# Quality Information

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**Prepared by**: Shalendra Ram & Chris Marstaeller  
**Reviewed by**: Michael Arri

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Office Manager - Cairns |
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Executive Summary

The Torres Strait Transport Infrastructure Plan (TSTIP) is intended to develop safe, efficient and sustainable access to freight and passenger transport services that meet the needs of the community. Key tasks of the TSTIP are to:

- Identify issues impacting on existing and future provision of transport infrastructure and transport services;
- Establish existing demands and community need for freight and passenger transport;
- Project transport demands out to 2026;
- Develop a vision and supporting plan in consultation with the key stakeholders;
- Develop strategies for the provision of transport infrastructure and services that meet identified community needs; and
- Identify appropriate technologies and transport infrastructure and service options required to deliver the transport strategies.

The purpose of these tasks is to address a number of transport issues which constrain the provision of a high quality transport network in the Torres Strait. These issues include the climatic conditions, low levels of private transport, few public transport options, high travel costs, varying quality of transport infrastructure and lack of a strong commercial market for transport ventures.

The preparation of the TSTIP included a range of planning, economic and travel demand investigations. To assist these investigations, consultation was undertaken to identify the underlying issues and potential solutions to transport problems in the area. Consultation included dialogue with key stakeholders such as Queensland Transport (QT), Torres Strait Regional Authority (TSRA), Torres Shire Council (TSC) and Ports Corporation of Queensland (PCQ), as well as issues identification workshops with government agencies, islander representative groups and service/infrastructure providers.

A number of transport options which utilised different means to address inherent issues and deliver quality transport services within the Torres Strait and to Cairns were investigated. These options were developed through a stakeholder consultation process and using demand analysis for transport services and infrastructure. The list of options explored was:

1) Option A – Continuation of current services;
2) Option B – Establish a second passenger and freight hub at a central island;
3) Option C – Hub and spoke arrangement for passenger transport by ferry;
4) Option D – Rail line from Cairns to Bamaga;
5) Option E – Option A with additional improvements; and
6) Option F – Sea transport proposal.

A multi-criteria assessment of these options identified Option E as the most appropriate transport option for implementation in the Torres Strait based on the following criteria:

- Integration;
- Accessibility;
- Connectivity;
- Serviceability;
- Cost of implementation;
- Affordability to travellers;
- Community development; and
- Environmental responsiveness.
The principles that underlay Option E form the basis for objectives, strategies, actions and priorities included in the TSTIP planning framework. This planning framework is intended to direct the implementation of transport service and infrastructure improvements up to the year 2026 in the Torres Strait (see **Figure E1**).

**Figure E1  Planning Framework**

Some of the key actions which need to be addressed in the short term include:

- Investigate means of reducing the impact of the cost of ferry and air services to the islands, with priority on OTSI communities;
- Establishing the need for Torres Strait specific regulations regarding small boat travel, covering areas such as safety equipment, fuel supplies, boat and motor design and maintenance;
- Undertaking long-term sea access strategy and consider dredging priorities; and
- Reviewing access for people with disabilities on ferries, buses, planes and at terminal facilities.

It is proposed that the implementation of actions associated with the TSTIP be overseen by the Torres Strait Transport Implementation Group, which will consist of key stakeholders involved in developing the plan.

Funding for the implementation and monitoring for the TSTIP is proposed to derive from a range of sources including federal and state agency contributions, programs and grants.
1.0 Introduction

“Integrated transport planning” as defined by the Queensland Government’s Integrated Transport Planning Framework, “is a process to identify current and future access needs for people, places, goods and services, and to inform decision makers on ways to manage the transport system and land use to best address their needs.”

The foundations of integrated transport planning include:

- Sustainability (i.e. thinking beyond the transport system) to enhance economic, social and environmental outcomes for current and future generations;
- Integration across sectors and levels of planning such as transport, economic development, education and health; and
- Partnerships across governments, industry and the community.

In developing the Torres Strait Transport Infrastructure Plan (TSTIP) integrated transport strategy, community issues and transport data were analysed to determine the vision, principles, objectives and strategies/actions. The integrated transport strategy addresses current and desired future(s) and identifies the triggers that initiate the implementation of the TSTIP.

For Torres Strait, the foundations of integrated transport planning can be summarised as follows:

- Need to consider transport system performance and the whole-of-life economic, social and environmental consequences of options;
- Need to show the benefits and costs of the transport system equally, within and across current and future generations;
- Need to collaborate across governments and industry to take other planning measures and impacts into account when making transport decisions; and
- Need to engage and develop effective partnerships across governments, industry and the community in planning, providing and operating the transport systems.

1.1 Background

The communities of the Torres Strait, being island based, widely dispersed and small in size, have a significant need for an efficient and effective transport network for the supply of goods, access to local services and facilities and connections to mainland centres. Due to the remoteness of the area, freight and passenger travel within and to and from the region is highly dependent on marine and air transport. As such, the provision of high quality services and infrastructure to support these transport modes, as well as adequate public transport and walking and cycling facilities, is a necessity for the region.

There are a number of transport issues which constrain the provision of a high quality transport network in the Torres Strait region. These include the climatic conditions, low levels of private transport, few public transport options, high travel costs, varying quality of infrastructure and lack of a strong commercial market for transport ventures. There are also a number of freight movement and infrastructure issues, such as the need for dredging maritime channels leading to island boating facilities.

In recent years there have been major upgrades to air and marine infrastructure within the Torres Strait to improve the transport network. A number of opportunities exist to build on this work and further develop transport services and infrastructure for freight and passenger travel. Queensland Transport (QT) and Department of Main Roads (DMR) in partnership with the Torres Strait Regional Authority (TSRA) have identified a need to develop a transport plan to provide guidance for the future development of the transport network in the Torres Strait.
1.2 Purpose and Objectives

Maunsell Australia and its partner Black & More have been engaged to prepare the TSTIP. The purpose of the TSTIP is to develop safe, efficient and sustainable access to freight and passenger transport services that meets the needs of the community. The planning horizon for the TSTIP is the year 2026.

The study objectives for the TSTIP are to:

- Identify issues impacting on existing and future provision of transport infrastructure and transport services;
- Establish existing demands and community need for freight and passenger transport;
- Project transport demands to 2026;
- Develop a vision and supporting plan in consultation with the key stakeholders;
- Develop strategies for the provision of transport infrastructure and services that meet identified community needs; and
- Identify appropriate technologies and transport infrastructure and service options required to deliver the transport strategies.

1.3 Methodology

The methodology for the preparation of the TSTIP includes ten tasks, which are identified below in Figure 1.1.

![Figure 1.1 Methodology for preparing the Torres Strait Transport Infrastructure Plan](image-url)
1.4 Purpose of this Report

The report encompasses the results and outcomes from all of the study tasks, as listed in Section 1.3, in the process of preparing the TSTIP. The report also addresses the specific objectives of the study as listed in Section 1.0, and provides guidance on the future needs of the broader transport system. The TSTIP develops recommendation for safe, efficient and sustainable access to freight and passenger transport services that meets the needs of the community. The TSTIP will provide information and direction for a number of government agencies and public bodies who have a common interest.

1.5 Report Structure

The report is structured into the following sections:

- **Section 1** outlines the study development background, purpose and objectives;
- **Section 2** contains the study context, describing the Torres Strait regional characteristics and communities;
- **Section 3** outlines the existing transport network in the Torres Strait;
- **Section 4** outlines the analysis of issues and transport demands in the Torres Strait;
- **Section 5** discusses the consultation tasks and outcomes for the study;
- **Section 6** sets out the planning framework for the transport plan;
- **Section 7** outlines the options for the transport system for the Torres Strait in 2026;
- **Section 8** comprises the integrated strategy for the Torres Strait; and
- **Section 9** outlines the implementation plan for the TSTIP.
2.0 Study Area Context

2.1 Study Area Boundary

The study area, as illustrated in Figure 2.1, encompasses more than 20,000 square kilometres and includes the land, water and air space within the boundary of the Torres Shire. This area extends over 220 kilometers north from the northernmost part of mainland Queensland to near the coast of Papua New Guinea (PNG), and over 250 kilometres to the east to Darnley and Murray Islands.

Figure 2.1 Study Area Boundary and Communities of the Torres Strait Region

Source for Base Map: MapData Sciences Pty Ltd

2.2 Regional Characteristics

The Torres Strait covers a region stretching from Cape York, the most northerly point of the Australian mainland, to the small islands just off the southern coast of PNG. Approximately 200km across and over 20,000 square kilometers in area, the channel links the Coral Sea, in the east, to the Arafura Sea, in the west, and has been an important point of contact between cultures for thousands of years. The region lies across a major shipping route between South East Asia and the east coast of Australia and southern PNG.

The Torres Strait area is of vital strategic interest to Australia as it is in direct contact with both Indonesia and PNG, with cross border treaties and isolation permitting relatively free movement between countries. Federal Police, Customs and Immigration services operate actively to monitor regional movements, but the traditional relationships of the region have supported a freedom of travel that is unusual relative to the rest of the modern world. The closest Australian provincial city of Cairns is over 1,000 kilometres away from the Torres Strait, so the area assumes a regional importance far in
excess of its relatively small total population of around 8,500 people. The government is the region’s major employer, directly at Local, State and Commonwealth levels in areas such as governance, education, health and oversight, and indirectly through social service employment schemes such as the Community Development Employment Program (CDEP).

Figure 2.2 Geographical Groupings in the Torres Strait

The region is geologically diverse, as depicted in Figure 2.2, with the far eastern group of islands (the communities of Ugar, Erub and Mer) being of volcanic origin with steeper hills, red clay soils and deeper seabeds. Regionally central are a group of smaller islands (with the communities of Masig, Poruma and Warraber) consisting of low sandy clay surrounded by extensive coral reefs and shallow seas, whilst a northerly group of low islands (the communities of Boigu and Saibai) consist of saturated mud and alluvial sediments overlying coranous limestone and clay lenses, and covered with thick mangroves. All of the other communities, from Dauan in the north, to Prince of Wales in the South, across to Yam in the centre and including the islands around Port Kennedy (also known as the Port of Thursday Island), are typically weathered intrusions with extensive granites outcrops, sandy alluvial soils and recent overlying sedimentary sandstones and shales; remnants of the mainland’s Great Dividing Range.

Large coral reefs dot the entire regional seabed, protecting the islands and creating a bountiful resource for the local communities, but making navigation more difficult and travel more dangerous for larger vessels. Some of the larger communities such as Thursday Island and Badu have more protected offshore passages, but most communities have seasonally exposed approaches and mooring facilities. As a consequence, air travel has become accepted as a safer and more predictable means of travel and all communities but two (Ugar and Dauan) can readily access scheduled flights.
The climate is typical of coastal wet tropical areas, with average temperatures ranging between \(<22°C\) in July to \(>31°C\) in December, and annual rainfall is in the range 1.5 to 1.8 metres. Being in the tropics, regional wind patterns are highly seasonal. Between November and April, north-westerly monsoonal winds less than 17 knots are interspersed with squalls of over 35 knots. Between May and October strong south-easterly trade winds can often last for extended periods of time and hamper safe small boat travel. Although cyclones have been known to track across the Northern Peninsula Area (NPA), only two cyclones have actually passed through the Torres Strait in 23 years, and the area is generally considered to lie just outside the cyclone "belt".

2.3 Communities

Although over 100 islands lie within the Torres Strait, with a land area of around 1,100 square kilometres, there are only significant populations on seventeen of these. Around half of the population is resident on Thursday Island or the nearby islands, which together form the regional hub and service centre for the smaller Outer Torres Strait Island (OTSI) communities. Figure 2.3 and Figure 2.4 depict Thursday Island at the passenger ferry wharf, welcoming visitors and residents to Torres Strait, and an overview of the centre from the hilltop. These OTSI communities range in size from about 50 people on Ugar, to over 850 at the biggest community of Badu. Most communities have around 300 to 400 people.

Figure 2.3 “Welcome to Torres Strait” Art at Passenger Ferry Wharf
The Torres Strait Islanders, an indigenous people within Australia who identify with the Ailan Kastom (Island Custom) and share both ethnic and kinship ties to many other Melanesian people of the South West Pacific, have communities across the central, northern and eastern Torres Strait. Additionally, two Torres Strait Islander communities are also situated on the mainland NPA at Bamaga and Seisia, established mid-last century by several families as a result of deteriorating conditions on the low lying Saibai Island. They are now thriving mainland townships but maintain strong historical and personal ties to the OTSI communities. This relationship and the strong kinship ties continue to have implications for Torres Strait regional transport planning.

The Kaurareg people, residents of the communities on the larger islands to the south and west, also have strong ethnic and historical links with mainland aboriginal people.

The residents of the Torres Strait present a homogeneous face to the larger world and have worked cooperatively in achieving progress unmatched in most other indigenous communities. Although most Torres Strait Islanders speak at least three languages, adjacent island communities have preserved their own languages and customs despite centuries of contact with Asian and European immigrants, much inter-island marriage and recent rapid development. Identification with one of the four language groupings, as indicated in Figure 2.5, is still very pronounced, although Torres Strait Creole is also commonly used for communicating between groups. Due to its similarities to Tok Pisin, it can also be effective in communicating with Papua New Guineans across their shared border. These complexities of custom, language and group identification have important implications for transport planning.
There are three major transport needs for the people of the Torres Strait. These are:

- Goods flowing through the major regional ports at Horn/Thursday Island and to a lesser extent, Seisia;
- Passenger travel to and from the regional centre and onwards to southern ports; and
- Travel within the region for family, recreational and administrative reasons.

For the majority of OTSI community residents, travel to access basic services and supplies is perceived to be difficult, costly (mainly for government and businesses who bear most of the costs of travel), and not particularly safe for those who utilise small boats and small planes. The entire region, without exception, is totally dependent on marine transport to obtain almost all the requirements of daily life, and as such, improving freight carriage is a major goal. Other transport is, however, very important and transport planning must take into account social and historical linkages, and not overemphasise just the cost benefits that transport improvements may make to commercial or administrative capacities.

### 2.4 Demographics

#### 2.4.1 Population Statistics

A number of population statistics are available for the Torres Strait over the past few decades, none of which can be relied on to be an accurate reflection of the actual number of people on the OTSI communities at any one point in time. A major reason for this is a degree of fluidity caused by many people moving to and from each community during the year: some for health reasons, others for education or to stay with extended family members within Torres Strait, or on the mainland. Due the relative small base of most communities, such movements can raise or lower a community’s
population by plus or minus 20%, making it very difficult to rely solely on a single count of population, even for well planned census exercises.

Further complicating these cyclical variations are the numerous processes used to obtain population figures. Some published data has been obtained from community council estimates of unknown reliability, others are based on actual counting of household residents but do not cover all residences. Many historically quoted figures have been re-quoted in later documents, a common practice in recent infrastructure planning documents, and the earlier figures have consequently assumed a measure of reliability unrelated to the original data. Some funding requirements for development works have been based on population estimates that subsequently were not supported by later data.

The community of Yam is a good example of the variations observable in collected population data figures. Figure 2.6 below gives the population as published in a number of government and planning reports over a thirty year period. The 1996 census data missed Yam altogether, whereas the 2001 census (yellow bar) gave Yam’s population as 239.

Figure 2.6 Yarm Population Statistics 1973 – 2003 (DNR Database)

Other community data statistics show similar irregularity in trends. In 1996, the Island Coordinating Council (ICC) used data from household audits carried out by the Queensland Department of Housing in 1995 to arrive at population profiles for every OTSI community. The figures were exhaustively analysed at the time, and used as the basis for housing infrastructure plans for the next decade. The 2003 figures were again analysed by the ICC in 2004, but have been deemed unreliable, probably due to changes to the counting process. They are therefore unable to be used to determine growth rates for communities, or to verify other statistics such as provided by the Australian Bureau of Statistics (ABS).

For instance, the housing data in 1995 indicated a total OTSI population of 5,010 residents, around 1,000 more than the 1995 census figures from the ABS. The 2003 Housing data counted just an additional 195 residents across all communities (a total of 5,205 residents by 2003) whereas the 2001 census figures had a growth of over 1,400 residents by 2001.

Based on a regression analysis of all the available published data over the past thirty years, the Department of Natural Resources and Mines, in 2003, derived a population figure and growth rate which was incorporated into its Water Related Assets Database data and is now used by the ICC in planning for new and current infrastructure.
Using the same data, the Torres Strait and populations for 2005 have been estimated in Table 2.1 below, together with 2005 growth rates. Port Kennedy populations have also been calculated from ABS data for 2001, adjusted for a 2.1% growth rate (the average of the OTSI communities). All the calculations assume continued growth similar to historical trends, and this assumption may not be valid for every community. Incentives, such as housing, may encourage higher growth, whilst economic pressures or remoteness may inhibit future growth.

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<th>Estimated 2026 Populations</th>
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<td>0.7%</td>
</tr>
<tr>
<td>Warraber</td>
<td>248</td>
<td>1.8%</td>
<td>335</td>
<td>2.9%</td>
</tr>
<tr>
<td><strong>Total OTSI</strong></td>
<td><strong>4,842</strong></td>
<td><strong>2.3%</strong></td>
<td><strong>7,542</strong></td>
<td><strong>57.0%</strong></td>
</tr>
<tr>
<td>Thursday Island</td>
<td>2,757</td>
<td>2.3%</td>
<td>4,231</td>
<td>32.5%</td>
</tr>
<tr>
<td>Horn Island</td>
<td>614</td>
<td>2.3%</td>
<td>942</td>
<td>7.2%</td>
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<tr>
<td>Other</td>
<td>281</td>
<td>2.3%</td>
<td>431</td>
<td>3.3%</td>
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<tr>
<td><strong>Total Non-OTS I</strong></td>
<td><strong>3,652</strong></td>
<td><strong>2.3%</strong></td>
<td><strong>5,604</strong></td>
<td><strong>43.0%</strong></td>
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<tr>
<td><strong>Total Torres Strait</strong></td>
<td><strong>8,494</strong></td>
<td><strong>2.3%</strong></td>
<td><strong>13,146</strong></td>
<td><strong>100%</strong></td>
</tr>
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</table>

* Historical data from Hammond and Boigu indicated current negative population growth (-0.2% and -5%). This is not likely to be the longer term trend and so figures of 0% growth have been used to calculate the 2026 populations for these two communities.

** The Torres Strait Islander communities of Bamaga and Seisia, located in the NPA, have populations of approximately 900 and 190 persons respectively with the overall NPA population estimated at 2150 persons.

2.4.2 Population Growth

The growth rates in Figure 2.7 are based on historical population counts, none of which can be relied on alone to provide an accurate indication of the actual population. Consequently, growth rates calculated from this data must be used with some discretion, as no-one has been able to accurately predict past growth, and future predictions are also likely to be based on many assumptions which may not actually be valid in the future.

The data supports a growth of 2.3% for the OTSI communities and it may be reasonable to use this figure for the region as a whole, given that immigration in the region is relatively minor, and that birth and death rates within communities are likely to be similar for the whole region.
2.4.3 Age Profiles

According to the ABS census data, the median age of the whole Torres Strait population rose from 23 in 1995 to 25 in 2001. The median age of the indigenous population is however lower (20 in 2001) as opposed to the median age of the Queensland population (35 in 2001).

Department of Housing HAMS data indicates that, overall, there may be a slight increase in the birth rate and that the proportion of older people is also slightly increasing. Given that some of this data is known to be inaccurate, and is heavily affected by movement of people on and off communities, no reasonable long term prediction can be made from the data.
Communities that have experienced significant infrastructure development, such as Badu, or have rapidly growing populations, such as Yam, would seem to have gone against the general trend of the region as a whole, having flattened the age profiles. This could be due to more young people staying in the community, or growing standards of living and improved education.

Source: Dept of Housing
2.4.4 Vehicle and Boat Ownership

Data sourced from the 2001 ABS Census of Population and Housing showed the following vehicle ownership statistics, as listed in Table 2.2.

Table 2.2  Car Ownership in the Torres Straits

<table>
<thead>
<tr>
<th>Car Ownership</th>
<th>Number of Households</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>None</td>
<td>1,088</td>
<td>46%</td>
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<tr>
<td>1 car</td>
<td>633</td>
<td>27%</td>
</tr>
<tr>
<td>2 cars</td>
<td>203</td>
<td>9%</td>
</tr>
<tr>
<td>3 or more cars</td>
<td>62</td>
<td>3%</td>
</tr>
<tr>
<td>Not stated</td>
<td>402</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,388</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: 2001 ABS Census of Population and Housing

Long-term observations of communities and statistics on motor vehicle ownership confirm that most households in the OTSI communities, and many families around the major centre, travel to most local destinations on foot, with only small numbers of cars and motorbikes on most islands, with few of these being privately owned.

For most OTSI community members, water travel is commonplace and many families own at least one outboard powered dinghy which is used for family travel, recreational and commercial fishing, and for emergency transport. Water travel is expensive, often risky and relatively uncontrolled.

Figure 2.10  Recreational Boat Registrations in the Torres Strait Local Government Area

Source: QT
2.4.5 Income

ABS Census figures for household income indicate a similar pattern to that of the rest of Australia for weekly incomes less than $1,500 per week. However household sizes in indigenous Torres Strait communities and Port Kennedy are more than twice the size of those of mainland Australia. Department of Housing 2003 HAMS data indicates an average of 5.2 persons per household for OTSI communities, (compared with ABS figures of 2.6 persons per household for Australia) meaning that average individual incomes are in fact much less than the Australian average.

Figure 2.11 Comparison of Household Incomes

![Comparison of Household Income (2001 Census)](chart)

Source: 2001 Census

The ABS also reports that median weekly income in 2001 was around half of that of non-indigenous residents of the Torres Strait (an average of $200 - $299 per week as compared with $500 - $599). Many residents of the OTSI communities are employed under the Australian Government’s Community Development Employment Program, giving an average wage equivalent to social security unemployment benefits. Employment in the major centre, and for some on OTSI communities, is predominantly in government areas such as health, education and social services, with a much smaller number working in small businesses.

The low income levels support affordability as a major goal of future transport planning.
3.0 Existing Transport Network

There are three major transport needs for the people of the Torres Strait, being:

- Goods flowing through Port Kennedy and, to a lesser extent, the facility at Seisia;
- Passenger travel to and from the regional centre, and onwards to southern ports; and
- Travel within the region for family, recreational and administrative reasons.

For the majority of OTSI community residents, travel to access basic services and supplies is perceived to be difficult, costly and not particularly safe for those who utilise small boats and small planes.

The entire region is largely dependent on marine transport to obtain almost all the requirements of daily life. Other transport is also very important and transport planning must take into account the social and historical linkages, and not overemphasise just the cost benefits that transport improvements may make to commercial or administrative capacities.

3.1 Sea Infrastructure and Services

As an island region, marine transport supports all life and commerce within the Torres Strait, with vessels ranging from large freight carriers to small dinghies, forming a vital network of freight and passenger transport.

Four distinct marine transport sectors operate, as shown in Table 3.1.

<table>
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<tr>
<th>Sector</th>
<th>Comprising</th>
<th>Servicing</th>
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<tbody>
<tr>
<td>Large scale freight carriage (see Figure 3.1)</td>
<td>Coastal freighters ex-Cairns to Port Kennedy (Seawift) and Seisia (Seawift &amp; Endeavour)</td>
<td>Port Kennedy and NPA communities and transhipping to OTSI communities</td>
</tr>
<tr>
<td>Barge freight</td>
<td>Three landing barges (Seawift) on scheduled services plus chartered barges from Seawift and Endeavour Shipping</td>
<td>All OTSI communities receive a weekly barge service from Port Kennedy</td>
</tr>
<tr>
<td>Passenger ferries</td>
<td>Three commercial ferry operators based at Port Kennedy</td>
<td>Thursday, Horn, Prince of Wales, Hammond Islands and Seisia passengers</td>
</tr>
<tr>
<td>Small boats (see Figure 3.2)</td>
<td>Privately owned outboard powered dinghies carrying passengers and supplies</td>
<td>All communities have significant numbers of privately owned small boats meeting the need for a flexible inter-community transport at lower cost than higher cost ferry services</td>
</tr>
<tr>
<td>Fishing dinghies</td>
<td></td>
<td>Hammond and Thursday Island school and other passengers</td>
</tr>
</tbody>
</table>
Figure 3.1  Seaswift's Newcastle Bay Freighter

Figure 3.2  Small Boat Pontoon on Thursday Island
Figure 3.3  Existing Air and Boating Facilities

Source for Base Map: MapData Sciences Pty Ltd
In recent years, although freight volumes in the area have increased, a rationalisation of operators has resulted in just one major freight carrier (Seaswift). However, a second carrier (Endeavour) has recently commenced a weekly service from Cairns to Thursday Island. The effects of this second carrier on freight services to the Torres Strait are yet to be established at this stage.

Small boats play a vital part in everyday life for the residents of the OTSI communities, providing a flexible means to travel between communities and the main centre, to harvest marine resources and maintain cross border contacts. The dinghy is often referred to as the “car of the Torres Strait” and mooring facilities are the equivalent of car parking stations. Thursday Island in particular is the destination of significant volumes of dinghy traffic from both inner and outer islands as it is a regionally important employment generator and acts as the service centre, shopping centre and a social centre for the Torres Strait.

The existing small boat pontoon at Thursday Island is the only facility that caters for mooring of dinghies at either Thursday or Horn Island. The pontoon is heavily used and at most times it is overcrowded as there is insufficient space against the pontoon and boats are tied to each other two or three deep. Dinghies do moor at the Horn Island jetty but it is not designed for this as it is a commercial facility. It is apparent from investigations carried out during this study that dinghies are the preferred mode of transport for many Torres Strait residents and they will continue to be used into the foreseeable future.

The level of commercial and recreational vessel operations in the Torres Strait region is increasing due to the growing population, the growth in tourism, the number of cruise ships now visiting the region and the increasing number of recreational yachts sailing around Australia and the world. There are no mooring facilities at either Horn Island or Thursday Island that cater for the aforementioned types of maritime vessels or their tenders. The Torres Shire Council and TSRA raised the issue of having suitable mooring facilities for small dinghies through to large yachts as well as suitable drop off / pick up facilities for tenders from the cruise ships. The lack of these facilities makes dinghy travel to Thursday Island difficult and deters recreational yachts and cruise ships from spending time in the Torres Strait due to difficulties in landing on the island.

Dinghies are normally open and less than 6 metres in length, and require good weather and competent boating practices for safe use. Fuel costs are relatively high and given the distances involved, this form of travel is considered expensive for most residents, even though it may be cheaper than other means of travel.

Most other communities have a dedicated barge ramp and associated finger pier, but much of the OTSI marine infrastructure is now over ten years old, with the facilities having been constructed in the early 1990s. Although some maintenance has occurred, most of the community infrastructure now needs substantial repairs or replacement, especially with respect to piles and navigational aids.

Over the past few years, several commercial marine operators have ceased services, mainly due to a lack of demand for services, although lack of business management skills may also have been a factor in the demise of the smaller operators. This has lead to a decrease in competition, and a reduction in services to some centres.
Figure 3.4  Many marine facilities have suffered significant wear and tear

Figure 3.5  Small boat travel is a vital component of the Regions transport system
Weather extremes are a significant concern for most marine users, hampering safe access by barge operators to communities and threatening the safety of small boat and ferry operators. Tides and strong currents also affect safe navigation, and may restrict services at specific times of the day or month to some communities. Given the lack of alternative low cost transport for many community residents, these restrictions can potentially affect their quality of life.

The main impacts on marine freight transport are the weather, the inability to use larger vessels to offset rising commercial overheads, and the relatively high cost of shipping from southern ports. Port charges are over six times more expensive that those at the Port of Cairns, and consequently increase the cost of goods for all Torres Strait residents. Freight issues are discussed in more detail in Section 3.4.

Another major issue facing future marine transport and passenger travel seems to be the relatively high cost of maintaining a network of serviceable marine facilities on every community, especially where no commercial return can be expected. The channels to some islands require dredging, and many require repair or replacement of piles and navigational aids. An audit of facilities in late 2004 identified priority repair work, and discussion with barge companies has identified those communities most in need of dredging. In general, most islanders are unaware of the constraints and costs associated with maintaining essential freight services, and whereas other transport areas (such as air services) have received significant funds over the past decade, most marine facilities have had little attention, and now require substantial refurbishment, especially given the vital role they play in sustaining life in the region.

Existing ferry routes from Seisia and the island communities are identified in Figure 3.8. This figure also shows the council operated ferry services to Ugar and Dauan (which do not have a fixed wing air service).

The major traditional shipping routes are shown in Figure 3.9.
Sea Transport Safety

The marine investigation unit of the Australian Transport Safety Bureau (ATSB) was contacted for information pertaining to recent accidents and incidents with large trading vessels in the region. The data provided related to five incidents that occurred after July 1995 and before 2004:

a) A man overboard from the vessel Murshidabad in 1996;
b) A close quarters situation between the Maersk Taupo and a small dive runabout off Ackers Shoal Beacon in 1997;
c) The grounding of the vessel Thebes on Larpent Bank in 1997;
d) The grounding of the vessel Dakshineshwar on Larpent Bank in 1997; and

Figure 3.7 shows the location of marine accidents that have occurred in northern Queensland in 2004.

Figure 3.7  Location of Marine Accidents in Northern Queensland (2004)
Figure 3.8  Existing Ferry Services

Map 1 - Saibai (Kaumag) Island to Dauan Island  
Map 2 - Ugar (Stephen) Island to Erub (Darnley) Island  
Map 3 - Thursday Island

Source for Base Map: MapData Sciences Pty Ltd
Figure 3.9  Major shipping channels

Source for Base Map: MapData Sciences Pty Ltd
3.2 Air Infrastructure and Services

The airport at Horn Island is the regional hub and air gateway to southern centres. Operated by the Torres Shire Council, the airport can currently handle propeller driven commercial craft. TSC would like the airstrip lengthened, and QantasLink (the main commercial carrier) would like to see improved terminal facilities to cater for growing demand.

The airstrip at the Masig Community (Yorke Island) also serves as an airline hub with direct flights to and from Cairns. Additionally, it services the requirements of locally based commercial fishermen, and provides an alternative access to southern ports for nearby community residents.

Most communities will have access to a sealed all-weather airstrip by 2007 as a result of an accelerated program of sealing over the past few years. However, Ugar and Dauan do not currently have fixed wing services. Dauan is currently serviced by chartered helicopter flights and supported by a Council operated ferry service to a nearby community with an airstrip. Similar arrangements are being re-established at Ugar. Hammond is serviced, as are all the islands surrounding Port Kennedy, by ferry service connections to the gateway airport at Horn Island.

Councils are responsible for passenger facilities at community airstrips, and these vary from a dedicated air-conditioned lounge and shop at one island, to no passenger facilities on other islands. However, most airstrips have at least a waiting shelter. There is no correlation between community size and on ground facilities, with some of the busier airstrips having no passenger facilities.

All passenger handling is done by pilots on arrival. Although some freight is carried, it consists mostly of the personal effects of passengers, vital spares or perishables. Most flights are short-haul in nature, with the average flight distance being 118 kilometres and costing $200, equating to an average flight cost of around $2 per kilometre.

Figure 3.10 All existing airstrips will be sealed all-weather airstrips by 2007
Another issue is the increasing burden being placed on community councils to maintain and manage upgraded facilities. Whereas many councils could maintain an unsealed strip, sealed surfaces and the need to comply with recent changes to the air safety and security regimes will stretch the resources of even the largest community. An externally funded and coordinated program of training and maintenance is becoming a high priority.

The existing air service routes for each community in the Torres Strait are identified in Figure 3.12.

An important aspect of air infrastructure is 24 hour access to emergency transport. This is provided by the combination of airstrips, and helicopter landing pads and access roads at the various communities. However to be effective, the sealed road must link to the community centre and local clinic or medical centre.
Figure 3.12  Existing Air Services

Source for Base Map: MapData Sciences Pty Ltd
QantasLink is the only contracted airline operating from Cairns to Horn Island (Figure 3.14 depicts Horn Island Airport). QantasLink use turboprop Dash 8 200 series 36 seat and 300 series 50 seat aircraft. Two regional airlines (Aerotropics and Regional Pacific) operate Regulated Passenger Transport (RPT) services to the OTSI airstrips, whilst other air charter services are provided by light plane (three operators) or by helicopter (two operators). An RPT service is one that operates to a schedule and fares are based on the purchase of a ticket for a seat (eg the Queensland government regulated air service between Horn and Cairns, or the services operated by Aerotropics and Regional Pacific between Horn and the OTSI). The Civil Aviation Safety Authority (CASA) authorises airlines to operate to RPT safety standards, where airlines must have each destination they fly to registered on the Air Operators Certificate issued by CASA.

Figure 3.13  QantasLink and Aerotropics Aircraft

Air services are mainly for passengers with personal items, and some small freight. Aerotropics are the agents for Australia Post and TNT Couriers, while QantasLink carry for Australian Air Express. Other operators carry out freight charter work, which also includes the movement of seafood products. Weight limits on freight are subject to passenger and baggage payload capacities.

Most flights are short-based in nature, with the average flight distance being 118 kilometres and costing $200.

Results from the Air Travel User Survey, which was carried out as part of the development of the TSTIP, showed that 61% of all users had their trip funded commercially or by the government. However a number of the 25% of users that had their trip funded by a non-government employer would likely have the cost of their flight passed on to the government, as many of them are working on government sponsored projects.

Full results from the Air Travel User Survey are contained in Section 5.4.
Air Transport Safety

Accidents, fatal accidents and fatalities for all Australian registered civil aircraft in the Torres Strait between 1995 and May 2005 is shown in Table 3.2. The accident and fatality totals for each year are then summarised in Table 3.3.

Table 3.2  Accidents, Fatal Accidents and Fatalities in the Torres Strait (1995 to 2005)

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<td>Fatal Accidents</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Fatalities</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Source: ATSB 2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of the 23 air accidents that occurred between 1995 and May 2005, nineteen were charter plane, two were private/business flights, and one ‘other aerial work’. 

Source: ATSB 2005
Table 3.3  Total Air Accidents and Fatalities for Torres Strait between 1995 and 2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>7</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1996</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1997</td>
<td>2</td>
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</tr>
<tr>
<td>1998</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1999</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2000</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2001</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2002</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2003</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2004</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2005 *</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: ATSB, 2005

* Data is current to 31st May, 2005

Table 3.3 shows that the number of air transport accidents and fatalities has decreased considerably over the years. Between 1995 and 1999 there were 21 accidents, however in the past five and a half years there has only been a further 2 accidents. Similarly the number of fatalities has dropped from six, between 1995 and 1999, to one, from 1999 to May 2005.

It should be noted that while Table 3.3 lists the accidents that occurred in the Torres Strait, a number of accidents have taken place outside of the Torres Strait by planes flying to or from the region. Most notable was the crash on the 7th of May 2005 at Lockhart River, where 15 people were killed in Australia’s worst air disaster in 30 years. The plane was an undertaking the daily route from Bamaga to Cairns when it crashed on the approach into Lockhart River. This crash had a noticeable effect on the views of study area residents in regard to the safety of air travel to/from and around the Torres Strait region.

3.3 Road Infrastructure

NPA Roads
Currently, the road linking the NPA to the south becomes impassable during the wet. The four wheel drive track leading to Bamaga is being sealed only as far as the section of road north of the turnoff into Weipa, which is state controlled road. The rate of sealing is slow, indicating that the road to Bamaga will not be sealed by 2026, but rather 2050. Table 3.4 shows the anticipated progress for sealing the road from Cairns to Bamaga. While the section of road discussed in Table 3.4 falls outside the study area for this report, this road link to Cairns forms an important access-way between the Torres Strait and the rest of Australia, and hence needs to be considered.
Table 3.4  Road Link from Cairns to Bamaga – Progress of Sealing

<table>
<thead>
<tr>
<th>Link</th>
<th>Total Distance (km)</th>
<th>Condition at December 2005</th>
<th>Expected at 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sealed (km)</td>
<td>Unsealed (km)</td>
</tr>
<tr>
<td>Cairns to Lakeland</td>
<td>248.3</td>
<td>248.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Lakeland to Laura</td>
<td>61.8</td>
<td>18.7</td>
<td>43.1</td>
</tr>
<tr>
<td>Laura to Coen</td>
<td>246.6</td>
<td>23.6</td>
<td>223.0</td>
</tr>
<tr>
<td>Coen to Weipa</td>
<td>219.5</td>
<td>31.9</td>
<td>187.6</td>
</tr>
<tr>
<td>Weipa to Bamaga *</td>
<td>206.1</td>
<td>0.0</td>
<td>206.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>982.3</strong></td>
<td><strong>322.5</strong></td>
<td><strong>659.8</strong></td>
</tr>
</tbody>
</table>

* Responsibility of Cook Shire Council. All other sections are the responsibility of DMR

The proposed future strategy for the unsealed section between Cairns and Weipa is outlined below:

- **Lakeland to Laura**:
  - Complete seal within 10 years;
  - No bridging of the Laura River just south of Laura; and
  - Carols Crossing and Ruth Creek to be bridged.

- **Laura to Weipa**:
  - Increase seal length to a minimum of 117km by providing sealed overtaking opportunities at a minimum of 40km spacing, and ultimately to 25km spacing;
  - Provide improvements to small watercourses with either culverts or causeways;
  - No significant flood improvements, i.e. no bridges; and
  - No major realignments

**Inner Island Roads**

Horn Island and Thursday Island have mostly sealed roads as they have the most number of private vehicles. However, many of the roads on Horn Island are unsealed which creates dust and health issues. For health reasons they need to be sealed. Roads on Thursday and Horn Islands also require improvements for intersections and speed controls to make road travel safer.

**OTSI Roads**

The roads on Yorke, Yam, Coconut and Warraber are sand and can be trafficked in any weather. Unsealed roads on OTSI can become difficult to use at certain times, especially the road leading from Kubin to St Pauls. Roads between the port and airport on all islands (with the exception of Thursday, Dauan and Ugar Islands) play an important role in passenger travel between the planes and ferries. In general, roads have been sealed to permit all weather access, to reduce dust related health problems and to facilitate freight movements between the barge ramp and key areas of the community, namely the IBIS store.
3.4 Freight

Freight, almost all emanating from Cairns, sustains all community life in the Torres Strait. This is due to there being no other sources for food, fuels, consumables and to the limited availability of commercial construction materials in the area. Most of the freight is shipped directly to Port Kennedy from where supplies to the OTSI communities are transshipped.

Shipping to all OTSI communities is done via smaller barges able to manoeuvre in the relatively shallow channels that form the entrances to most communities. Siltation of channels is a major concern for shipping companies, and access to a few communities is limited to periods of high tide and good weather.

Freight costs are relatively high and increasing due to recent rises in fuel and labour costs. Operators are also concerned about the comparatively high charges incurred in using port facilities to unload and
tranship. Altogether, this was calculated to add almost $20 per tonne to freight costs, compared to around $3 per tonne in Cairns.

The Port of Thursday Island, like all of the PCQ ports, is managed financially by PCQ as an individual business unit. The costs of managing each port (operational, capital and maintenance costs) must be recovered by PCQ from the activities in that particular port. Port of Thursday Island throughout is very small (approximately 90,000 tonnes) compared to other ports (Cairns 1.16 million tonnes), and provides a low base to collect income from. The cost of infrastructure provision in the Torres Strait is also much higher than the comparable costs in mainland ports such as Cairns. Because of these two factors, the cost of providing port facilities in the Torres Strait will always be much higher than ports such as Cairns.

Some transhipment is done through Seisia, and Endeavour Shipping has indicated that they will be providing additional barge services to the OTSI communities in the near future.

Figure 3.17  Shallow channels limit the size of barges that can access OTSI communities

Figure 3.18  All communities vitally depend on shipping from Cairns over 1000km away
3.4.1 Seaswift

Seaswift, based in Cairns, operates a fleet of cargo and other vessels servicing the freight and, to a lesser extent, passenger needs of the Torres Strait and the Cape York Peninsula. The majority of sea freight services for Port of Thursday Island and the OTSI communities are provided by Seaswift.

Two main line haul vessels, the MV Trinity Bay (see Figure 3.19) and MV Newcastle Bay, depart Cairns once each week to deliver cargo to Horn Island, Thursday Island and Bamaga. Capacity is such that freight movements are normally able to be completed ex-Cairns within seven days to even the most remote community, and within four days to the Port Kennedy area.

Figure 3.19 Seaswift Main Line Haul Vessel – MV Trinity Bay

The OTSI cargo is transhipped at Horn Island to three landing barges, the Malu Titan, Malu Chief, and normally the Malu Warrior, to deliver general cargo to the fifteen OTSI communities each week.

The freight to the OTSI is usually delivered using two of these vessels, with a third used when volumes are above normal, and to also provide redundancy. One of the landing craft is 50m, while the other two are slightly smaller. Seaswift believe that the 50m size vessels enable the maximum use of deck areas to carry cargo in containers, and are also the maximum size vessel that can utilise the existing facilities.

Collectively, Seaswift have the capacity for an extra 50% cargo volume if all vessels were used and the time spent in port was reduced. In addition to the three landing craft, a large ‘dumb’ barge is also available for project work and general cargo, and is currently utilised for three months each year.

Seaswift focus on the handling and delivery of perishable items, fresh fruit and vegetables and milk in particular. They consider that careful ongoing management through the supply chain to the customer is essential in trying to keep the cost of such items as low as possible.

Currently, most general freight items are delivered to the ramp sites in containers. Cargo is then taken from the containers for delivery around the island, ensuring that the cargo has good protection from the elements prior to arrival at island ramps. Seaswift plan to upgrade of one of the barges to more appropriately handle container requirements. However they noted that support from QT with their ramp upgrade programme is essential in maintaining the scheduled services to these islands.

Existing Seaswift barge routes are shown in Figure 3.20.
3.4.2 Endeavour Shipping

Endeavour Shipping (Perrott Salvage & Construction) operates a once weekly freight service, the Pacific Discovery, to Bamaga and Weipa ex-Cairns. The freight is then transshipped to Horn Island from Bamaga. Approximately one third of each vessel’s cargo is for the NPA or Torres Strait.

Although Endeavour could not provide freight volume figures for their routes, they consider that freight quantities and rates within Torres Strait justify the entry of a second major carrier, and have subsequently commenced a weekly service from Cairns to Thursday Island.

3.5 Public Transport

There is limited formal public transport within the Torres Strait, although some communities provide transport services for older people and people with a disability. A subsidised commercial bus service operates on Thursday Island, run by the local Community Council Public Bus service.

Commercial public transport initiatives are constrained by a lack of general infrastructure, weather conditions and topography, and the low passenger base.

Proposals for ferry services in the outer islands have not been commercially viable. However three routes are currently in operation or under consideration. These are Dauan / Saibai and Ugar / Darnley, and a potential daily service between Badu / Kubin and Thursday Island.
Taxis are a significant form of transport on Thursday and Horn Islands, supported by a relatively low
number of private vehicles. Several communities also have had a taxi service, although the viability of
such services is unknown.

3.6 School Transport

There are primary schools on every community and high schools at Thursday Island and Bamaga.
School transport is operated by local transport operators with financial support from QT under the
School Transport Assistance Scheme. The services normally carry eligible students to their nearest
school (either by bus or ferry), and is usually a kilometre-based services. Operators providing school
transport services in the Torres Strait include:

- Kilometre-Based School Bus Service Operators:
  - Sea Cat Charters Pty Ltd, (Peddell's) school bus service from Engineers Wharf to Thursday
    Island schools;
  - New Mapoon Community Council school bus service from Sesia and New Mapoon to
    Bamaga schools; and
  - Injinoo Aboriginal Council school bus service from Injinoo and Umagico to Bamaga schools.

- Student Ferry Service Operators:
  - Mallee Organum Pty Ltd, (Tom Lee) school ferry services from Horn Island and Prince of
    Wales Island to Engineers Wharf and Thursday Island; and
  - Hammond Island Council school ferry service from Hammond Island to Engineers Wharf and
    Thursday Island.

In the financial year 2004/05, the Hammond Island Council received approximately $85,000 in
revenue from the state government for the school ferry service.

In addition to school bus and ferry services, QT has provided funds to Peddells for ferry concessions
on this service operated between Thursday Island and Sesia albeit without a contract.

The school ferries also carry adult passengers. There is no organised school transport outside the
Port Kennedy area.

3.7 Walking and Cycling

Walking is the most common form of travel in all communities, sharing the very serviceable and
historically safe roadways with a small number of 4WDs, motorcycles and cars. Bicycles are commonly
used by children, and also by people journeying to work. In 1996 more than 50 trips per day were by
bicycle on Thursday Island (a similar number was reported in the 2001 census).

With the exception of Badu, Moa, Horn and Thursday Islands, housing areas on other islands are
constrained by available land area, and travel by motor vehicle only occurs for reasons of status, or to
service people with special needs.

3.8 Transport for the Sick and People with Disabilities

Travel options for people with disabilities have not been well catered for in the past and investigations
should be undertaken to determine what need there is for special facilities. The general lack of public
transport however limits the options for improved transport for people with disabilities, competing, as it
has to, with funds for even basic facilities.
There are no special facilities at jetties for wheelchairs at any of the islands within the Torres Strait. The Department of Health has responded to an identified need for better transport facilities on OTSI communities for sick and injured persons, focussing particularly on the lack of suitable transport to and from the community airport. Private individuals and community councils assist where transport is essential, such as for emergency evacuations, but do not have the resources to fund full time vehicles for health care.

Special purpose all-wheel-drive vehicles have been supplied to community health centres in the past, but without clearly defined lines of responsibility, adequate maintenance and support for operating costs, most of these vehicles have not survived. Queensland Health does not currently have the capacity to provide new ground transport vehicles to the OTSI islands, but is supporting the investigation of other options. Helicopter transport has proven to be the most effective emergency transport, being responsive and flexible, with Queensland Health paying for emergency and other health related transport regardless of the circumstances. The Queensland Government also pays for the Torres Strait Rescue service, which provides emergency medical evacuations, and also helicopters, which are the preferred means for non-residents to gain access to emergency services at the Thursday Island hospital.
4.0 Analysis of Issues and Transport Demand

Issues identified in previous tasks and transport demand are analysed in the following sections. The issues have been grouped into the three modes of transport in Torres Strait, being sea, air and road. The transport demand has been qualitatively and quantitatively described by passenger and freight movement.

4.1 Population and Employment Trends and Pressures of Relevance to the Study Area

Population and demographic data for the Torres Strait is not considered to be reliable due to the movement of people between the various communities. However, the 2005 population was estimated at 8,500, growing to an estimated 13,000 in 2026.

Population growth rates for the OTSI communities and the surrounding region are estimated at 2.3%.

The average age of the Torres Strait population is much lower than that for the rest of Queensland. However, there is a trend towards a flattening of the age profile, with the median age rising from 23 in 1995, to 25 in 2001. There has been a slight increase in birth rates and the proportion of older people.

Immigration in the region is relatively minor, with some cross-border movements for services (eg. health) and some indication of locals coming back to the islands for lifestyle reasons.

Household sizes in OTSI communities average 5.2 persons per household, while the average Australian household contains 2.6 people. Median weekly incomes are also lower than that for the rest of Australia, $200-$299 compared to $500-$599.

Employment in the major centre is predominately in government areas (health, education and social services). A much smaller number of workers are employed in small businesses. More than 50% of workers travel to their workplaces on foot, with cars the next used mode at approximately 30%.

4.2 Future Development Affecting Transport Demand

Upgrading of Horn Island Airport

Horn Island airport is the major passenger gateway for Torres Strait residents travelling to/from Cairns. The main runway 08/26 is restricted by an obstacle height limitation located to the east of the runway. The obstacle is a hill that cannot be practically removed and the Kaurareg have native title to this land. This restricts outbound capacity for approximately nine months of the year, due to the prevailing winds. During this time, QantasLink’s Dash8 - 300 cannot take off fully laden. There are several options to mitigate this problem, namely;

- lengthen
- lengthen and strengthen, or;
- use aircraft that can take off fully laden without restrictions.

All options depend on the aircraft that the operator uses and an analysis of possible aircraft is provided below.

- Bombardier Dash 8 Q300 series (50 seat) – The Dash 8 Q300 series aircraft currently used by QantasLink on this route has a maximum take off weight (MTOW) of 19,500 kgs, comprising a full 50 seat pax load, baggage, freight and fuel supplies. To operate out of Horn Island at this maximum weight, either the hill would need to be removed and the runway extended at least 300
metres or the runway would need to be extended at least 800m. Further analysis is required to confirm the actual extension length. The current proposal for a 400m extension will not allow for the MTOW of the Dash 8 Q300. TSC already hold the land necessary for an 800m extension.

- Bombardier Dash 8 Q400 series (72 seat) – The Dash 8 400 series aircraft can only land under CASA concession, as the Horn Island Airport pavement strength is not adequate to allow the Q400 to land normally. It would require a shorter runway extension than the Dash 8 Q300 as it has much more powerful engines and so can get clear of obstacles (including the hill in event of single engine failure on take-off) much quicker than the Q300. However, pavement strengthening will be required for the runway, taxiway and apron before it can fly here regularly and without CASA concession. The current contract for air services between Horn Island and Cairns requires only a 30 seat aircraft to be operated twice a day. For the 400 series aircraft to operate into Horn Island, it would require either a change to the contract minimum service levels or the airline would need to voluntarily decide to operate their most profitable aircraft here rather than on other routes offering better patronage and revenue.

- Bombardier Dash 8 200 series (36 seat) – To increase seat capacity out of Horn Island, there is an option that does not require infrastructure improvements. This would involve scheduling of more Dash 8 200 series 36 seat aircraft onto the route. These aircraft can currently operate out of Horn Island without load restrictions or infrastructure improvements. Three Dash 8 200 series services per day would see 34 more seats available daily (=36*6-2*(50+41)), compared to the current twice daily Q300 load restricted services.

Further work is needed to assess pavement strengthening required and the cost involved for various current aircraft types, so that the options can be fully assessed and compared.

Jet aircraft operation into Horn Island is not considered to be a viable option due to their much higher operating costs and demand not having reached the level where this would be economic. Furthermore, the higher capacity of jets would result in reduced frequency. The smallest practical jet that was previously considered for service to Horn Island was the BAE 146 with a passenger capacity of 86 people. This was reasonable at the time of the planning and would have required a 400m extension of the Horn Island runway, however under current noise regulations this aircraft will be phased out of operations in Australia by 2008.

Sealed All-Weather Airstrips
Sealed, all-weather airstrips will be available to most communities by 2007 (exceptions to this are Hammond, Dauan and Ugar Islands, which have no fixed wing air access). Currently a significant percentage of passengers choose not to fly in bad weather if landings are to be on unsealed strips. Historically some previously unsealed airstrips (Boigu, Saibai) closed for periods of up to several months during the wet season. The completion of the sealing program in 2007 will give community members confidence in the safety of air services to the OTSI. With this confidence it is anticipated there will be an increase in usage of this mode option with the potential to decrease airfare costs due to flights being closer to capacity (fewer empty seats).

Urbanisation of Horn Island
A shortage of land available on Thursday Island has resulted in pressure on adjacent islands to act as dormitory settlements for Thursday Island. Many residents of Horn, Hammond and Prince of Wales Islands travel to Thursday Island on a daily basis for employment purposes and to undertake shopping and social visits. Currently, restrictions on travel between islands caused by timetables (limited after hours access), ferry cost and lack of inter-island vehicular access, limit the number of people using islands adjacent to Thursday Island for this purpose. However, the introduction of more flexible or cost effective options has the potential for significant usage in the future. Recent improvements to

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1 Two return Dash 8 Q300 services per day with 41 seats out and 50 seats in, equals a capacity of 182 seats per day. Three return Dash 8 200 services per day, with 36 seats on each flight, equals a capacity of 216 seats per day. Therefore there is a difference of 34 seats per day.
dinghy mooring facilities at Thursday Island have also been heavily utilised, demonstrating a demand for improvements to facilities servicing day visitors from adjacent communities.

The Torres Shire Council planning scheme identifies Horn Island as a major growth area. The intention being that it will cater for the spill-over growth from Thursday Island. However, at present there is generally a strong preference by residents to live on Thursday Island rather than Horn Island. This is simply due to the greater population on Thursday Island and the better facilities, both recreational and professional. At present there are very few facilities on Horn Island and there is no after hours public transport between Horn and Thursday Islands. Due to the remote nature of the Torres Strait, socialising with friends is the most common recreational activity, which is severely restricted for people living on Horn Island. As the population of Horn Island grows, it is believed that there will be increased pressure for better public transport services to Thursday Island to better integrate the two communities.

Development of Industry on OTSI

A focus of the community councils in the Torres Strait is to increase employment opportunities for island residents. A wide range of industries are currently under consideration including: growing sea sponges, prawn farms, juvenile crayfish farm, etc. However, the focus of these industries is the employment of the residents of the individual island, and again due to the land constraints, it is considered unlikely that there is sufficient land on most islands to develop large scale industries requiring labour from adjoining islands. While this is possible, it is considered unlikely.

The exceptions to this are Moa and Badu where it would be possible to have large scale industries that could potentially generate employment in excess of the capacity of the respective island. However, it is considered unlikely that this will occur within the twenty year timeframe being considered under this plan. It is envisaged that development will generally occur on islands in order to generate employment for that particular island’s residents, and that it will not lead to significant changes to people’s travel behaviour.

Any development will place additional demand on the freight services, however, this is seen as a positive result since the current freight volumes are relatively small and increased volumes may promote economics of scale or competition within the freight sector.

It is stressed that the economic viability of developments within the Torres Strait is heavily influenced by barge freight costs. This is because all materials, equipment, consumables, etc, are transported by barge from Cairns, and any goods produced will most likely be transported back to Cairns (eg. sea sponges, juvenile crayfish).

Improved Living Standards

The standard of living has improved greatly in the Torres Strait over the past ten years, with the development of critical infrastructure such as water supplies, sewerage schemes, medical centres, housing, etc, and it is envisaged that improvements will continue over the next twenty years. Improvements to the standard of living have led to increases in the freight volumes into the Torres Strait, as residents become greater purchasers of standard household goods such as furniture, televisions, whitegoods, etc. Furthermore, the sealing of roads on the outer islands has led to a jump in car ownership levels, which again leads to an increase in sea freight volumes.

It is envisaged that living standards will continue to improve in the Torres Strait region and that this will continue to flow on to increased freight volumes entering the region.

Strategic Geographic Location of Torres Strait

The geographic location of the Torres Strait is of strategic importance in relation to Australia’s border security. Activities such as illegal immigration, illegal fishing, smuggling, etc, are a risk in the Torres Strait due to the proximity of Papua New Guinea and Indonesia. Furthermore, the Torres Strait serves
as an early detection zone for the transmission of exotic pests and diseases into mainland Australia. The Torres Strait is also of importance to Australia's defence as it controls the main east-west shipping channel.

Recent developments, including the “over the horizon” radar installation and a detention facility for illegal immigrants, are soon to be constructed on Horn Island. It is believed that additional development in the Torres Strait to address quarantine, defence and illegal cross-border activities will take place by the Federal Government into the foreseeable future.

4.3 Transport System Situation in 2005

4.3.1 Passenger

The movement of people in the Torres Strait is currently undertaken either by sea, air or road and depending on the origin and destination, the trip is made using one or a combination of modes. Figure 4.1, Figure 4.2, Figure 4.3 and Figure 4.4 depict modes and infrastructure for on-island travel. Inter-island trips are made using small boats or passenger ferries, and external trips (e.g. from Thursday Island to Cairns) are made using a combination of modes including:

- Passenger ferry or small boat from Thursday Island ferry terminal to Horn Island ferry terminal;
- Bus, taxi or car travel from Horn Island ferry to the Horn Island Airport; and
- The final leg by plane from Horn Island to Cairns.

![Thursday Island Bus Shelter](image1)

![Students departing the Ferry at Thursday Island](image2)

![Thursday Island School Bus](image3)

![Thursday Island Taxi](image4)
The demands for inter-island trips include:
- Education (Figure 4.5 depicts a school ferry) and health purposes;
- Kinship activities (feasts, burials, weddings);
- Recreational and administrative reasons; and
- Work.

Figure 4.5 School Ferry on Thursday Island

<table>
<thead>
<tr>
<th>Transport Mode</th>
<th>Number of People</th>
<th>Percentage of People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td>61</td>
<td>1.7%</td>
</tr>
<tr>
<td>Ferry</td>
<td>37</td>
<td>1.0%</td>
</tr>
<tr>
<td>Taxi</td>
<td>27</td>
<td>0.7%</td>
</tr>
<tr>
<td>Car, as driver</td>
<td>645</td>
<td>17.9%</td>
</tr>
<tr>
<td>Car, as passenger</td>
<td>284</td>
<td>7.9%</td>
</tr>
<tr>
<td>Truck</td>
<td>52</td>
<td>1.4%</td>
</tr>
<tr>
<td>Motorbike/Scooter</td>
<td>49</td>
<td>1.4%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>57</td>
<td>1.6%</td>
</tr>
<tr>
<td>Walked</td>
<td>1,792</td>
<td>49.6%</td>
</tr>
<tr>
<td>Other Mode</td>
<td>209</td>
<td>5.8%</td>
</tr>
<tr>
<td>Worked at Home</td>
<td>110</td>
<td>3.0%</td>
</tr>
<tr>
<td>Did Not Go To Work</td>
<td>190</td>
<td>5.3%</td>
</tr>
<tr>
<td>Not Stated</td>
<td>98</td>
<td>2.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,611</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: 2001 ABS Census of Population and Housing

The demands for external trips (i.e. the rest of Australia) include the following travel related (trip) purposes:
- Work;
- Health; and
• Recreational and administrative.

The number of passengers using QantasLink between both Cairns and Horn Island is shown in Table 4.2. It covers the period from 2000 to 2004, showing the percentage increase in passengers on the previous year.

Table 4.2  QantasLink Passengers between Cairns and Torres Strait

<table>
<thead>
<tr>
<th>Year</th>
<th>Passengers</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>41,691</td>
<td>-</td>
</tr>
<tr>
<td>2001</td>
<td>42,942</td>
<td>3.0</td>
</tr>
<tr>
<td>2002</td>
<td>43,588</td>
<td>1.5</td>
</tr>
<tr>
<td>2003</td>
<td>44,665</td>
<td>2.5</td>
</tr>
<tr>
<td>2004</td>
<td>46,819</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Source: Torres Shire Council, 2005

Table 4.3 contains a monthly breakdown of passenger numbers on the regulated QantasLink air service between Cairns and Horn Island for the financial years 2002/03 to 2004/05.

Table 4.3  Horn Island Airport Monthly Passenger Numbers by Financial Year

<table>
<thead>
<tr>
<th>Month</th>
<th>2002/03</th>
<th>2003/04</th>
<th>2004/05</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>4,263</td>
<td>4,490</td>
<td>4,558</td>
</tr>
<tr>
<td>August</td>
<td>3,649</td>
<td>3,851</td>
<td>3,756</td>
</tr>
<tr>
<td>September</td>
<td>4,845</td>
<td>4,217</td>
<td>4,504</td>
</tr>
<tr>
<td>October</td>
<td>4,374</td>
<td>4,486</td>
<td>4,335</td>
</tr>
<tr>
<td>November</td>
<td>3,388</td>
<td>3,622</td>
<td>4,277</td>
</tr>
<tr>
<td>December</td>
<td>3,781</td>
<td>4,035</td>
<td>3,992</td>
</tr>
<tr>
<td>January</td>
<td>3,184</td>
<td>3,613</td>
<td>3,537</td>
</tr>
<tr>
<td>February</td>
<td>2,654</td>
<td>2,863</td>
<td>2,949</td>
</tr>
<tr>
<td>March</td>
<td>2,878</td>
<td>3,191</td>
<td>3,604</td>
</tr>
<tr>
<td>April</td>
<td>3,805</td>
<td>4,086</td>
<td>3,855</td>
</tr>
<tr>
<td>May</td>
<td>3,503</td>
<td>3,660</td>
<td>3,609</td>
</tr>
<tr>
<td>June</td>
<td>4,036</td>
<td>4,135</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>44,360</td>
<td>46,249</td>
<td>42,976</td>
</tr>
</tbody>
</table>

Source: Aviation and Regional Transport Management Unit, QT

Table 4.4 contains the aircraft movements for most of the airline operators in the Torres Strait, between the 1st of June, 2004 and the 31st of March, 2005.
### Table 4.4  Aircraft Movements between 1 June 2004 and 31 March 2005

<table>
<thead>
<tr>
<th>Company</th>
<th>Total Movements</th>
<th>Average per Week</th>
<th>Annual Total Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerotropics</td>
<td>2,775</td>
<td>71</td>
<td>3,692</td>
</tr>
<tr>
<td>Australian Helicopters</td>
<td>592</td>
<td>15</td>
<td>780</td>
</tr>
<tr>
<td>Barrier Aviation</td>
<td>594</td>
<td>15</td>
<td>780</td>
</tr>
<tr>
<td>Barrier Leasing</td>
<td>496</td>
<td>13</td>
<td>676</td>
</tr>
<tr>
<td>Cape Air Transport</td>
<td>685</td>
<td>18</td>
<td>936</td>
</tr>
<tr>
<td>Cape York Helicopters</td>
<td>398</td>
<td>10</td>
<td>520</td>
</tr>
<tr>
<td>National Jet Systems</td>
<td>87</td>
<td>2</td>
<td>104</td>
</tr>
<tr>
<td>QantasLink *</td>
<td>548</td>
<td>14</td>
<td>730</td>
</tr>
<tr>
<td>Regional Pacific Airlines</td>
<td>967</td>
<td>25</td>
<td>1,300</td>
</tr>
<tr>
<td>RFDS</td>
<td>87</td>
<td>2</td>
<td>104</td>
</tr>
<tr>
<td>Skytrans Airlines</td>
<td>1,156</td>
<td>30</td>
<td>1,560</td>
</tr>
<tr>
<td>Surveillance Australia</td>
<td>603</td>
<td>15</td>
<td>780</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,988</strong></td>
<td><strong>230</strong></td>
<td><strong>11,962</strong></td>
</tr>
</tbody>
</table>

Source: Torres Shire Council, 2005

a) One aircraft movement includes landing and takeoff.
b) Information provided by AVDATA for Companies based at and operating out of Horn Island Airport.
c) Other frequent operators include the Military, State and Federal Government aircrafts, and Queensland Police Air wing.
d) Data for other small charter/itinerant aircraft operators have not been sourced but would equate to approximately 5-10% of the total figures supplied.

As previously stated, over 61% of air travel is either directly or indirectly funded commercially or by the State/Federal Government. For example, much of the travel is undertaken by people working for the following groups:

- Queensland Health;
- Police;
- Telstra;
- Australian Quarantine and Inspection Service;
- Torres Strait Regional Authority; and
- Island Co-ordinating Council.

Additionally, travel expenses are paid for:

- Children travelling to school;
- Patients travelling to receive medical treatment; and
- People travelling under government funded projects.

QT’s policy on airfare regulation and subsidisation is based around a ‘price per kilometre test’ to determine if fares are affordable. The policy deals only with ‘transport disadvantage,’ and if a town is classified by QT to be disadvantaged, town people will then be able to receive a regulated and/or subsidised service at a level prescribed by QT (i.e., size of the plane, frequency of service, fares, etc.).

An internal project into the affordability of airfares in regional Queensland was undertaken in 2003, and some of the results are summarised in **Table 4.5.**
Table 4.5  Airfare Costs per Kilometre for Selected Routes

<table>
<thead>
<tr>
<th>Service</th>
<th>Distance (km)</th>
<th>Airfare</th>
<th>Airfare cost per kilometre ($ / km)</th>
<th>Airline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cairns – Bamaga</td>
<td>749</td>
<td>$357</td>
<td>$0.48</td>
<td>Aerotropics</td>
</tr>
<tr>
<td>Cairns – Boigu Island</td>
<td>927</td>
<td>$655</td>
<td>$0.71</td>
<td>Aerotropics</td>
</tr>
<tr>
<td>Cairns – Yorke Island</td>
<td>833</td>
<td>$655</td>
<td>$0.78</td>
<td>Aerotropics</td>
</tr>
<tr>
<td>Cairns – Yorke Island</td>
<td>833</td>
<td>$387</td>
<td>$0.46</td>
<td>Skytrans</td>
</tr>
<tr>
<td>Cairns – Murry Island</td>
<td>796</td>
<td>$706</td>
<td>$0.89</td>
<td>Aerotropics</td>
</tr>
<tr>
<td>Cairns – Weipa</td>
<td>623</td>
<td>$250</td>
<td>$0.40</td>
<td>QantasLink</td>
</tr>
<tr>
<td>Cairns – Horn Island</td>
<td>793</td>
<td>$385</td>
<td>$0.48</td>
<td>QantasLink</td>
</tr>
<tr>
<td>Cairns – destination &lt;400 km</td>
<td>249 *</td>
<td>$152 *</td>
<td>$0.65</td>
<td>-</td>
</tr>
<tr>
<td>Cairns – destination 400 km to 600 km</td>
<td>490 *</td>
<td>$306 *</td>
<td>$0.62</td>
<td>-</td>
</tr>
<tr>
<td>Cairns – destination &gt;600 km</td>
<td>771 *</td>
<td>$471 *</td>
<td>$0.60</td>
<td>-</td>
</tr>
<tr>
<td>Torres Strait – Outer Islands</td>
<td>118 *</td>
<td>$238 *</td>
<td>$2.02</td>
<td>-</td>
</tr>
<tr>
<td>Mt Isa – Gulf</td>
<td>359</td>
<td>$251</td>
<td>$0.70</td>
<td>-</td>
</tr>
<tr>
<td>Cairns – Cape York</td>
<td>444</td>
<td>$275</td>
<td>$0.62</td>
<td>-</td>
</tr>
<tr>
<td>Cairns – Torres Strait Outer Islands</td>
<td>824</td>
<td>$536</td>
<td>$0.65</td>
<td>-</td>
</tr>
<tr>
<td>Melbourne – King Island</td>
<td>254</td>
<td>$224</td>
<td>$0.88</td>
<td>-</td>
</tr>
<tr>
<td>South Australia **</td>
<td>355</td>
<td>$256</td>
<td>$0.72</td>
<td>-</td>
</tr>
<tr>
<td>Northern Territory **</td>
<td>557</td>
<td>$345</td>
<td>$0.62</td>
<td>-</td>
</tr>
<tr>
<td>New South Wales **</td>
<td>785</td>
<td>$510</td>
<td>$0.65</td>
<td>-</td>
</tr>
<tr>
<td>Western Queensland **</td>
<td>983</td>
<td>$442</td>
<td>$0.45</td>
<td>-</td>
</tr>
<tr>
<td>Western Australia **</td>
<td>1,027</td>
<td>$483</td>
<td>$0.47</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aviation and Regional Transport Management Unit, QT

a) Airfare is based on a Y-class (economy) fare as at 2003
b) Average
c) ** Only ‘very remote’ and ‘remote’ services included, based on QT’s Remoteness Index

Table 4.5 shows the distance, airfare and airfare per kilometre for many of the services offered in and out of the Torres Strait, as well as other regional services from all around Australia.

The report found that Queensland regulated services had lower fares than other comparable services offered, and that these fares were maintained at a low level through either regulating the route, or both regulating and subsidising. It was shown that the patronage levels on the services to Horn Island were sufficient to maintain low fares as prescribed by QT, and did not require a subsidy, unlike other services in the area such as to Weipa.

Table 4.6 shows the break-down of ticket types sold on the regulated Cairns to Horn Island air service for the financial years 2002/03 to 2004/05.
Table 4.6  Tickets Sold by Type of Fare

<table>
<thead>
<tr>
<th>Ticket Type</th>
<th>2002/03</th>
<th>2003/04</th>
<th>2004/05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted Economy</td>
<td>12,261</td>
<td>17,023</td>
<td>14,212</td>
</tr>
<tr>
<td>Frequent Flyers</td>
<td>738</td>
<td>1,510</td>
<td>1,417</td>
</tr>
<tr>
<td>Discount Fares</td>
<td>21,669</td>
<td>21,419</td>
<td>24,404</td>
</tr>
<tr>
<td>Childs Fare</td>
<td>1,964</td>
<td>608</td>
<td>58</td>
</tr>
<tr>
<td>Other</td>
<td>7,728</td>
<td>5,689</td>
<td>2,885</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>44,360</strong></td>
<td><strong>46,249</strong></td>
<td><strong>42,976</strong></td>
</tr>
</tbody>
</table>

Source: Aviation and Regional Transport Management Unit, QT

Note 2004/05 figures are not for a complete year

As the population grows, the demand for passenger travel will increase steadily. The future passenger travel demand by air will likely be influenced by proposals for faster passenger / vehicular ferries, expanded Horn Island airport, and "roll-on roll-off" ferry services. All of these proposals could influence an increase in passenger travel in the longer term.

4.3.2 Freight

One of the major transport needs for the people of Torres Strait is the movement of goods flowing through Port Kennedy and, to a lesser extent, the facility at Seisia. Freight items include food, fuels, consumables and construction materials.

The demand for freight trips include the following travel related (trip) purposes:

- State and Federal Government programs for housing, hospitals, sewage, airstrips etc – i.e. material is required for the construction and maintenance operations; and
- Delivery of food, fuel and other consumables for the residents and small business on the islands.

Figure 4.6 shows the historical port throughput for Port Kennedy between 1992 and 2004. Throughput over this period has been a little unsteady, but on average, has grown at approximately 7% per year.

Figure 4.6  Historical Throughput for Port Kennedy 1992-2004

Source: PCQ, 2005
It should be noted that over 50% of the cargo shipped to Port Kennedy in 2001/02 was transhipped to the outer islands.²

The peaks shown during the 1999/00 and 2000/01 years are understood to be due to large infrastructure development projects in the Torres Strait.

4.4 Transport System Demand Projected to 2026

With a population of approximately 8,500 in 2005 and moderately increasing at 2.3% per year to approximately 13,000 in 2026, there will be some transport demand issues that need to be addressed. The level of infrastructure and services available for the air and sea transport in 2005 will require some improvements to adequately meet the transport system demand in 2026. The transport demand is discussed in terms of passenger and freight transport below.

The most critical transport system demand issue in 2026 will be “how best to meet the needs of the islanders for travel”. There are a few proposals being discussed that would bring about improvements in terms of cost and travel time for both passenger and freight movements. Below is an estimate of passenger and freight travel in the Torres Strait in 2026.

4.4.1 Passenger

Passenger movements in the Torres Strait will continue to grow steadily due to reasons such as:

- Natural population increase in the Torres Strait;
- Increase in movement of people to and from PNG for services in line with the Torres Strait Treaty with PNG;
- Increase in numbers of students;
- Increase in number of government agencies / workers based on the islands;
- Increase in health related travel to attend hospitals;
- Likely increase in development on some islands (e.g. Thursday, Horn and Badu) leading to employment and work related travel;
- Possibility of private sector proposal for high speed ferry services for combined passenger and freight movements;
- Possibility of Horn Island Airport upgrade and roll-on roll-off ferry services between Horn and Thursday Islands; and
- Improvements in marine and air transport infrastructure.

In 2026, the best scenario would be to have an affordable, safe and efficient passenger transport service that caters for the needs of the islanders. It is apparent from discussions with the island based administrative bodies that travel by the small boat (“dinghies” or “tinnies”) would be the principal form of travel, for shorter trips between islands, into the future. While this may be the case, weather conditions and time taken to travel by this mode would always remain a constraint.

It would appear that air travel (by plane) is the safest and fastest mode of travel available, and the majority of current air travellers will continue to travel by air in 2026. Most of the patronage will still be government funded travellers and will be unlikely to change their travel method to the slow and rough boat ride (be it ferry or small boat).

The high seas and strong winds that prevail for much of the year in the Torres Strait would impact any potential safe and fast ferry service from providing a reliable and efficient passenger service.

4.4.2 Freight

Freight movements in the Torres Strait will continue to grow moderately as the disposable income of the population grows and the population increases. The programs undertaken by the State and Federal Governments (e.g. housing, hospitals, sewage and airstrips) have impacted on the freight movements into the Torres Strait. Indications are that there is support from the governments for continuation of the programs for a number of years to come and therefore infrastructure development is set to continue.

The future demand for freight to the Torres Strait is difficult to forecast, given the past volatility observed (see Figure 4.6). Table 4.7 shows potential future freight demand for the region, given various assumed growth rates. Based on discussion with some key freight related stakeholders (Seaswift, PCQ and DMR) it is envisaged a growth rate of 4.0% is a likely upper limit that could be handled with existing facilities and vessel types. Should actual growths be higher than 4.0%, then intervention may be necessary by facilitating upgrade or changing vessel type. Therefore existing facility capacity should be adequate to at least 2020.

The intervention planning threshold is indicated by the bold line in Table 4.7. Intervention would be required when freight demand exceeds this threshold.

<table>
<thead>
<tr>
<th>Growth</th>
<th>2005/06</th>
<th>2010/11</th>
<th>2015/16</th>
<th>2020/21</th>
<th>2025/26</th>
</tr>
</thead>
<tbody>
<tr>
<td>2%</td>
<td>95,916</td>
<td>105,898</td>
<td>116,920</td>
<td>129,090</td>
<td>142,525</td>
</tr>
<tr>
<td>4%</td>
<td>99,714</td>
<td>121,317</td>
<td>147,601</td>
<td>179,579</td>
<td>218,485</td>
</tr>
<tr>
<td>6%</td>
<td>103,586</td>
<td>138,621</td>
<td>185,506</td>
<td>248,249</td>
<td>332,214</td>
</tr>
<tr>
<td>8%</td>
<td>107,532</td>
<td>157,999</td>
<td>232,153</td>
<td>341,108</td>
<td>501,200</td>
</tr>
<tr>
<td>10%</td>
<td>111,551</td>
<td>179,654</td>
<td>289,335</td>
<td>465,977</td>
<td>750,460</td>
</tr>
</tbody>
</table>

While freight growth over the past ten years has been averaging approximately 7% per annum, consultation with the Ports Corporation of Queensland (PCQ) provided a growth rate of only 2%. PCQ believe that the bulk of the increase in trade has been due to the infrastructure programs funded by governments over the past decade. They also note that if these programs are to continue to be funded, trade could continue to increase at levels well above their 2% estimate.

Figure 4.6 highlights several jumps in trade throughput, such as in 1999/00 and 2000/01. The trade throughput over the years appears to strongly relate to the building and infrastructure funding provided by the State and Federal Governments. The peaks shown during 1999/00 and 2000/01 are understood to be due to funds provided for waste treatment, barge ramps, some road infrastructure, health initiatives and other social expenditure in the Torres Strait.

Information on planned infrastructure for the next three years was provided by the TSRA. Table 4.8 shows the projects that are contained in Stage 3 of the MIP. Over the next twelve months, the TSRA will be planning for beyond this period, but it is likely that maintenance and operations will be the main focus.
The demand for significant freight growth is not evident in Torres Strait and it appears that the future development and population increases could be catered reasonably well with the type of freight services currently available.

The exact capacity of Port Kennedy is difficult to determine as it is not a bulk port facility. Currently Seawifft uses the facilities on Thursday Island and Horn Island only twice a week for their vessel bringing cargo up from Cairns. The facilities are used during other times for transhipment purposes. Although PCQ believe there is plenty of capacity on the wharves, one issue is the storage of cargo on Thursday and Horn Islands. PCQ has very limited land at Thursday Island, however land for the storage of additional cargo is available on Horn Island. No investigation into proposals for a new hub have been undertaken, however PCQ advised that if the port was to handle 750,000 tonnes, additional wharves and storage would be required. Again, land for storage is considered to be the major limiting factor. As shown in Table 4.7, 750,000 tonnes would only be achieved under the highest reported growth rate of 10%, sustained for the next twenty years to 2025/26.

If there were any limitations on the wharves, additional facilities could be constructed, such as a second causeway with a hardstand and ramp on Horn Island.

PCQ do not believe capacity will be an issue at the facilities in Port Kennedy for a number of years. However, additional facilities could be constructed, provided sufficient land is available.

Collectively, Seawifft have the capacity for an extra 50% cargo volume if all vessels were used and the time spent in port was reduced. In addition to the three landing craft, a large ‘dumb’ barge is also available for project work and general cargo, and is currently only utilised for three months each year.

Improvements to the cost of travel (i.e. reduction in freight charges) and an improved frequency of freight movement to the islands would bring about efficiencies in the livelihood of the island communities.

Seawifft foresee future freight rates to increase only in-line with normal trends. However, perishable items may be subject to abnormal increases if requirements to deliver to stores in refrigerated containers were to eventuate.
Currently, the perceived high costs and level of service provided by the existing carrier are of concern to the residents. However, it should be recognised that the services and infrastructure provided in the Port of Thursday Island do not receive government funding. All infrastructure developed and maintained within the port is funded through revenue collected by the port.

4.5 Transport System Issues and Constraints

There are transport system constraints today that will probably still exist in 2026. These constraints are to be considered as “given” with any futures relating to transport in the Torres Strait in 2026.Outlined below are the key transport system constraints that have some influence on the type of transport system best suited to Torres Strait in 2026. The transport plan needs to take into consideration the constraints discussed below.

4.5.1 Topographic and Weather

The locality of Torres Strait presents a number of topographic issues such as:

- Shallow passage;
- High velocity tidal streams;
- High turbidity and significant levels of heavier suspended material;
- Large coral reefs on the seabed; and
- Coastal wet tropic area with seasonal high rainfalls and high winds.

Figure 4.7 illustrates king tides in January 2006 swamping the concrete causeway and affecting passengers accessing the ferry from the waterlogged jetty. PCQ is raising the causeway to ensure that flooding will be less frequent and reduce the amount of wash coming on to the causeway.

The above topographical and weather constraints affect the freedom of using the currently available sea and air travel modes all year around. Thus for all weather conditions, the types of vessel or aircraft and the standard of infrastructure to be used in the Torres Strait is a factor.

Figure 4.7 King Tide at Horn Island Ferry Jetty
4.5.2 Population Growth

Population data for the Torres Strait is not considered to be reliable due to movement of people between the various communities. Population was estimated at 8,500 in 2005, and expected to grow at 2.3% to an estimated 13,000 in 2026. Population growth has been assisted with some migration of locals from the mainland back to the islands, as they are attracted to the lifestyle and affordable housing.

One issue associated with this population growth is the constraint on available land, with many of the islands expected to eventually reach a point where population growth is not possible due to a lack of land for housing. For example, Coconut Island is already largely developed and it is likely that within the next twenty years the population will reach a peak and then become static. Islands that have land constraints are: Warraber, Yorke, Yam, Coconut, Mabuiag, Stephen, Boigu, Saibai and Dauan. However of these, only Coconut is expected to be fully developed within the next twenty years.

Darnley and Murray have reasonably large land areas, but there are ownership issues regarding the land and any development is dependent on these issues being resolved. It is not envisaged that these islands will be attractants for population growth in the long term. The islands of Badu and Moa have substantial land areas capable of accommodating significant development, and it is believed that ultimately spill-over population growth from constrained islands will end up on these islands or Horn Island. It is considered unlikely that the population growth in itself will lead to any significant changes to the transport needs in the Torres Strait.

4.5.3 Infrastructure

There are a number of issues with respect to transport infrastructure that present a constraint for travel in Torres Strait. These include:

- Condition and age of current marine transport infrastructure;
- Potential limitation in terms of expansion for both air and sea transport infrastructure due to Environmental Protection Agency (EPA) requirements and native title issues;
- Infrastructure subject to harsh weather and sea conditions; and
- Limited scope for expansion due to scarcity of available land.

There are also other issues of particular concern to individual communities. One such issue concerns both Dauan and Ugar communities. Torres Strait islands with an airstrip, all have populations in excess of 200 persons. Dauan and Stephen Island have a population of 145 and 60 respectively (see Table 2.1), so neither have an airstrip. These are therefore the most difficult to provide with economic means of travel.

Investigations of an airstrip on Dauan have indicated an environmental obstacle as any airstrip would have to be built partly on reclaimed land, a cost in the order of $10M, and a safety problem with windshear from the adjacent hill. This latter problem may well preclude its use, even if it were built. There is a ferry service that has run for some years for Dauan residents to access RPT services at nearby Saibai. This service would need to be maintained.

The population of Stephen Island (Ugar) would have even more difficulty in generating enough travel to warrant RPT services. Access to the island can only be gained by chartered helicopter or by boat to Darnley, which is a significant journey in open sea. Ugar also has the difficulty of having a large fringing reef and no dredged channel. This renders meeting a scheduled service difficult, and can require an overnight stay on Darnley. The public transport network here is therefore less than desirable. The TSRA has purchased a suitable ferry boat for the island, however, with the low population, this is very difficult to operate economically, and does not overcome the problem of lack of a suitable channel.
Building an airstrip on Ugar would use a significant proportion of its land area, would remove much of its existing vegetation as well as the only two small peaks on the island, and would also cost in the order of $5 - 10M. Dredging a channel to the barge ramp would cost in the $5 - 10M range. Dredging this channel would allow the supply barge to work to a timetable, rather than the tide. Working the tide here is not straightforward and there can be some weeks where the high tides do not give sufficient depth of water for the barge to land. The current barge supplies Ugar, Mer and Darnley, and so dredging a channel at Ugar would have some beneficial effect on the other two islands as well. Given the size of airstrip that could be built on Ugar, using it for any significant quantity of freight would not be practical.

Dredging would improve both passenger transport and freight outcomes and so must therefore rate as a higher priority than an airstrip. It would need to be prioritised against other dredging needs in the Torres Strait, and this will need to be carried forward into the Long Term Sea Access and Dredging Strategy. Dredging at Ugar should be considered as a high priority on an access and equity basis. This will need to be balanced against the population numbers, potential benefits and the relative needs of other islands.

A preliminary feasibility study on Passenger Transport and Freight Infrastructure Options at Stephens Island is also currently in progress and should be completed.

The lack of barge ramp facility at Murray Island is also a network deficiency. However, barges can operate here as deep water is relatively close. Barges currently land adjacent to the Council compound. This is workable with the current Seaswift barge that delivers to Murray Island. Barges previously used the Bonn site where there is deep water access available without the need for dredging. Provision of a barge ramp here is much cheaper here than anywhere else. However, there have been land ownership and native title issues here that have previously been intractable. Analysis of both sites should be included in the long term sea access and dredging strategy and the TSRA and Murray Island Council and the Prescribed Body Corporate would need to progress the native title issues. Given these issues, it is not currently possible to schedule physical works here to correct what is an obvious network deficiency. Once these issues are resolved, consideration should then be given to providing a barge ramp facility.

With regard to Prince of Wales, this island has a very large land area and could potentially develop. However, Torres Shire Council has nominated Horn Island as the location where its future growth will occur. There is very little land on Prince of Wales Island that is not reserve land covered by native title. Any development here would have to satisfy Torres Shire building and other regulations, however whether such development occurs is at the discretion of the native title owners, not Torres Shire Council. Therefore, development here could be considered “out of sequence” development unless and until the native title owners adopt a development position on a scale that would justify provision of significant infrastructure.

Neverthelese people live there now and desire safe access from small boats to shore for their journey to work/school. This is difficult to provide economically, as any new infrastructure must conform with current Australian Access and Mobility Standards. This precludes construction of conventional jetty structures. Provision of wheelchair accessible pontoons adds considerably to the cost. It will be necessary to develop a suitable, economic means of providing safe access from small boats to shore to be in a position to address the issues here, and to address the ultimate long term replacement of the finger piers on other islands.

An issue of more regional significance is the lack of a suitable marine facility for small craft. This is impacted by the Torres Strait's place on national and international shipping routes.

For yachts circumnavigating Australia or heading for Asian and Western destinations, and for international yachts passing Australia through the Torres Straits following the trade wind route around...
the world, the nearest supply ports are Cairns, Darwin and Port Moresby. There would be potential commercial opportunity here for a marine facility on Thursday Island. Possible users for such a facility would be:

- Dinghy commuters;
- Trailable recreational boats;
- "Store-in-water" recreational users (yachts and launches);
- Boat-lift 'store-on-shore' recreational users;
- Horn/TI ferries;
- Boat repair slip and hardstand;
- Commercial trawlers and fishing vessels;
- Charter boats;
- TI/Seisa ferry; and
- Cruising vessels for short stops or for longer periods to wait for the next season's wind changes (cyclone avoidance in the Arafura Sea).

Whilst the Torres Straits may not be able to attract major funding for roads or rail, it could be argued that they have a legitimate claim for the maritime equivalent – a single safe-haven boat harbour in their region. Provision of such a facility would recognise the basic seafaring nature of the islander population. Given the number of possible uses for such a facility, further investigation of economic feasibility on a commercial development basis is warranted.

The main issues regarding freight distribution in the Torres Strait are the state of the berthing dolphins and the dredged channels. QT has a program for replacing berthing dolphins, however the approach channels require further investigation.

Problems with approach channels, being experienced by barge operators in delivering supplies to the inhabited islands, include:

- Insufficient swing basin size due to the change in barge sizes servicing the islands. The barge size has increased from the 32 m long barge in the original 'Design Report for the Sea Transport Unloading Facilities' undertaken for the Torres Strait Island Co-ordinating Council in 1989 to the current 50 m long (Sea Swift's Malu Titan);
- Reduced channel and swing basin depths due to siltation that has occurred since constructed in 1991/1992;
- Insufficient channel depth and width due to increase in barge sizes since constructed. Barge laden draft has increased from the 1.4 m (design vessel) to 2.2 m (Sea Swift's Malu Titan) and beam (width) has increased from 8.5 m (design vessel) to 10.9 m (Sea Swift's Malu Titan); and
- Poor protection from seas afforded by groynes and breakwaters. These include those of insufficient length (bearing in mind that the current barges are up to 50 m long compared with the design vessel of 32 m long) and insufficient height. The latter has waves propagating across the submerged groyne/breakwater at high tides and adversely affecting barge handling.

QT has carried out hydrographic surveys of the existing channels, swing basins and small boat facilities at all fourteen islands which had barge ramps and access constructed in 1991/1992, as well as the near shore areas on Murray Island which was not provided with new marine facilities in 1991/1992.

A long-term sea access strategy is now required to:

- Determine the measures needed to maintain long term sea access to the nominated Outer Torres Strait Islands (OTSI); and
- Set priorities to guide subsequent budget submissions for works or other measures recommended.
4.5.4 Environmental

The Torres Strait has a diverse geological composition. The regional seabed has large coral reefs protecting many of the islands and creating an environment for fish and marine mammals. Also, the thick mangroves on some of the islands require protection from new infrastructure developments (e.g. marine). The reefs and marine resources require protection from small boat, barge and ship movement impacts over a period of time.

The Torres Strait is an environmentally sensitive area with a diversity of sea-life that must be protected.

Figure 4.8 Dredged Channel Path

4.5.5 Economy

The economy is mainly supported by employment in government areas (health, education and social services), and locals engaged in State and Federal Government programs. Due to the distances for freight of daily requirements, the high costs associated with these items are affecting the economy. Average wages of residents are equivalent to social security unemployment benefits. The low income levels support affordability as a major goal of future transport planning. With low employment rates and small economic development opportunities, the CDEP will continue to employ locals, contributing to some air and sea travel.

A focus of the community councils in the Torres Strait is to increase employment opportunities for island residents. A wide range of industries are currently under consideration including: growing sea sponges, prawn farms, juvenile crayfish farm, etc. However, the focus of these industries is the employment of the residents of the individual island, and again due to the land constraints, it is considered unlikely that there is sufficient land on most islands to develop large scale industries requiring labour from adjoining islands. While this is possible, it is considered unlikely.

The exceptions to this are Moa and Badu where it would be possible to have large scale industries that could potentially generate employment in excess of the capacity of the respective island. However, it is considered unlikely that this will occur within the twenty year timeframe being considered under this plan. It is envisaged that development will generally occur on islands in order to generate employment for that particular island’s residents, and that it will not lead to significant changes in people’s travel behaviour.
Any development will place additional demand on the freight services, however, this is seen as a positive result since the current freight volumes are relatively small and increased volumes may promote competition within the freight sector.

It is stressed that the economic viability of developments within the Torres Strait is heavily influenced by barge freight costs. This is because all materials, equipment, consumables, etc, are transported by barge from Cairns, and any goods produced will most likely be transported back to Cairns (e.g. sea sponges, juvenile crayfish).

4.5.6 Tourism

Discussions with representative bodies in the Torres Strait have identified tourism as a key potential industry to underpin employment and economic growth in the Torres Strait over the next twenty years. Cultural and historical tourism developments to date include the Gab Titui Cultural Centre (Thursday Island), Horn Island’s military museum and cultural guest facilities at Poruma and Masig. These attractions are beginning to create a critical mass of tourist destinations in the region. A number of other islands are currently constructing or planning to construct tourist facilities (e.g. Warraber Island), and for these ventures to be successful tourists will need to be attracted from outside the Torres Strait region.

There is a steady annual growth in the number of tourists visiting Cape York and staying in the NPA. This in turn is leading to growth in the number of tourists visiting the Torres Strait, particularly Thursday and Horn Islands, as they travel across from Seisia on the ferry that runs daily in the tourist season. Over the next twenty years it is envisaged that the majority of tourists will arrive in the Torres Strait either by ferry from Seisia or by aircraft from Cairns. It is also envisaged that the frequency of cruise ships visiting the area will increase.

The majority of OTSIs are not large enough to support any large scale tourist ventures due to the shortage of land. The exceptions to this are Badu and Moa Islands where it could be possible to construct large scale eco-tourism ventures. If a large scale development was to occur on either Badu or Moa it could provide the catalyst for a regular ferry service to Horn/Thursday Island, as the travel time for a ferry would be similar to the ferry that runs to Seisia.

It is envisaged that tourist travel to the OTSIs will be via light aircraft in a similar arrangement to that currently used. Although the remoteness of the Torres Strait is a key attractant for tourists, it is also a deterrent due to the long travel times. Hence, if tourists are flying long distances to arrive at Horn Island, they will be expecting to get to their destination island as quickly as possible.

In general, the anticipated increase in the number of people flying to/within the Torres Strait over the next twenty years may provide an improved service to the area.

Also, it is understood that there are seventeen cruise ships that plan to bring tourists from their ships (to be held between Friday Island and Prince of Wales Island) to Thursday Island. The impact of providing passenger facilities to meet the demand of these cruise vessels must be further considered. Cruise vessels generally use their tenders or life rafts to bring passengers ashore. The existing facilities at Thursday Island do not provide ideal facilities for the transfer of these passengers.

4.5.7 Security

The geographic location of the Torres Strait is of strategic importance in relation to Australia’s border security. Activities such as illegal immigration, illegal fishing, smuggling, etc, are a risk in the Torres Strait due to the proximity of Papua New Guinea and Indonesia. Furthermore, the Torres Strait serves as an early detection zone for the transmission of exotic pests and diseases into mainland Australia. The Torres Strait is also of importance to Australia’s defence as it controls the main east-west shipping channel.
Recent developments include the “over the horizon” radar installation, and a soon to be constructed detention facility on Horn Island for illegal immigrants. It is believed that additional development by the Federal Government in the Torres Strait to address quarantine, defence and illegal cross-border activities will take place into the foreseeable future.

4.5.8 Demographic
Torres Strait has seen a slight increase in birth rates and proportion of older people. The median age has also increased, so too have average household sizes, at five occupants. There does not appear to be significant changes in demography that would have much influence on travel methods and patterns.

4.5.9 Cultural
The Torres Strait people have long been regarded as having a close affinity with the sea and historically have favoured to travel by sea. This trend is on-going with the flexibility offered by small boats or “dinghies”. The islanders prefer the flexibility of using their “dinghies” with historical connection to the canoes for fishing, pearl diving and other marine harvesting (dugong, turtle, fish, prawns, crayfish, etc). These activities are also undertaken to provide them with a food source, as well as for commercial purposes to earn a living.

The communities within the Torres Strait align themselves with one of the four different language groups, with associated custom and identity. Movement of people, goods and schooling are closely aligned to the identified grouping (i.e., people living on Boigu would rarely travel to Murray Island, but would more commonly travel to Saibai and Dauan).

There are many different cultural events that instigate travel between the islands. These events include:
- Funerals;
- Tombstone openings (which occur one year after someone is buried);
- Weddings;
- Traditional ceremonies;
- Festivals specific to individual islands (e.g., the Coming of the Light Festival on Darnley Island, which celebrates when Christianity was first brought to the Torres Strait, and attracts people from all over the region); and
- Sports competitions.

The complexities of custom, language and group identification have important implications for transport planning.

4.5.10 Long Distance Sea Transport
There are several major problems with a long distance sea transport service, which include some of the issues and constraints above:
- The low level of use by the residents due to limited demand for regularly travelling between the outer islands (especially those islands that fall outside their language group);
- The high operating costs including fuel and maintenance costs, which are much higher in the Torres Strait than in other Australian locations;
- The current state of marine infrastructure at most of the outer islands, and the need to upgrade them so that they may service a reasonable size vessel;
- The logistics of providing a regular and time-efficient service, when it would likely take over six hours to travel from Horn Island to Murray Island in a very fast vessel (see Table 4.14); and
• The difficulty in providing both a safe and reliable service when high winds and storms are prevalent for much of the year, causing slower speeds and even prohibiting sea travel altogether.

4.5.11 Air Transport Perceptions

Many of the residents on the islands, as well as visitors, who regularly pass through the Torres Strait, do not consider air travel to be a safe mode of transport. This perception is generated primarily from the condition of the planes which service the region, and the level of experience of the pilots. Whether these views are valid or not, they prevail across the spectrum of people that travel within the region.

Many of the planes in the Torres Strait have sagging roof linings, broken fixtures and air vents, are extremely noisy, and generally do not provide the passengers with confidence. The sagging roof linings are a major issue during the wet season, when pooled water leaks into the cabin when the plane begins to taxi.

The recent air crash at Lockhart River killing 15 people has had a very negative impact on people’s attitudes to air travel.

Another aspect which contributes to the concerns is the skill and experience of the pilots. Many new pilots who find it difficult getting work around Australia will come to the Torres Strait in an effort to accumulate their flying hours. Commonly, once they have achieved a certain level of experience, they will move to a better location. The limited experience of the pilots is compounded by the difficult flying conditions that are common in the Torres Strait.

4.5.12 PNG Gas Pipeline

The final IAS for the PNG Gas Pipeline corridor does not discuss any potential for gas take-offs in the Torres Strait which could be used as a power source for local development. The proponents for the pipeline are currently not interested in establishing gas take-offs for small scale use, such as for the Torres Strait. Also, gas take-offs are very expensive to establish and maintain/operate, which would make it difficult for the Torres Strait to afford. Finally, there would not appear to be any logical site to establish a gas take-off facility in the area.

The IAS also indicated that local employment opportunities from the pipeline’s construction will be minimal due to the specialist nature of the works.

The route of the pipeline is remote from population centres, as it is proposed to travel through the deepest possible water on a reasonably direct route from PNG. However, there are issues in the IAS regarding clearance to under-keel shipping depths in shipping channels. The EMP provides for establishing pipeline technologies that protect the pipeline and avoid any impacts on shipping operations. These include trenching/burying and harden-protecting exposed sections.

4.6 Demand and Constraints Analysis

The transport demands discussed above in Section 4.3 and Section 4.4, and the constraints outlined in Section 4.5, have been analysed in this section to present a picture for the options to be considered in the next stages of this study. The analysis provided is mostly qualitative, as there was limited statistical information readily available.

4.6.1 Passenger

Air Transport
The cost of flights between Horn Island and various other islands in the Torres Strait are summarised in Table 4.9. Costs from May 2003 and June 2005 are included for comparative purposes, to show the change in airfares over the past 2 years. Generally, airfares have increased by between $5 and $10.

Table 4.9 also includes the cost per kilometre travelled for each of the journeys. Note that as the distance of the journeys increase, the cost per kilometre changes. This is illustrated in Figure 4.9, where from the 39km journey between Horn Island and Kubin, costs $4.00 per kilometre, compared to the 207km journey between Horn Island and Murray Island, which costs $1.48 per kilometre (based on the supplied Aerotropics airfares). This is because there is a minimum cost for an aircraft for take-off and landing, while distance costs accumulate slowly and are due to fuel burn and operating costs such as wages.

The geography and infrastructure that contributes to the high cost per kilometre include:

- Short length of Island airstrips restricting usage to small aircraft only; and
- Existence of many small centres close together, which mean high fuel usage for frequent take off and landings.

Further examination of these issues need to be undertaken when considering measures to reduce high costs of air services in the Torres Strait which appears to be inequitable.

<table>
<thead>
<tr>
<th>Air Service to/from Horn Island</th>
<th>Distance (km)</th>
<th>Adult Fare May 2003* ($)</th>
<th>Adult Fare June 2005* ($)</th>
<th>$ / km **</th>
<th>Airline</th>
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</thead>
<tbody>
<tr>
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<td>39</td>
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<td>156</td>
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<td>3.82</td>
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<tr>
<td>Badu</td>
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</tr>
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</tbody>
</table>

* Y-class (economy) fare
** Based on June 2005 airfares where available

Flight distance and cost information data from May 2003 and June 2005
Source for May 2003 data: “Stocktake of Transport Services in the Torres Strait”, QT, December 2004
Source for June 2005 data: Provided by the respective airlines
Other information obtained on the costs, distances and approximate travel times between each of the major islands in the Torres Strait are summarised in Table 4.8, Table 4.9 and Table 4.10 respectively.

Sea Transport

The existing sea transport services offered in the Torres Strait consist mostly of the ferry services between Thursday Island, Horn Island, Seisia and Prince of Wales Island. An example of the current ferry costs for some of these trips are summarised in Table 4.10.

Table 4.10  Current Sea Transport costs

<table>
<thead>
<tr>
<th>Trip</th>
<th>Cost</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horn Island to/from Thursday Island</td>
<td>$8.00</td>
<td>McDonald Charter Boats</td>
</tr>
<tr>
<td>Thursday Island to/from Seisia</td>
<td>$42.50</td>
<td>Peddells Ferry</td>
</tr>
</tbody>
</table>

Based on an adult cash fare

Sea transport to the other islands in the Torres Strait does not currently exist. A ferry operator recently started a service connecting most of the islands in the region, but folded after a very short time in operation. Discussion of issues surrounding long distance sea transport is contained in Section 4.5.10.

Time Comparison between Air and Sea Transportation

Table 4.14 lists the approximate distances between Horn Island and some of the other major islands in the Torres Strait. It also compares scheduled flight times with approximate ferry times for possible services to and from Horn Island.
### Table 4.11  Torres Strait Airfares Matrix

### Table 4.13 Torres Strait Flight Time Matrix

<table>
<thead>
<tr>
<th></th>
<th>Badu Island</th>
<th>Boigu Island</th>
<th>Coconut Island</th>
<th>Darnley Island</th>
<th>Kubin</th>
<th>Murray Island</th>
<th>Saibai Island</th>
<th>Warraber Island</th>
<th>Yam Island</th>
<th>Yorke Island</th>
<th>Horn Island</th>
</tr>
</thead>
<tbody>
<tr>
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<td>50</td>
<td>30</td>
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<tr>
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<td></td>
<td>30</td>
<td>30</td>
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<td>45</td>
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<td>40</td>
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<td><strong>Murray Island</strong></td>
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<td>15</td>
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<tr>
<td><strong>Horn Island</strong></td>
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<td>35</td>
<td>20</td>
<td>25</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

Flight time in minutes

Flight times sources from Aero-Tropics schedule as at 17/5/04 and Regional Pacific Airlines schedule as at 1/3/04

Where unavailable flight times have been estimated based on similar distances
Table 4.14  Flight Time versus Ferry Time

<table>
<thead>
<tr>
<th>Service to/from Horn Island</th>
<th>Distance (km)</th>
<th>Flight Time (mins)</th>
<th>Ferry Travel Time at 20kn (mins)</th>
<th>Ferry Travel Time at 30kn (mins)</th>
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</thead>
<tbody>
<tr>
<td>Kubin</td>
<td>39</td>
<td>20</td>
<td>63</td>
<td>42</td>
</tr>
<tr>
<td>Badu</td>
<td>54</td>
<td>20</td>
<td>87</td>
<td>58</td>
</tr>
<tr>
<td>Darnley</td>
<td>197</td>
<td>50</td>
<td>319</td>
<td>213</td>
</tr>
<tr>
<td>Yam</td>
<td>93</td>
<td>25</td>
<td>151</td>
<td>100</td>
</tr>
<tr>
<td>Coconut</td>
<td>106</td>
<td>30</td>
<td>172</td>
<td>114</td>
</tr>
<tr>
<td>Saibai</td>
<td>138</td>
<td>35</td>
<td>224</td>
<td>149</td>
</tr>
<tr>
<td>Boigu Island</td>
<td>145</td>
<td>40</td>
<td>235</td>
<td>157</td>
</tr>
<tr>
<td>Yorke Island</td>
<td>156</td>
<td>40</td>
<td>253</td>
<td>168</td>
</tr>
<tr>
<td>Murray Island</td>
<td>207</td>
<td>50</td>
<td>335</td>
<td>224</td>
</tr>
</tbody>
</table>

Note that the distances listed are "as the crow flies", hence the calculated travel times for ferries would in fact be longer as the boats navigate around other islands and reefs etc.

4.6.2 Freight

The freight related investigations produced the following overall findings relating to the project:

- Sea freight transport is vital to the islands and it sustains life rather than just improving it;
- Sea freight is presently expensive (not subsidised) and slow, however will not be overtaken by air freight due to issues such as high cost and weight restrictions associated with transporting goods by air;
- Sea freight in the Torres Strait region is in a hub and distribution arrangement, with bulk supply into Bamaga (Seisia), Horn and Thursday Islands and distribution to outer islands via normal barges.

Following the departure from the market of one of the freight operators that serviced the Torres Strait, freight movements are now only provided by a single operator, Seaswift. This has had a serious impact on all residents of the Torres Strait, as it has left them with a freight service that they consider needs major improvement. Currently, Seaswift is the primary provider of freight in and out of the region, with a sole lease over Horn Island and Thursday Island. Some freight is shipped to Seisia by Endeavour Shipping.

Also, wharfage and harbour dues at the Torres Strait are much higher than in other Queensland ports, which add considerably to freight costs and viability. For example, total fees are around $19.50 per tonne at Thursday Island, as opposed to around $3 per tonne at Cairns and $6 per tonne at Townsville. However, it must be noted that it is not totally reasonable to compare the port charges at the Port of Thursday Island with those in Cairns or any other large mainland port. The Port of Thursday Island, like all of the PCQ ports, is managed financially by PCQ as an individual business unit. The costs of managing (operational, capital and maintenance costs) each port are recovered by PCQ from the activities in that particular port. Trade throughput for the Port of Thursday Island is very small (approximately 90,000 tonnes) compared to other ports (Cairns 1.16 million tonnes), and provides a low base to collect income from. The cost of infrastructure provision in the Torres Strait is also much higher than the comparable costs in mainland ports such as Cairns. Because of the high cost of infrastructure provision and the low volume of trade, the cost of providing port facilities in the Torres Strait will always be much higher than ports such as Cairns.
4.7 Priority Areas for Transport

The identification of issues, constraints and demands, and the consultation process so far has assisted in the development of priority areas for transport in the Torres Strait. These priority areas are broadly described below, including options (within or for the priority areas) which will be analysed and prioritised further in subsequent tasks for this study, or other recommended studies.

4.7.1 Contributions to maintaining Culture, Environment and Lifestyle

A number of possible measures have been considered with respect to transport that could contribute to maintaining culture, environment and lifestyle. Some of the priority areas include:

- Affordable passenger and freight travel costs;
- Safety, control and access for small boats (“dinghies”); and
- Provision of sea and air travel infrastructure to meet basic needs.

4.7.2 Improvements to Freight Movement

Improvements to freight movements include:

- Integration of passenger with freight using appropriate vessel or plane type to increase frequency of services;
- Investigate the implementation of roll-on roll-off ferry services to minimise freight movements by ship and barge; and
- Reduce freight costs to influence positive impact on lifestyle. Positive impacts may include reduced purchase cost and increased affordability of food and other household items which will allow for potential increases in disposable income and household savings.

4.7.3 Improvements to Passenger Movement

Possible improvements to passenger movements include:

- Integration of freight with passenger movements using appropriate vessel type to increase frequency of services;
- Upgrading of Horn Island airport facilities or services to allow increased passenger movements and possible reduction in fare costs
- Work across agencies to address travel costs for islanders and ways to better integrate modes;
- Work across agencies and private sector to consider roll-on roll-off ferry services; and
- Work across agencies to provide for safe travel for the sick, the disabled and school children.
5.0 Consultation

5.1 Targeted Consultation

5.1.1 Queensland Transport

Meetings were held in April 2005 with officers from the Infrastructure Planning Branch and Public Transport Management Branch to obtain an understanding of their past and current work in the Torres Strait region and to obtain first hand a background on the recent reports prepared by them.

The Infrastructure Branch prepared the 2004 Inspection reports for Marine and Air facilities and the Public Transport Management Branch prepared the 2004 Stocktake for Transport Services in the Torres Strait Region. These reports were reviewed and a summary of key comments are outlined in the previous section.

Key comments from the discussions for consideration in the study were as follows:

- Establish the most effective way to travel between outer islands, Horn Island and Cairns at affordable rates;
- Consider whole-of-government approach to the movement of freight and passengers from Cairns to Horn Island and to outer islands;
- Condition (marine and air infrastructure) survey reports provide a good picture of the current situation;
- Consult with Department of State Development and Innovation and PCQ on current and future plans;
- Issues regarding cost of passenger travel by air and freight movement by barges to be considered;
- Modes of travel available assist in meeting people’s basic needs, being:
  - Supplies (barge);
  - Medical (helicopter / plane); and
  - Visiting (plane / boat);
- Review the bulk supply and distribution of freight in the region; and
- Consider improvements to roads and cycle / walk infrastructure.

5.1.2 Torres Strait Regional Authority

A meeting was held on 25th May 2005 with the TSRA. Key comments from the discussions for consideration in the study were as follows:

- Fuel increased to $2.40 per litre, with a range between $1.40 and $2.40;
- Growth in population due to former residents being attracted back;
- Treaty with PNG causing significant movement of PNG people in and out and increasing pressure on services;
- Vision to enjoy a life style available to ordinary Australians;
- All community roads sealed;
- Dredged channel alignments to be self cleaning;
- Future option may be a railway from Cairns to Bamaga. Real issue is price and quality of fruit and vegetables;
- Cost of inter-island air travel is very high. Personal travel choice is dictated by weather and cost;
- Future effective public transport services to look beyond the use of dinghies. Need multiple vessels, such as one for each island group. Cater for multiple needs like freight, passenger, tourist;
• Lack of emergency services at airports;
• Perception of air as unsafe and means of last resort;
• Disability incidence likely to increase. Transplants offered with 24 hour notice making time an issue. Access for disabled and able people an issue;
• Issue of speed limits, and why they are as high as 40kph?;
• Access road sealing from boat ramps to airport;
• A sealed road from the NPA to Cairns;
• Bicycles are commonly used, especially home to work; and
• School events such as sporting days and football transport.

5.1.3 Ports Corporation of Queensland

Meetings were held with the PCQ in April 2005 to seek responses to specific queries relating to PCQ’s operation and ownership of assets and to seek PCQ’s view on future passenger and freight movements in the Torres Strait.

Key comments from the discussions for consideration in the study were as follows:
• PCQ leases part of the Horn Island cargo facilities to Seaswift. The Fuel Wharf on Thursday Island is leased to Rebel Marine. All other facilities not leased are common user facilities. As indicated earlier in this report, all operational, capital and maintenance costs associated with the port are covered by income from port operations (cargo and passengers).
• In view of the low utilisation rate of existing facilities and the cost of providing infrastructure, it is unlikely that additional facilities are required to cover future trade growth.
• PCQ supports the Campbell Smith study report on the feasibility of a roll-on roll-off facility for Horn and Thursday Islands. The roll-on roll-off concept needs to be considered further. The concept required $1.5 to $2 million investment from PCQ to provide onshore facilities such as a dedicated ramp, carparking, lighting and office at both Thursday and Horn Islands. The rate of return from the investment did not meet PCQ requirements and the project did not stand up. There is a need to consider roll-on roll-off from the overall livelihood of the Torres Strait – health (ambulance on roll-on roll-off, school bus on roll-on roll-off, passenger bus on roll-on roll-off, garbage trucks on roll-on roll-off). Any investment by PCQ in ro-ro facilities is governed by rate of return guidelines set by Government. Alternatively to PCQ providing the onshore facilities, the State or Federal government may be able to provide funding for these facilities.
• It is understood that there will be seventeen cruise ships bringing tourists (to be held between Friday Island and Prince of Wales Island) to Thursday Island. The impact of tourism needs to be understood. The impact of increased tourism on the use and provision of passenger facilities to meet the demand of these cruise vessels must be further considered. Cruise vessels generally use their tenders or life rafts to bring passengers ashore. The existing facilities at Thursday Island do not provide ideal facilities for the transfer of these passengers.
• QT / DMR / TSRA / PCQ need to co-ordinate future capital and maintenance programs and save on establishment costs. Coordination between relevant authorities needs to be strengthened.
• With the Torres Strait being an island based community, the maritime facilities including cargo and passenger wharves, jetties, ramps, pontoons, mooring dolphins and channels all form an essential part of the community’s transport infrastructure. This marine infrastructure in the Torres Strait is comparable to roads and passenger infrastructure (eg bus stations) in south-east Queensland. Future funding of these maritime based facilities must be viewed in a similar manner to the construction of roads in south-east Queensland.

5.1.4 Torres Shire Council (TSC)

A meeting was held on the 26th May 2005 with TSC. Key comments from the discussions for consideration in the study are as follows:
• Governance review may lead to TSC managing services provision for all Torres Strait;
• Thursday Island growth is redevelopment and densification;
• Horn Island and Thursday Island accommodates the majority of population growth and is the main service point for the outer islands;
• Airport is the priority issue with a need for public transport from Thursday Island to airport;
• Want longer runway on Horn Island;
• Increased patronage will lead to reduced fares;
• Perception in the Torres Strait that the lack of competition in air and freight leads to rise in prices;
• Small boat facilities are a major issue as this is a principal form of travel;
• Small boat safety requirements cost about $300 to purchase which includes an Emergency Position Indicating Radio Beacon (EPIRB) and other safety equipment. Most vessels have this equipment, however the biggest issue for emergency calls is running out of fuel;
• Ferry services issues with rough weather – 35kn is too rough, people now not happy to wait for late travel;
• Airfare prices are too high, with mixed ideas about impact of safety;
• Berthing facilities, water depth, fender piles all negatively impacted on the former cat service Giomi;
• QantasLink can only load 41 passengers in the current 50 seat service for flights out of Horn Island (load issue);
• Freight to outer islands with unloading to a dumb barge may overcome some dredge problem areas;
• Considering new community arm for Horn Island, need a new arm on pontoon at Thursday Island due to competition between commercial operators and small boats. Issues presently with dangerous fixed structures and water washing over walkway area;
• Dumping of faulty vehicles into the Torres Strait market is a big cost to local people and dumping cost big issue;
• Transport to Cairns improved with the road route, being low cost to the user;
• No tenure issues for airport extension;
• Some discussions on export potential (passengers) through Thursday Island;
• Transport subsidies an issue;
• Horn Island is the only non-subsidised regional route;
• Growth from returning islanders and others to work;
• Recently four applications for higher density dwellings; and
• Dialysis unit from Thursday Island.

5.2 Issues Identification Workshop

5.2.1 Workshop Outline and Objectives

A half-day workshop was conducted with key stakeholders to identify issues known to the project stakeholders that will impact on the development of TSTIP. The workshop was held in Cairns and the workshop attendees included stakeholder representatives with knowledge in the areas of land use planning, transport infrastructure development and transport services delivery. This workshop was mainly attended by agencies and it was decided that follow up meetings would be held on Thursday Island with TSRA, TSC, and ICC etc.

The workshop was focussed on identifying issues that were established through consultation with key stakeholders and from the review of documents made available. The major theme of the workshop was to seek from the attendees their view of the issues identified by the study team and to allow for stakeholders to provide any additional issues.
The broad areas for identifying issues included:

- Sea infrastructure and services;
- Air infrastructure and services;
- Road Infrastructure;
- Freight;
- Public Transport; and
- Cycling, walking and travel options for people with disabilities.

The objectives of the workshop were as follows:

- Identify recent transport infrastructure planning in Torres Strait;
- Review data and information on demography, passenger, freight, public transport, walking and cycling;
- Identify key implications for the Torres Strait transport infrastructure; and
- Ideas for a vision for transport in the Torres Strait.

5.2.2 Workshop Findings

The following issues emerged from the 13th April 2005 Issues Identification Workshop and were discussed with the Torres Shire Council, the Torres Strait Regional Authority and the Island Coordinating Council for their comment and views. Many of these are issues with broader implications than just transport, but are considered vital to determining future strategies for transport.
<table>
<thead>
<tr>
<th>Grouping</th>
<th>Issue</th>
</tr>
</thead>
</table>
| General                      | • Focus of transport in the next 20 years – sea versus air  
- Economic sustainability  
- Contribution to maintaining culture, environment and lifestyle  
• Air transport – by 2007 most Torres Strait communities will have access to all weather sealed airstrips  
- Management of air infrastructure  
- Affordability; Cost of air travel between islands  
• Sea transport – Boats are a very common and widely used form of transport for local people  
- Safety, control, access for small boats  
- Roll On Roll Off ferry option  
- Possibility/viability of ferry services (fast ferry?) between islands  
- Freight demand and supply in the future  
- Frequency of barge services/cost/availability of fresh produce  
- Passenger demand and supply in the future (subsidies)  
• School transport  
• Tourism  
  - Provision of transport infrastructure & its effects on tourism  
  - Provision of services to meet visiting population needs |
| Torres Shire Area            | • Freight transfer Horn Island to/from Thursday Island  
• Ferry services Horn Island to/from Thursday Island  
• Cairns to/from Horn Island cost and frequency  
• Horn Island passenger ferry facilities  
• Horn Island freight facilities, access & charges  
• Possible provision of roll-on roll-off facilities |
| OTSI Area                    | • Disabled transport and access to transport infrastructure - Where should the emphasis lie in catering to special needs?  
• Cycling and walking - Investment in walking and cycling facilities  
• Emergency evacuation facilities and user costs  
• Airport maintenance and reporting officers network  
• Public Transport - Need for public transport subsidies for OTSI communities  
• Road Transport  
  - Programs in place (TIDS) to improve roads to all weather conditions  
  - Priorities for OTSI roads |
| Specific Issues              | • Lack of barge ramp on Mer  
• Lack of maritime facilities on Prince Of Wales Island  
• Low tide access to Stephen Island  
• Air access to Stephen Island |
| Issues currently being       | • Maritime facility structural maintenance (program in place)  
• Condition of berthing dolphins (replacement program in place)  
• Long term sea access strategy, including dredging of access channels  
• Paving and sealing Yam airstrip (scheduled for 2006-07) |
| being addressed              |                                                                                                                                  |
5.3 Options Assessment Workshop

Workshop type meetings were held with Torres Strait Islander Groups including, Island Co-ordinating Council (ICC), Torres Shire Council (TSC) and Torres Strait Regional Authority (TSRA) on Thursday Island during August 2005. The transport system options for Torres Strait in 2026, were established through the stakeholder consultation process and using demand analysis for transport services and infrastructure.

5.3.1 Workshop Outline and Objectives

The workshop meetings were held to ensure Torres Strait Islander and Technical Working Group involvement in the discussion and selection of transport system option for 2026, and the associated strategies and actions. The objectives of workshop included:

- Discussions on results of options assessed;
- Discussions on recommended options; and
- Discussions on strategies and actions.

The 2026 Transport Options for the Torres Strait that were discussed included:

- Continuation on current services with some improvements;
- Establish a second passenger and freight hub at central island;
- Hub and spoke arrangement, using the four language groups for passenger transport by ferry; and
- Rail line from Cairns to Bamaga.

5.3.2 Workshop Findings

A transport options workshop was conducted with the Torres Shire Council on Thursday 6th October. Key outcomes from this workshop include:

- Equity is a significant issue and needs to be considered in all options. Many things that cannot be justified on the basis of economic rationalism should be undertaken for equity reasons.
- Torres Shire Council previously lobbied the State Government to subsidise air travel between Horn Island and Cairns, and TSC also supported having two airlines to promote competition. The State Government advised TSC that one regulated service is more cost effective than two, and that airfares would not be subsidised;
- The inclusion of a second major access point to the Torres Strait would have significant implications to the operation and economic viability of the existing Horn Island airport;
- Torres Shire Council has put forward a proposal to PCQ to take over the operation of Port Kennedy;
- Discussions with QantasLink need to be undertaken to determine the benefits of upgrading airport facilities at Horn Island.

A transport options workshop was conducted with the Island Coordination Council on Thursday 7th October. Key outcomes from this workshop include:

- The evaluation of transport options for the Torres Strait must not only consider transport viability aspects but also economic development externalities which could potentially be created;
- Transport costs within the Torres Strait and to Cairns are expensive and are not affordable to most local residents. There is a need for increase competition and subsidies on passenger travel and transportation of freight, otherwise people will remain mobile impaired or use unsafe means to travel (eg use of a dinghy over long distances);
- There is a desire by the council to increase tourist visitation by introducing direct flights from Cairns to Yorke Island where there are new tourist facilities;
5.3.3 Presentation of Draft TSTIP

A meeting was held on the 19\textsuperscript{th} January 2006 in Cairns with the Technical Group to review the Draft TSTIP. A number of items were discussed and resolved including changing the format, and presenting the recommendations regarding infrastructure and consequent services separately. The Technical Group members discussed each recommendation and changes were agreed at the meeting.

5.4 Air Travel User Survey

5.4.1 Survey Preparation

Following discussions between the Technical Working Group members, it was agreed that a small user travel survey be undertaken in the Torres Strait. The travel survey was considered as part of the development of a transport infrastructure plan for the Torres Strait. One of the major reasons for the survey was to develop realistic solutions and provide more information on people’s travel patterns. This included determining why they were travelling and their opinions about the services available to them.

A draft survey form was prepared to cover the sea and air transport services and infrastructure components. Comments were received from the Technical Working Group members on the draft survey, and following approval for funding and the final survey form, the survey task was implemented. A copy of the travel survey is attached in Appendix A.

Letters were sent to the CEOs of Yorke and the TSC, seeking permission to conduct the travel survey at Yorke Island and Horn Island airports respectively.

Two study team members travelled to Horn and Yorke Island airports and interviewed as many travellers as possible on Wednesday the 31\textsuperscript{st} of August (9am to 5pm), and Thursday the 1\textsuperscript{st} of September (10am to 5pm) respectively. Over the two day period, 117 survey responses were received, which was slightly higher than the targeted sample of 100 surveys. The surveys were entirely voluntary and did not include the collection of personal information, other than typical demographic data.

A summary of the key findings are graphically presented below, and comments are provided with respect to the findings where relevant.

5.4.1 Traveller Profiles

As shown in Figure 5.1, over half of the respondents were residents of the Torres Strait. Almost all other users surveyed came from Queensland cities or towns, with only 4\% from interstate.
The age of the travellers surveyed is presented in Figure 5.2. Half of all the users were aged between 35 and 55 years. A greater number of younger travellers (under 24 years old) were surveyed than older travellers (over 55 years old), however this may be a reflection on the age profile of residents in the Torres Strait, where the average age is 25 years.

Slightly more male users were interviewed (59%) compared to females (41%).
5.4.2 Origin and Destination

Figure 5.3 and Figure 5.4 shows the respective origins and destinations of the users surveyed. As expected, most of the travel undertaken was intra-regional (within the Torres Strait), with 77% of all trips originating in the Torres Strait and 62% terminating there. Cairns was the second most common origin/destination, accounting for almost all of the remaining trips. Only 2% of the travellers had origins or destinations outside of Cairns or the Torres Strait.

Figure 5.3 Origin of Travellers

- Torres Strait: 77%
- Cairns: 21%
- Other Qld: 2%

117 Responses

Figure 5.4 Destination of Travellers

- Torres Strait: 62%
- Cairns: 36%
- Other Qld: 1%
- WA: 1%

117 Responses
5.4.3 Airline

Travellers flew with a mix of airlines from the two airports where the surveys were carried out, with the ordered breakdown as follows (shown graphically in Figure 5.5):

- QantasLink 36%;
- Skytrans 24%;
- Aerotropics 19%;
- Regional Pacific 13%; and
- Charter service 8%.

Figure 5.5 Airline Used by Travellers

120 Responses
Table 5.2 contains a list of all comments made by air travel users in relation to what they liked about using air travel as a mode of transport. Most users did not provide a comment, while others made multiple comments. The most mentioned positive comment was safety, however this was only made by 8 users (16% of respondents).

**Table 5.2  Positive Air Travel Comments**

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to carry heavy loads</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Availability</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Comfort</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Convenience</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Cost of travel</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Direct routes</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Faster and more reliable than ferries</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Frequent flyer points</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Friendly</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Good connections with other airlines</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Good for work travel</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Quality of service</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Reliable</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>Reputation</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>Response to 24 hour call</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Safety</td>
<td>8</td>
<td>16%</td>
</tr>
<tr>
<td>Schedule</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Seat allocations</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Wages (pilot)</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Work booking</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

83 "no comment" responses were also received.
Users were also asked to comment on any negative aspects they perceive of air travel in the Torres Strait. The most common response was concerns over the age of the aircraft operating the services. Other negative comments included the indirect, all-stop nature of the flights, as well as the baggage limits imposed on passengers. Each of the negative comments received are listed in Table 5.3.

Table 5.3  Negative Air Travel Comments

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of aircraft</td>
<td>10</td>
<td>19%</td>
</tr>
<tr>
<td>Baggage limits</td>
<td>7</td>
<td>13%</td>
</tr>
<tr>
<td>Bumpy ride</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Cold inside</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Cost of airfare</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Delays not informed</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Dependent on timetable and route</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Don't have check-in at Thursday Island like in the old days</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Food</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>Indirect all-stop flights</td>
<td>9</td>
<td>17%</td>
</tr>
<tr>
<td>Local Torres Strait people should be flight attendants</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Maintenance and standard of infrastructure at airfields</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Need bigger planes</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Need for more flights between the islands and Cairns</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Poor connectivity</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Reliability</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Rough water</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Time wasting</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Timeliness</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Travel times</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

82 “no comment” responses were also received
Table 5.4 contains a list of other issues obtained from those surveyed, regarding air travel in the Torres Strait. In addition to the age of the aircrafts and baggage limits, which were listed in the negative comments table above, other issues included the cost of airfares and the maintenance of the airports and facilities.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of fleet</td>
<td>13</td>
<td>15%</td>
</tr>
<tr>
<td>Airport security</td>
<td>5</td>
<td>6%</td>
</tr>
<tr>
<td>Baggage limits</td>
<td>10</td>
<td>11%</td>
</tr>
<tr>
<td>Connectivity with flights and hotels</td>
<td>5</td>
<td>6%</td>
</tr>
<tr>
<td>Cost of fares</td>
<td>14</td>
<td>16%</td>
</tr>
<tr>
<td>Discount for direct payment</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Don't like travel by air</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Emergency access</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Indirect flights</td>
<td>6</td>
<td>7%</td>
</tr>
<tr>
<td>In-flight refreshments</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Maintenance of airports/facilities</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>Newer planes to be bigger to accommodate size of people</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Safety</td>
<td>6</td>
<td>7%</td>
</tr>
<tr>
<td>Scheduling of flights</td>
<td>4</td>
<td>5%</td>
</tr>
<tr>
<td>Security</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Short runways on islands</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Smaller operator issues</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Timeliness</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Travel time</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Weather</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>87</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

66 "no comment" responses were also received

5.4.4 Trip Funding

It was previously reported that approximately 85% of air travel is either directly or indirectly funded commercially or by the State/Federal Government. Figure 5.6 shows the survey findings on the question of how the travellers were funding their trip. 39% of respondents said that their trip was self-funded, leaving the remaining 61% paid for commercially or by the government. However, of the 25% of users that said their trip was funded by their non-government employer, a number of these costs would likely be passed on to the government. This is because many of these users were workers on government sponsored projects for the Torres Strait region, and would ultimately pass-on their travel expenses to their government client.
5.4.5 Trip Profile

Figure 5.7, Figure 5.8 and Figure 5.9 show the respective trip purpose, length and regularity of the air travel users surveyed.

All recoded “day trip” trip lengths were for users travelling for work related purposes, while the majority of “over night” trip lengths were for medical/dental purposes.

Nearly 60% of trips made were for a duration of one week or less.
5.4.6 Mode Preferences

Out of the 117 users surveyed, 73 (63%) said that they preferred to travel by plane rather than boat, without regard to cost, time and safety. Conversely, 19 (16%) respondents preferred to travel by boat to the other islands in the Torres Strait and Cairns, while 14 (12%) had no preference as shown in Figure 5.10.

117 Responses
After taking account the lower cost of boat travel, as well as the longer journey times, the number of users preferring boat travel dropped to 17, as shown in Figure 5.11.

The air travel users were also asked to estimate their usage of a future ferry service in the Torres Strait, if one was offered. Usage of the service was as follows (see Figure 5.12):

- 43 (37%) said they would never use such a service;
- 28 (24%) would use the service once a week or more;
- 25 (21%) would use the service fortnightly or monthly; and
- 21 (18%) would use the service less frequently than monthly.
Table 5.5 lists a series of issues that air travel users could foresee with a ferry service operating in the Torres Strait. The main concern with such a service would be the safety and weather issues of travelling by boat between the islands. Additional perceived issues were the possible lengthy travel times and uncertainty over whether appropriate ferry and boarding (jetty) facilities would be provided.

Table 5.5  Issues on Proposed Ferry Service in the Torres Strait

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate ferry and boarding facilities</td>
<td>12</td>
<td>16%</td>
</tr>
<tr>
<td>Connectivity</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Cost</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Dinghy will still be used for fishing</td>
<td>8</td>
<td>10%</td>
</tr>
<tr>
<td>Ferry for cargo</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Improved availability of route and timetable information</td>
<td>4</td>
<td>5%</td>
</tr>
<tr>
<td>Loading and unloading</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>More ferries</td>
<td>8</td>
<td>10%</td>
</tr>
<tr>
<td>One ticket</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Reliability</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>Timetable</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Travel time</td>
<td>12</td>
<td>16%</td>
</tr>
<tr>
<td>Weather and safety (ferry/jetty)</td>
<td>23</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>77</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

51 "no comment" responses were also received.

Users were also asked to comment on their preference between using a dinghy as opposed to a ferry. Out of the 83 respondents, 30 (36%) preferred to travel by dinghy, while 53 (64%) preferred the ferry.
Figure 5.13  Preference for using a Dinghy over a Ferry

Yes 36%

No 64%

83 Responses
6.0 Planning Framework

The integrated transport framework for Torres Strait:

- Highlights the relationship between transport and good economic, environmental and social outcomes of the Torres Strait community;
- Integrates the elements of the transport system drawing on the strengths of each mode and making the system work as a whole – an integrated network to connect people, places, goods and services;
- Integrates land use and transport strategies to:
  - influence overall demand for travel;
  - the distance people and goods need to travel;
  - the accessibility of destinations;
  - proportion of trips by individual modes; and
  - the cost of transport infrastructure;
- Integrates transport and other planning so that transport can contribute to achieving broader outcomes for the community such as improving access, creating jobs and conserving environmental values; and
- Engages and develops effective partnerships across governments, industry and the community to ensure needs, priorities and values of stakeholders are used to guide planning and decision making.

6.1 Planning Framework

The planning framework surrounding the TSTIP is illustrated in Figure 6.1. It has been derived from the Queensland Government’s Integrated Transport Planning Framework for Queensland and has been tailored to suit Torres Strait.
6.2 Vision

The development of the vision is an essential precursor to the development of the integrated transport strategy for the Torres Strait. This will allow the disparate sections of the transport picture to be brought together to ensure that the best use of the limited resources available is achieved in producing the desired transport system for the region.

The vision of the TSTIP is that:
- All communities within the Torres Strait will have affordable access to appropriate and flexible passenger transport; and
- Freight services, which address major community needs, are safe and can be sustained by available resources.

6.3 Desired Outcomes

The desired outcomes are outlined below. They were used as criteria to qualitatively assess the options, strategies and actions.

a) An efficient and effective transport system to support economic growth across the Torres Strait;

b) A transport system that maintains and enhances the health, safety and security of users and the wider Torres Strait community;

c) A reasonable level of access and mobility of all Torres Strait islanders.

d) A transport system that connects Torres Strait communities and contributes positively to the way islanders live, work and play; and

e) A transport system that values, conserves and enhances the Torres Strait natural environment.
6.4 Guiding Principles

The following principles relating to the transport network in the Torres Strait have been identified from the review of existing policy documents and studies, target stakeholder consultation and assessment of the existing freight and passenger transport networks.

The guiding principles that have been developed for the TSTIP include:

- Connectivity;
- Integration;
- Equitable Access;
- Effective investment and partnerships; and
- Sustainable Travel.

Principle 1 – Connectivity

Co-ordinate access to infrastructure and services between islands and communities for passenger and freight movements.

Principle 2 – Integration

Bring together all transport modes in a cohesive transportation network and will consider transport planning as part of the land use planning and community development process.

Principle 3 – Equitable Access

Provision of equitable access for all residents via public transport, walking and cycling and facilitate affordable passenger and freight transport.

Principle 4 – Effective Partnerships

Pursue potential opportunities for private sector involvement in planning, providing and operating the transport system. In doing so, work across jurisdictions and boundaries to integrate planning and resolve competing issues and interests.

Principle 5 – Sustainable Travel

The TSTIP will minimise environmental harm and maintain environmental values by mitigating negative impacts of transport. Arrange services and infrastructure to facilitate economic sustainability.

6.5 Objectives

The objectives of the TSTIP are described below. Many of these objectives support multiple principles.

6.5.1 Passenger Transport

Even though the majority of the Torres Strait islanders use their dinghy, passenger movements also occur via ferries, buses, taxis and planes. Efficient and affordable travel is a key desired outcome for Torres Strait. Objectives are:

- To ensure passenger travel costs are affordable and equitable;
- To allow a reasonable level of access for passengers to each island;
- To work across jurisdictions and with the private sector to achieve efficiencies for passenger movements; and
- To integrate modes for efficient passenger movement.
6.5.2 Freight Transport

Freight of consumables and materials to the islands is of critical importance to the daily life of the Torres Strait islanders. Greater frequency of freight and reduction in freight costs would be the key desired outcome for Torres Strait. Objectives are:

- To ensure freight costs are equitable and minimised;
- To integrate freight and passenger movement by sea;
- To allow a reasonable level of freight access to each island;
- To work across jurisdictions and with the private sector to achieve freight efficiencies; and
- To integrate modes for efficient freight movement.

6.5.3 Community Access

Community access in the Torres Strait is reasonably well catered for, and some further improvements in land use, walking, cycling and transfer facilities, could provide improved community access. Objectives are:

- To ensure integration of transport planning with land use planning for managing travel demand;
- To ensure provision of appropriate standards of infrastructure for walking and cycling; and
- To ensure appropriate opportunities and standards for intermodal integration.

6.5.4 System Integration

There is a need to co-ordinate infrastructure and services across all modes to achieve system integration. Objectives are:

- To provide connections between modes and services for moving people and freight;
- To make use of improved technology for connecting freight and passenger transport networks;
- To introduce measures to increase the attractiveness of public transport, walking and cycling; and
- To develop and implement integrated policy positions.

6.6 Strategy

The TSTIP strategy includes a plan of action to implement the preferred transport system in the future. The TSTIP strategy entails retention of existing passenger and ferry services with additional infrastructure and consequent service improvements between Horn Island, Thursday Island and Seisia. The TSTP strategy includes actions for improving transport infrastructure and services. In addition, there would be policy type actions for transport and landuse that would be considered in meeting the objectives of the TSTIP. The options that were assessed in terms of meeting the strategies are discussed in Section 8. The actions for infrastructure and service improvements to support the adopted strategies are listed in Section 8. The actions have been linked to the following four transport objectives:

1) Passenger transport – improve access and reduce travel costs;
2) Freight transport – improve freight facilities and efficiencies;
3) Community access – improve access to community support activities (admin centre, shops) and ensure these are integrated with transport networks; and
4) System integration – connect the islands’ communities and contributes to the way they live, work and play.
7.0 Options for the Transport System in 2026

The options for the transport system in 2026 were developed in consultation with study stakeholders. All options put forward by stakeholders were considered for assessment. The study did not specifically exclude any options from assessment.

It is difficult to predict what would be generating the major demand for freight and passenger transport in 2026. The futures that have been hypothecated and assessed in the study are:

1) Option A – Continuation of current arrangements;
2) Option B – Establish a second passenger and freight hub at a central island;
3) Option C – Hub and spoke arrangement for passenger transport by ferry;
4) Option D – Rail line from Cairns to Bamaga;
5) Option E – Option A with additional improvements; and
6) Option F – Sea transport proposal.

These travel futures are discussed in detail below. The analysis is of a broad nature and further analysis is suggested for Option E with additional improvements.

7.1 Option A – Continuation of Current Services

Description:
- Passenger and freight services hub out of Horn Island and Thursday Island;
- Coastal freighters ex-Cairns to Port Kennedy (Horn and Thursday Islands) and Seisia servicing Port Kennedy and NPA communities and transhipping to OTSI communities;
- Three landing barges on scheduled services plus chartered barges; and
- Single airline flying from Cairns to Horn Island and multiple airlines servicing the outer islands.

Impacts:
- Current services in place for some time;
- Parts of current services require improvement; and
- Vessels, aircraft and infrastructure require upgrading in time.
Table 7.1  Sea Transport – Negative Aspects

<table>
<thead>
<tr>
<th>Freight:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Currently single operator for regular bargeing operations;</td>
</tr>
<tr>
<td></td>
<td>Inflexible scheduling;</td>
</tr>
<tr>
<td></td>
<td>Fresh produce once a week only;</td>
</tr>
<tr>
<td></td>
<td>High cost of freight;</td>
</tr>
<tr>
<td></td>
<td>Delays due to adverse weather;</td>
</tr>
<tr>
<td></td>
<td>Capacity of existing barges;</td>
</tr>
<tr>
<td></td>
<td>Access to some island is restricted due to lack of water depth; and</td>
</tr>
<tr>
<td></td>
<td>No real passenger accommodation / sea transport.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Passenger Transport:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Public)</td>
<td>No after hours transport between TI / Horn Island;</td>
</tr>
<tr>
<td></td>
<td>Coordination of travel modes e.g. Seisia ferry and QantasLink flights;</td>
</tr>
<tr>
<td>(Private)</td>
<td>Lack of regular car ferry between TI / Horn Island.</td>
</tr>
</tbody>
</table>

| Dinghy travel can be dangerous due to changing weather conditions and/or long distances travelled. |
| Lack of small boating facilities |

Table 7.2  Sea Transport – Positive Aspects

<table>
<thead>
<tr>
<th>Freight:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Facilities already in place / proven system;</td>
</tr>
<tr>
<td></td>
<td>Barges can land on islands without dedicated facilities; and</td>
</tr>
<tr>
<td></td>
<td>Simple operation (hub and spoke).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Passenger Transport:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Public)</td>
<td>Good service to Seisia during tourist season.</td>
</tr>
<tr>
<td>(Private)</td>
<td>Dinghy travel is very flexible and highly used; and</td>
</tr>
<tr>
<td></td>
<td>Dinghy travel is very cost effective.</td>
</tr>
</tbody>
</table>

Air transport – negative aspects:
- Perceived lack of safety for travel within Torres Strait;
- Size of airstrips limits size / capacity of plane on outer islands;
- Restricted by day flying only;
- Length of Horn Island runway restricts capacity of planes (Dash 8 300 services only);
- Relatively high cost of travel to OSTI compared to other modes of transport; and
- Inadequate end of trip facilities.

Air transport – positive aspects:
- All airstrips to be sealed by end 2006;
- Regular fast service to Cairns and outer islands;
- Less affected by adverse weather than sea travel;
- Competition for travel around Torres Straits (i.e. several airline companies);
- Facilities for 24 hour emergency helicopter access with most including adequate lighting;
- System is capable of meeting significant growth by increasing flight frequency without costly infrastructure upgrades; and
- Very flexible, i.e. charters.
Land transport – negative aspects:
- Not all roads are sealed;
- Lack of public transport throughout Torres Strait; and
- Lack of connectivity for vehicle travel between Horn Island and Thursday Island.

Land transport – positive aspects:
- Most communities have major roads sealed; and
- Low traffic volumes, especially on outer islands, so shared pedestrian/bicycle facilities are possible.

7.2 Option B – Establish a Second Passenger and Freight Hub at a Central Island

Description:
- Barges would travel directly to the central island, and freight for the outer islands would be transhipped and distributed through smaller barges as per the existing arrangement;
- Freight for the inner islands would continue to go directly to Port Kennedy; and
- Air travel could be directly from Cairns to the central island, with passengers taken to the outer islands via ferries or aircraft.

Impacts:
- Cost effectiveness;
- More central for some OTSI; and

Source for Base Map: MapData Sciences Pty Ltd
• Existing facilities require upgrading and new facilities for some OTSI.

Negative aspects:
• Transhipping is still required;
• Require a dedicated ship to Cairns;
• Ship would cross through an additional quarantine zone;
• Duplication of the existing infrastructure already on Horn Island;
• Possible increased port charges and costs to support two freight hubs in the area;
• Limited land availability on central islands;
• Major environmental impacts due to the need for a large harbour to be constructed to service freight vessels.
• Ferry travel times if there is only one ferry per group of islands would be up to six hours, e.g. Yam / Yorke / Coconut / Warraber, hence each island (spoke), would require its own ferry;
• Existing facilities at most islands are not adequate for passenger ferry service;
• Size of ferry required for safety reasons, i.e. travel in seas up to 25kn for 60km, would be far greater than needed for passenger volumes;
• Major expenditure in recent years to upgrade the airstrips to a sealed standard; and
• The size of the runways is insufficient for large passenger aircraft.

Positive aspects:
• Freight and passengers arrive at a location more central to their final destination.

7.3 Option C – Hub and Spoke Arrangement for Passenger Transport by Ferry

Description:
• Having a series of combined passenger and freight ferries (modified barges) operating in a hub and spoke arrangement; and
• The four ferries would each service the four groups of OTSIs, with a line service then connecting them to Thursday Island.
Impacts:
- Cost effectiveness;
- More central for some OTSI; and
- Existing facilities require upgrading and new facilities for some OTSI.

Positive and negative aspects would be similar to Option B.

7.4 Option D – Rail Line from Cairns to Bamaga

Description:
This option involves the construction of a rail line from Cairns to Bamaga, with a ferry / barge connecting people and freight to the Torres Strait islands.

Impacts:
- Significant high cost ($2 billion) and very low benefits; and
- Additional transfer facilities.

Negative aspects:
- High construction cost versus low patronage and freight volumes;
- Native title issues in obtaining a rail corridor;
- High ($30 million per annum) maintenance costs;
- High operational costs;
- Transfer of freight from rail to barge is required; and
- Construction of a new freight and passenger handling facility would be needed at Seisia.

Positive aspects:
- Safe and reliable passenger and freight transport to Seisia (with a need for ferries and barges similar to the existing arrangement); and
- Potential economic development and employment opportunities associated with the operation of services and construction and maintenance of infrastructure\(^3\).

\(^3\) Torres Strait Islanders have been involved in the construction of many railways in Australia.
Figure 7.3  Option D – Rail Line from Cairns to Bamaga

Torres Strait Transport Infrastructure Plan
Option D - Rail Line from Cairns to Bamaga

Major Roads
Proposed Railway

Source for Base Map: MapData Sciences Pty Ltd

7.5  Option E – Option A with Additional Improvements

This option retains the existing services currently operating in the Torres Strait (as per Option A), however it includes additional improvements to the connections between Horn Island and Thursday Island. Two options have been strategically considered for this connection:
• Improved ferry connections; and
• Roll-on roll-off ferry.

**Improved ferry connections**

This improvement considers the combined freight and passenger services between Cairns, Bamaga and Thursday Island, with a connecting ferry service to OSTI communities. Possible improvements could include co-ordinating fares, ticketing and information services, and also improving safety, frequency and the cost of services.

**Roll-on roll-off ferry**

A roll-on roll-off operation between Thursday Island and Horn Island would provide significant benefits in moving people, cargo, and vehicles between the islands. It is noted that most of the major infrastructure to support the residents of Thursday Island is located on Horn Island, such as the water supply dam, landfill, airport and seaport. Therefore, such a ferry would provide for more economical movement between the islands. The following proposal was put forward in the study undertaken by PCQ and the TSRA in January 2003.

The following features were proposed for the ferry:
• 100 passenger capacity;
• 18 vehicle capacity;
• Will cater for demand for next 20 years plus; and
• Estimated cost of $2.5 million, plus on-going operational costs.

The roll-on roll-off ferry services contributes to the system integration strategy and provides savings for a number of stakeholders, for example:
• Ambulance services provided by emergency services;
• School bus travel provided by Queensland Transport and Education Queensland; and
• Garbage and other waste services provided by TSC.

The original feasibility study conducted an economic evaluation of the roll-on roll-off ferry based on full cost recovery by PCQ for the shore based infrastructure which is a significant proportion of the overall cost. The full cost recovery model significantly raises ticket prices and affects the economic viability of the service. However, if an initial grant was to fund the shore based infrastructure, the economic viability of the service would improve greatly such that it would have been viable at the time of the study. The original feasibility study requires updating and should also consider the economic impact of an initial capital grant for construction of infrastructure rather than a full cost recovery model.

### 7.5.1 Bridge connection

An alternative (long term) bridge connection could also be strategically considered, linking Horn Island with Thursday Island.

Based on previous studies undertaken on a proposed bridge, approximate details are:
• Length of 2.18km, comprising of 67 X 32 spans, and 1 X 34 navigation span;
• Width of 8.6m (between kerbs);
• Approximate roadworks to connect the bridge:
  - 100m on Thursday Island;
  - 800m on Horn Island; and
• Cost estimates (approximate 2005 costs):
  - Bridge cost assuming $5,000/m2: $101 million;
- Roadworks assuming $1.2 million/km: $1.2 million;
- Risk: $20 million; and
- Total Cost: $122 million with +/- 25% accuracy, plus on-going operational costs.

This bridge option has not been considered for in the Option Analysis stage (see Section 7.7). “Option E - Additional Improvements” considered for options assessment, only includes improved ferry connections and “roll on-roll off” ferry services.

7.6 Option F – Sea Transport Proposal

The Sea Transport proposal consists of a new ferry service for the Torres Strait, which would travel to each of the islands twice a week. The ferry would complete one clockwise and one anti-clockwise trip per week, and would be scheduled to meet a trunk route service that would travel between Cairns, Bamaga and Thursday Island.

Details of the proposal include:
- Vessel: 45m x 15m x 1.5m draft;
- The vessel would carry both passengers and ro-ro cargo;
- Vessel maximum speed: 16.5kn;
- Operational limits: 40kn winds, 3m waves; and
- Fully reclining seats for overnight stays.

Figure 7.4 Sea Transport Proposal

Source for Base Map: MapData Sciences Pty Ltd

This proposal is currently under consideration by a private transport operator.
7.7 Assessment of Transport Options

The transport options developed through the stakeholder consultation process were assessed to qualitatively measure how well the identified options meet the community needs and desires. The methodology and results are discussed below.

7.7.1 Multi-Criteria Analysis

The multi-criteria analysis (MCA) for assessing the transport options for the Torres Strait includes eight evaluation criteria. These criteria underlie the planning framework vision, desired outcomes and objectives outlined in Section 6.0, to allow for a broad evaluation of the transport options in relation to key transport issues and community needs and values. This provides a focused assessment of the transport options and the easy identification of the most appropriate transport option for the Torres Strait.

The evaluation criterion includes the following categories:

1. Integration;
2. Accessibility;
3. Connectivity;
4. Serviceability;
5. Cost of Implementation;
6. Attractiveness to Travellers;
7. Community Development; and
8. Environmental Responsiveness.

Integration

Aspects of the transport options assessed under the integration criteria include:

- Effectiveness to integrate a range of transport modes that provide inter-island access and links to Cairns at centrally located and identifiable nodes; and
- Linkages with regionally significant centres of population, employment, community services and facilities, shopping and recreation.

Accessibility

Aspects of the transport options assessed under the accessibility criteria include:

- Number of transport options available;
- Equitable access amongst the island language groups and across the broader Torres Strait region; and
- Flexibility of routes to respond to special travel requirements and in emergencies.

Connectivity

Aspects of the transport options assessed under the connectivity criteria include:

- Travel time between outer islands to key nodes;
- Number of travel route options between nodes;
- Directness of routes within island language groups and across the broader Torres Strait region; and
- Service coverage.
Serviceability
Aspects of the transport options assessed under the serviceability criteria include:
- Safety, comfort and reliability of the transport system to operate in all conditions; and
- Practicality of the system to manage passenger and freight transport requirements.

Cost of Implementation
Aspects of the transport options assessed under the cost of implementation criteria include:
- Capital costs associated with constructing/implementing the transport system; and
- Operating costs of the transport system.

Attractiveness to Travellers
Aspects of the transport options assessed under the attractiveness to travellers criteria include:
- Likely cost of fares for travel and freight transport; and
- Appeal of using a particular mode of travel within the Torres Strait and to Cairns.

Community Development
Aspects of the transport options assessed under the community development criteria include:
- Opportunities to generate local employment in its construction/implementation and on-going operation;
- Ability to support social development through greater community interaction within the island language groups and across the broader Torres Strait region; and
- Ability to provide access to social services, community facilities, shopping and recreation.

Environmental Responsiveness
Aspects of the transport options assessed under the environmental responsiveness criteria include:
- Ability to maintain environmental values;
- Likely effect on marine systems and environments; and
- Likely effect on terrestrial flora and fauna.

7.7.2 Findings of the Multi Criteria Analysis
The scoring of the transport options against the criteria and ranking of the transport options is summarised in Table 7.3.

The eight criteria were assigned a score between 1 and 6. A score of 1 meant that the transport option does not effectively address the criteria, whereas a score of 6 means that the transport option does effectively addresses the criteria. In some cases there are no real differences between options in terms of some criteria. In this case they are scored equal.

Each criterion has an equal weighting in the MCA because they:
- Assess the key aspects that are necessary in an efficient transport system which interrelate; and
- Address key issues and community values which are considered to be most important when implementing transport improvements in the Torres Strait (eg serviceability cost of implementation, attractiveness to travellers, community development and environmental responsiveness).
Table 7.3  Multi-Criteria Analysis of Transport Options for the Torres Strait

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Integration</td>
<td>3</td>
</tr>
<tr>
<td>Accessibility</td>
<td>3</td>
</tr>
<tr>
<td>Connectivity</td>
<td>4</td>
</tr>
<tr>
<td>Serviceability</td>
<td>5</td>
</tr>
<tr>
<td>Cost of Implementation</td>
<td>6</td>
</tr>
<tr>
<td>Attractiveness to Travellers</td>
<td>3</td>
</tr>
<tr>
<td>Community Development</td>
<td>2</td>
</tr>
<tr>
<td>Environmental Responsiveness</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td>31</td>
</tr>
<tr>
<td><strong>Ranking</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

Based on the findings of the MCA, the ranking of the six transport options from most suitable to least suitable are:

1. Option E – Continuation of current services (Option A) with additional improvements;
2. Option A – Continuation of current services;
3. Option F – Sea transport proposal;
4. Option B – Establish a second passenger and freight hub at a central island;
5. Option C – Hub and spoke arrangement for passenger transport by ferry; and
6. Option D – Rail line from Cairns to Bamaga.

This ranking means that it is most likely that Option E is the most suitable transport network to service the Torres Strait, as it best supports the planning framework vision, desired outcomes and objectives outlined in Section 6.0. Therefore, Option E will form the basis for developing actions in the integrated transport plan outlined in Section 8.0.

An explanation for the scores is outlined below.

Integration

Options B, C and E ranked the highest score for this criterion and are considered to equally provide high levels of integration. Option B includes the implementation of a second major transport hub at Yorke Island to provide local access to inter-island and Cairns air services for both inner and outer islands. Option C includes small transport air/ferry hubs at central islands within island language groups which link with inter-island and Cairns air services via the existing major transport hub at Horn Island. Option E will also contribute significantly to integration, but in a different way, through improved ferry connections between the main inner islands.

Option A and F will provide sound levels of integration. Option A will consist of a continuation of existing transport services which provide adequate levels of integration. Option F includes the introduction of a new inter-island ferry service.

Option D will provide the lowest level of integration. This is evident as the rail system would terminate at Bamaga which would necessitate interchanging between bus and ferry to reach airport and ferry services at Thursday and Horn Islands. Similarly, freight carried on the rail line will require additional handing compared to it being transported to the region entirely by ship from Cairns.
Accessibility
Options B, C and E ranked the highest score for this criterion and are considered to equally provide high levels of accessibility. Option B provides a high degree of accessibility by structuring transport services around a two hub configuration which allows for local access amongst inner and outer islands and connections between the two hubs. Option C provides a high degree of accessibility by linking a higher order hub to centrally located islands within each island language group, where local transport services then operate to local inter-island services within the island language group. Option E provides a high degree of accessibility by advancing existing freight and passenger services between Cairns and Thursday Island with a connecting ferry service to outer islands. It also includes a roll-on roll-off ferry between Horn and Thursday Islands.

Option D and Option F will generally provide similar levels of accessibility for different reasons. Option D will not provide improved accessibility between inner and outer islands, but will provide an alternative reliable transport mode for passengers and freight to the region from Cairns. Option F will improve the accessibility between the inner and outer islands albeit on a rotational, rather than direct trip. It will not impact the accessibility to Cairns.

Option A provides adequate levels of accessibility, however this is bettered by the introduction of new infrastructure and service improvements in all other options apart from Option D which

Connectivity
Option E scored the highest score for this criterion. It will provide the greatest level of connectivity as it consists of improvements to existing transport services which under normal operation provide wide service coverage, direct trips and acceptable travel times.

Option B and C will provide similar levels of connectivity. Option B will generally provide good connectivity for local inter-island trips within the inner and outer island groups, however it provides limited connectivity for trips between the outer and inner islands. Option C will generally provide good connectivity within the same island language group, however it provides limited connectivity for trips between island language groups due to the single hub configuration.

Option F will provide a low level of connectivity as the new service would operate an indirect all-stops route to each islands, rather than a point-to-point service. Option F also does not provide direct services to major transport hubs for air services such as Thursday/Horn Island and Yorke Island.

Option D will provide the lowest level of connectivity between existing transport hubs, as the rail system would terminate at Bamaga and would require the implementation of a number of interchanges between ferry and bus services to access existing air and ferry service hubs at Horn Island and Thursday Island.

Serviceability
Option A and E scored the highest score for this criterion. These options will consist of the continuation of existing transport services which are already proven to provide a high level of serviceability in relation to safety, comfort and reliability.

Options B, C and F are likely to perform similarly to each other, but not as well as Options A and E.

Option D will provide reliable and comfortable passenger transport between Cairns and the Torres Strait, however due to the need for additional handling of freight from truck to ferry, it may not be as practical for freight transport.
Cost of Implementation

Option A will have the lowest cost of implementation as it will consist of a continuation of existing transport system.

Option E be the next lowest cost option, with the only costs being for the improved connectivity between Horn and Thursday Islands (roll-on roll-off ferry and improved ferry connections). Note that this does not account for the cost of the bridge connection between Horn Island and Thursday Island.

Option F is likely to have slightly higher implementation costs than Option E as it will involve the establishment of new sea transport services.

Option B and C would have similar implementation costs. Option B will have implementation costs associated with establishing and operating a second air and ferry hub at Yorke Island. Option C will have implementation costs associated with upgrading and operating a major freight and passenger hub at Thursday/Horne Island for ferries.

Option D will have significant implementation costs associated with the construction of the rail line and establishing transfer facilities between Bamaga and Thursday/Horn Island.

Attractiveness to Travellers

The findings of a travel survey conducted as part of the study identified that most people travelling between the various Torres Strait islands and to Cairns considered air transport as the most attractive travel option due to comfort and travel time. Ferry trips were generally not supported, particularly for longer trips, due to rough ocean conditions. The continuation of existing air services (Option A) without improvements to cost, reliability and directness of some air services is not considered to be as attractive as Options B, C and E which include improvements to these aspects of air transport in the area.

Ferry services provided by Option F will be more suited to freight transport and for short inter-island trips, rather than longer passenger journeys, but provides an improvement over option A.

Option D is not considered to be an attractive travel option to Cairns due to the travel time, cost of fares and need to transfer to a ferry from Bamaga to Thursday/Horn Island.

Community Development

Option F is likely to provide community benefit as it will increase local employment opportunities during its operation. It will also provide safe and reliable freight and passenger transport between the Torres Strait and other remote areas of Cape York to Cairns. The rail line will also have significant tourism value by providing a comfortable and unique method of visiting the area.

Option B, C, D and E will each provide structured approaches to servicing the transport needs of the Torres Strait with similar levels of community development within and between language groups. This will allow for greater community interaction throughout the Torres Strait than Option A.

Environmental Responsiveness

Options A is ranked the highest score for this criterion as it will retain the existing transport system and not include the introduction of new transport elements that may cause negative impacts on environmental values.

Option E and F will also retain much of the existing transport system with introduction of some new transport elements that may potentially cause negative impacts on environmental values.
Options B and C will introduce new elements to the transport system which could potentially cause negative impacts on environmental values.

Option D will have significant environmental impact associated with the construction of the rail infrastructure.
8.0 Integrated Transport Plan

8.1 Strategies and Actions

This section identifies potential strategies to address the planning framework vision, desired outcomes and objectives outlined in Section 5.0.

While the purpose of this study was to develop an infrastructure plan and actions, some complementary transport services issues were also identified. Recommendation are therefore made for further investigation of these issues.

The actions have been linked to the following four transport objectives:

1) Passenger transport – improve access and reduce travel costs;
2) Freight transport – improve freight facilities and efficiencies;
3) Community access – improve access to community support activities (admin centre, shops) and ensure these are integrated with transport networks; and
4) System integration – connect the islands’ communities and contribute to the way they live, work and play.

The actions have assigned to them lead agencies, supporting agencies and priorities.

The priorities relate to the following planning horizons, short term to 2010, medium term to 2015 and long term beyond 2016 to 2026.

The following abbreviations are used to describe the following implementation agencies:
• TSRA – Torres Strait Regional Authority;
• QT – Queensland Transport;
• MR (MPO) – Main Roads (Major Projects Office);
• QT (PTD) – Queensland Transport (Passenger Transport Division);
• QT (RPF) – Queensland Transport (Rail, Ports and Freight);
• QT (SG) – Queensland Transport (Services Group);
• MSQ – Maritime Safety Queensland;
• DMR – Queensland Department of Main Roads (Cairns District);
• TSC – Torres Shire Council;
• DSD – Department of State Development;
• PCQ – Ports Corporation of Queensland; and
• Industry – Ferry and Air Service Operators.
## 8.1.1 Transport Infrastructure Recommendations

### Table 8.1 Transport Infrastructure Actions

<table>
<thead>
<tr>
<th>Action Number</th>
<th>Action Task</th>
<th>Lead Agency</th>
<th>Support Agencies</th>
<th>Priority</th>
<th>Objectives Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1</td>
<td>Update the feasibility study for a roll-on roll-off ferry service between Horn and Thursday Islands.</td>
<td>TSRA</td>
<td>PCQ, TSRA, MR, TSC, TSRA, QT(RPF), Industry</td>
<td>Short Term</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>I2</td>
<td>Review Horn Island airstrip infrastructure needs.</td>
<td>QT (PTD)</td>
<td>TSC, TSRA, QT, Industry</td>
<td>Short Term</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>I3</td>
<td>Develop a means of safe, accessible transfer from small boats to share (pontoon or jetty) suitable for the open water conditions at the outer islands, with a view to eventual replacement of island finger piers.</td>
<td>QT (SG)</td>
<td>MR (MPO), TSRA, DMR, PCQ, Industry, MR (MPO)</td>
<td>Short Term</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>I4</td>
<td>Ensure maintenance of transport facilities is included in future programs and investigate means of appointing island maintenance/reporting officers.</td>
<td>QT (SG)</td>
<td>TSRA, DMR, Industry</td>
<td>Short Term</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>I5</td>
<td>Undertake long-term sea access and dredging strategy.</td>
<td>QT (SG)</td>
<td>TSRA</td>
<td>Short Term</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>I6</td>
<td>Upgrade OTSI berthing dolphins to cater for barges currently using them, and for next generation vessels including continuing the berthing dolphin replacement program.</td>
<td>QT (SG)</td>
<td>MR (MPO), TSRA, DMR, PCQ, industry, MR (MPO)</td>
<td>Short Term to Medium Term</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>Action Number</td>
<td>Action Task</td>
<td>Lead Agency</td>
<td>Support Agencies</td>
<td>Priority</td>
<td>Objectives Supported</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-----------------------------------------</td>
<td>---------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>I7</td>
<td>Audit the level of compliance with the Disability Discrimination Act on ferries, buses, planes and at terminal facilities.</td>
<td>QT (PTD)</td>
<td>TSRA, QT (ITP) Industry, Industry</td>
<td>Short Term</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>I8</td>
<td>Accelerate the planned incremental improvements to the access roads into the NPA to provide a quality road link in the longer term.</td>
<td>DMR</td>
<td>NPA, Cook Shire Council</td>
<td>Short Term to Long Term</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>I9</td>
<td>Investigate provision of a serviced small craft marine facility at Thursday Island.</td>
<td>QT (SG)</td>
<td>QT, PCQ, TSRA</td>
<td>Short Term</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>I10</td>
<td>Raise the Horn Island jetty causeway.</td>
<td>PCQ</td>
<td>TSC, TSRA,QT</td>
<td>Short Term</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>I11</td>
<td>Complete the Stephen Island feasibility study on passenger transport and freight infrastructure options.</td>
<td>QT (SG)</td>
<td>MR (MPO), TSRA, QT (ITP &amp; PT)</td>
<td>Short Term</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>I12</td>
<td>Review progress in Native Title Land ownership issues relating to a barge ramp at Murray Island.</td>
<td>QT (ITP)</td>
<td>TSRA</td>
<td>Medium Term</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>
### 8.1.2 Further Investigation of Transport Service Issues

Table 8.2 Transport Services Actions

<table>
<thead>
<tr>
<th>Action Number</th>
<th>Action Task</th>
<th>Lead Agency</th>
<th>Support Agencies</th>
<th>Priority</th>
<th>Objectives Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>As part of the review of long distance passenger transport services throughout rural and remote Queensland, look at the performance of Torres Strait passenger transport services and the changes that may need to be made. This review should cover issues at Stephen and Dauan Islands.</td>
<td>QT (PTD)</td>
<td>TSRA, TSC, ICC</td>
<td>Short Term</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>S2</td>
<td>Investigate the need for Torres Strait specific regulations and/or education regarding commercial and small boat travel, covering areas such as fuel usage, safety equipment, boat and motor maintenance, wind conditions and safe mooring to improve safety and minimise the environmental impacts of boating.</td>
<td>QT (MSQ)</td>
<td>TSRA, Industry</td>
<td>Short Term</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>S3</td>
<td>Investigate means of reducing / minimising the impact of freight cost in and to the Torres Strait given the reduced number of freight modes available to Island residents.</td>
<td>QT (RPF)</td>
<td>TSRA, PCQ, Industry</td>
<td>Short Term to Medium Term</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>S4</td>
<td>Facilitate ventures for combined freight / passenger travel in the Torres Strait.</td>
<td>DSD</td>
<td>DSD, TSRA, QT (ITP), PCQ, Industry</td>
<td>Medium Term to Long Term</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>S5</td>
<td>Make use of improved methods / technology for intermodal coordination / ticketing (e.g. Horn Island airport, bus and ferry connections).</td>
<td>QT (PTD)</td>
<td>Industry</td>
<td>Medium Term</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>S6</td>
<td>As Dolphins are upgraded, re-introduce the requirement for notification of marine incidents.</td>
<td>QT (MSQ)</td>
<td>TSRA</td>
<td>Short Term</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>
9.0 Implementation Plan

9.1 Implementing the Transport Plan

The TSTIP is a framework to achieve good planning, management and the development of safe, efficient and maintainable access to freight and passenger transport services and infrastructure, which meets the needs of the Torres Strait Island community.

The transport system recommended for 2026 and the associated strategies and actions identified in the TSTIP have been assigned to lead agencies, supporting agencies, with priority/timing as outlined in Section 6.5.

There is a need to setup a Torres Strait Transport Implementation Group (TSTIG) to monitor the implementation of the TSTIP. The TSTIG would be chaired by QT Regional Manager (Transport Planning) and have representatives from TSRA, QT, MR, TSC and DSD.

9.2 Funding of TSTIP Actions

Currently, funding of projects in the Torres Strait is sourced from a number of government programs (e.g. DMR TIDS program) for transport infrastructure, however funding for transport services is limited to subsidies from government agencies (e.g. QT school transport subsidy and Health) for educational and health related trip purposes.

Stakeholders that allocate funds have indicated tight funding in their annual budgets (e.g. capital works or other identified transport expenditures). Annual budgets of funding agencies need to be coordinated by the TSTIG for implementation of actions in the TSTIP.

Detailed costs will need to be developed for short term actions in the implementation program. The program's cost estimates need to be finalised and considered in stakeholder's future work programs.

A significant number of TSTIP actions should be achievable using existing resources such as staff allocated to related tasks and within existing budgets. There are also major benefits in addressing some actions through partnerships with others by developing separate funding submissions.

9.3 Institutional Arrangements

It has been suggested during consultation activities in this study that the TSTIG should be responsible for monitoring implementation of this plan.

It would be useful to nominate people to co-ordinate transport issues in both TSC and the TSRA and be the point of contact for the TSTIP.

9.4 Monitoring and Review

Regular monitoring of the TSTIP actions is required to maintain the plan as a dynamic document. It is inevitable that the plan will encounter both challenges and possible opportunities, therefore a flexible framework is required so that the challenges can be accommodated. The TSTIP document as a whole should be reviewed every three years.

An important attribute of a successful TSTIP will be the ability to monitor and evaluate its performance so corrective action can be taken should implementation activities begin to fail. The TSTIG should establish performance indicators (PI) to help evaluate progress towards an improved transport system.
9.5 Implementation Management

Activities for transport infrastructure and services regarding implementation are outlined in Table 9.1 below.

Table 9.1 Transport Infrastructure Implementation Actions

<table>
<thead>
<tr>
<th>Action Number</th>
<th>Action Task</th>
<th>Lead Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>Continue to coordinate Federal and State agency projects via the Joint Torres Strait Housing and Infrastructure committee to avoid overtaxing island resources.</td>
<td>TSRA</td>
</tr>
<tr>
<td>M2</td>
<td>Through formation of the TSTIG arrange for annual meetings to review and monitor progress on TSTIP action implementation and outcomes.</td>
<td>QT (ITP)</td>
</tr>
<tr>
<td>M3</td>
<td>Nominate transport co-ordinators in both TSC and TSRA to act as the Council's TSTIP co-ordinator and provide transport related information.</td>
<td>TSC, TSRA</td>
</tr>
<tr>
<td>M4</td>
<td>Develop organisational delivery plans for TSTIP recommendations.</td>
<td>QT, DMR, TSRA, DSD</td>
</tr>
</tbody>
</table>
10.0 References

The following documents were reviewed as part of the study:

Planning Policies and Programs
- Torres Strait Regional Development Plan;
- Torres Strait Marine Strategy;
- Queensland Transport Policies and Programs;
  - Strategic Plan;
  - Boating Infrastructure Capital and Maintenance Program;
  - School Transport Program;
  - SAFEST; and
  - Minor Public Transport Infrastructure Program;
- Ports Corporation Queensland Policies and Programs;
- Queensland Airport and Regulated Air Transport Plan;
- DMR Policies and Programs;
  - Roads Connecting Queenslanders;
  - Statements of Intent; and
  - Local Roads of Regional Significance (LRRS) / TIDS;
- Torres Strait Planning Scheme.

Recent Studies
- Torres Strait Transport Assessment Background Discussion Paper;
- Torres Strait Aerodrome Inspection Report;
- Torres Strait Marine Inspection Report;
- Roll-On Roll-Off Passenger Vehicle Ferry between Thursday Island and Horn Island Feasibility Study;
- Stocktake of Transport Services in the Torres Strait;
- Prince of Wales Barge Ramp and Passenger Facility Study; and
- Mer Island Barge Ramp Feasibility Study.
Appendix A  Air Travel User Survey Form
Torres Strait Transport Infrastructure Plan Travel Survey

Location of Survey: (circle) Horn Island Airport / Yorke Island Airport / Other, specify ________________

Date: ____________________ Time: ____________________ Survey Complied By: ____________________

Question 1
Are you a resident of the Torres Strait?
A) Yes, specify town/island ________________
B) No, specify town/island ________________

Question 2
What is your age?
A) Younger than 18 years
B) 18-24 years
C) 25-34 years
D) 35-44 years
E) 45-54 years
F) 55-64 years
G) 65 years or older

(circle – Male / Female)

Air Travel Questions
Question 3
What is the origin of your trip today?
_______________________________________

Question 4
What is the destination of your trip today?
_______________________________________

Question 5
What airline are you travelling with today:
A) QANTASLink
B) Skytrans
C) Regional Pacific
D) Aerotropics
E) Charter Service, specify ________________
F) Other, specify ________________

Question 6
Is this trip:
A) Private self funded
B) Business
C) Funded by employer (circle):
   - Private
   - Government
D) Subsidised by a concession scheme
E) Other, specify ________________

Question 7
Why are you travelling today?
A) Shopping
B) Work related
C) Medical/Dental
D) Social/Recreation
E) Education
F) Personal
G) Social/Welfare
H) Other

Question 8
How long will you be/were you away from home?
A) Day trip
B) Over night
C) Other, specify ________________

Question 9
How often do you make this trip?
_______________________________________

Question 10
Do you use air travel for other travelling purposes?
A) Yes, specify ________________
B) No, why not ________________
Question 11
What do you like about the airline you are travelling with?
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

Question 12
What don’t you like about the airline you are travelling with?
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

Question 13
Without regard to cost, time and safety, would you prefer to travel by plane or boat to other islands in the Torres Strait and Cairns?
A) Plane, because __________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
B) Boat, because ___________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

(If boat) Do you still prefer boat travel even though it takes considerably longer time but cost less?
A) Yes
B) No

Sea Travel Questions

Question 15
If ferry services were available between islands how often would you use it?
A) Daily
B) Two or three times a week
C) Weekly
D) Fortnightly
E) Other, specify __________________________________________________________

Question 16
Would you prefer to travel by dinghy instead of ferry if it was available?
A) Yes, because ___________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
B) No, because ___________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

Question 17
What do you see as the issues with travelling by ferry between the islands?
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

Other Comments
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________