566**	**238,638**	**175,948**	**1,025,153**	

TABLE A15: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [OUTPUT LOW IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	2,072	2,004	4,076	1.48
4	Dairy cattle and pigs	0	1	1	2	1.48
5	Other agriculture	0	11,706	10,651	22,357	1.48
6	Sugar cane	0	22,831	21,490	44,321	1.48
7	Forestry and fishing	0	6,654	2,694	9,347	1.48
8	Coal and oil and gas	0	11,855	2,686	14,542	1.48
9	Non-ferrous metal ores	0	640	273	912	1.48
10	Other mining	0	2,410	917	3,328	1.48
11	Food manufacturing	0	44,126	41,534	85,660	1.48
12	Textiles and clothing and footwear	0	1,375	2,830	4,205	1.48
13	Wood and paper manufacturing	0	17,127	11,424	28,550	1.48
14	Chemicals and petro and coal	0	14,688	5,766	20,454	1.48
15	Non-metallic mineral products	0	1,608	1,468	3,076	1.48
16	Metals and metal products	0	1,253	1,018	2,271	1.48
17	Machinery and equipment	0	14,360	1,828	16,188	1.48
18	Miscellaneous manufacturing	0	1,219	2,730	3,949	1.48
19	Electricity and gas and water	19,126	27,593	23,795	70,514	1.48
20	Residential building construction	0	384	3,745	4,129	1.48
21	Other construction	0	4,788	711	5,498	1.48
22	Trade	731,238	153,919	186,648	1,071,805	1.48
23	Accommodation and cafes and restaurants	430,579	20,907	36,003	487,489	1.48
24	Road transport	87,468	50,761	17,249	155,478	1.48
25	Rail and pipeline transport	0	13,518	6,418	19,936	1.48
26	Other transport	956,091	199,595	20,253	1,175,939	1.48
27	Communication services	0	46,183	19,125	65,307	1.48
28	Finance and RE and business services	36,853	335,377	115,188	487,418	1.48
29	Ownership of dwellings	0	0	123,129	123,129	1.48
30	Government admin and defence	0	18,228	5,174	23,402	1.48
31	Education	0	2,420	11,659	14,079	1.48
32	Health and community services	0	1,562	32,918	34,481	1.48
33	Cultural and recreation services	13,295	7,323	24,019	44,637	1.48
34	Personal and other services	57,846	2,238	18,207	78,291	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**2,332,497**	**1,038,719**	**753,556**	**4,124,771**	

TABLE A16: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [TOTAL VALUE ADDED LOW IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	981	948	1,929	1.48
4	Dairy cattle and pigs	0	1	1	1	1.48
5	Other agriculture	0	5,099	4,639	9,738	1.48
6	Sugar cane	0	10,256	9,653	19,909	1.48
7	Forestry and fishing	0	2,431	984	3,416	1.48
8	Coal and oil and gas	0	6,249	1,416	7,665	1.48
9	Non-ferrous metal ores	0	335	143	478	1.48
10	Other mining	0	1,081	411	1,492	1.48
11	Food manufacturing	0	10,032	9,443	19,475	1.48
12	Textiles and clothing and footwear	0	509	1,047	1,556	1.48
13	Wood and paper manufacturing	0	7,392	4,930	12,322	1.48
14	Chemicals and petro and coal	0	5,379	2,112	7,491	1.48
15	Non-metallic mineral products	0	536	489	1,025	1.48
16	Metals and metal products	0	254	207	461	1.48
17	Machinery and equipment	0	4,357	555	4,912	1.48
18	Miscellaneous manufacturing	0	482	1,080	1,562	1.48
19	Electricity and gas and water	11,881	17,140	14,781	43,803	1.48
20	Residential building construction	0	156	1,525	1,681	1.48
21	Other construction	0	2,288	340	2,628	1.48
22	Trade	351,503	73,988	89,721	515,211	1.48
23	Accommodation and cafes and restaurants	200,655	9,743	16,778	227,175	1.48
24	Road transport	39,223	22,762	7,735	69,720	1.48
25	Rail and pipeline transport	0	7,765	3,686	11,451	1.48
26	Other transport	456,926	95,388	9,679	561,993	1.48
27	Communication services	0	29,863	12,367	42,229	1.48
28	Finance and RE and business services	15,369	139,868	48,039	203,277	1.48
29	Ownership of dwellings	0	0	100,109	100,109	1.48
30	Government admin and defence	0	9,020	2,560	11,580	1.48
31	Education	0	2,065	9,949	12,014	1.48
32	Health and community services	0	1,099	23,156	24,255	1.48
33	Cultural and recreation services	6,786	3,738	12,260	22,785	1.48
34	Personal and other services	41,764	1,616	13,145	56,525	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**1,124,107**	**471,873**	**403,888**	**1,999,868**	

TABLE A17: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [EMPLOYMENT MEDIUM IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*
1	Sheep	0	0	0	0
2	Grains	0	0	0	0
3	Beef Cattle	0	0	0	0.1
4	Dairy cattle and pigs	0	0	0	0
5	Other agriculture	0	0.2	0.2	0.3
6	Sugar cane	0	0.2	0.2	0.3
7	Forestry and fishing	0	0	0	0.1
8	Coal and oil and gas	0	0	0	0
9	Non-ferrous metal ores	0	0	0	0
10	Other mining	0	0	0	0
11	Food manufacturing	0	0.1	0.1	0.3
12	Textiles and clothing and footwear	0	0	0	0
13	Wood and paper manufacturing	0	0.1	0.1	0.2
14	Chemicals and petro and coal	0	0	0	0.1
15	Non-metallic mineral products	0	0	0	0
16	Metals and metal products	0	0	0	0
17	Machinery and equipment	0	0.1	0	0.1
18	Miscellaneous manufacturing	0	0	0	0
19	Electricity and gas and water	0.1	0.1	0.1	0.3
20	Residential building construction	0	0	0	0
21	Other construction	0	0	0	0.1
22	Trade	10.4	2.2	2.7	15.2
23	Accommodation and cafes and restaurants	6.2	0.3	0.5	7
24	Road transport	0.8	0.5	0.2	1.4
25	Rail and pipeline transport	0	0.1	0.1	0.2
26	Other transport	4.3	0.9	0.1	5.3
27	Communication services	0	0.3	0.1	0.4
28	Finance and RE and business services	0.3	2.5	0.8	3.6
29	Ownership of dwellings	0	0	0	0
30	Government admin and defence	0	0.2	0.1	0.3
31	Education	0	0.1	0.3	0.3
32	Health and community services	0	0	0.7	0.7
33	Cultural and recreation services	0.2	0.1	0.3	0.6
34	Personal and other services	1.1	0	0.4	1.5
35	Imports	0	0	0	0
25,001	Foreign Trade	0	0	0	0
28,001	Domestic Trade	0	0	0	0
	Total	**23.4**	**8.2**	**7**	**38.6**

TABLE A18: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [LABOUR INCOME MEDIUM IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	572	553	1,125	1.48
4	Dairy cattle and pigs	0	0	0	1	1.48
5	Other agriculture	0	3,191	2,903	6,094	1.48
6	Sugar cane	0	3,741	3,522	7,263	1.48
7	Forestry and fishing	0	1,073	434	1,507	1.48
8	Coal and oil and gas	0	3,463	785	4,248	1.48
9	Non-ferrous metal ores	0	166	71	236	1.48
10	Other mining	0	1,445	550	1,995	1.48
11	Food manufacturing	0	9,510	8,951	18,461	1.48
12	Textiles and clothing and footwear	0	677	1,393	2,070	1.48
13	Wood and paper manufacturing	0	8,123	5,418	13,541	1.48
14	Chemicals and petro and coal	0	5,568	2,186	7,755	1.48
15	Non-metallic mineral products	0	434	396	831	1.48
16	Metals and metal products	0	185	150	335	1.48
17	Machinery and equipment	0	5,091	648	5,739	1.48
18	Miscellaneous manufacturing	0	578	1,296	1,874	1.48
19	Electricity and gas and water	4,332	6,249	5,389	15,970	1.48
20	Residential building construction	0	98	959	1,058	1.48
21	Other construction	0	1,937	288	2,225	1.48
22	Trade	408,455	85,976	104,258	598,690	1.48
23	Accommodation and cafes and restaurants	199,354	9,680	16,669	225,703	1.48
24	Road transport	24,573	14,261	4,846	43,680	1.48
25	Rail and pipeline transport	0	9,275	4,403	13,678	1.48
26	Other transport	330,530	69,002	7,002	406,534	1.48
27	Communication services	0	17,721	7,338	25,059	1.48
28	Finance and RE and business services	13,744	125,075	42,958	181,777	1.48
29	Ownership of dwellings	0	0	0	0	1.48
30	Government admin and defence	0	13,081	3,713	16,794	1.48
31	Education	0	3,024	14,571	17,596	1.48
32	Health and community services	0	1,410	29,709	31,119	1.48
33	Cultural and recreation services	6,558	3,612	11,847	22,017	1.48
34	Personal and other services	51,791	2,004	16,301	70,095	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**1,039,337**	**406,222**	**299,508**	**1,745,068**	

TABLE A19: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [OUTPUT MEDIUM IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	3,527	3,412	6,939	1.48
4	Dairy cattle and pigs	0	2	2	4	1.48
5	Other agriculture	0	19,926	18,130	38,056	1.48
6	Sugar cane	0	38,864	36,582	75,446	1.48
7	Forestry and fishing	0	11,326	4,585	15,911	1.48
8	Coal and oil and gas	0	20,181	4,573	24,754	1.48
9	Non-ferrous metal ores	0	1,089	464	1,553	1.48
10	Other mining	0	4,103	1,561	5,664	1.48
11	Food manufacturing	0	75,113	70,702	145,815	1.48
12	Textiles and clothing and footwear	0	2,341	4,818	7,159	1.48
13	Wood and paper manufacturing	0	29,154	19,446	48,600	1.48
14	Chemicals and petro and coal	0	25,002	9,815	34,817	1.48
15	Non-metallic mineral products	0	2,737	2,499	5,236	1.48
16	Metals and metal products	0	2,133	1,733	3,866	1.48
17	Machinery and equipment	0	24,444	3,112	27,556	1.48
18	Miscellaneous manufacturing	0	2,075	4,647	6,722	1.48
19	Electricity and gas and water	32,558	46,970	40,505	120,033	1.48
20	Residential building construction	0	654	6,374	7,028	1.48
21	Other construction	0	8,150	1,210	9,360	1.48
22	Trade	1,244,751	262,009	317,722	1,824,482	1.48
23	Accommodation and cafes and restaurants	732,954	35,588	61,286	829,829	1.48
24	Road transport	148,893	86,408	29,363	264,664	1.48
25	Rail and pipeline transport	0	23,011	10,925	33,936	1.48
26	Other transport	1,627,507	339,761	34,476	2,001,744	1.48
27	Communication services	0	78,614	32,555	111,170	1.48
28	Finance and RE and business services	62,733	570,896	196,079	829,708	1.48
29	Ownership of dwellings	0	0	209,596	209,596	1.48
30	Government admin and defence	0	31,029	8,807	39,836	1.48
31	Education	0	4,119	19,847	23,966	1.48
32	Health and community services	0	2,659	56,035	58,695	1.48
33	Cultural and recreation services	22,631	12,466	40,886	75,984	1.48
34	Personal and other services	98,468	3,809	30,993	133,270	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**3,970,496**	**1,768,161**	**1,282,741**	**7,021,398**	

TABLE A20: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [TOTAL VALUE ADDED MEDIUM IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	1,669	1,615	3,284	1.48
4	Dairy cattle and pigs	0	1	1	2	1.48
5	Other agriculture	0	8,679	7,897	16,576	1.48
6	Sugar cane	0	17,458	16,432	33,890	1.48
7	Forestry and fishing	0	4,139	1,676	5,815	1.48
8	Coal and oil and gas	0	10,637	2,410	13,047	1.48
9	Non-ferrous metal ores	0	571	243	814	1.48
10	Other mining	0	1,840	700	2,540	1.48
11	Food manufacturing	0	17,077	16,074	33,151	1.48
12	Textiles and clothing and footwear	0	866	1,782	2,648	1.48
13	Wood and paper manufacturing	0	12,583	8,393	20,976	1.48
14	Chemicals and petro and coal	0	9,156	3,595	12,751	1.48
15	Non-metallic mineral products	0	912	833	1,745	1.48
16	Metals and metal products	0	433	352	785	1.48
17	Machinery and equipment	0	7,417	944	8,361	1.48
18	Miscellaneous manufacturing	0	820	1,838	2,658	1.48
19	Electricity and gas and water	20,225	29,177	25,161	74,564	1.48
20	Residential building construction	0	266	2,596	2,862	1.48
21	Other construction	0	3,895	578	4,473	1.48
22	Trade	598,346	125,946	152,727	877,019	1.48
23	Accommodation and cafes and restaurants	341,565	16,585	28,560	386,709	1.48
24	Road transport	66,767	38,747	13,167	118,681	1.48
25	Rail and pipeline transport	0	13,217	6,275	19,492	1.48
26	Other transport	777,802	162,375	16,476	956,654	1.48
27	Communication services	0	50,834	21,051	71,885	1.48
28	Finance and RE and business services	26,163	238,091	81,774	346,028	1.48
29	Ownership of dwellings	0	0	170,410	170,410	1.48
30	Government admin and defence	0	15,354	4,358	19,713	1.48
31	Education	0	3,515	16,935	20,450	1.48
32	Health and community services	0	1,871	39,417	41,288	1.48
33	Cultural and recreation services	11,552	6,363	20,870	38,785	1.48
34	Personal and other services	71,093	2,750	22,377	96,220	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**1,913,512**	**803,247**	**687,519**	**3,404,279**	

TABLE A21: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [EMPLOYMENT HIGH IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*
1	Sheep	0	0	0	0
2	Grains	0	0	0	0
3	Beef Cattle	0	0	0	0.1
4	Dairy cattle and pigs	0	0	0	0
5	Other agriculture	0	0.2	0.2	0.5
6	Sugar cane	0	0.2	0.2	0.5
7	Forestry and fishing	0	0.1	0	0.1
8	Coal and oil and gas	0	0	0	0
9	Non-ferrous metal ores	0	0	0	0
10	Other mining	0	0	0	0
11	Food manufacturing	0	0.2	0.2	0.4
12	Textiles and clothing and footwear	0	0	0	0.1
13	Wood and paper manufacturing	0	0.2	0.1	0.3
14	Chemicals and petro and coal	0	0.1	0	0.1
15	Non-metallic mineral products	0	0	0	0
16	Metals and metal products	0	0	0	0
17	Machinery and equipment	0	0.1	0	0.1
18	Miscellaneous manufacturing	0	0	0	0.1
19	Electricity and gas and water	0.1	0.2	0.1	0.4
20	Residential building construction	0	0	0	0
21	Other construction	0	0.1	0	0.1
22	Trade	14.4	3	3.7	21
23	Accommodation and cafes and restaurants	8.6	0.4	0.7	9.7
24	Road transport	1.1	0.6	0.2	2
25	Rail and pipeline transport	0	0.2	0.1	0.3
26	Other transport	6	1.2	0.1	7.4
27	Communication services	0	0.3	0.1	0.5
28	Finance and RE and business services	0.4	3.4	1.2	5
29	Ownership of dwellings	0	0	0	0
30	Government admin and defence	0	0.3	0.1	0.4
31	Education	0	0.1	0.4	0.5
32	Health and community services	0	0	0.9	1
33	Cultural and recreation services	0.2	0.1	0.4	0.8
34	Personal and other services	1.6	0.1	0.5	2.1
35	Imports	0	0	0	0
25,001	Foreign Trade	0	0	0	0
28,001	Domestic Trade	0	0	0	0
	Total	**32.3**	**11.4**	**9.6**	**53.3**

TABLE A22: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [LABOUR INCOME HIGH IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	790	764	1,555	1.48
4	Dairy cattle and pigs	0	1	1	1	1.48
5	Other agriculture	0	4,412	4,014	8,426	1.48
6	Sugar cane	0	5,173	4,869	10,043	1.48
7	Forestry and fishing	0	1,484	601	2,084	1.48
8	Coal and oil and gas	0	4,788	1,085	5,873	1.48
9	Non-ferrous metal ores	0	229	98	327	1.48
10	Other mining	0	1,998	760	2,759	1.48
11	Food manufacturing	0	13,149	12,377	25,526	1.48
12	Textiles and clothing and footwear	0	936	1,926	2,862	1.48
13	Wood and paper manufacturing	0	11,231	7,491	18,723	1.48
14	Chemicals and petro and coal	0	7,700	3,023	10,722	1.48
15	Non-metallic mineral products	0	600	548	1,148	1.48
16	Metals and metal products	0	255	207	463	1.48
17	Machinery and equipment	0	7,040	896	7,936	1.48
18	Miscellaneous manufacturing	0	800	1,791	2,591	1.48
19	Electricity and gas and water	5,990	8,641	7,452	22,082	1.48
20	Residential building construction	0	136	1,327	1,463	1.48
21	Other construction	0	2,679	398	3,077	1.48
22	Trade	564,771	118,879	144,157	827,807	1.48
23	Accommodation and cafes and restaurants	275,646	13,384	23,048	312,079	1.48
24	Road transport	33,978	19,718	6,701	60,397	1.48
25	Rail and pipeline transport	0	12,824	6,088	18,912	1.48
26	Other transport	457,024	95,409	9,681	562,114	1.48
27	Communication services	0	24,502	10,147	34,649	1.48
28	Finance and RE and business services	19,004	172,941	59,398	251,343	1.48
29	Ownership of dwellings	0	0	0	0	1.48
30	Government admin and defence	0	18,087	5,134	23,221	1.48
31	Education	0	4,181	20,148	24,329	1.48
32	Health and community services	0	1,950	41,078	43,028	1.48
33	Cultural and recreation services	9,068	4,995	16,381	30,444	1.48
34	Personal and other services	71,611	2,770	22,540	96,921	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**1,437,091**	**561,683**	**414,130**	**2,412,904**	

TABLE A23: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [OUTPUT HIGH IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	4,877	4,717	9,594	1.48
4	Dairy cattle and pigs	0	3	2	5	1.48
5	Other agriculture	0	27,552	25,068	52,621	1.48
6	Sugar cane	0	53,737	50,581	104,319	1.48
7	Forestry and fishing	0	15,660	6,340	22,001	1.48
8	Coal and oil and gas	0	27,904	6,323	34,227	1.48
9	Non-ferrous metal ores	0	1,506	642	2,147	1.48
10	Other mining	0	5,673	2,159	7,832	1.48
11	Food manufacturing	0	103,859	97,759	201,618	1.48
12	Textiles and clothing and footwear	0	3,237	6,661	9,898	1.48
13	Wood and paper manufacturing	0	40,311	26,888	67,199	1.48
14	Chemicals and petro and coal	0	34,570	13,572	48,142	1.48
15	Non-metallic mineral products	0	3,784	3,455	7,239	1.48
16	Metals and metal products	0	2,950	2,396	5,346	1.48
17	Machinery and equipment	0	33,799	4,303	38,102	1.48
18	Miscellaneous manufacturing	0	2,869	6,426	9,295	1.48
19	Electricity and gas and water	45,018	64,945	56,006	165,969	1.48
20	Residential building construction	0	904	8,814	9,718	1.48
21	Other construction	0	11,269	1,673	12,942	1.48
22	Trade	1,721,115	362,279	439,314	2,522,709	1.48
23	Accommodation and cafes and restaurants	1,013,454	49,208	84,741	1,147,403	1.48
24	Road transport	205,875	119,476	40,600	365,951	1.48
25	Rail and pipeline transport	0	31,818	15,106	46,923	1.48
26	Other transport	2,250,352	469,786	47,669	2,767,807	1.48
27	Communication services	0	108,700	45,014	153,714	1.48
28	Finance and RE and business services	86,742	789,378	271,118	1,147,238	1.48
29	Ownership of dwellings	0	0	289,809	289,809	1.48
30	Government admin and defence	0	42,904	12,178	55,082	1.48
31	Education	0	5,695	27,443	33,138	1.48
32	Health and community services	0	3,677	77,480	81,157	1.48
33	Cultural and recreation services	31,293	17,237	56,533	105,064	1.48
34	Personal and other services	136,152	5,267	42,854	184,273	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**5,490,001**	**2,444,835**	**1,773,645**	**9,708,482**	

TABLE A24: CRUISE SHIPPING IMPACTS ON NSD INDUSTRY SECTORS [TOTAL VALUE ADDED HIGH IMPACT]

	Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1	Sheep	0	0	0	0	1.48
2	Grains	0	0	0	0	1.48
3	Beef Cattle	0	2,308	2,232	4,541	1.48
4	Dairy cattle and pigs	0	2	2	3	1.48
5	Other agriculture	0	12,001	10,919	22,920	1.48
6	Sugar cane	0	24,139	22,721	46,860	1.48
7	Forestry and fishing	0	5,723	2,317	8,040	1.48
8	Coal and oil and gas	0	14,708	3,333	18,040	1.48
9	Non-ferrous metal ores	0	789	336	1,125	1.48
10	Other mining	0	2,544	968	3,513	1.48
11	Food manufacturing	0	23,612	22,225	45,837	1.48
12	Textiles and clothing and footwear	0	1,197	2,465	3,662	1.48
13	Wood and paper manufacturing	0	17,398	11,605	29,003	1.48
14	Chemicals and petro and coal	0	12,661	4,970	17,631	1.48
15	Non-metallic mineral products	0	1,261	1,152	2,413	1.48
16	Metals and metal products	0	599	487	1,086	1.48
17	Machinery and equipment	0	10,256	1,306	11,561	1.48
18	Miscellaneous manufacturing	0	1,134	2,541	3,675	1.48
19	Electricity and gas and water	27,965	40,344	34,791	103,099	1.48
20	Residential building construction	0	368	3,589	3,957	1.48
21	Other construction	0	5,385	800	6,185	1.48
22	Trade	827,332	174,146	211,176	1,212,654	1.48
23	Accommodation and cafes and restaurants	472,281	22,931	39,490	534,702	1.48
24	Road transport	92,319	53,576	18,206	164,101	1.48
25	Rail and pipeline transport	0	18,275	8,676	26,952	1.48
26	Other transport	1,075,466	224,516	22,782	1,322,763	1.48
27	Communication services	0	70,288	29,107	99,396	1.48
28	Finance and RE and business services	36,176	329,209	113,069	478,454	1.48
29	Ownership of dwellings	0	0	235,626	235,626	1.48
30	Government admin and defence	0	21,231	6,026	27,257	1.48
31	Education	0	4,860	23,417	28,276	1.48
32	Health and community services	0	2,587	54,502	57,089	1.48
33	Cultural and recreation services	15,973	8,799	28,857	53,629	1.48
34	Personal and other services	98,301	3,803	30,940	133,044	1.48
35	Imports	0	0	0	0	0.88
25001	Foreign Trade	0	0	0	0	0.88
28001	Domestic Trade	0	0	0	0	0.88
	Total	**2,645,812**	**1,110,649**	**950,632**	**4,707,093**	