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Antarctic Gateway Cities & Contemporary Mobility

A Comparative Analysis of the Two Antarctic Gateway Cities of Christchurch & Hobart

MICHAEL GRACE
Antarctic Gateway Cities & Contemporary Mobility

A Comparative Analysis of the Two Antarctic Gateway Cities of Christchurch & Hobart

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Department of Tourism
University of Otago

A thesis submitted for the degree of
Master of Tourism
at the University of Otago, Dunedin

March 2005
ABSTRACT

The myth and reality of the desolate, ice-bound continent that is Antarctica, has been the subject of fascination and study for over two millennia. This fascination is stronger than ever and is no more prevalent than in the fact that more people, scientists and tourists alike, are travelling to the great white continent than ever before. The study of tourism in the Antarctic and its impacts has been the subject of a substantial body of work for more than a decade (Enzenbacher 1991; Headland 1994; Hall & Johnston 1995; Bauer 1994, 2001). Travel to the Antarctic is channelled through a select group of logistics gateways. Despite this intrinsic link between Antarctic travel and the gateways that serve as points of access to the Antarctic, sub-Antarctic and Southern Ocean, the body of literature all but ignores this premise of the importance of these gateways within Antarctica mobility. Subsequently, research into Antarctic gateway cities is conspicuous by its absence, in fact the paper by Hall (2000) stands alone in this field.

The purpose of this research sought to fill this void in the literature through taking a multidisciplinary and intermodal perspective, while extending on Hall’s (2000) seminal paper; The tourist and economic significance of Antarctic travel in Australian and New Zealand Antarctic gateway cities. This study undertakes a comparative analysis of the two Antarctic gateway cities of Christchurch (New Zealand) and Hobart (Tasmania, Australia) as socio-technical constructs (Graham 2001a) and is framed around what Urry (2004) describes as the new mobilities paradigm.

The research was split into two stages. The first presented an in-depth background into Antarctic travel, the implications of Antarctic law on Antarctic Treaty signatories, and a theoretical and empirical analysis of the contemporary gateway cities. The second stage involved semi-structured interviews with key gateway stakeholders. A total of ten in-depth interviews were conducted between Christchurch and Hobart over a period of six weeks.

The results presented a contrasting picture of the Antarctic gateway cities of Christchurch and Hobart, in their construction, functions and operations. While both cities are socio-technical constructions, able to support the logistics of Antarctic mobility, Christchurch was found to be an Antarctic logistics enclave while Hobart, although an Antarctic logistics enclave, was found to operate with greater logistical friction and reduced efficiency compared to Christchurch. The two gateways displayed contrasting networking, tourism operations and promotion and it was concluded that despite simply being Antarctic gateway cities, Christchurch and Hobart are two unique, mutually exclusive constructions.
ACKNOWLEDGEMENTS

There are many people who have lent their support and words of encouragement to me throughout this epic journey. First and foremost I would like to thank my family and sponsors. To Mum, Dad, Sarah and Grantie, your encouragement and wisdom have continually eased the weight of this sometimes burdensome task.

To my supervisors, Dr. James Higham and Dr. Anna Carr, I am indebted to your omnipresent enthusiasm and expert guidance throughout this vicarious Antarctic experience.

I would like to thank all the participants in Christchurch and Hobart who participated in this thesis and who made the interview process a pleasant experience. Thanks also to those people who contributed information over and above the call of duty.

To the University, but more importantly the Department of Tourism, thanks. To all those in the department that contributed their time and expertise, it is indeed wholeheartedly appreciated, even from a model student...

Finally, to all of you in the annexe, thank you for all your assistance along the way, but most of all, thanks for the memories, it's been great. I would specifically like to thank – Achim, Antje, Daniel, David, Gerald, Renate and Simone, thank you (or should that be danke schön?).

And last but not least – All Hail Bacchus!
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Sources:

CHAPTER 1

1.0 Introduction

Antarctica has for so long been the stage for exploration and discovery. From the first speculations about *Terra Australis Incognita* (The Unknown South Land), to the present day, Antarctica has been both a fascination and an obsession to many people. Literature on Antarctica arose when humans first began theorizing that the great white continent existed (McGonigal & Woodworth 2001 p.580), moreover Antarctic literature is abundant with Antarctic exploration, discovery, science and more recently tourism.

The Antarctic continent is undoubtedly the most inhospitable place on earth, yet the explorers of the Great White Continent from the heroic age “wanted to experience the cold, the isolation, and the mystique of this faraway place, with its raging seas, mountain scenery, towering icebergs, and never-ending days, and they longed to encounter its profusion of wildlife” (McGonigal & Woodworth 2001 p.522). Today, the continent is a nature reserve, devoted to peace and science, yet the number of tourists now outnumbers that of scientific personnel (Hall & Johnston 1995). Science and tourism are certainly the two largest phenomena of Antarctic research, and though they may be paradoxical, they both share components of the phenomenon of Antarctic mobility.

The intrinsic relationship between Antarctic travel, and the gateways that serve as the last post before Antarctica or 'The Ice', date back to the beginnings of Antarctic exploration. Despite being seemingly inextricably linked, Antarctic gateways – socio-technical constructs, supporting the logistics of Antarctic mobility - as the phenomena under scrutiny, have been conspicuously absent from Antarctic-based literature. Within the discipline of human geography, furthermore, the concept of mobility, though a relatively recent concept, is a coherent approach that enables the incorporation of all travellers into one category and with no distinction between scientists and tourists. The context of this research seeks to interlink both Antarctic gateways and the contemporary mobility of travellers to the Antarctic.
This chapter, with regard to the issues introduced above, seeks to discuss the rationale of this thesis research before the underlying research objectives, fundamental to academic enquiry, are stated. The research approach undertaken in this study is briefly analysed, following which a review of the study areas takes place. The chapter is then concluded with an explanation of the thesis structure previous to the summary.

1.1 Research Rationale

The body of literature on Antarctica and the world’s sub-Antarctic Islands is immense and indeed spans more than two thousand years. Of considerable note, however, is the fact that within this body of Antarctic literature there has been no substantial focus on the gateways themselves and the inherent role they play with regard to all travel to the Antarctic.

Certainly, “the topic of tourism in the Antarctic and sub-Antarctic has been the subject of a substantial body of work in recent years” (Hall 2000 p.157). In point of fact, the Annals of Tourism Research devoted an entire issue to both historic and contemporary Antarctic tourism which was “a marked departure from previous Special Issues because it focuse[d] on a single geographic area” (Smith 1994 p.221). The following year Hall & Johnston (1995) produced the most comprehensive publication to date devoted to polar tourism, which, though it devoted half the book to the Antarctic, only fleetingly touched on gateways when discussing the forms of Antarctic tourist activities.

Compared to New Zealand, and to a lesser extent Australia, both local and central governments of the gateway cities in South America have taken a pro-active stance towards understanding how these Antarctic gateways operate. For example, in Tierra del Fuego, an archipelago off southern South America, the Antarctic Unit of the tourism board carries out research on Antarctic tourism, the role of Antarctic gateway cities and has monitored Antarctic tourist ships and passengers calling at the Port of Ushuaia, Argentina since the 1992-93 season (Tourism Board of Tierra del Fuego - Antarctic Unit 2003).
This disparity between the levels of research into Antarctic gateways is somewhat justified when it is acknowledged that 99% of all Antarctic tourism occurs through South America, and in the 2003-2004 austral season 89.8% of ship-based passengers travel to Antarctic through the Port of Ushuaia (Tourism Board of Tierra del Fuego - Antarctic Unit 2003). Consequently, the majority of all academic research into Antarctic gateways is focussed on the gateways of Ushuaia and Punta Arenas (Chile); however research into the other Antarctic gateways has begun to emerge.

The seminal work on Australasian Antarctic gateways, and subsequent catalyst for this research, was the paper by Hall (2000) entitled *The tourist and economic significance of Antarctic travel in Australia and New Zealand Antarctic gateway cities*. This research was the first to look solely at the gateway cities of Christchurch - New Zealand, and Hobart - Australia, and which was also influential in that it examined the development of the Antarctic gateway functions and the active involvement of government at all levels towards the current and future developments.

However, to date, Hall’s paper is the fullest extent to which these gateways have been analysed a) in terms of their functions and b) in a comparative nature. Bauer’s (2001) book *Tourism in the Antarctic: Opportunities, Constraints, and Future Prospects* is the most comprehensive publication solely focussed on Antarctic tourism, yet there is only a momentary glance at the gateway component. It is this lack of research that comprehensively seeks to investigate the gateway component that this study resulted in being deemed necessary.

The primary aim of this study was to undertake the first in-depth analysis of the gateway cities of Christchurch and Hobart. Consequently, the research approach (discussed below) would be three-fold;

- Firstly, the independent historical associations of the gateway cities would be researched in order to create a background;
- Secondly, the gateways would be analysed in the contemporary context with regard to the fundamental components of their Antarctic operations and mobility;
• Thirdly, a comparative analysis of the two gateways would present an insight into the various facets analysed in the first instance and how they compare with one another in these instances.

This research has been undertaken, primarily, to create an understanding of the construction, functions, and operations of the two Antarctic gateways of Christchurch and Hobart. Furthermore, the three research objectives identified below, seek to present a holistic view of the importance, and influence that the gateway cities of Christchurch and Hobart possess in historic and contemporary society, economy and governance, while consequently facilitating academic interest in Antarctic gateways and their place in the emerging phenomena of mobility.

1.2 Thesis objectives

Pertaining to the issues outlined above, the aim of the study was to analyse and compare the two Antarctic gateway cities of Christchurch and Hobart and to this end three research objectives were constructed to enable stringency in the research approach. The study's primary research objectives are as follows:

1. To review and analyse the functions of these two Antarctic gateways in order to understand the management issues involved with the contemporary mobility of travellers to and through the gateways;

2. Gain an insight into stakeholder views on what they anticipate the direction of future developments to be in terms of challenges and/or opportunities;

3. To compare and contrast how the two gateways function in the contemporary context and their future direction in term of their Antarctic operations.
1.3 The research approach

In order to achieve these objectives, the investigation utilised two qualitative research methods. The first stage involved an extensive review of the literature which created the foundation from which the primary research was to be guided and conducted. Firstly, background information on Christchurch - New Zealand, and Hobart - Australia and their connection with the Antarctic was compiled, and included the collection of a range of secondary sources of data. Information on Antarctic related stakeholders in both the study areas, and the subsequent contacts within these organisations, were identified through extensive internet searches and personal email correspondence.

Based on this information, a preliminary interview schedule of potential stakeholders was produced. The collection of primary data was then undertaken in the second stage, the qualitative research method of semi-structured interviews being employed from a finalised schedule of interviewees. Once the results had been analysed, the two cases were compared, the significant points of the research were discussed and a set of recommendations were developed before the research was concluded.

The methods employed in this research and the methodological justification is discussed in detail in Chapter 4 Methodology and a complete outline of the structure of this thesis occurs in Section 1.5 of this chapter.

1.4 The study area

The study area was focussed on two prominent regional cities, which, despite their contrasts in historical and social contexts, are both Antarctic gateway cities and consequently provide a similar basis for comparing the characteristics of their structure, construction and status as Antarctic gateway cities.

In defining the study boundaries of the two cities, the main focus was on the pertinent functional Antarctic entities rather than constraining them within rigid administrative boundaries. Although the cities of Christchurch and Hobart (See
Figure 1.1) are at the centre of the research, relevant Antarctic aspects lie outside this narrow focus, such as Port Lyttelton and Hobart Airport in the City of Clarence, and therefore the broader hinterland has been taken into account with regard to an Antarctic relational perspective.

1.4.1 Christchurch

The city of Christchurch is located on the east coast of the South Island of New Zealand, just north of Banks Peninsula where the Port of Lyttelton is situated (Refer to Figure 1.1). Formed in 1850 the City has grown to a population of 324,297 (Statistics New Zealand 2002) making it the second largest city in New Zealand and the largest in the South Island. Adhering to this title, Christchurch is the major international gateway to the South Island, has well-developed infrastructure and is a very popular tourist destination in all seasons (Hall & Kearsley 2001) which received 1,760,433 visitor arrivals in 2004 to the year end September (Tourism Research Council New Zealand 2004).

Christchurch’s, moreover Lyttelton’s, association with Antarctica dates back to the turn of the twentieth century and the ‘Heroic Age’ of Antarctic Exploration when the port was the departure point for many expeditions. The City and the airport itself has had a long and faithful relationship with the southern continent (VIP Canterbury 2004a), both the New Zealand and the United States Antarctic programs have used it as a departure point since the early 1950’s. Today, Christchurch supports the New Zealand, United States and Italian Antarctic programmes, has substantial research facilities and an intimate Antarctic-related service cluster, as well as close Antarctic educational ties with Gateway Antarctic at the University of Canterbury.

1.4.2 Hobart

Founded in 1804, Hobart is the second oldest city in Australia and is the capital city of the island state of Tasmania. Hobart has a rich maritime past, most significantly, the port has played the central role in the shaping and defining the city, indeed Hobart was formed on the banks of the Derwent River. From Hobart’s convict origins, to its sealing and whaling connections in the Southern Ocean, the
city is perhaps most famous for its relationship with the Antarctic as a "staging post for Antarctic expeditions for more than 200 years" (Antarctic Tasmania 2004 p.5).

This compact city, situated on the Western banks of the Derwent River, supports a population of 47,319, while the population of Greater Hobart is approximately 191,169 (Australian Bureau of Statistics 2001). The Port is still a central focus for the city providing both a busy commercial hub, while Salamanca Square, a stones throw from Australia’s sea-borne Antarctic operations and also where Antarctic Tasmania is located, acts as a social focal point for residents and visitors alike. Hobart’s position as an important Antarctic gateway was consolidated when “issues over sovereignty, scientific programs, and institutional development became more prominent” (Kriwoken & Williams 1993 p.93) at the beginning of the twentieth century. In the present day, Hobart is a strategically important base for both Australia’s, as well as the French Antarctic programmes. Furthermore, Hobart has a strong tourism economy and in 2003 (YE Sept ’03) the region received 527,800 visitors (Tourism Tasmania 2003).
Figure 1.1: Location of Study Areas – Christchurch (New Zealand) and Hobart (Tasmania, Australia)
Source: http://www.NationalGeographic.com
Chapter Two presents a comprehensive background of the Antarctic continent. It begins with a brief history of the Continent from the mythology of a *Terra Australis Incognita* to its first explorers. An analysis of the history of Antarctic tourism ensues before establishing an understanding of the international Antarctic claims and New Zealand's and Australia's place in this community. An analysis of Antarctic law illuminates the complexity and implications to issues such as policy making and tourism regulations in contemporary society before investigating the state of contemporary Antarctic tourism and its variants.

Chapter Three consists of two parts. The first presents a review of the relevant literature, forming the conceptual and theoretical framework of this study. It seeks to examine the fundamental theories relating to this research, namely gateways and contemporary mobility. Firstly, literature pertaining to gateway cities commences the discussion before the concepts of the contemporary metropolis, networked mobilities and contemporary mobility are interwoven thus constructing a theoretical framework by which the concept of Antarctic gateway cities can be deduced. The second section then constructs an historical and contemporary overview of both Christchurch and Hobart.

Chapter Four details the various methods employed to address the research objectives. The justification for the use of these methods is highlighted in the research philosophy and which is a precursor to a detailed description of the qualitative research methods used and the consequent rationale. This included a two-stage research programme; firstly a review of identified gateway and Antarctic mobility themes of the two study areas was conducted before the implementation of an interview programme.

The results of the research are then presented in Chapter Five. The results for Christchurch and Hobart are presented in two parts. The first part details the main findings of Christchurch, the second Hobart.
Chapter Six discusses the main findings in the previous chapter, while integrating the relevant literature from the secondary research which formed the underlying conceptual framework. Most importantly, this chapter seeks to relate this framework to the results of all three research objectives and how they support or refute the fundamental research literature in a coherent and organised manner.

Chapter Seven provides a final unifying summary of this thesis and its major findings. The chapter is divided into four sections. Firstly, Section 7.1 presents a summary of the structure and progression of the thesis research before the main research findings from this study are identified and discussed in Section 7.2. The chapter then summaries these main findings by presenting a discussion on the recommendations and their implications for further research into Antarctic gateway cities.
CHAPTER 2  BACKGROUND

2.0  Chapter Outline

This chapter provides background on the history of Antarctica, Antarctic tourism, its laws and their contemporary implications. The themes of this chapter are divided into four sections. Sections 2.1 & 2.2 introduce the history of Antarctica, tourism in Antarctica with a focus on sea-borne, air-borne and land-based tourism. Section 2.3 informs the reader of the international claims to Antarctica, while Sections 2.4 & 2.5 discuss the Antarctic Treaty (AT), the Antarctic Treaty System (ATS) and the subsequent interpretation and implementation of this into the federal policies of New Zealand & Australia. Section 2.6 then looks into the contemporary issues of Antarctic tourism before the chapter concludes with a summary of why these issues are important in the context of this research and why they consequently guide the construction of this thesis.

2.1  The History of Antarctica

The existence of a southern polar region was predicted by the early Greeks (Hatherton 1990) and in the sixth century BC, Greek philosopher and mathematician Pythagoras theorised that the earth was round. Parmenides later divided the world into five climate zones, similar to those we know empirically today (McGonigal & Woodworth 2001), and included in this theory was the idea of two frigid zones at the poles. In the fourth century BC, the Greek philosopher, Aristotle, conjectured that the landmass of the northern hemisphere must be balanced by a large landmass in the South (McGonigal & Woodworth 2001). This became known as *Terra Australis Incognita,* “The Unknown South Land.” In the north the Greeks had given the name *Arktikos* to the polar region because the Artic lay under the constellation Arctos (the Bear) (Chapman 1967). Although the discovery of the Antarctic was more than two millennia away, Aristotle gave the name Antarktikos to the land “opposite to the north”.

Debate on the existence of this great southern land continued for centuries, although many early navigators such as Portuguese explorer Bartolomeu Diaz, who
took the first significant step when he sailed down the west coast of Africa in 1487; Sir Francis Drake, the brilliant English navigator who led an expedition to raid Spanish possessions in Panama and was the first to sail to the southern most point of the South American continent, where the Atlantic and Pacific oceans meet and which is now named the Drake Passage (McGonigal & Woodworth 2001).

It was not until Captain James Cook's second voyage to the great south lands, with his ships Resolution and Adventure, that he proved that if land existed it lay in latitudes beyond than 600 S (Hatherton 1990). On the 17th January 1773 the Resolution and Adventure became the first ships to cross the Antarctic Circle (McGonigal & Woodworth 2001). Although he did not actually sight land, Cook made the first circumnavigation of Antarctica during the summers of 1772-1775, crossing the Antarctic Circle four times, truly a pioneer of Antarctic discovery.

Contention arose again over who was actually first to sight Antarctica. In February 1819, sealer William Smith discovered the South Shetland Islands off the West Coast of the Antarctic Peninsula. However, it is now generally accepted that William Smith and Edward Bransfield, under the employ of the British Admiralty to survey the islands discovered by Smith, sighted part of the Antarctic Peninsula on the 30 January 1820 now called Trinity Peninsula (McGonigal & Woodworth 2001). However it was not until the 7 February 1821 that American John Davis and his crew from the shalllop Cecilia were credited with the honour of being the first people to step onto the Antarctic Continent (Fogg & Smith 1990).

By the late 1830's competition to reach the South Magnetic Pole had become intense, not so much for economical interests however, but the focus was on scientific research and the study of the earth's magnetic field (Fogg & Smith 1990). Between 1837 and 1839, three separate national expeditions were dispatched. Firstly, the French expedition lead by Dumont d'Urville sailed from Toulon on 7 September 1837, an American expedition of six ships commenced on 18 August 1838 under the command of Charles Wilkes, and thirdly, the British Antarctic Expedition which set sail for the South Magnetic Pole, under the command of James Clark Ross, on 5 October 1839 (McGonigal & Woodworth 2001). Neither the French nor American expedition's managed to reach the South Magnetic Pole,
however Dumont d'Urville managed to reach land (barely inside the Antarctic
circle) which he named Adelie Land (McGonigal & Woodworth 2001).

Departing Hobart on 12 November 1840, Captain Ross, in command of the 372-
 tonne Erebus, and the smaller Terror, in command of Irishman Francis Crozier,
sailed for the Antarctic Circle on the advice of the British sealer and whaler John
Balleny who had brought news of a possible break-up of pack ice along the 170º
Meridian (McGonigal & Woodworth 2001). Pushing south through heavy pack ice,
on 9 January 1841 “the ships broke out of the pack and found themselves in an ice
free sea” (Chapman 1967). He had discovered what is now known as the Ross Sea,
and what was and still is the best open access to the South Magnetic and
Geographic Poles (McGonigal & Woodworth 2001). Although the party was bitterly
disappointed at not being able to reach the South Magnetic Pole, still some 800 km
away, “the discovery of new land was worth a ceremony” (McGonigal &
Woodworth 2001, p.408). Ross and Crozier landed on an island on the 12 January
1841, and “because of the ceremony of taking possession of the newly discovered
lands in the name of ‘our most Gracious Sovereign, Queen Victoria”, [the island]
was named Possession Island” (Hatherton 1990), and the mainland beyond was
named Victoria Land.

Having passed the southern most point reached by Cook, and Weddell’s 74°15´S,
they continued South once again until 28 January when they sighted “a fine
volcano spouting fire and smoke” (McGonigal & Woodworth 2001, p.409), Ross
named this Mount Erebus and its smaller neighbour Mount Terror after the
expeditions two ‘bomb ships'.

2.2 International Antarctic Claims

The Antarctic continent is unique in the fact that, unlike all the other continents of the world, Antarctica belongs to no country. This is the outcome of decades of negotiation and dispute, both on the ice itself and through extensive diplomatic channels (McGonigal & Woodworth 2001, p.518). To the early explorers, the legal status of Antarctica was of little practical concern, as they had more pressing interests (Hatherton 1990). However, by the 1920's several nations with historical interest in the Antarctic were eager to claim sovereignty over parts of the continent. Each claim was based on discovery and "a sufficient display of authority" to show that the land was occupied and controlled by the claimants (McGonigal & Woodworth 2001, p.518). Norway was eager to extend its whaling grounds in from the South Atlantic to the Ross Sea and East Antarctica. France wanted to protect its interests in Adelie Land, based on previous explorers such as d'Urville (McGonigal & Woodworth 2001).

Based largely on the efforts of Sir Douglas Mawson, Australia would claim the biggest slice – 42 per cent – which would be established as the Australian Antarctic Territory in 1933. Previously, in 1908, the United Kingdom had proclaimed sovereignty over the Weddell Sea and Antarctic Peninsula. However, in response to the international surge of interest, British authorities hoped to extend this claim to all of Antarctica and in so doing approached the British Dominions of New Zealand and Australia to assist (Hatherton 1990).

The start of the twentieth century signalled the demise of whale stocks in the Antarctic Peninsula area. Historically, the inhospitable climate and distance from human population had protected them, however the introduction of steam ships and harpoon guns reduced whale numbers drastically and soon stocks had been exhausted and new hunting grounds were sought. Following the Norwegian whaling pioneer C. A. Larsen's catch of 221 whales from the Ross Sea during the summer of 1923 and his subsequent application to both the British and New Zealand governments for a whaling license, both governments hurriedly consulted and furthered the 1908 claim by establishing territorial sovereignty to the Ross Dependency in 1923 (Hatherton 1990).
Britain’s claim was based on the discoveries by Ross in 1841 and by Scott and Shackleton in 1902-03, 1908-09 and 1911-12. An Order-In-Council establishing the Ross Dependency to be administered by New Zealand occurred in 1923 – effectively the 50° sector below New Zealand that embraces the whole of the Ross Sea. The Ross Sea lies at the southernmost limit of the Pacific Ocean sector of Antarctica. The western shore of the Ross Sea is delineated by the Victoria Land coast up to Cape Adare, and its eastern boundary is Cape Colbeck, at the northwest tip of Edward VII Land. Its total area is almost one million square kilometres (386,000 sq. miles) (McGonigal & Woodworth 2001).

A year later (to the outrage of Australian Antarctic veteran, Sir Douglas Mawson) France claimed a small slice (a 6° arc) within the Australian claim – Terra Adelie – because of the exploration and claim made by Dumont d’Urville in 1840 (McGonigal & Woodworth 2001), even though no Frenchman had yet stepped foot on the mainland. By 1939 the Norwegians, whose whalers had carried out extensive explorations in the Antarctic sector, felt it necessary to make a claim which became known as Dronning Maud Land (Fogg & Smith 1990). However, unlike all other claims from the South Geographic Pole to latitude 60°S, Norway did not define the outer limit of its claim.

The Australian Antarctic Territory (AAT), Australia’s claim on the Antarctic, covers nearly 5.9 million square kilometres, about 42 percent of Antarctica and nearly 80 percent of the total area of Australia itself (Australian Antarctic Division 2003a). Australia’s Douglas Mawson (later Sir Douglas Mawson) led a group of Australians and New Zealanders in the 1911 to 1914 Australasian Antarctic Expedition. Due to his persistence, Mawson formed an agreement between the British and Australian governments to led an expedition to chart the coast of Antarctica from 160°E to 85°E (McGonigal & Woodworth 2001, p.486). This expedition was the British, Australian and New Zealand Antarctic Research Expedition (BANZARE) of 1929 to 1931 and it was at this time that Mawson claimed, what is now the Australian Antarctic Territory, as British sovereign territory. This claim was discussed at the British Imperial Conference of 1926, but it was not until 1933 that a British Order-in-Council formally claimed sovereign rights over the claimed territory and placed the territory under the authority of the Commonwealth of Australia (Hatherton
1965, p.13). The AAT comprises all the islands and territories, other than Adelie Land, situated south of the 60°S latitude and lying between the 160°E longitude and the 45°E longitude (Australian Antarctic Division 2003a). The eastern boundary is delineated by the Ross Dependency and the thin sector from 136° to 142° E was specifically excluded because of the French claim. However, the eastern boundary of the AAT was set out in a more ideological fashion. On the 14th January 1930, Mawson, on the BANZARE, was sailing at 49°E heading west, when he met Riiser Larsen, head of the Norwegian expedition, heading east. “[B]y mutual agreement, and in accord with their governments’ respective policies, the two expeditions turned around, marking 45°E as the boundary between Norway’s claim to the west and Britain’s claim to the east” (McGonigal & Woodworth 2001, p.486).

For the most part, the majority of Antarctic claims are non-conflicting; in fact there is a large section of West Antarctica that has no claim by any nation. However, the problem sector of Antarctica lies between the Bellingshausen and Weddell Seas, with a profound focus on the Antarctic Peninsula where “like a fan of playing cards, the Claims of Chile (37° arc), Argentina (49° arc), and Britain (60° arc) overlap” (McGonigal & Woodworth 2001, p.518). In all, seven nations have claimed sovereignty to parts of Antarctica, however, neither the United States nor Russia recognise these claims. The U.S, however, could have based a substantial claim on Antarctica due to the explorations of Wilkes, Byrd and Ellsworth, and similarly when Norway claimed Dronning Maud Land in 1939, the then Soviet Union refused to recognise any claims to Antarctica, even though it could have based an all-encompassing claim on Bellinghausen’s 1819-21 circumnavigation (McGonigal & Woodworth 2001).
2.3 The History of Antarctic Tourism

Contrary to popular belief, Antarctic tourism began long before Lars-Eric Lindblad chartered the Argentine vessel *Les Eclaireurs* in 1958. In fact, New Zealand has a long history of attempts at Antarctic tourism (White 1994). The earliest recorded voyage carrying tourists to the Antarctic was in March 1882, when the first of a series of New Zealand Government expeditions were despatched to inspect...
provision depots and to search for castaways on Campbell Island, Auckland Islands, and Macquarie Island (Headland 1994). Leaving from Bluff, this is the earliest connection between Antarctic gateways and tourism.

Although accurate historical records are difficult to obtain, there is evidence of tourists visiting Macquarie Island in February 1891. On the return of the *Gratitude*, under command of Captain J. Bramston, the owner (Joseph Hatch) produced a photographic card of the complement of all 19 passengers, four of whom were described in the photo as ‘tourists’ (Cumpston 1968).

With attention drawn to Antarctica following the expeditions of Scott and Shackleton, there was a period of particularly strong interest in travelling to Antarctica, and in 1910 the first attempt at commercial sea-borne tourism to the Antarctic was undertaken by Messrs Thomas Cook and Sons (Press 1910). A 50 day midsummer sea passage, departing from Lyttelton to McMurdo Sound, including a visit to New Zealand’s sub-Antarctic Islands, was proposed (Gray 1990). This proposal, as well as several scientific and exploratory Antarctic exhibitions that had been planned, did not take place however. After learning of the fate of Captain Scott’s 1910-1913 expedition interest soon waned and the onset of the First World War curtailed all such activities (Headland 1994).

By 1930, there was apparently once again sufficient interest in Antarctic tourism, at which time the Holland-America Line proposed a 142 day voyage aboard the *Volendam*, departing from Southampton and making a world circumnavigation (Headland 1994). This voyage, along with a 1940 expedition, led by Ernest Walker aboard the *Windward*, and which was intended to make tourist cruises, did not occur. Additional cruises were planned but were also cancelled due to the onset of the Second World War (Headland 1994).
2.3.1 Sea-borne Tourism

From the last visit by the four ‘tourists’ aboard the *Gratitude* in 1891, it would in fact be almost 60 years until commercial tourism to the Antarctic would take place. The first sea-borne tourism began in 1958 when the Chilean and Argentine governments operated the first cruises to the South Shetland Islands (Enzenbacher 1991). The *Les Eclaireurs* (under command of Capt. Eduardo Llosa) made two cruises, in January and February, each trip carrying about 100 tourists (Headland 1994).

Hall (1995a) cites that visits by cruise ships to the Antarctic Peninsula began annually from 1958 onwards. Cruise voyages were made by Chilean vessels, however they were infrequent and after lasting only a few austral summers, were discontinued (Headland 1994). Antarctic Tourism essentially began in 1966 when Lars-Eric Lindblad ‘recognized the potential market for transporting adventurous and educationally minded tourists to remote parts of the world by small expedition ship.” (Landau 2001, p.1). The Argentine naval vessel *Lapataia*, chartered by Lindblad (of Lindblad Travel, N.Y) took 58 passengers to the South Shetland Islands and Hope Bay from Ushuaia in January and February.

By 1968, Antarctic tourism was becoming increasingly popular, but it was constrained to the Antarctic Peninsula and region. Two cruises by the *Magga Dan* in 1968 saw tourism being extended to the Ross Sea Region for the first time. These cruises, organised by Lindblad, in association with the Holm Shipping Company of New Zealand, departed from the small port of Bluff and visited the many Sub-Antarctic Islands of New Zealand before reaching McMurdo Sound and in doing so becoming the first tourist vessel to cross the Antarctic Circle (Headland 1994).

Lindblad, following the success of these cruises and the increasing popularity in Antarctic tourism, decided to build a specialist polar tourist vessel, namely the *Lindblad Explorer*. It was the launch of this new ‘ice-breaker’ that has been regarded by many academics as the beginning of the modern period of Antarctic tourism. Today, IAATO offers a range of statistics and trends on Antarctic tourism.
numbers, however earlier statistics were limited and were conducted by researchers such as Reich (1980) and Enzenbacher (1992 & 1993). Due to the proximity to South American ports, the Antarctic Peninsula is the most frequently visited area of Antarctica and nearly all cruises depart from the Antarctic gateways of Punta Arenas (Chile) or Ushuaia (Argentina). Visits to the Ross Sea on the other hand are considerably less frequent. In fact 14,902 ship-based passengers were landed at Antarctic Peninsula sites in the 2003-04 season compared to only 489 tourists, on 7 voyages, who visited sites in the Ross Sea/Continental area (IAATO 2004). This is because the crossing of the Drake Passage to the Antarctic Peninsula can be made in 48 hours, however it may take up to 10 days from either Hobart or Christchurch over the Southern Ocean, arguably the most treacherous seas in the world.

As well as having large sea-borne vessels operating in the Antarctic tourism industry, private yachts are also prevalent and can carry up to 20 fare-paying passengers (Enzenbacher, 1992). Once again, although the majority operate in the Antarctic Peninsula region, there are a number of yachts, both private and commercial, that operate from New Zealand and Australia to the Ross Sea Region. Arguably the most prevalent of these operators is that of Heritage Expeditions, run by Antarctic enthusiast Rodney Russ, who has been operating out of Christchurch for more than twenty years.

2.3.2 Air-borne Tourism

For the purposes of clarification, this discussion will adopt the view taken by Hall & Wouters that “airborne tourism includes sightseeing overflights of Antarctic without landing, independent adventures making brief visits in specially equipped light aircraft, and land-based tourists flown in on package deals.” (Hall & Wouters 1995, p.150). Airborne tourism, interestingly enough, began two years before the modern ship-borne tourist era. On the 22nd December 1956, a Douglas DC 6B operated by the Chilean National Airline, flew non-stop from Chacabuco over the South Shetland Islands and Trinity Peninsula, carrying 66 passengers. Another Antarctic tourism milestone would occur the next year in 1957 when a Pan American Airways stratocruiser flew from the gateway city of Christchurch and
landed at McMurdo Sound on 15th October. This flight carried the first tourists to set foot on the Antarctic Continent (Headland 1994).

Another milestone occurred ten years later, when in 1968, as part of the round-the-world tourist flight organised by Frederick Dustin and sponsored by the Admiral Richard Evelyn Byrd Polar Centre of Boston, tourists first saw the South Pole while aboard a Convair 990A which passed over it at low altitude (Headland 1994). The aircraft flew out of Christchurch airport and landed at McMurdo Sound where approximately 70 tourists visited various sites in the Ross Sea Region including Captain Scott's hut before continuing on for the South Pole (Headland 1994).

Similarly to early sea-borne tourism attempts, several sporadic air-borne tourism flights were made. Overflights became regular only from 1977 when in February of that year Qantas and Air New Zealand began flights to the Ross Sea and over Antarctica itself. Both airlines flew a total of five flights each during this summer, overflying Cape Hallett, Ross Island, Terre Adelie, Admiralty Mountains, and other regions. These flights carried an average of 4000 passengers per season over the next two summers. More than ever, Antarctic tourism experienced rapid growth; however these operations were terminated as a result of the infamous crash of the Air New Zealand DC-10 crashed on Mount Erebus, Ross Island in 1979 with the loss of all 257 persons onboard. Prior to the crash, approximately 11,000 passengers from both Australia and New Zealand had flown over Antarctica during these four summers of air operations (Hall 1995; Headland 1994). The Erebus disaster underlined the hazards of polar navigation and that flying in Antarctica is substantially more hazardous than anywhere else. This notion was backed up by the not so well known crash of a Chilean flight on Nelson Island which occurred on the 30th December 1985 in which all 10 men (two crew and eight tourists) aboard were killed (Hall 1995; Headland 1994).

The Erebus disaster resulted in the cessation of that particular form of tourism, however the popularity in Antarctic tourism was still growing steadily. In 1982, only three years after the disaster, the first sizable party of tourists flew from Punta Arenas to the Chilean station, Teniente Rodolfo Marsh, on King George Island
before joining an awaiting cruise ship (Hall & Johnston 1995a). From 1983 onwards, Lan Chile has operated sporadic tourist flights from Punta Arenas, however these are only sporadic due to weather conditions (Hall 1995; McGonigal 2001). Antarctic overflights would once again resume, 15 years after, and what is still, Antarctica’s worst disaster. A program of Boeing 747 sightseeing overflights from Melbourne to Antarctica, including parts of the AAT, has been operated by Croydon Travel each summer since the 1994-95 austral summer season.

The discovery of blue-ice areas suitable for landing sites was a major influence in the development of commercial and scientific Antarctic flights. Adventure Network International (ANI) began running private flights from Punta Arenas, mainly taking adventurers and expeditioners, to the Patriot Hills in 1984. From the Patriot Hills and using ski-equipped aircraft, initially operating Douglas DC4’s, but more recently C130 Hercules, the expeditions flew into previously inaccessible areas of Antarctic’s interior including the vicinity of Vinson Massif (the highest peak in Antarctica – 4,897 m), while a DHC Twin Otter is used to fly tourists to the South Pole (Hall 1995; Headland 1994; McGonigal 2001).

ANI/ALE run private flights from Punta Arenas, Chile, where they take adventurers and expeditioners (including scientists) to there base camp at the Patriot Hills area, which is the only private base camp and runway on the continent (Hall & Wouters 1995, p.151). “In 1987, ANI flew the first tourists to the South Pole and to date remains the only company in the world offering airborne travel to the interior of Antarctica and the southernmost point on earth” (ANI 2004). Plate 2.1 overleaf illustrates the locations visited and the extent of ANI/ALE’s operations in the Antarctic.

The 2003-04 season was the ninth consecutive season that Croydon Travel, of Victoria, has operated these day Antarctic sightseeing overflights. Croydon Travel became an Associate Member of IAATO as of April 2004, and to date, Croydon has operated a total of 72 flights carrying nearly 25,827 passengers since commencing their Antarctic operations (IAATO 2004, p.8).
2.3.3 Land-based/Adventure Tourism

Regardless of their mode of transport, a large majority of Antarctic visitors spend a certain amount of time on shore, as well as in the continental interior. According to IAATO (2004), 19,771 tourists landed on the continent during the 2003-04 summer which was an increase of over 6,000 from the previous season. According to Hall & Wouters land-based tourism is defined as including “all activities by tourists on the Antarctic continent and covers a wide range of visitor experiences” (Hall & Wouters 1995, p.151). These experiences range from short camping tours located just short distances from the tour vessels, to adventure expeditions to the Geographic South Pole on skis, or even parachutes (McGonigal & Woodworth 2001, p.523). Indeed commercial land-based tourism operations have had a long presence on The Ice, IAATO member Adventure Network International/Antarctic Logistics and Expeditions (ANI/ALE), operated out of Punta Arenas, Chile, for the 17th consecutive season in the 2003-04 summer (IAATO 2004, p.6).

Tourists have the opportunity to undertake a raft of adventure activities. For the less adventurous tourist, flights are offered to the South Pole in a DIIC Twin Otter or visit a colony of Emperor Penguins (Aptenodytes forsteri) at the Dawson-Lambton Glacier on the coast of the Weddell Sea. For the more extreme tourist, packages enable them to ski to the South Pole, learn how to survive in Antarctica for 10 days, climb Antarctica’s highest peak, Mt Vinson or even participate in “The World’s Toughest Marathon” (ANI 2004), a 26.2 mile run to the Geographical South Pole.

Despite this established form of Antarctic tourism, there is still no large-scale tourism facility in Antarctica. A specialised accommodation block was, however, constructed in October 1982 to house delegates for an international conference held at Chilean station, Teniente Rodolfe Marsh, on King George Island (Headland 1994, p.277). Although it is used by scientific and support staff as accommodation while awaiting flights to and from Chile, the facility has become known as Hotel Estrella Polar (Polar Star Hotel) due to the fact that it regularly houses parties of tourists to the island arriving aboard chartered aircraft (Headland 1994).
Furthermore, as Hall & Wouters (1995) detail, the ‘hotel’ has banking and shopping facilities.

**Figure 2.1: ANI/ALE Operations in the Antarctic**

Source: Adventure Network International http://www.adventure-network.com

This is the only substantial tourism related facility in Antarctica (there are various makeshift accommodations), however “[p]roposals to increase tourism by constructing new hotels, airstrips, and other land-based support facilities have been circulated” (Hall & Wouters 1995, p.152). Indeed in the late 1980’s “a detailed proposal was submitted to the Australian Government by Helmut Rohde and Partners which proposed the development, operation and environmental monitoring of an airport, visitor education and research centre, accommodation, hospital, search and rescue and Antarctic Treaty related organization facilities” (HRSCERA 1989 cited in Bauer 2001, p.108). ‘Project Oasis’, as it was to be known, was to be located near Davis Base, in the Vestfold Hills (AAT), however it was promptly rejected by the Australian Government, although Bauer (2001) suggests that if a developer could conceivably meet all environmental requirements under The Protocol, then such an operation may be established in the future.
2.4 The Antarctic Treaty

Modelled on the International Polar Years of 1882-1883 and 1932-33, the International Geophysical Year (IGY) was proposed after discussion among American and British physicists in 1950 (McGonigal & Woodworth 2001, p.500). The IGY was a scientific program that focussed on two areas, the Antarctic and outer space. In terms of Antarctica, the IGY, which ran for 18 months from 1 July 1957 to December 1958, “engendered a magnificent cooperative effort, during which political considerations were put aside and scientists from twelve nations established Antarctic stations without regard to political claims” (Hatherton 1965, p.4).

As the International Geophysical Year (1957-58) drew to a close it became evident that the research and exploration that had occurred would continue for many years into the future. Antarctica has no permanent human populations, thus there is no natural sovereignty over any parts of it, however it also contains the only significant unclaimed territory on earth (McGonigal & Woodworth 2001). It was foreseen that this uncertain jurisdiction would lead to precarious circumstances and could ultimately threaten world peace (for example, the conflicting claims of Britain, Chile and Argentina).

Between late 1957 and early 1958 various government agencies, after observing that scientists could achieve international co-operation in Antarctica to the benefit of all, began consultation where it was generally agreed that a more permanent agreement would be desirable (Hatherton 1990). Accordingly, the United States took the initiative, on 2 May 1958, by proposing that a conference be convened for the creation of an Antarctic Treaty. The U.S. then sent what they saw as broad objectives for the treaty to the twelve countries that had been active in Antarctica during the IGY, and after further negotiations during a series of preparatory talks held from June 1958 for more than a year, the Conference on Antarctica convened on 15 October 1959 and closed on 1 December 1959 coinciding with the signing of the Antarctic Treaty on that day.
2.4.1 The Antarctic Treaty System (ATS)

From its inception in the cold war environment of the 1950’s and during a period of tensions over territorial claims in Antarctica, the Antarctic Treaty (which came into force on 23 June 1961) directs all activity that occurs in Antarctica. The Treaty identifies that Antarctica belongs to the world, and thus countries and individuals working there must obey the rules that have been formulated throughout the past 50 years in order to protect this last bastion of wilderness.

The highly successful international cooperation associated with research in Antarctica during the IGY created the notion for an international Antarctic Treaty (Hall & Johnston 1995a). The signatories to the Treaty include the twelve countries that were active in Antarctica during the IGY, all of whom accepted an invitation from the United States Government to participate in the diplomatic conference at which the Treaty was negotiated in Washington in 1959. These ‘Parties’ have the right to participate in the Antarctic Treaty Consultative Meeting’s (ATCM) held every year, which occurs “for the purpose of exchanging information, consulting together on matters of common interest in pertaining to Antarctica, and formulating and considering and recommending to their Governments measures in furtherance of the principles and objectives of the Treat.

2.4.2 The Management of Antarctic Travellers

The management of travellers to and in Antarctica is complex. When the Antarctic Treaty came into force in 1961 it did not specifically mention non-governmental activities, such as tourism. At the time, it was not apparent that significant numbers of tourists would one day want to visit a place so inhospitable as Antarctica (McGonigal & Woodworth 2001), however as tourism increased several ongoing recommendations had to be passed in order to sufficiently manage the way in which tourism was to be conducted. The first recommendation to be passed was at the fourth Antarctic Treaty Consultative Meeting (ATCM) in Chile in November 1966, although it was not until 1998 that the most significant environmental instrument for the systematic management of tourism issues was addressed. The Madrid Protocol (Protocol on Environmental Protection to the Antarctic Treaty), and its five annexes (Annex I: Environmental Impact Assessment; Annex II: Conservation of Antarctica Fauna and Flora; Annex III: Waste Disposal and Waste Management; Annex IV: Prevention of Marine Pollution; Annex V: Area Protection and Management) now “provide a comprehensive multilateral agreement on the management of the Antarctic environment” (Blay 1992).

As part of this protocol, all human activities, whether government, private or commercial, are subject to an environmental impact assessment (EIA). The Protocol’s EIA system is a three-tier structure and the assessment is based on whether activities are identified as having:

- less than a minor or transitory impact
- a minor or transitory impact
- more than a minor or transitory impact.

All activities with more than a minor transitory impact require a comprehensive EIA. This requirement (particularly Annex I: Environmental Impact Assessment) means that tour companies, registered in Treaty signatory states, are now legally required to conduct EIA’s for their Antarctic ship-borne, land-based or airborne/overflight operations (Kriwoken & Rootes 2000).
Due to their geographical location, Australia and New Zealand both have an inescapable interest in Antarctica. Furthermore, Australia and New Zealand's long-standing historical associations with the continent are intrinsically linked with their commitment to Antarctic science and management. The 1991 Madrid Protocol (Protocol on Environmental Protection to the Antarctic Treaty) entered into force in 1998 and is described as being the most significant addition to the Antarctic Treaty System since the adoption of the 1980 Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) (Rothwell 2000, p.591). Australia and New Zealand, as two of the twelve original signatories to the Antarctic Treaty, are bound by ratification of international agreements requiring them to implement the ATS and more recently The Protocol into their domestic legislation. In Australia, The Protocol is implemented through the 1980 Antarctic Treaty (Environmental Protection) Act and associated environmental impact assessment regulations (Kriwoken & Rootes 2000, p.142). In New Zealand The Antarctic Treaty is implemented into the Antarctic Act 1960, and The Protocol through the Antarctica (Environmental Protection) Act 1994.

Despite its adoption by ATCP's in 1991, there was considerable debate amongst the Treaty Parties as to how The Protocol would be interpreted (Rothwell 2000, p.593). It was subsequently agreed that “while some of the terms could be better defined, they were deliberately vague and eventually would be the subject of interpretation by the parties” (Rothwell 2000, p.594). As a consequence of this, the interpretation and subsequent implementation of The Protocol by Treaty Parties varies significantly. Additionally, interpretation has led to the overlapping of The Protocol, with its main objective, defined as “the comprehensive protection of the Antarctic environment and dependent and associated ecosystems”, and the global maritime regime represented by the International Convention for the Prevention of Pollution from Ships (MARPOL). The marine environment is obviously an integral part of the Antarctic ecosystem, however, the United States for example, holds that land-based stations should follow The Protocol, Annex III regulations and ships should follow MARPOL and The Protocol, Annex IV only (Wood 2003, p.143).
The establishment of the Committee for Environmental Protection (CEP) in 1998, through Article 11 of The Protocol, was "to provide advice and formulate recommendations to the Parties in connection with the implementation of this Protocol, including the operation of its Annexes, for consideration at Antarctic Treaty Consultative Meetings, and to perform such other functions as may be referred to it by the Antarctic Treaty Consultative Meetings" (ATCP's 1991, p.3). Although the CEP was established to guide Treaty Parties, there is still no consensus as to the application of the various Antarctic legislatures.

Indeed Australia and New Zealand both share similar views with regard to the importance of, and thus adhering to, the Antarctic Treaty. The question of interpretation, nevertheless, has seen a divergence in the formation and implementation of the two countries Antarctic domestic policies. Although it is not an objective of this research to fully understand the intricacies of Australia and New Zealand Antarctic Policy, it is however an integral component of how Federal and State Governments (in the case of Australia), and the National Government in New Zealand operate, and to this end, how the gateways themselves operate.

2.6 Contemporary Antarctic Tourism

2.6.1 IAATO

In order to prevent negative environmental impacts occurring in Antarctica through the increasing tourist numbers (and to self regulate their own activities), a group of seven tour operators who were active in Antarctica established the International Association of Antarctic Tour Operators (IAATO) in 1991. IAATO now act as a single organisation dedicated to advocate, promote and practice environmentally responsible private-sector travel to Antarctica. IAATO soon developed its own visitor guidelines for the safe and responsible conduct of tourism. Its original visitor and tour operator guidelines were subsequently modified and served as the basis in developing Recommendation XVIII-1 of the ATS, which provides the Guidance for Visitors to the Antarctic (Appendix E) and the Guidance for Those Organising and Conducting Tourism and Non-Governmental Activities in the Antarctic (Appendix F).
The Madrid Protocol states that "all activities are to be planned and conducted on the basis of information sufficient to evaluate their possible impact on the Antarctic environment and its associated ecosystems, and on the value of Antarctica for the conduct of scientific research" (IAATO 2003). Thus companies, registered in Antarctic Treaty signatory states, are legally required to conduct EIA's in the planning and management of all shipborne, landborne, or airborne/overflight tourist activities in Antarctica, whether at a preliminary assessment, initial environmental evaluation or comprehensive environmental evaluation level (Kriwoken & Rootes 2000). However, following the submission of these EIA's, the protocol states that "activities shall be modified, suspended or cancelled if they result in or threaten to result in impacts upon the Antarctic environment or dependent or associated ecosystems" (IAATO 2003). In addition, tourists aboard all IAATO member vessels are required to attend compulsory lectures to familiarise them with the code of conduct for shore visits (McGonigal & Woodworth 2001).

The establishment of the Madrid Protocol means that "those responsible for organising and conducting tourism and non governmental activities must comply fully with national laws and regulations which implement the Antarctic Treaty system, as well as other national laws and regulations implementing international agreements on environmental protection, pollution and safety that relate to the Antarctic Treaty Area" (IAATO 2003).

Today, IAATO has grown to include 56 member and associated member companies in the United States, Argentina, Australia, Belgium, Canada, Chile, Germany, Great Britain, The Netherlands, and New Zealand. The requirements laid out in the Madrid Protocol has meant that each member company has far-reaching responsibilities to act responsibly and that they must comply with ATS obligations which is both time consuming and expensive. However, today, Antarctic tourism is the best managed tourism in the world, of which it can only be hoped that other destinations adopt similar measures in order to improve their own tourism practices (McGonigal & Woodworth 2001).
2.6.2 Vicarious Tourism

Antarctica is the ultimate adventure for many tourists in the contemporary era, however one does not have to physically travel to Antarctica to take part in the Antarctic experience. Without a doubt the South Polar Region is a destination for large numbers of vicarious travellers. There are now many locations world-wide that offer an affordable alternative of an Antarctic experience, these range from displays at museums to innovative centres offering full, interactive experiences.

Television does much to enhance and promote the ideology and myth of the great white continent. Certainly “the wildlife series Life in the Freezer, narrated by naturalist David Attenborough, and the travel documentary Pole to Pole, by former Monty Python member, Michael Palin, at two examples of how this medium has brought the beauty, wonder and harshness of the polar environment into living rooms the world over” (Hall & Johnston 1995b), while IMAX cinemas have also featured Antarctic movies (White 1994). The development of nature-oriented Antarctic programs such as these has undoubtedly been a facilitator in the substantial growth in nature-oriented and adventure tourism (Hall & Johnston 1995b).

2.6.3 Antarctic Attraction

The opportunities for an ‘off-ice’ tourism experience were sufficient enough for Christchurch International Airport Ltd (CIAL) to include an Antarctic Attraction within the International Antarctic Centre (IAC) which is located opposite Christchurch Airport. Established in 1992 the Antarctic Attraction (AA), now owned by Richard Benton, has received over two million visitors and has become one of Australasia’s top paying tourist attractions. The centre truly is an interactive and multi-faceted Antarctic attraction. AA showcases a veritable range of Antarctic situations including the most up-to-date scientific developments. It boasts the new Antarctic Storm® whereby, in the snow and ice experience which is kept at around -5°, a real Antarctic Storm blows every 30 minutes and the new Antarctic Hägglund ride, which is an exciting outdoor ride on a genuine amphibious,
tracked, 16-seater vehicle, which is used by both the U.S. and New Zealand Antarctic program on The Ice, is attracting record visitor numbers (IAC 2004).

“This US$6 million facility adjacent to the headquarters of the United States, New Zealand and Italian logistics centres and a five-minute walk from the Christchurch airport brings Antarctica to many tourists who would probably never personally visit Antarctica” (White 1994, p.256). There are few attractions in the world that offer interactive polar experience and the AA is the only one of its kind in the world to offer a vicarious Antarctic experience (McLeish 2004). Polaria, the Norwegian Centre for Polar Knowledge, is an example of an Arctic ‘off-ice’ experience. Polaria, located in the Norwegian town of Tromsø, opened in May 1998 and is an information and experience centre focusing on issues relating to the Polar areas rather than solely the Antarctic. Despite this, the centre is a world-class attraction and in 2003 Polaria had 79,000 visitors and this figure is expected to reach 106,000 in 2004 (Joachimsen 2004). The escalating numbers of vicarious tourists seeking to experience Antarctic situations is evident through the success of AA and Polaria, however, as Hall & Johnston (1995b) acknowledge, it is unknown as to the extent such visitor attractions encourage people to visit Antarctica itself, or on the other hand, to what extent it stops potential tourists visiting the continent as the vicarious experience may have quenched their thirst.

Further to these “modern-day shop window[s] for the Antarctic” (VIP Canterbury 2004, p.15) museums and public collections also offer insights into the history, importance and undertakings in the Antarctic. According to Stephenson (2001) “[t]he Scott Polar Research Institute (SPRI), Lensfield Road, Cambridge, is with little doubt the ultimate destination for polar pilgrims” (p.582). By far, its drawcard is the museum, archives and library which attract polar enthusiasts. The Canterbury Museum in Christchurch shares with the SPRI the title of the world’s pre-eminent Antarctic museum and houses some of the finest Antarctic relics in the world. These include Frank Hurley’s Model B Kodak camera, the stove that accompanied Shackleton on the James Caird and Ronald Amundsen’s pocket knife that he used to sharpen the bamboo stake that was planted at the South Pole to fly the Norwegian flag on 17 December 1911.
Te Papa, the National Museum of New Zealand, recently held an exhibition entitled *Antarctic Heroes - The race to the South Pole* (29/05/04 – 26/10/04). The exhibition was loosely based on a touring exhibition developed by the National Maritime Museum, London where the original name was 'South - the Race to the Pole' (Harvey 2004c). The exhibition was only held for a short term, 151 days in total, however the interest was such that the final attendance was a staggering 64,094, an average of 424 visitors per day (Harvey 2004b).

The above references are but a few of the many and varying ‘off-ice’ tourism experiences available world-wide, but which are an illustration of the mushrooming demand for vicarious Antarctic experiences which, short of travelling to The Ice, are the next best thing.

### 2.7 Chapter Summary

Antarctic travel, in a variety of forms, has been occurring for less than two hundred years. This chapter has identified the extent and diversity of Antarctic travel that now takes place in the 21st century. The component of governmental and scientific mobility in Antarctica has been reserved here in favour of a more in-depth review in the following chapter. Thence the typology of the Antarctic traveller is discussed in relation to the fundamental concept of mobility and subsequently how ‘official’ travellers are placed within this typology.

The Antarctic Treaty and its associated international instruments (ATS) is the international legislation which underpins all activities that occur in Antarctica and below 60° south. Australia and New Zealand, as signatories to the Antarctic Treaty, are subsequently bound by ratification to implement the ATS into their respective domestic legislation. The Madrid Protocol (The Protocol), as the newest AT annexe to be adopted, has given rise to the problem of interpretation and, for example, the possibility of diversification with regard to the implementation of tourism guidelines. The issue of Antarctic tourism was subsequently brought into a contemporary context with the introduction of IAATO who, within the guidelines of the ATS, seek to advocate, promote and practice environmentally sustainable private-sector Antarctic tourism. Comparable to the burgeoning numbers of ‘in-
situ' Antarctic tourism, this chapter introduced the issue of vicarious Antarctic tourism which illustrated a corresponding number of people seeking to participate in this new form of 'off-ice' tourism. In summary, this chapter sought to provide a comprehensive background into the history, and variety of, Antarctic travel, legislation and the resulting issues that arise when combined. However, despite the proliferation of literature on this subject, this background highlighted, through its absence, the lack of literature pertaining to Antarctic gateways even though they are fundamentally linked to these issues. Chapter Three Antarctic Gateway Cities & Contemporary Mobility seeks to address this conclusion and provide a conceptual framework for the remainder of this research.
CHAPTER 3  ANTARCTIC GATEWAYS & CONTEMPORARY MOBILITY

3.0 Chapter Outline

For more than 2000 years the world has been fascinated with the myth and reality of Antarctica (Hillary 2001). Fascination, it seems, is still as strong as ever. At the turn of the third millennium this illustration is no more prevalent than the fact that more people are travelling the great white continent than ever before, scientists and tourists alike. This fact is inextricably linked with the development of technology and its impact on contemporary society and travel. This chapter serves to analyse the theory behind contemporary mobility and its association with the Antarctic and the social and urban infrastructure that drives this phenomenon.

This chapter seeks to assess the fundamental concepts of this study, encompassing the inherent issues of contemporary and networked mobilities that theoretically occur in the gateway cities of Christchurch and Hobart. The structure of this chapter is divided into two main sections. Section 3.1 presents a review of the concept of gateway cities, the contemporary metropolis and networked mobilities, while Section 3.2 investigates the paradigm of contemporary mobility and the subsequent place and typology of the Antarctic traveller within it. Sections 3.3 and 3.4 then turn away from the theoretical concepts of the Antarctic gateway and present a review of the historical and contemporary operations and functions of the respective gateways of Christchurch and Hobart.

An understanding of these issues is essential for the comprehension and integration of the theory into the research areas under investigation. The chapter is then concluded and a summary of its content is discussed.
3.1 Gateways & Contemporary Mobility

The concepts of ‘gateway cities’ and in particular ‘Antarctic gateway cities’ are fundamental in the context of this research which consequently need to be defined and understood in order to integrate them into this research. The following section examines these concepts holistically and in relation to the two cities under investigation, Christchurch and Hobart.

3.1.1 Gateway Cities

The term ‘gateway’ has given rise to numerous definitions and are often only relevant in a particular discipline. Indeed, in telecommunications the term has an array of meanings. It is, however, in the realm of transport geography, and its role in the concept of ‘mobility’, that this term must be defined, and then applied in order to answer the research objectives. In his study on the role of transport in tourism development, Palhares (2003, p.404) cites Pearce’s (1995) interpretation of gateways, in the case of passenger transportation, as being “major entry/exit points into or out of a national or regional system”. Moreover, Lew & McKercher (2002, P.609) defines a ‘travel gateway’ as being “a place that provides access to (and often travel services for) a destination place or region”. Furthermore, Tan, Yeoh & Wang (2001, P.78) define the literal connotation of a gateway to be “that of an entry or passage from one place to another. For travel and tourism, the idea is that one is travelling from a home or source region to a destination region”. Although very general, these definitions go some way towards creating an applicable definition for the relatively neglected, but increasingly important, ideology of an Antarctic Gateway City.

The above concepts suggest that a gateway is merely a point through which travellers pass through in order to arrive at the desired destination. On the contrary, a gateway city is a complex, socio-technical construction, however as Pearce (2001, p.85) alludes to, tourism research into gateway functions and hubs has only just started. Van Klink and van den Berg (1998, p.1) further this understanding of gateways by explaining that “gateways are nodal points, where intercontinental transport flows are being transhipped onto continental axes and
vice verse”. This development is beginning to show the complex issues inherent in the gateway concept.

Burghardt (1971, p.269), in his hypothesis about gateway cities, describes a gateway as being located eccentrically toward one end of a city’s service area, whereas the “central place, by definition, is located towards the centre of its tributary area”. The gateway, essentially, is simply an entry/exit point (eccentrically located), however can a gateway (supposedly ‘central’ to the logistics of transportation) also be a hub? According to Matthiessen (2004, p.200) “[o]nce the transport function is complimented with the hub function of other types of operations, we are talking about a gateway”. Thus, a more complete theory, and further to Van Klink & van den Burg, a gateway is a multifunctional hub (Andersson & Andersson 2000). Mistilis & Dwyer (1999, p.442) note that “increasingly, the operational aspects of [travel and] tourism are located in ‘gateway cities’”. From this, although the gateway’s functions are primarily focussed on transportation, a gateway city, it seems, is constructed through an interdependence with the surrounding ‘place’. Indeed, they are both dependent on one another in order to develop, and Graham (2001a) supports this notion explaining “that contemporary cities can be understood as socio-technical constructions supporting mobilities and flow to more or less distant elsewheres” (p.4). Thus, a gateway city is defined here as “a nodal point that perform complex intercontinental transport flows through the multifunctional operations undertaken by the socio-technically constructed and interdependent hub”.

3.1.2 The Contemporary Metropolis and Networked Mobilities

In the contemporary era, networked urban infrastructures are increasingly becoming the focus in the realm of transport geography and logistics; the science of physical distribution. Indeed, understanding the contemporary metropolis and the subsequent underlying processes that construct the gateway city are fundamental in the context of this research.

According to Graham (2001a, p.4) there is currently a proliferation of “urban spaces [that] are being constructed as socio-technical assemblies to organise,
manage and synchronise the precise and rapid shipment of goods, freight and people across the planet...”. The analytical focus here is on the ‘socio-technical assemblies’ of Christchurch and Hobart in terms of how they are constructed and subsequently operate as Antarctic Gateways.

The underlying concept that is evident in the corpus of literature on the construction and successful operation of urban spaces is that of networks. In its broadest sense a network is an interconnected system of things or people, however the term is acknowledged to be a complex one. Knoke and Kuklinski (1982, p.12) define a network as “a specific type of relation linking a set of persons, objects or events”. Before this discussion advances, it must be acknowledged that common understanding about a gateway city, or a destination in the case of tourism research, is based on its ‘face value’, namely from statistics or some other quantifiable aspect. However, as Tinsley & Lynch (2001, P.372) discuss, in relation to small tourism business networks and destination development, “if a qualitative technique is used to understand the phenomena as it takes place and decisions and assumptions are based upon this, then a greater understanding of destination development and its links with tourism business networks should emerge”. Although the methods undertaken in this research are detailed in the following chapter, it is evident from the statement above that a qualitative approach will serve to extract themes and phenomena within the networks being examined such as co-operation between governmental bodies, organisations, business firms, persons and other entities that are interconnected in various ways.

In the context of tourism destinations, Pavlovich (2002, p.203) suggests that they are comprised of a range of complementary and competing organisations, multiple sectors, infrastructure and an array of public/private linkages that create a diverse and highly fragmented supply structure. Networking, therefore, seems to be somewhat paradoxical in nature. Watkins & Bell (2002, p.15) explain that “although many organisations recognise their interdependence and need to co-ordinate their activities through establishing relationships with other organisations, they are also compelled by competitive forces and legal responsibilities to maintain their independence and autonomy.” Pavlovich further acknowledges that “[r]elationships between firms are now seen as an important
component of competitive advantage” (2002, p.203). Indeed within the city’s infrastructure a strong theme of collaboration is apparent. Furthermore, Graham (2000a, p.114) explains that these “infrastructural ‘scapes’...rely on each other and co-evolve in their interrelationships with urban development and with urban space.”

The above discussion suggests that this “relational” perspective (Pavlovich 2002) is important in being able to understand the dynamics of Antarctic stakeholders that operate in the respective gateway cities. Thus the question must be asked; how are these infrastructural networks configured and what result does this have on a gateway city?

Network literature brings attention to the fact that “relationships do not occur within a vacuum of dyadic ties, but rather in a network of influences” (Pavlovich 2002, p.204), and that these complex connections between infrastructure networks and the nature of modern urbanism requires the adoption of a multidimensional and interdisciplinary perspective when analysing urban infrastructure networks (Graham 2000a, p.115). What’s more, Graham offers up three key points as an overview of their structure:

- Infrastructure networks make up considerable portions of the material, economic and geopolitical fabric of contemporary cities;
- Secondly, infrastructure networks, and the complex socio-technical apparatus that surrounds them, are strongly involved in structuring and delineating the experiences of urban culture;
- Thirdly, with their complex ‘network architectures’, infrastructure networks work to bring heterogeneous places, people, buildings and urban elements into dynamic articulation and exchange.

Interconnectivity, it can be acknowledged, has become the integral component in the architecture of the contemporary metropolis, which can in turn be applied to the theory of the gateway city’s’ impetus. In terms of the physical geography of networked infrastructures, “groupings of organisations [stakeholders] cluster together to form a destination context” (Pavlovich 2002, p.203). Further to this, complementary infrastructures co-exist alongside supporting ancillary services
which form a complex system of connections and interrelationships. Perhaps more pertinent to the theory of an Antarctic gateway, is the concept of a logistical enclave.

Hesse & Rodrigue (2004, p.172) define logistics as being “the wide set of activities dedicated to the transformation and circulation of goods, such as the material supply of production, the core distribution and transport function, wholesale and retail...as well as the related information flows.” Easterling (1999) believes that virtually all contemporary urban developments can be understood as dynamic sites for organising logistical processes (cited in Graham 2001a, p.4). Within contemporary logistics enclaves, airports and sea ports are two of the most salient types of networked mobility space. Indeed these leading distribution hubs, according to Graham (2001a, p.5), “(and the crucial connecting flows between these different modes) are emerging as mini-cities in their own right.” In the current context of globalisation, “emphasis now falls on combining highly flexible production strategies with the logistics capability to deliver goods very quickly and accurately on a global basis from a series of logistics” (Office of Technology Assessment 1995 cited in Graham 2001a, p.4).

To summarise, Antarctic gateway cities, which include these networked mobility spaces, have been constructed to meet the demands of contemporary mobility as well as to be able to compete with rival gateway cities. This notion of competition demands “privileged and high quality infrastructural connectivity, especially for [the primary functional operations of the gateway, that of] transportation and telecommunications...” (Graham 2001a, p.4).

Although this literature review seeks to examine the theory of logistical enclaves as a whole:

“nowhere is the process of enclave formation stronger than in the world of airport architecture. All over the world, the major airports have grown into complex and multifaceted mega-structures that not only offer space for more terminals, piers and hangers than ever before, but also accommodate a growing number of functions that have nothing whatever to do with aviation. In many cases, these other functions make a bigger contribution to airport turnover than activities directly related to air travel” (Ibelings 1998, p.78).

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Further to the discussion on gateways being eccentrically located, and indeed in support of it, “the tendency [is] for the [contemporary] logistics nodes and airport complexes to gravitate to the metropolitan periphery” (Hesse 1998 cited in Graham 2001a, p.7).

Today’s airports and seaports are without doubt logistics enclaves which have become “customised spaces par excellence for organising and housing global flows” (Graham 2001a, p.6). These logistics enclaves, located in the metropolitan periphery, “are increasingly connected up seamlessly with the major corporate and consumption spaces of the host city, many of which now tend to cluster around them” (Graham 2001a, p.7).

It is clear from the above discussion that both airports and seaports are two of the most salient networked mobility spaces that have emerged in the contemporary metropolis. However, what does this concept of mobility mean? The following section intends to define and elaborate on what mobility means in the contemporary age and how this is inextricably linked to the functions of gateways.

3.2 Contemporary Mobility

A burgeoning body of literature on the concept (and subsequent understanding) of transport gateways and hubs has emerged over the past two decades. This subject is by no means sated and has only rarely been critically examined, and it is only marginally understood from theoretical and empirical standpoints. It is however a key part of what Urry (2004) describes as being the ‘new mobilities paradigm’ where “a ‘mobility turn’ [is] spreading into and transforming the social sciences, transcending the dichotomy between transport research and social research, putting the social into travel and connecting different forms of transport with the complex patterns of social experience” (Urry 2004, p.1).

Tourism, when used in the same sentence as Antarctica, is seen as somewhat of a ‘dirty word’ nowadays by all stakeholder groups that are involved in Antarctica, excluding those stakeholders that benefit from the selling of ‘in-situ’ Antarctic tourism. Tourists now substantially out-number scientists and support staff on the...
continent, indeed "[a]nnual tourist numbers have increased three-fold in the decade 1990/01 – 2002/03 (from 4,800 – 16,000)" (ASOC 2004, p.1) and in the 2003-04 season alone, 19,772 tourists visited the Antarctic continent. Tourism was not discussed when The Treaty was established back in 1959 (IAATO 2003a) and is probably responsible for the complicated situation the industry currently faces with respect to its management through international law. Tourism was not included as a separate entity in The Protocol, however it sets out rules that apply to any potential impact on the environment, including those activities proposed by tourist operators.

Much of the debate about Antarctic tourism, however, is centred on the cumulative impacts associated with tourist visitations to the continent. “This is not to say that only tourist activities have impacts. Plainly national program activities make substantial contributions” (ASOC 2004, p.2). Further to this statement, during the summer seasons the U.S. Antarctic Program alone supports approximately 1,600 scientists and support personnel, whereas the maximum number of ‘tourists’ to the Ross Sea amounts to less than 600. Opponents to Antarctic tourism would argue that the relative contribution of tourism to the footprint of human activity on the continent is severely damaging to the environment, however proponents would argue otherwise, Headland (1994, p.278) calculated that “at the greatest development of Antarctic tourism, its environmental effect may be less than 1% of that of all human activity in the region.”

This debate then gives rise to the question of who is more damaging, the tourist or staff involved with government programs? Furthermore, who is an Antarctic Tourist and what warrants such negative political attention towards Antarctic ‘visitors’ when, to the wildlife and eco-system, it makes no difference whether the impact comes from a scientist or a tourist?

3.2.1 Typology of the Antarctic Traveller

A review of the literature identifies that there is definitional ambiguity as to who is a tourist and who is not. Consequently, this disparity gives rise to the question of
whether or not these typologies overlap. The World Tourism Organization (WTO 2000) defines an international visitor as being:

“any person who travels to a country other than that in which s/he has his/her residence but outside his/her usual environment for a period not exceeding 12 months and whose main purpose of visit is other than the exercise of an activity remunerated from within the country visited.”

If the above definition is to be adopted then it is surmised that someone who is remunerated through the exercise of an activity (work) cannot be a tourist. Certainly, “[t]ourism and work are usually perceived as two contradicting fields of human activity” (Uriely 2001, p.1). However, as Uriely & Reichel (2000, p.269) illustrate, “[t]he combination of work and tourism was first illuminated by Pape, who coined the term “touristry” with reference to occupational situations within nursing”. Touristry, according to Pape, refers to professional employees who engage in “... a form of journeying that depends upon occupation, but only in a secondary sense in that it serves the more primary goal, the travel itself” (Pape 1965, p.337).

If we are to take heed of Pape’s notion, then to what extent (if at all) do travellers to the Antarctic, involved with a government program, possess this underlying motivation to ‘work’ on The Ice? The following section seeks to “formulate a coherent approach to understanding the meaning behind the range of mobilities undertaken by individuals, not tourists” (Coles et al. 2004, p.3).

Considerable attention has been paid to the mobility paradigm over the past three decades, however research on temporary mobility has been sparse and fragmented (Bell & Ward 2000, p.89). Indeed, literature on tourist flows represents the largest single body of research in this burgeoning body of research. However, Bell (2004, p.1) defines temporary mobility as “non-permanent moves involving at least one night away from home, also includes moves that are oriented to production (work or business), as well as those that occur for other consumption-related purposes (e.g. hospitalisation).” This, therefore, suggests that work-oriented travel can be interpreted as one dimension of temporary mobility.
As Frändberg (1998 cited in Lew et al, p.6) suggests "[t]he opportunity to travel has always depended on the right to be absent from home and work, with such rights having historically been reserved for very few groups in the (usually male) population". This statement is applicable to the Antarctic scientific community in that, historically, it has been their 'right' to travel to the continent to conduct research. However in the age of environmental sustainability, the 'right' to step foot on the Antarctic is under intense scrutiny.

As part of their obligations as members of the Antarctic Treaty, signatory countries have to submit information on all activities undertaken by their national representatives or by individuals of that nationality. This is called the Exchange of Information (ATCP's 1991). This exchange is set out in two divisions, Government and Non-Government activities. However, as the following typology suggests, even in authorised governmental activities, all but a few of the 'pure' activities have some form of touristic component.

Research into this phenomenon in post-modern tourism is still relatively rudimentary, although as Uriely & Reichel note, there is "a growing breakdown in the separation of occupational activities and the consumption of leisure" and thus "that the segment of working tourists may be expected to grow" (2000, p.268). Indeed this concept is multidimensional and therefore individuals may differ in terms of their conception or (as Pearce (1990) describes) "meta-cognitive" beliefs toward a situation in which work and travel are combined (Uriely & Reichel 2000, p.268). Uriely has conducted seminal research into this notion and has subsequently depicted a typology of travellers who engage in situations that combine work-related and tourist-oriented pursuits. This typology consists of four types of such travellers, these being; 'travelling professional workers', 'migrant tourism workers', 'non-institutionalised working tourists', and 'working-holiday tourists' (Uriely 2001, p.1). Members of the two latter types of travellers are referred to as 'working tourists', whereas, members of the two former types of travellers, as will be elaborated on below, are referred to as 'travelling workers' (Uriely 2001, p.1). The following analysis seeks to combine the work done by Pape (1965), Cohen (1974) and Uriely (2000, 2001) and to present a typology of the
‘official’ travellers to the Antarctic, including those who demonstrate the most work-oriented to tourist-oriented motivations.

### 3.2.2 Travelling Workers

Cohen (1974) suggests that there are three types of professionals who combine work with travel. These are “business-travellers”, “official-sightseers” and “conventioneers”. The purpose of the business-travellers’ trip “is primarily an instrumental one, but they devote part of their free time during the trip to tourist-like pursuits” (Uriely 2001, p.2). This statement brings to light the question of whether or not scientific staff working all the time, however Uriely’s analysis of the business-traveller suggests that they are not. Perhaps more pertinent to this analysis is that of support staff employed by government programs. It is fair to say that scientific staff operate in Antarctica by Cohen’s (1974) theory that “professionals who combine work and tourism are more likely to travel-for-work rather than work-for-travel. Indeed their academic expertise may only be able to be employed in Antarctica, however the same cannot be said with regards to support staff. Certainly this group of travelling workers to this pristine environment is substantial, during the summer, the total number of scientists and support personnel peaks at about 4,000 (USAP 2001) which, further to Headland’s (1994) calculations, contributes to a substantial amount of man days on the Antarctic and, arguably, substantially more impacts. The Antarctic and Southern Ocean Coalition (ASOC 2004), in a paper pressing their concern about Antarctic tourism, even acknowledge that the impacts from national program activities contribute substantially to the impacts in Antarctica and also infer that the personal numbers in these programs are too large, or indeed more than necessary.

Returning to the tourism component of support staff’s activities in the Antarctic, what do they do on their time off? In the case of staff based in the Ross Sea, the historic huts (namely Scott and Shackleton’s at Cape Royds & Evans, Perpendicular Point and Discovery Hut) that are administered by the Antarctic Heritage Trust New Zealand, based in Christchurch, receive an overwhelming number of visits from staff involved in national scientific programs. For example, in the 2003/04 season, 2718 visits were made to the four historic huts maintained by Antarctic New Zealand (Antarctica New Zealand 2004e). These visits can be
broken down further to illustrate the high level of visitors from national Antarctic programmes. From this total, 1,198 visits were made by 'personnel' from the USAP, 540 from ANZ, while 830 visitors were from non-governmental tour ships. Further to this question, it is interesting to note that all but a sparing few visits were acknowledged as 'recreation' visits, indeed nothing to do with science or conservation. How far does this seemingly 'elastic' term used by officialdom extend before it is acknowledged that all but a few scientific activities in the Antarctic are 'working tourists'? Although this is not a primary objective in the context of this research, the above discussion has put paid to the notion that the tourism and governmental activities on the continent are entirely separate. On the contrary, apart from the professionals who are engaged in scientific research in Antarctica because of their highly specific skills, the majority of other support staff have overlapping components of work and tourism.

The above section of this chapter presented a review of the issues of Antarctic gateway cities and contemporary mobility. Sections 3.3 and 3.4 now present both an historical and contemporary analysis of the Antarctic components of Christchurch and Hobart respectively.
3.3 Christchurch: New Zealand’s Gateway to the Antarctic

3.3.1 Port Lyttelton

Christchurch, but perhaps more appropriately, Lyttelton has had a long association with the Antarctic continent in many forms. The Port of Lyttelton, a sea inlet in the north-west of Banks Peninsula, and located on the northern shore of Lyttelton Harbour (Scatter 1968) ensured its place in the context of Antarctic history as a ‘gateway to the ice’ during a thirteen year relationship with the British Antarctic Expeditions during the heroic age.

Indeed, the Port and Town of Lyttelton were involved with three Antarctic expeditions during the years 1901-1913. The three expeditions were those of Robert Falcon Scott (1901-1904), Ernest Henry Shackleton (1907-1909), and Scott’s final voyage (1910-1912) (Scotter 1968).

Captain Robert Falcon Scott’s first expedition to the Antarctic departed the Isle of White on the 6 August 1901. The Discovery, a 736 ton, wooden, barque-rigged steamer had been specially built for the expedition and was heavily reinforced. The British expedition, fitted out with laboratories and a magnetic observatory, sailed into the Port of Lyttelton, after having called at Macquarie Island and Auckland Island, in order to standardise her instruments at the NZ Magnetic Observatory in the Christchurch Botanical Gardens (Philips 2001). In addition to this, Discovery had to be repaired due to some carelessness in construction and all her stores had to be unloaded in the meantime (Scotter 1968). Included in this cargo were the expeditions 300 Siberian huskies and twenty-three dogs which had to be quarantined on Quail Island, located at the centre of the harbour.

The expedition sailed for the ice, via Port Chalmers, on the 21 December 1901. Scott and the Discovery received an enthusiastic farewell from the Port. The only incident on the voyage occurred when Charles Bonner, 23 year-old seaman, fell to his death after climbing to the top of the mainmast while still in the harbour.
Under the command of Captain William Colbeck a relief expedition chose Lyttelton as the logistical gateway for the purposes of re-supplying Scott and his men while they wintered over during 1903. The *Morning*, which had been the relief ship for this voyage, also returned to Lyttelton the following year with the command of the British Government to evacuate the party.

The second Antarctic expedition to use Lyttelton for its logistical support services was that of British explorer Ernest Henry Shackleton. Shackleton's 1907-1909 British Antarctic Expedition arrived in Lyttelton in November 1907 with the vessel *Nimrod*. Once again Quail Island was used; this time however, the nine dogs and fifteen Manchurian ponies were trained on the Island during their stay.

In November 1910, Captain Robert Falcon Scott, in his final Antarctic voyage, arrived in Lyttelton with the expedition's vessel *Terra Nova*. The *Terra Nova* expedition, as it became known, was an ambitious programme of scientific research and discovery. Although the party of Scott, Bowers, Evans, Oates and Wilson managed to reach the South Pole, the Norwegians had beaten by more than a month. While in Lyttelton, the vessel was placed in dry dock to find and repair a leak, while also taking on board expedition photographer Herbert Ponting, 19 Manchurian ponies, 33 sledge dogs and one collie bitch (McGonigal & Woodworth 2001, p.452). Captain Scott and his crew received a rousing send-off from Lyttelton, oblivious to the tragedy that lay ahead.

Lyttelton was again an important logistical port of call for the sea-borne operations of the United States Operation Deepfreeze I (1955-56). Deepfreeze was the four-year program through which the U.S. met its International Geophysics Year (IGY) objectives (McGonigal & Woodworth 2001, p.501). Although much of this operation was air-based (see below: CIA), Admiral Byrd assembled seven ships in Lyttelton in 1955 to support his fifth and last expedition to Antarctica (Antarctic Link Canterbury 2003). Operation Deepfreeze used a fleet of seven U.S. Navy ships and on December 10 1955, the icebreaker *USS Glacier* (with Admiral Byrd) was the first vessel to depart Lyttelton for Antarctica. The remaining six task force ships departed Lyttelton on December 16, taking up pre-assigned plane-guard positions along the 1700E meridian, about 463km (250nm) apart, between Campbell Island
and Antarctica (Philips 2001, p.15). As will be discussed below, these ships were spread out along the Southern Ocean in support of aircraft on their flights from NZ to McMurdo with radio communications and weather information, and would act as rescue vessels for any of the aircraft that may have needed assistance (Philips 2001). Byrd, in a farewell message wrote “New Zealand seems to me to be the most civilised nation I have ever visited” (Antarctic Link Canterbury 2003).

### 3.3.2 Christchurch International Airport

Situated to the northwest of the city, development of the aerodrome at Harewood commenced in 1936 and in 1950 Christchurch Airport became the first international airport operating in New Zealand (CIAL 2004). Christchurch is the South Island’s largest population centre and is also the tourist gateway to the scenic south. In view of that, Christchurch has a well-developed infrastructure and according to TRCNZ the Canterbury region received a total of 5,127,000 visits in 2004 (Market Economics Limited 2004).

Although Christchurch’s connection with the Antarctic began with Scott and Shackleton using Port Lyttelton as their logistical port of call, Christchurch airports have been at the centre of New Zealand’s contemporary connection with Antarctica since 1955.

Antarctic aviation began on February 4, 1902 when Robert Falcon Scott ascended to 244 meters in a tethered army-supplied hydrogen balloon, and in doing so was the first person to ‘fly’ in Antarctica (McGonigal & Woodworth 2001, p.426). The spirit of co-operation between the nations of New Zealand and the United States in the context of Antarctica started in the late 1920S and 1930S with Richard E Byrd’s visits to New Zealand. Byrd, USN (later Admiral), visited Wellington and Dunedin on the first of his three expeditions in 1928-30, 1933-35 and 1939-41 respectively. Byrd used aircraft for exploration on each of his expeditions, and he achieved an Antarctic first in flying over the South Pole on November 29, 1929 (Philips 2001).

It can be said that much of New Zealand’s air associations with the sub-Antarctic Island’s and the Antarctic occurred through the cities of Wellington, Dunedin and
Bluff (namely Operation Highjump) which used New Zealand as a staging point for these operations. Indeed another American explorer, Lincoln Ellsworth, visited Dunedin with his support vessels on three expeditions during the 1930s as a part of his trans-Antarctic flight attempts (Philips 2001).

The beginning of Christchurch as an aerial gateway to the Antarctic was during Operation Deep Freeze, a four year program through which the United States met its International Geophysics Year (IGY) objectives (This is discussed in further detail below). However, according to Phillips (2001), “[a]n Australian amphibian completed the first flight from Macquarie Island to the RNZAF airbase at Wigram, Christchurch on August 5, 1948. This was the first direct flight from the sub-Antarctic region to Christchurch. The flight had originated from Hobart but due to weather conditions the return leg necessitated a diversion to Christchurch.”

On the morning of December 20 1955, eight Globemaster aircraft, using JATO (Jet Assisted Take Off) bottles, took off for the Antarctic, four left from Harewood (Christchurch) and four from Taieri (Dunedin). The weather was so atrocious that the Taieri aircraft had to turn back for fear they wouldn’t make The Ice, the four Harewood aircraft, however, battled their to McMurdo and after 14 hours landed on the bay ice, and in doing so became the first aircraft to fly to the continent from New Zealand (Philips 2001, p.15). This operation led to the construction of America’s two bases in the Ross Sea, McMurdo and Little America V, and also to the construction of New Zealand’s Scott Base. McMurdo Station and Scott Base are located close to each other on Ross Island and are linked by a gravel road five kilometres (3 miles) long.

By the 1980’s the US Antarctic Programme was well established in Christchurch, however, unlike its present operation, it was very military driven. The US Navy had a very formal presence, funded by the US Department of Defence; there was a full Military base of sorts in Christchurch.

Considerable changes began to take place with regard to both the US and NZ Antarctic Programmes by the late 1980’s. The US Government began to view their Antarctic operations as scientific, rather than military and changes in funding saw
the National Science Foundation (NSF) take over operations from the Department of Defence whereby, to run their newly constructed programme, logistical support was purchased from the US Navy and Air Force.

Christchurch International Airport Limited (CIAL) was formed in 1987 which coincided at a time when the NSF decided to set about a civilianisation of their operations. Discussions between the Antarctic stakeholders generated the idea of one International Antarctic Centre (IAC) which was to “consolidate the Antarctic interests onto one campus at the [Christchurch] airport” (VIP Canterbury 2004a, p.8). CIAL took the initiative and set about constructing the IAC which is located across the road from Christchurch airport, the purpose being two-fold, firstly to cement New Zealand’s position in the eyes of the world as a gateway to Antarctic, but also to try to entice other nations to set-up their national Antarctic headquarters in Christchurch.

3.3.3 Contemporary Christchurch

Cooperation between the New Zealand and US Antarctic programmes is now well established and more recently, with the establishment of the IAC, the Italian Antarctic Programme has joined this partnership. According to Lou Sanson, CEO of Antarctica New Zealand, “the synergy of the various offices on the [IAC] campus is critical to the success of the Antarctic Programmes” (VIP Canterbury 2004a, p.10). The IAC has subsequently become the centre of New Zealand’s Antarctic operations, and “during the summer the campus supports around three thousand men and women transiting to and from Antarctica with over one hundred and thirty-five flights made to The Ice” (VIP Canterbury 2004a, p.8), and as well as supporting New Zealand’s Scott Base, the Antarctic gateway of Christchurch also services the US McMurdo and South Pole Stations and the Italian Terra Nova base.

Today Christchurch has developed substantial Antarctic research facilities and subsequent complimenting infrastructure. According to Pickering (1998) “[t]he Canterbury Development Corporation estimates that the value of Antarctica’s association with the city is worth between NZ$30-60m, with much of this being derived from the supply function (Pickering 1998 cited in Hall 2000, p.163), while
more up-to-date figures put this contribution in the vicinity of $80m (VIP Canterbury 2004a, p.12).

More recently, the extent of Canterbury's strong links to Antarctica through science, logistics and education have been given an economic boost. A scheme, called 'Project Antarctica' was initiated in October 2004. Managed by the Canterbury Development Corporation (CDC), with support from the Ministry of Economic Development, it “aims to enhance Christchurch's presence in Antarctic support and logistics work, by assessing the future growth of Antarctic-related scientific and commercial activities, and identifying what needs to be done to bring more of those activities to Christchurch” (Anderton 2004).

Supporting the reasoning for this thesis research, insomuch as there is little research into the Antarctic component of Christchurch, Jack Turner, coordinator for Project Antarctica, suggests that there is little current information on the impact and importance of Christchurch's Antarctic connection. Both local and central government have been very supportive of the initiative to research the economic impact/importance of the city's Antarctic connection (Turner 2004). Indeed a grant of $80,190 from the Ministry of Economic Development's Regional Initiatives Fund has been provided to contribute towards the cost of the project, which is jointly funded with the Canterbury Development Corporation.

The construction of the IAC saw the development of an industry enclave in the one campus in Christchurch city. Hall (2000, p.163) notes that “[t]he Canterbury Development Corporation is aiming for the development of an industry cluster based on the Antarctic connections similar to the Hobart network” (discussed below), and this is indeed one of the intended outcomes for Project Antarctica. Included in this Antarctic cluster are:

- Antarctica New Zealand (the main New Zealand government body responsible for Antarctic affairs)
- New Zealand, United States and Italian Programme Bases
- New Zealand Antarctic Heritage Trust
- International Centre for Antarctic Information & Research (ICAIR)
- New Zealand Antarctic Society
- Antarctic Visitor Centre (Antarctic Attraction Ltd)
Although not included in this Antarctic enclave, Christchurch's Antarctic network extends throughout the city. The Canterbury Museum houses many Antarctic relics from the heroic era, while the Port of Lyttelton is a major component of both the historic connection as well as the contemporary Antarctic cluster. Besides the logistical and historical components of the Antarctic network in Christchurch, Antarctic scientific research carried out at the higher education institutions and other scientific organisations throughout Christchurch plays a significant role and which most prominently includes the Graduate Certificate in Antarctic Studies from Canterbury University.

Today, CIA is the aerial gateway for the New Zealand, American and Italian Antarctic programs and the ice runway at McMurdo, constructed during the IGY, is around 3,920km (2,400 miles) by air from Christchurch (Philips 2001). In terms of scale and frequency, the USAP conducted a total of 119 flights to Antarctic in the 2004/05 austral summer, 15 flights were made by the RNZAF with two Lockheed C-130 Hercules, while the Italian Antarctic programme operated 10 return flights from Christchurch to Mario Zucchelli Station by a South African SAFAIR (L-382/G), and 1 Christchurch-McMurdo flight in conjunction with the NSF (USA) in a C-17 (USAP 2004).

Logistically the three Antarctic programmes based in Christchurch are very closely tied. All three programmes operate a formal flight pool whereby any air (or sea) borne craft is put into a logistics pool from which, as seen above, operations are shared. For example, any flight leaving Christchurch for The Ice maybe carrying American, New Zealand or Italian nationals regardless of where the planes come from. Furthermore, the NZAP may contribute a proportion of the capacity of the RNZAF Hercules flights to the USAP in exchange for the cargo in a vessel going to The Ice. It is suggested that “during the summer the [IAC] campus supports around three thousand men and women transiting to and from Antarctica” (VIP Canterbury 2004a, p.8), and as will be discussed later, this is somewhat lop-sided when compared to Hobart’s current situation. The scope, in terms of the number of travellers, is relatively consistent. The total number of passengers, involved in the combined Antarctic programmes, that were transported over the last 3 seasons
amounts to; 2933 (01/02), 2978 (02/03) and 2949 (03/04), an average of around 2953 per season (Woodgate 2005).

The Port of Lyttelton is somewhat overshadowed by its air-equivalent and indeed its glory days as ‘the’ Antarctic gateway are a distant memory. However Lyttelton is still an important component in regards to the logistical transhipment of freight and (some) personnel. The New Zealand registered vessel R/V (Re-supply Vessel) *Tangaroa* uses Lyttelton as its point of departure/arrival as a part of the NZAP scientific research cruises (ANZ 2004d). Two USAP vessels, the M/V *American Tern*, and the R/V *Nathaniel B. Palmer* use the Port every season from which the vessels proceed to transport freight to The Ice and/or to undertake scientific research (USAP 2004), while the PNRA operate their *R/V Italica* which undertook only one return voyage from Lyttelton in 2004/05. During the 2004/05 season the *American Tern* called at Lyttelton before conducting a return trip to Antarctica. The *Nathaniel B. Palmer* also conducted a round trip from Lyttelton to Antarctica, but it also used the Port throughout the summer season for various other activities, while the *Tangaroa* conducted one return trip during the season (ANZ 2004d).

With regard to non-governmental vessels, the Russian registered *Kapitan Khlebnikov* uses the Port annually and in the 2004/05 season it called at Lyttelton at the conclusion of Quark Expeditions’ “Semi-Circumnavigation of Antarctica” cruise, and was the point of departure for the company’s “Wonders of the Ross Sea” cruise (Quark Expeditions charter the *Kapitan Khlebnikov*). The Christchurch based company Heritage Expeditions has used the port of Lyttelton as a point of departure and arrival since 1985. although the company now operates globally, it only operates smaller yachts from the Port for voyages to the Antarctic. Interestingly, US based company Expeditions Inc. used Lyttelton to refurbished their ice-strengthened cruise ship *The Spirit of Enderby* (sister ship to the *Akademik Shokalskiy*) prior to the start of the 2004/05 season before it departed Dunedin for its *In The Footsteps of Scott and Shackleton* expedition in February 2005.
3.4 Hobart: Australia's Gateway to Antarctica

3.4.1 Hobart Port

Akin to New Zealand, the title of Australia's Antarctic gateway has been shared, Sydney and Hobart having both been used by the expeditions of Balleny, Wilkes, d'Urville and Ross, "although the ports of Albany and Fremantle have also served as minor gateways since the end of the Second World War" (Hall 2000, p.159).

Although not strictly Antarctica, Hobart's association as a gateway began soon after Captain Cook reported huge seal colonies throughout the Southern Ocean and sub-Antarctic Islands following his circumnavigation of the Antarctic Circle from 1772 and 1775. There was much interest in the Southern Ocean waters below Australia and New Zealand following Captain Cook's reports, and Tasmania, indeed Hobart, became a major centre for sealing and whaling in the sub-Antarctic.

By the 1830's science and exploration had begun to lure vessels to Hobart (Kriwoken & Williams 1993, p.95). Dumont d'Urville put into Hobart on his second Antarctic expedition (his third visit) with his ships Astrolabe and Zeéle in 1839. This expedition subsequently departed from Hobart in January 1840 in search of the South Magnetic Pole, which, although unsuccessful in this endeavour, d'Urville landed and charted a small area of previously unexplored coast which he named Terra Adélie after his wife.

Fierce competition between the Antarctic expeditions in the 1830's was further heightened when James Clark Ross led an expedition to find the Magnetic South Pole (Kriwoken & Williams 1993). Ross, with his ships Erebus and Terror, chose to winter in Hobart in preparation to reach the Magnetic South Pole. While in Hobart, Ross learned of d'Urville and Wilkes' expeditions and with the information supplied to him, before departing London, by the whaler John Balleny about land below the Antarctic Circle and the possible break-up of pack ice along the 170° meridian, he decided to take an alternate route. This route was to lead to the
discovery of the Ross Sea, while also discovering that the Magnetic South Pole lay much further south than predicted (McGonigal & Woodworth 2001, p.408).

In 1894, Norwegian Henrick Bull, with the expedition vessel *Antarctic*, called at Hobart in September, for logistical purposes, before sailing on the 3rd October whereby the expedition became the fourth recorded landing in Antarctic, and the first on the Continent proper.

Hobart was once again the logistical base for the Carsten Borchgrevink led *Southern Cross* expedition 1898-1901. The period of 1901-1917 is known as the Heroic Age, and it was during this time that Hobart, like Lyttelton, entrenched its Antarctic connection. The Norwegian explorer Ronald Amundsen returned to Hobart on 7 March 1912 after having reached the South Pole. The Australasian Antarctic Expedition, led by Douglas Mawson in the *Aurora*, set out from Hobart on 2 December 1911 and subsequently returned twice (Kriwoken & Williams 1993, p.96), while in the same vessel the British Imperial Trans-Antarctic Expedition called into Hobart on their way south in December 1914.

Later BANZARE would use Hobart as a launching point for two of their expeditions, while the United States expedition, led by Lincoln Ellsworth, called at Hobart in February 1938, in which, this expedition included the first flight over the South Pole in the *Wyatt Earp* (Kriwoken & Williams 1993, p.96).

Despite Henrik Bull’s refusal “to say whether or not he thought Hobart would become the Australian depot for Antarctica” (Kriwoken & Williams 1993, p.97), its long-standing connection with the Antarctic has seen Hobart become Australia’s pre-eminent gateway to the Antarctic. However, as for Hobart Airport, there are (as yet) no intercontinental air links between Hobart and the Antarctic.

### 3.4.2 Contemporary Hobart

As discussed above, Hobart has been an Antarctic gateway for more than 200 years, and today “Hobart has become the world’s pre-eminent gateway to the east Antarctic and Southern Ocean” (Hobart Ports Corp. N.D). Hall (2000) suggests
that Hobart (and Tasmania) has been substantially affected by economic restructuring and, parallel to Christchurch, “this has meant a transition into a service-driven economy that is increasingly tourism, information and innovation based” (Hall 2000, p.163).

Hobart, but more precisely, the Australian Antarctic Division (AAD), is the headquarters of Australia’s Antarctic programme. Based in Kingston, approximately 15-20 mins drive south of Hobart; the AAD is an agency of the Department of the Environment and Heritage and is responsible for Australia’s interests Antarctic, as well as the external Territory of Heard and McDonald Islands (HIMI).

Although the AAD employs and supports considerably less staff than its Christchurch counterpart (approximately 300 including administration, policy, science and operations personnel based at Kingston), the Tasmanian government has been “extremely aggressive in its quest to attract Antarctic-related business and visitors” (Hall 2000, p.159). The main thrust behind this stance was the establishment of the Office of Antarctic Affairs (OAA) in 1993 (now Antarctic Tasmania). A division of the Department of Economic Development, “the Tasmanian state government developed a regional policy initiative aimed at encouraging international expeditions to use Hobart as a stopping-off point on their way to Antarctica” (Hall 2000, p.160). Although previously strong in this area, this aggressive approach has seen Hobart “become an international centre for excellence for temperate marine science” (Hobart Ports Corp. N.D). The resulting economic outcome of this drive has been substantial, although not solely confined to Hobart “[t]he Antarctic and Southern Ocean sector in Australia generates in excess of $100 million annually, with almost half of this expended in Tasmania” (Department of Economic Development 2004, p.40).

This statement is justified by the extent of Antarctic related infrastructure and organisations that are present in the city. Although “Tasmania hosts 65 per cent of Australia’s Antarctic scientists in organisations” (Antarctic Tasmania 2004, p.7) the AAD headquarters does not host all of these organisations in a cluster-like formation as is found in Christchurch, instead relevant entities are spread about all
over the city (and state). According to the recently released Industry Development Plan, “[t]he sector employs about 800 people in Tasmania in a wide range of organisations working on Antarctic and Southern Ocean-related policy issues, education, science, technology and the advancement of knowledge, conservation research and logistics support, provisioning and services” (Department of Economic Development 2004, p.40). Included in this Antarctic and Southern Ocean network are:

- Australian Antarctic Division (AAD)
- Cooperative Research Centre for the Antarctic and Southern Ocean Environment
- Commonwealth Scientific and Industrial Research Organisation (CSIRO) Division of Marine Research
- Tasmanian Polar Network (TPN) (See Appendix H for full list of members)
- Cooperative Research Centre for Antarctica and the Southern Ocean (Antarctic CRC), University of Tasmania
- Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) – Host of.
- Council of Managers of National Antarctic Programmes (COMNAP) – Host of.
- The French Polar Institute (IPEV)
- National Oceans Office (NOO)
- Bureau of Meteorology - Antarctic Branch (BoM)
- Antarctic Tasmania (AT)
- P&O Polar
- Institute of Antarctic and Southern Ocean Studies (IASOS)
- Antarctic Climate and Ecosystem Cooperative Research Centre (ACE-CRC)
- Australian Maritime College

As well as the numerous businesses and organisations associated with Antarctic research and resupply that are to be found in Hobart, like Christchurch, the city is also home to many Antarctic cultural resources and attractions including:

- AAP Mawson's Huts Foundation
- Tasmanian Museum and Art Gallery (TMAG)
• Sub-Antarctic Plant House at the Royal Tasmanian Botanical Gardens (RTBG)
• State Library of Tasmania and National Archives Office
• Antarctic Polar Pathways walk
• Antarctic visitor display (in the AAD)

Chapter One briefly alluded to the fact that the city has been moulded around the most prominent geographical feature, the harbour. Consequently the port has been at the heart of the region’s, and Australia’s, relationship with Antarctica, indeed Hall (2000, P.159) suggests that “[i]n Australia, the port function has long been concentrated at Hobart in Tasmania, although the ports of Albany and Fremantle have also served as minor gateways since the end of the Second World War.”

In almost stark contrast to Christchurch, all of Australia’s inter-continental passenger transportation to Antarctic is undertaken, through Hobart, by sea. Australia’s Antarctic flagship is the *Aurora Australis*. Built by P&O Polar, this ninety-four metre long and 3600 tonne ship can accommodate 109 passengers (Australian Antarctic Division 2004). With regards to numbers and the scope of Australian Antarctic Programme, the 2003-04 season saw 347 personnel travelling to Antarctica, but in the 2004-05 season the numbers was reduced to 279 (this is perhaps proof of ASOC’s assertion that although “national program activities make substantial contributions [to environmental impacts in Antarctica]... trends in national science programmes are towards smaller numbers of personnel, and there have been substantial improvements in environmental performance post-Protocol) (ASOC 2004, p.2). The AAD has also chartered the Russian ship *Vasiliy Golovnin*, to undertake continental station resupplying, while the Russian Ice-breaker, *Kapitan Khlebnikov* (now primarily a tourist ship), was also either chartered by the AAD or berths were purchased for expeditioners on their way south.

The specifics of these personnel can be divided up as follows (Goulding 2004):

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* Round trippers - Scientists (who undertake scientific work from the ship), technical officers who provide support for the scientists, voyage support staff (voyage leader/cargo supervisor etc). These people leave and return to Australia on the same voyage although some may spend time on the continent (when the ship may visit other stations or perform marine science), and partake in science or construction programmes.

* Summer & Winter - Numbers include both scientists and trades people. Typical numbers at a station over winter are 14-30 people. Including a station leader, medical practitioner, chef, electrician, plumber, mechanics, carpenter, 2-3 Bureau of Meteorology personnel as well as various scientists (physicists/biologists).

* Summer personnel return to Australia in the same shipping season.
* Winter personnel will return to Australia in the following shipping season.

In addition to boasting the title of being an international centre of excellence for Antarctic research and resupply, the Port of Hobart is also the forward base for the French Polar Institute (IPEV) and is the home port for the French Polar Research vessel L’Astrolabe. The Tasmanian Government’s determination to encourage international expeditions to operate from Hobart has been beneficial, to say the least, to the local economy. Antarctic Tasmania writes that “[t]he typical expenditure by the French Antarctic Program as a consequence of, L’Astrolabe, using the Port of Hobart to resupply Dumont D’Urville station is estimated at [A]$535,000 per ship visit” (Antarctic Tasmania 2004, p.9). In addition to the large French presence in Hobart, the Port also hosts other nations Antarctic vessels such as Japan, the United States (USCG Polar Star), Russia and China. Further to this the South African vessel, Isla Graciosa, and the Spanish vessel, Galaecia, contribute significantly to the local economy, it was estimated that the approximate expenditure of these vessels when in Port (while conducting exploratory fishing and research activities in the Ross Sea in 2003), to have been in excess of A$170,000 per visit (Antarctic Tasmania 2004, p.9).

The Port of Hobart is also used by non-governmental tour vessels during the Austral season. During the 2004-05 season the Kapitan Khlebnikov called at Hobart three times on two separate tourist voyages to Antarctica via Macquarie Island (once again under charter by Quark Expeditions).
Considerable progress towards the development of a new AAD inter-continental transport system is currently being made. The AAD, in answer to the 1997 recommendation by Australia’s Antarctic Science Advisory Committee (ASAC) that “Australia develop a light aircraft intra-continental air transportation system in support of scientific research and for dispersing scientists and their support within the Australian Antarctic Territory (AAT)” (Shevlin & Johnson 1999, p.2), subsequently completed successful intra-continental trials in the 2003-2004 season with CASA C212-400 aircraft. Two Twin Otter aircraft were used previous to the C212’s as a forerunner to the implementation of this first stage of the AAD’s Antarctic intra-continental air transport system, however “[w]hile the Twin Otters we have chartered to date have been very reliable and of great assistance to our science and field programs, the C212-400s will have greater range for the long distances between Australia’s Antarctic stations” (Australian Antarctic Division 2003).

The second stage of the air transport system is the implementation of Falcon 900Ex Jet to transport personnel from Australia to Antarctica. Up until the 2004-05 there were still no Inter-Continental personnel air links from Australia to The Ice undertaken by the Commonwealth. Croydon Travel however still successfully operate their Antarctic tourist overflights, and in the 2004-05 season they conducted five flights with a Qantas chartered Boeing B747-400, with two from Sydney, and one each from both Melbourne and Adelaide.
Figure 3.1: Map of Hobart
3.5 Conclusion

This chapter presented a review of the literature into the concepts of the Antarctic gateway city, contemporary mobility and how these are intertwined with the component parts of the contemporary metropolis. The issues of logistics, networking enclaves and the city as a socio-technical construction were explored. An in-depth analysis of the gateway cities of Christchurch and Hobart informed the reader of the functions, structure and scope of both the historical and contemporary Antarctic operations of the two gateways. Perhaps the most important conclusion from this dialogue was the absence of any holistic or unifying research into Antarctic gateway cities and its inherent component of contemporary mobility. Finally, this discussion was essential for the structure and direction of this thesis. Indeed the literature reviewed here has informed and subsequently created the conceptual framework from which this research, and indeed the following chapter, will be based around.
CHAPTER 4  METHODOLOGY

4.0 Chapter Outline

The methodology and research procedures undertaken in this study are presented and subsequently explained in this chapter. Firstly, the research objectives of the study are reviewed. These are then integrated into a discussion of what methodology has been used and why. This discussion includes a brief overview of what epistemological position has been taken and why this subsequently informs the theoretical perspective. The next section, once they have been justified, discusses the methodology governing the research process and the subsequent issues inherent in qualitative research. Finally, the chapter concludes by describing the analytical operations of the data collection before the inference – data analysis and interpretation – methods undertaken are explored.

4.1 Review of Research Objectives

Antarctic travel has had a substantial global history, however the frequency and intensity of this Antarctic mobility has progressively increased parallel to the development of technological advancements. Consequently, the Antarctic gateways in Australia and New Zealand have transformed with these technological advancements in order to meet the requirements of transporting Military and Scientific personnel and more recently non-traditional travellers including tourists, while at the same time competing between one another for ‘gateway supremacy’. While the environmental and political dimensions of Antarctic travel have been widely discussed, there has been almost no empirical research into the issues, functions and importance of these Antarctic gateways in a contemporary context. The following chapter seeks to introduce the research objectives and subsequent research methodology undertaken in this thesis.

Saunders, Lewis & Thornhill (2000) determine that the consideration of theory should inform and thus define the research objectives. Furthermore, theory is clearly enmeshed in practice (Gill & Johnson 1997) and therefore the research
objectives which are to follow have been established with regard to the issues alluded to above and from the theory that was analysed in depth in the previous chapter.

The methodologies reviewed in this chapter have been designed to meet the following research objectives, firstly, through the implementation of an interview program and secondly, through the gathering of secondary data. The research objectives are:

1. To review and analyse the functions of these two Antarctic gateways in order to understand the issues involved with the contemporary mobility of travellers and freight to and through the gateways;

2. Gain an insight into stakeholder views on what they anticipate the direction of future developments to be in terms of challenges and/or opportunities;

3. To compare and contrast how the two gateways function in term of their Antarctic operations.

### 4.2 The Research Paradigm

The research process is at the heart of any academic study, however the philosophy behind a piece of research is seldom discussed and thus, perhaps, the question of whether this process is justified may indeed negate the validity of the outcomes the study sought to produce in the first place.

The term Research Philosophy refers to the way in which one thinks about how knowledge is developed and the Epistemology is the underlying branch of philosophy that studies the nature of this knowledge, in short, it is *how we know what we know* (Crotty 1998, p.8). Of particular relevance is Maynard's explanation that "epistemology is concerned with providing a philosophical grounding for deciding what kinds of knowledge are possible and how we can ensure that they are both adequate and legitimate" (Maynard 1994, p.10). Thus it is suggested that
the identification, explanation and subsequent justification of the epistemology, specific to the individual study, will ensure the reliability and validity of the results in the long run.

The research process consists of four main elements, the epistemology, theoretical perspective, methodology and the methods. The epistemological stance in this study seeks to validate how we know what we know and to determine the status to be ascribed to the understanding we reach. Furthermore, the chosen epistemological position guides the theoretical perspective of the research. According to Saunders, Lewis & Thornhill (1997, p.66) the theoretical perspective is the philosophical stance lying behind a methodology. Although a research task may employ a specific methodology, this is only an assumption that the chosen process is logical and grounded in the right context. Therefore “[w]e need, as best we can, to state what these assumptions are. This is precisely what we do when we elaborate our theoretical perspective” (Crotty 1998, p.7). Therefore, the following section seeks to briefly elaborate on the above elements thus grounding the research in theory and, furthermore, validating the research methodology.

4.2.1 Epistemology: Constructionism

The epistemological stance taken in this research study is that of constructionism. In this view, meaning is not discovered, but rather constructed. Schwandt (2000) suggests that everyone shares this constructivist approach in so much as we (our mind) actively constructs knowledge. Quite simply, data is actively interpreted (constructed) as opposed to it being passively imprinted with no need of forming concepts (Schwandt 2000, p.197). Crotty defines constructionism as a “view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context” (Crotty 1998, p.42).

This constructionist epistemology has been employed in this analysis because it is deemed that the Antarctic gateway cities under investigation are a product of social construction. That is, the concept of an Antarctic gateway city is indeterminate.
Components of this concept “may be pregnant with potential meaning, but actual meaning emerges only when consciousness engages with them” (Crotty 1998, p.43).

Furthermore, the constructivist epistemology is “contingent on convention, human perception, and social experience” (Wikipedia 2004), that means, while the conclusions will be a combination of objectivity and subjectivity, they may perhaps differ from those of an alternate researcher, but they will still, nonetheless, be reliable and valid.

4.2.2 Theoretical Perspective: Phenomenology

Intrinsic to any constructivist epistemology is the theoretical perspective of phenomenology. Bernard explains that “phenomenology is a philosophy of knowledge that emphasises direct observation of phenomena” (2002, p.22). Perhaps a straightforward way of describing phenomenology is that it is a combination of experiment and theory. Phenomenology contrasts the view taken in a positivist approach in that the methodology applied is not highly structured and is not concerned with quantifiable methods and analysis. Rather, the constructs of Antarctic gateway cities are seen here as far too complex to be restricted by implementing definite ‘laws’ (Saunders, et al. 2000), therefore the phenomenological approach allows for this research to implement a qualitative, inductive research approach.

It was intended here to inform the reader about the importance of understanding the philosophical stance a researcher takes and the subsequent methodological approach inherent to it. Despite the fact that philosophy guides methodology, this aspect is commonly overlooked in academic research. Adhering to the sequential discussion, the following section explains the nature of qualitative research methods and their relation to this study.
4.3 Research Technique: Qualitative

Following the creation of the research objectives, the next step was to find the most appropriate methodological data-gathering technique. Using Crotty's (1998) The Foundation of Social Research, the paradigms of Positivism and Phenomenology were assessed for their particular attributes and it was decided to adopt a qualitative (phenomenological) approach. It was foreseen, through the forming of the objectives, that the research would require analysis across a range of disciplines and as (Denzin & Lincoln 2000, p.2) confirm, the nature of qualitative research is such that “it crosscuts disciplines, fields and subject matters”. While this discussion does not seek to compare the attributes of these two epistemological paradigms (mentioned above), the following section explains the nature of qualitative research methods, the subsequent reasons for implementing this technique in the research and what issues are involved, in methodological terms, in adopting a qualitative approach.

4.3.1 The Nature of Qualitative Research

The body of literature on methodological approaches is commonly based on the two divergent paradigms of qualitative and quantitative research (Bryman 1988, p.50). However, qualitative research is the approach usually implemented when a constructivist epistemology has been taken, which is the case in this study (Crotty 1998). Superficially, the qualitative research approach mirrors that of a quantitative approach, that is the qualitative approach involves gathering a great deal of information from a small number of subjects. Furthermore, the “qualitative approach stresses the subjective aspects of human activity by focusing on the meaning, rather than the measurement, of social phenomena” (Collis & Hussey 2003, p.53).

In a practical sense, qualitative research lends itself to an inductive research approach. As opposed to a deductive approach, qualitative research enables theory to be developed and is “more concerned with emergent themes and idiographic descriptions” (Cassell & Symon 1994, p.4). Whereas a positivist (deductive) approach is controlled by specific hypotheses, the nature of qualitative research is
such that it allows the researcher to undertake exploratory research. Collins & Hussey explain that “[e]xploratory research is conducted into a research problem or issue when there are very few or no earlier studies to which we can refer for information about the issue or problem” (Collins & Hussey 2003, p.10). As has been referred to in the previous chapter, this is indeed the case in this thesis research, and the aim here is to seek emerging theories, rather than testing or confirming a hypothesis. In order to achieve this, the next step in the research strategy is the selection and implementation of one or more qualitative research technique.

4.3.2 Qualitative Research Methods

Within the umbrella of the qualitative paradigm lies a spectrum of research methods. These methods “represent different ways of generating empirical materials grounded in the everyday world” (Denzin & Lincoln 2000, p.633). Furthermore, these methods “seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world” (Van Maanen 1983, P.9 cited in Collis & Hussey 2003, P.150). Within this spectrum lies three main qualitative data collection techniques. These are interviews, observation and text analysis.

Notwithstanding the fact that these three methods can be associated with both qualitative and quantitative methodologies and at the risk of being unduly simplistic by allocating these strategies to one tradition (Saunders, et al. 2000, p.92), the qualitative research methods of interview and text analysis that were employed in the collection of primary data are discussed in the following section.

4.4 Research Design

Denzin & Lincoln (2000) liken the design and implementation of qualitative research to that of choreography, data collection is a combination of fixed and improvised techniques. This is illustrated by the fact that when extensive data collection in the field is involved, the organisation and implementation must be rigid, yet within the parameters of the interview, the researcher may seek to
improvise. Whatever the mix, the importance of the research design or tactics – clarification of data collection methods and subsequent analysis (Saunders, et al. 2000, p.92), is paramount in the field of qualitative research, moreso than that of quantitative. The discussion that follows, on the tactics employed, seeks to justify the choice and use of methods based on the research objectives, as well confirming their notions of reliability, generalizability and validity (Cassell & Symon 1994, p.8).

4.4.1 Stage One: The Review of Documents

As Veal (1992, p.141) identifies, the analysis of texts is playing an increasingly important role in contemporary research. Indeed, this tool is often used by researchers in multi-method studies as a companion to primary techniques such as observation or interviewing. Marshall & Rossman (1995, p.85) elaborate further stating “the review of documents is an unobtrusive method, one rich in portraying the values and beliefs of participants in the setting.”

The research objectives express that stakeholders in both Antarctic gateway cities are an important component of this study and the subsequent methods to be employed. Silverman (2004, p.57) justifies the use of analysing documents suggesting that “[i]f we wish to understand how such organizations [stakeholders] work and how people work with/in them, then we cannot afford to ignore their various activities as readers and writers.” Certainly, for example, Antarctic law, and Australia and New Zealand's inherent connection with it through the creation of Federal (and State) legislation, confirms that this form of data collection is fundamental in the case of this research.

A diverse range of documents relating to the Antarctic gateways of Christchurch and Hobart were amassed. The purpose of this was to construct an overview of the issues involved such as policies, marketing/promotion, networking and tourism and the relation these components had with the two case cities. Firstly, the analysis of the documentation assisted with the design and construction of the interview program (see below). Secondly, the analysis of the documentation served to support the results of these interviews in Chapter 5 Results. It is important to note
here that “documentary reality does not consist of descriptions of the social world that can be used directly as evidence about it” (Silverman 2004, p.73), rather the notion of support has been used for this very reason. Certainly it cannot be assumed that documentary accounts are accurate or valid in their own right, instead the texts act in the function of support and guidance to which this research has subscribed.

4.4.2 Stage Two: Interviews

The second stage of the research design was through the primary data collection method of Interviews. There are many typologies of qualitative interviews, and within each of these is an intricate set of components which create an interview method specific to one certain approach. Section 4.5 below seeks to discuss the specific interview type implemented in this research while explaining the underlying rationale for this choice.

4.5 Interview Methodology

Qualitative research interviews, as with quantitative research techniques, require extensive planning throughout the development and implementation stages. However, unlike quantitative techniques, qualitative methods are highly flexible in design and implementation and are capable of producing information of great depth (Cassell & Symon 1994, p.14). Moreover, according to Veal (1992, p.131) a qualitative approach involves a more fluid relationship between the various elements of the research. This recursive approach, as illustrated in Figure 4.1, suggests that data collection and analysis take place concurrently, and writing is an evolutionary, ongoing process (Veal 1992), and thus have implications on the methodology, the affects of which will be discussed further in the following section. For decades the use of qualitative research in the fields of travel and tourism had been neglected (Veal 1992, p.129), however, quantitative research is still very much a prevalent focus for much of this research, although qualitative techniques, more specifically In-depth interviews, are rapidly filling this void. In accordance with the above objectives, a group of stakeholders at both gateway cities have been identified. These elite individuals have been selected on the basis of their expertise.
in the areas of interest being researched in this thesis. It is for these reasons that the data collection technique of In-depth interviewing or “a conversation with a purpose” (Kahn & Cannell 1957, p.149) has duly been implemented as the most appropriate in the context of this case study research. A discussion of the methodology central to this research programme follows.

Sequential Approach

1. Hypothesise/conceptualise/plan

2. Collect data

3. Analyse data

4. Write up results

Recursive Approach

Figure 4.1 Sequential and recursive approaches to research. Source: (Veal 1992, p.131)

4.5.1 Interview Design

Within the context of this research two data collection methods have been employed. The first, as examined in Chapters 2 and 3, involves the compilation and collaboration of secondary data which exist in many forms. The second is the gathering of primary data in the form of in-depth interviewing, which Marshall (1995, p.78) suggests is core to the data collection design of qualitative research.

An interview programme was designed to address all three of the research objectives outlined above. Within the parameters of the ‘qualitative research interview’ there are many types of approaches, consequently these may also vary significantly in their focus. The use of interviews in social research yields rich information about the issue(s) under investigation, far more so than is possible
through a questionnaire-based interview. Thus, the design of such a tool becomes paramount.

For the purpose of this stakeholder analysis, an in-depth, semi-structured interview approach was chosen. Bernard (2002, p.205) suggests that this approach is best suited “[i]n situations where you won't get more than one chance to interview someone”. This fact was decisive in choosing the interview structure due to the location of the case-study areas in relation to the researcher’s location. Further to the fact that a semi-structured interview approach was chosen as the primary data collection method, this technique was chosen as it lay in the middle of control continuum (Bernard 2002), that is, although the interview guide set forth a structure, “[t]he interviewer still maintains discretion to follow leads” and prompts (Bernard 2002, p.205).

In accordance with the objectives, six research topics were identified during the early stages of the interview design. These key topics were developed from the use of two sources; the research literature and the interviewer's own personal knowledge and experience of the research area gained through informal preliminary research (Cassell & Symon 1994, p.19). The topics being Mobility, Networking, Stakeholder Functions, Marketing/Promotion, Tourism and Future Outlook (These topics are discussed further in section 4.5.3 Interview Implementation in relation to the interview guide). Although this list of themes was a guide for the interview, the questions that were addressed to the individual participants varied in accordance with their organisation and their job description. Furthermore, because there was no fixed order of questions, the interviewer raised the questions specific to the interviewee and when they fitted in with the respondent’s narrative. The approach, as suggested by Marshall (1995, p.80), followed these general topics, the purpose of which was to elicit respondents' interpretation of a very general query from their perspective.

Throughout the design of the interview programme this approach was consistently readdressed as the design would more often than not become tight-questioned as opposed to the intended loose-question approach (Thomas 2003). Therefore, in light of the above design fault, and in accordance with the checklist technique as
discussed by Veal (1992, p.133) a more unsolicited interview was constructed. Supplementary to the *loose-question approach*, the interview contained a *checklist* of topics to be raised and the formation of a question would be shaped according to the circumstances of a particular interview.

### 4.5.2 Selection of Stakeholders

Certainly, much of the quantitative literature on planning and implementation would suggest that considerably more time and effort is needed in order to successfully undertake the intended research. However, the following discussion will contest that the selection and recruitment of participants in qualitative, and indeed this research, is complex and involves a great deal of planning and organisation.

King (1994, p.20) identifies that deciding the number of participants, and the amount of time and resources that are to be employed, is critical in such an undertaking. Subsequently, it was decided that no more than ten participants per gateway would be interviewed. Burgoyne (1994, p.187) views stakeholder analysis as a “research approach based in the view that any phenomena of interest in organizational psychology has a number of ‘stakeholders’, or interested parties, who affect, are affected by, experience and conceptualize it.” These stakeholders “are repositories of facts, reflections, opinions, and other traces of experience” (Silverman 2004, p.144). It is for these views, that stakeholders are a wealth of information, that this form of interview was seen as fundamental in the context of this research.

As mentioned above, a selection of participants were chosen at each gateway to be interviewed. Marshall & Rossman (1995, p.83) introduce the concept of *Elite Interviewing*, and which is seen as a specialised type of interview because of its focus on particular interviewees. All the individuals identified as interviewees are representatives of either local or federal government departments, or national or regional organisations, whatever the situation, their position has Antarctica connections. The advantages of *elite interviewing* are many as they are very knowledgeable about the environment which is being studied. Moreover, they can
usually provide views on organisational policies, past histories, and future plans, as well as an overall view of inter-organisational networking, all of which are essential in meeting the research objectives (Marshall & Rossman 1995, p.83). Table 4.1 presents the list of identified stakeholders at each gateway, of which a representative of each was asked to participate in the interview programme:

Table 4.1 Schedule of Interviewees – Christchurch

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Reason for Inclusion</th>
</tr>
</thead>
</table>
| Antarctic Attraction Ltd            | - Home of ‘The World’s Best Antarctic Attraction’  
- Prominent figure within the IAC community  
- Important component in Christchurch’s image of an Antarctic gateway |
| Antarctic Link                      | - Seeks to bring together Antarctic-related organisations in order to strengthen Christchurch’s connection with the Antarctic, attract visitors and strengthen the regional economy |
| Antarctica New Zealand              | Responsible for:  
- New Zealand’s activities in Antarctica and the Southern Ocean, particularly the Ross Sea region  
- Collaboration with International Antarctic Programs |
| Christchurch City Council           | - Formulate local government policy – Antarctic sector an important economic component  
- Lord Mayor personally interested in the development of Christchurch’s Antarctic connections |
| Canterbury Development Corporation  | Responsible for:  
- Christchurch’s economic development  
- Promoting economic growth within the region |
| Christchurch International Airport Corporation | Responsible for:  
- Management and coordination of Antarctic air operations  
- Owners of the IAC’s infrastructure |
| Lyttelton Ports Corporation         | - Port of call for scientific and tourist related Antarctic vessels  
- Logistical facility for Antarctic sea-borne operations |
| Ministry of Foreign Affairs & Trade Antarctic Policy Unit | Responsible for:  
- Promoting the strengthening of the Antarctic Treaty System and New Zealand’s influence within it  
- Advising the New Zealand Government on major Antarctic policy |
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Reason for Inclusion</th>
</tr>
</thead>
</table>
| Australian Antarctic Division - Policy Section | Responsible for:  
• Australia's Antarctic Program  
• Central role in the mobility of Australian travellers to the Antarctic  
• Maintaining the Antarctic Treaty System & Australia’s influence in it through the formation & implementation of policy |
| Antarctic Tasmania | Responsible for:  
• Enhancing Tasmania’s role as a port-of-call and supplier of Antarctic-related goods and services  
• Promoting Tasmania as a centre for Antarctic science, & ensure that national and international communities recognise and use Tasmania as a gateway to the Antarctic and Southern Ocean. |
| Hobart City Council | • Local Government Authority; Central in the promotion and development of Hobart’s Antarctic service sector & it’s related tourism industry |
| Hobart International Airport | • Tasmania’s International Airport  
• Central figure in the proposed AAD Inter-Continental Airlink |
| Hobart Ports Corporation | • The port is at the centre Australia’s Antarctic mobility operations  
• Provide port and transport infrastructure and services |
| Tasmanian Government – Minister for Economic Development | • Hon Lara Giddings: Minister for Economic Development – Head of Antarctic Tasmania Business Unit |
| Tasmanian Polar Network | • The central figure in Tasmania’s Antarctic network  
• Tasmania’s supply and support network for entities with Antarctic & Southern Ocean expertise |
4.5.3 Interview Implementation

The approach of the semi-structured interview is such that it does not follow a formal schedule of questions, rather an interview guide is constructed to act as a prompt for the set of topics that wish to be covered (refer to Appendix D). The process of developing the interview guide was an evolutionary one, firstly the literature review gave rise to a range of potential topics, of which, these were used to gain an understanding of the pertinent and redundant issues at hand. This assessment subsequently introduced three additional themes, that of Enclaves, Competition and Policy. Including the original six themes, the addition of these three meant that the interview guide had nine pertinent themes to work from. Of more practical note, the researcher's academic supervisors gave advice as to more appropriate approaches to the guide; for instance, in order to avoid using a solicited or prompting interview guide, the questions became neutral or open.

Following the recursive approach (Refer to Figure 4.1), rather than a rigid sequential approach, the selection of stakeholders (above) was undertaken concurrently with the development of the interview guide. Once the interviewees had been selected and confirmed, each were sent two mutually exclusive documents, the first being the Research Outline (Appendix C), containing a brief synopsis of research including the aim, objectives and the research context. The second was an Information Sheet (Appendix D), this contained information about what the interview sought from participants and their rights as interviewees.

The Christchurch interviews were undertaken first. The primary reason for this being the access to the study area, the researcher being based in Dunedin, about four hours drive each way. However, as King (1994, p.19) suggests, the interview guide may be developed throughout the interview process, such as “adding probes or even whole topics which had originally not been included”, and as such the first interviews were used as a way of gauging the quality of the interview programme. All the Christchurch interviews took place in August 2004, while the Hobart interviews took place the following month in September 2004.
One anomaly occurred in the structure of the interview process. All but one of the identified stakeholders were based in the case cities. However, the Ministry of Foreign Affairs & Trade (MFAT) is based in Wellington, New Zealand and the interview with the Antarctic Policy Unit was only able to be conducted on 25 November 2004 when the research was able to travel there.

Each interview took place at the participants’ place of work and although it was suggested that the interview would last 1 hour, the actual result saw interviews vary in length (30 min to over 1 hour), detail, and amount of material peripheral to the research questions. Although the interviews were kept as flexible as justifiably possible, each interview followed the same pattern.

Before the interview commenced the interviewer attempted to create a relaxed atmosphere so as to a)briefly recap what the interview was seeking to achieve, but also b)to inform the interviewee that it was an unstructured format, and one that simply resemble an informal conversation. Taking heed of the notion that the interview should begin with easy/non-distressing questions (Cassell & Symon 1994), the interview began with questions about the interviewee, such as their position and the job description, before the identified research topics were introduced.

4.6 Data Management

In accordance with the fact that in-depth qualitative interviews can potentially generate considerable amounts of data, the choice of the data recording mechanism(s) is vital. The most common mechanisms for data recording are through taking notes, or by using an audio cassette or a video. It was decided that the data would be recorded by using audio recording (either analog or digital audio tape [DAP]), precisely because “transcripts can...be used to analyse the results of interviews in a more methodological and complete manner than is possible with notes” (Veal 1992, p.135). This fact was included in the Information Sheet for Participants, of which, this ‘warning’ sought to alert the participants and it was hoped that this would reduce the reluctance to fully contribute to the interview.
It was decided that note-taking would not be used as the primary recording mechanism due to time consumption issues and because it is simply not as informative. However audio recording was not seen as a substitute for note-taking (Bernard 2002, p.223). Instead, brief notes were taken during the interviews as a means of ‘backup’. Indeed any one of a number of things can occur during a recording, and it was for this reason that at least a basic guide to the issue obtained during the interview was kept.

Once the interview program had been completed, copies of the original audio-tapes were made, named and dated. The raw data from the tapes were then transcribed into Interview Transcripts, which, in accordance with a interviewer/interviewee agreement, were sent to the participants that requested them, before the results were analysed.

4.7 Data Analysis

The process of qualitative data analysis is a very complex one. Does one follow a deductive approach, as has been employed in this research, or perhaps analysis is not necessarily connected with the research component, which raises the question of whether an inductive approach could be used. Certainly literature on the analysis of qualitative data seems to be split. “Indeed, as Hycner (1985) points out, the notion of producing a ‘cookbook’ of instructions is entirely at odds with the name of flexibility and openness to the data that are at the heart of qualitative research” (Cassell & Symon 1994, P.25). On the flipside, Robson (2002, p.370) argues that there is “no clear and accepted set of conventions for analysis corresponding to those observed with quantitative data.” Despite these differing views and the fact that there is not a standardised approach, the underlying notion is that “[a]nalysis is the search for patterns in data and for ideas that help explain why those patterns are there in the first place” (Bernard 2002, p.429).

The qualitative data available through the verbatim transcriptions of the interviews was simply unstructured and unwieldy. The first step in analysis was the development of a ‘framework’ wherein the raw, cumbersome data could be collated into a coherent form of usable information.
The analysis of data is arguably the most important stage in the process of empirical academic research, however as King acknowledges “authors do not give any name to the approach they are taking; they merely say that they ‘looked for themes’ in the texts they analysed” (1998, p.118). Furthermore, if an approach is taken which is not theoretically or empirically grounded then this leaves the results open to scrutiny and questions of reliability and validity. The following section therefore briefly explains the analytical strategy undertaken in this research and the reasons for this approach.

4.7.1 Thematic Analysis

The range of approaches to the analysis of the qualitative research interview vary in “their breath of focus and degree of imposed structure” (King 1994, p.25). On the one hand of the spectrum there is Grounded-Theory, an approach developed by sociologists Glaser & Strauss, 1967 (Bernard 2002, p.463) which, although identifying themes is at the heart of this approach, it’s rigidity limits the scope of diversification and contextual interpretation. At the other end of the scale is Content Analysis whereby “codes are all predetermined and their distribution is analysed statistically” (King 1998, p.118).

The particular qualitative method implemented to analyse the interview verbatim was thematic analysis. Thematic analysis of text involves systematic reading, interpreting and categorising pieces of linguistic data and verbal interaction into theme-based patterns (Kellehear 1993). This approach adopted here follows many of the same techniques as discourse analysis but which occupies a position between the two approaches above, grounded-theory and content analysis, and whereby the interview verbatim “is analysed through the use of an analysis guide, or ‘codebook’” (King 1994, p.26).

The main task in the process of data analysis was to construct this template, or what is often referred to as a ‘framework’. The first step involved the creation of categories so as to be able to classify or ‘unitise’ pieces of relevant information of which might be attached to these categories (Saunders, et al. 2000). Yin (1994)
suggests that these categories should be defined \textit{a priori}, that is through the use of existing theory such as that which informed the creation of the research objectives and indeed the main themes utilised in the interviews. Consequently, these initial categories were based on the six key themes from the interview schedule and which were based \textit{a priori}.

The next activity was the categorisation or 'unitising' of the raw data through the process of coding. King (1998, p.119) describes "a code \textit{as} a label attached to a section of text to index it as relating to a theme or issue in the data which the researcher has identified as important to his or her interpretation." While this process is also associated with content analysis, "thematic analysis usually looks for ideas in the narrative or the text being examined" (Kellehear 1993, p.39).

This step of the thematic analysis process involved thoroughly reading and analysing the interview transcripts. The researcher then coded each part of the interview into the six \textit{a priori} topics. Themes were then created through the interpretation of the transcripts, and which also lent themselves to being broken down into sub-themes. These themes and sub-themes were given individual codes (Kellehear 1993), the implementation of such a process allows for strong reliability that the results are valid. Furthermore, the information obtained from well-defined codes are "essentially descriptive, requiring little or no judgement by the researcher of what the interviewee means" (King 1998) which thus reinforces this notion of validity.

The Christchurch interview transcripts were analysed first (as well as the MFAT transcript), while the Hobart transcripts were analysed second, if only to remain consistent with the order the interviews were undertaken. In accordance with the above discussion, the relevant themes were extracted from the interview verbatim and were subsequently pasted into the corresponding tables so as to present a visual summary of these results. Firstly, every interview verbatim was assigned a code so that every interview was able to be discretionally referenced, i.e. Christchurch Interviewee 1 was coded as C1. Secondly, each section of the interview was also referenced and coded in order for it to be easily traceable to its original source. Each fragment was giving a letter which pertained the theme, for
instance the theme of Marketing and Promotion was assigned the letters M/P. Subsequently, under each theme, each fragment was assigned a number. The end result being that the first segment of information from Christchurch interviewee 1 under the theme Marketing and Promotion was given the reference; C1/M/P1.

4.8 Comparative Research

Pearce (1993, p.20) notes that “the comparative approach has yet to emerge as a distinctive, readily recognizable methodology in tourism research despite its application to a wide variety of problems during the last two decades.” However, in more recent years, the comparative approach has subsequently been adopted by contemporary tourism researchers and widely applied in the tourism context (see Baum 1999, Kozak 2002, Nicholson & Pearce 2001, Qu et al 2000, Simpson & Wall 1999, Stern et al 2003).

As much tourism research is directly or implicitly comparative by nature (Baum 1999), the question of what constitutes a comparative approach in destination research becomes all the more pertinent. Supporting this need for definition is the argument by Pearce (1993, p.20) that “when a comparative approach has been adopted by tourism researchers there has generally been little elaboration on its use, with at best only passing mention of methodological issues or fleeting references to other work.” Inherent to this research is a comparative analysis of the two Antarctic gateways of Christchurch and Hobart, thus, an understanding of the comparative approach, and its intended implementation into this research, is obligatory. Accordingly, the following section, exploring the methodological approach, seeks to cohesively fuse the theoretical issues involved in comparative methodology with the pragmatic purposes for which the above objectives have set out to explore.
4.8.1 Comparative Destination Research Definition

Pearce (1993, p.20) notes that other areas of study within the social sciences, excluding tourism literature, have built extensively on the use of comparative methodology, which has subsequently lead to them being more generally accepted in the fields such as politics, sociology and public policy (Baum 1999, p.627). Therefore the following comparative research definitions, which have been sourced from various social science contexts, holistically apply to tourism research, and indeed the complex multidisciplinary approach to comparative destination research undertaken here.

According to Warwick and Osherson (1973, p.7), “comparison in its broadest sense is the process of discovering similarities and differences among phenomena”. However, this statement is rather generic and does not definitively explain the comparative approach. More to the point is the suggestion by Pearce (1993), that comparative studies in tourism research deals “with the analysis of a problem in two or more places, usually, but not exclusively, in a cross-national context” (p.20).

As a relevant definition for this research becomes clearer, its seems pertinent, in terms of understanding how a destination functions, that some of the themes and issues in Baum’s (1999) comparative destination research are explored. Baum highlights the importance that comparison plays in the part of destination research and goes on to explain that analysis, and subsequently understanding, is “only meaningful when set alongside similar consideration of other tourism destination locations” (p.627).

Perhaps the most applicable definition of comparative research comes from Nicholson & Pearce (2001) who state that “comparative research involves the investigation of a problem in two or more places (or points in time), using a common research design so that equivalent data may be systematically collected, analysed, and interpreted and common findings produced and interrelated to address a general question or set of questions” (p.450).
Unfortunately, the definitional ambiguity that has been highlighted above creates an amount of uncertainty as to the specific aim of the comparative analysis of the gateway cities of Christchurch and Hobart that is to be undertaken in this study. Therefore comparative destination analysis undertaken in this study is defined as:
A positive approach (Pearce & Butler 1993, p.21) that seeks to investigate the relationships among variables in the gateway cities of Christchurch and Hobart through qualitative research techniques so that the empirical data collected can be analysed and interpreted and common findings can be interrelated to gauge the significance, validity and reliability of these findings.

4.8.2 The Comparative Approach

The benefits from the application of a comparative study in this research are many. Comparative destination research helps establish norms for judgement and helps distinguish the essential from the trivial (Feldman. 1978, p.287). Certainly, there are many ways in which comparative studies can be undertaken, and Pearce (1993, p.28) suggests that there are three broad approaches:

1. Comparative Case Studies
2. Element by Element Comparisons
3. Quantitative and Graphical Analysis

However in the context of this research a combination of the first two approaches have been employed. Cohen (1979) suggests that all case studies are implicitly part of the comparative study (Pearce. 1993, p.28), this is subsequently the sentiments of the researcher. Furthermore, the methodology set out to conduct an element by element comparative approach which, although common, is able to analyse a large number of variables (Pearce. 1993, p.29) but which sets a clear limit to generalisation. Due to the fact that the scope of the research was focussed in nature, the comparative, element by element approach sought to allow the study to discover and distinguish specific patterns, and of course the differences, through the primary research method of semi-structured interviews.
As has been explained above, this technique of the element by element approach seeks to explore the diverse contemporary interdisciplinary characteristics found within the operations of these gateways and subsequently, how they interrelate with one another, firstly, and secondly, how they differ from one country to the next.

### 4.8.3 Problems and Issues

Like most academic research, the practical benefits gained have often encountered various problems or issues. In particular, problems such as definitional ambiguity and conceptual equivalence often occur when placed in cross-cultural contexts. Furthermore, in a study such as this, with such diverse disciplinary areas, it can provide a rich array of information. However, as Baum (1999, p.629) suggests, different disciplines represent varied methodological traditions thus impacting upon the value of the research outcomes for comparative purposes.

These issues raised above are but a few of the many problems and issues that may be encountered when comparative research methods are employed. Indeed the vast majority of these problems occur when comparisons are undertaken in cross-cultural and international contexts. However, it is anticipated that very few problems will occur in both the researching and analysing of the primary and secondary data due to the fact that, although cross-national, the cities of Christchurch (NZ) and Hobart (Aus) share very similar settings in terms of their language, history, culture, geography proximity to The Ice and social construction. Although one evident issue pertains to the differences in political structure between the two. Christchurch, and the subsequent stakeholders, operate under the policy set out under the Federal Government of New Zealand. Conversely Hobart, and the Australian Antarctic Division for instance, operate under an alternative system whereby stakeholders are implicated by both state government, as well as Commonwealth government policy. It is, however, foreseen that this difference will have a limited impact, if any, on both the research and the outcomes.
4.9 Limitations

A number of limitations occurred throughout the research process. The most influential of these was the location of the researcher (Dunedin, New Zealand) in proximity to the two case areas (Christchurch & Hobart). Due to the nature of the participants' positions in their given field, their availability to participate in interviews was the main determinant when organising travel to the study areas. Furthermore, this, combined with the fact that extramural commitments had to be worked around, restricted when both the researcher and participant could meet. The researchers experienced almost no limitations during the interviews themselves. Due to the nature of the interviews, that is, the different participants were able to contribute varying levels of information, one interview extended longer than the analogue tape allowed therefore the remaining information from the interview had to be transcribed in-depth rather than the usual note taking.

4.10 Chapter Summary

This chapter has presented the underlying qualitative methodology and the subsequent research methods that were employed in this study. The research paradigm was discussed, subsequently justifying the use of the qualitative research interview as the research method. The interviewees were identified and the reason for their inclusion was discussed before the process of data analysis and management was implemented. This was followed by a theoretical insight into a fundamental component of this research, comparative analysis, and how this approach was employed. The prevalent limitations that occurred in the primary research phase, and the subsequent recommended methodological improvements concluded the chapter.
CHAPTER 5 RESULTS

5.0 Chapter Outline

This chapter presents the results of the primary research interviews undertaken with the identified stakeholders from both gateways. Because of the qualitative nature of the methodology, the results offered a tremendous amount of detailed information. The aim of this chapter sought to present a summary of the main findings from these interviews, of which, the discussion in the following chapter was subsequently based around.

The results are presented in two sections, firstly, in accordance with the structure of this thesis, Christchurch, and secondly, Hobart. Within these two sections, the results have been divided into eight sub-sections; each sub-section delineates the information obtained from the primary research interviews, and the headings have been formatted in accordance with the research themes identified in the methodology. These themes were; Mobility, Tourism/Non-Government, Networking, Marketing/Promotion, Enclaves, Competition, Policy and Future Outlook.

Section 5.1 presents the insights and opinions of the Christchurch Interviewees, while section 5.2 presents the points of view obtained from the Hobart Interviewees. It must be noted that the quotes which are used in this chapter will be subsequently referenced from the assigned codes given to each interviewee. For example, a fragment of information from Hobart Interviewee 1 will be referenced; Participant H1.

5.1 Gateway Results: Christchurch

5.1.1 Mobility of Antarctic Travellers

Christchurch’s position as an Antarctic gateway is long established (see Background), historically through Antarctic pioneers such as Scott and Shackleton, and contemporarily through New Zealand’s and the U.S’s involvement with the
IGY. By the end of the 1980's the operational structure of the gateway of Christchurch, and subsequently both the New Zealand and United States programmes, underwent considerable changes. New Zealand and the U.S foresaw two beneficial outcomes in establishing an Antarctic logistical enclave at the Christchurch International Airport, and as such both programmes decided to move away from using ship-based science support to Antarctica, to the current situation where the air-based operations predominate the mobility of personnel and cargo to The Ice. Firstly, at a time when the potential exploitation of vast quantities of oil and other mineral resources prompted previously dormant countries to initiate interest in having 'a slice' of the Antarctic pie, both the New Zealand and U.S governments decided to increase their funding into their respective Antarctic programmes as a means to try and cement their position as leading Treaty nations and, for New Zealand, to take a closer responsibility of its share of its Ross Sea Dependency claim.

Undoubtedly, increased cost efficiency with the establishment of a joint air-operations pool was the most significant outcome for New Zealand and U.S Antarctic programmes and also for the newly established Italian Antarctic operations base at the IAC. Christchurch Interviewee 1 confirms this notion, when asked what the fundamental reason for using air-transportation the response was simply, cost. "We can't afford to run a ship. Because we contribute to an aircraft pool, it gives us the flexibility throughout the season, if we had a ship it would be doing a couple of trips per season which would entirely change the way we operate" (Participant C1).

The flexibility of mobility operations is paramount in contemporary research, Christchurch Interviewee 3 supports this suggesting that air-mobility “is much more efficient, they can get scientists in and out for a weeks work, whereas if it's ship-based, they're down there for a month. So it's a much more cost effective way of doing science" (Participant C3). The mode of mobility is an influential factor in the availability of attracting quality, Antarctic scientists. For instance, Christchurch Interviewee 1 explained that many scientists cannot afford to spend 5 months of the year tied to an Antarctic programme, while spending 3/4 of that on a ship. The air-mobility thus gives the Christchurch-based Antarctic programmes an
advantage in being able to offer very flexible, efficient mobility to contracted scientists.

In addition to the air-based mobility being cost-efficient, Christchurch Interviewee 3 terms the way in which the contemporary operations are conducted as being more “bang for buck with scientific research and results” (Participant C3). The ability to transport large amounts of both cargo and personnel means that scientists only need to undertake the bare minimum of fieldwork on The Ice, the result being that it is far cheaper to support a person in Christchurch than it is to support someone on The Ice.

In terms of the extent to which aircraft are contributed to the air-logistics pool by all three national Antarctic programmes based in Christchurch, there are four main entities; The United States Air Force supply a combination of Starlifters and Globemasters (C-17). The New York Air National Guard operates the ski-equipped Hercules (LC-130). The Royal New Zealand Air Force contributes 15 flights which are contracted by Antarctica New Zealand. Finally, the Italian Antarctic Programme (PNRA) operates a Hercules (L-382/G) to transport personnel, fuel and equipment under contract to South African company SAFAIR.

An example of the air-based logistics efficiency is asserted by Christchurch Interviewee 1, in that despite the large number of people involved with the entire Antarctica New Zealand programme, a staff of approximately 27 efficiently supports approximately 400 people in Antarctica. Whereas the AAD employ a much larger number of staff at approximately 230, for which they support only 380 people on The Ice.

Although sea-based transport operations are not what they once were, the three national Antarctic programmes still operate ships, albeit at a reduced rate, for the purposes of transporting scientific cargo, supplies and fuel. Because of the air transportation, none of the Antarctic programmes send anybody down by ship. However Christchurch Interviewee 1 explained that sometimes joint scientific personnel will be transported down to Antarctica on a scheduled Nathaniel B. Palmer research cruise before disembarking at Scott Base and then being flown
back to Christchurch. This is a not an uncommon practice within the syndicate programmes, however this example of sea-based transportation is purely for scientific proposals and is not the standard way in which personnel travel to The Ice.

5.1.2 Tourism & Non-Governmental Mobility

More than ever, tourism has become an increasingly important issue in Antarctic law. For example, the Antarctic Treaty System now has its own working group at the ATCM’s, which was initiated at the XXVI ATCM in Madrid, 2003. IAATO’s review of Antarctic tourism calculated that Antarctica received a total of 27,662 visits during the 2003-04 season. Indeed the estimated increase to 31,185 by IAATO for the 2004-05 season justifies the move to establish a working group specific to tourism. However, presenting such an unspecified number of tourists does not in anyway resemble the extent of Antarctic tourism that occurs in the Ross Sea, a), and which, b) originated from Christchurch/Lyttelton.

The extent to which all land and sea-based tourism occurs in the Ross Sea is comparatively minor to those which occur in the Antarctic Peninsula. Approximately 95% of all Antarctic tourists travel from South American gateways (IAATO 2004), whereas the number of tourists granted access to travel to the Ross Sea is directly related to the maximum number of allowed visits to New Zealand’s sub-Antarctic Islands (Participant C5). Because the sea voyage, from any of New Zealand’s gateways, to the Ross Sea occurs in the most treacherous seas in the world, almost all of the commercial tour operators seek to break up this epic journey by including visits to one or more of New Zealand’s sub-Antarctic Islands on their Antarctic itinerary. Although outside New Zealand’s Antarctic Treaty area, the sub-Antarctic islands are strictly protected as national nature reserves, administered by the New Zealand Department of Conservation (DoC) under the Reserves Act 1977. DoC imposes a limit of around 600 tourist visits to the Islands per year, thus in turn, very few additional travellers visit the Ross Sea, unless, however, they have sailed down from Australia via Macquarie Island.

Vicarious tourism ventures are making a move into the lucrative world of Antarctic tourism. Indeed the Antarctic Attraction (AA), based at the IAC, has been at the
leading edge of this movement for over a decade, however Invercargill, New Zealand's southernmost city, also boasts a modest 'virtual' audiovisual and static sub-Antarctic experience at the Southland Museum. Due to the vast expense of physically travelling down to Antarctic (outside a governmental programme), many visitors to Christchurch believe the Antarctic Attraction offers them a vicarious Antarctic experience, the AA "is as close as you can get without mixing it with the real thing" (Participant C3). This modern-day shop window "gives people a taste of the Antarctic without actually touching down on the continent" (Participant C4).

The success of this form of Antarctic tourism speaks for itself. The AA receives over 210,000 visitors every year! The 2003-04 financial year saw an increase of 14,000 visitors from the pervious year thus indicating that demand for a vicarious Antarctic experience is growing rapidly, and ANZ's recent NZ$25,000 upgrade to their displays at the AA further strengthens this notion (Participant C4).

Unfortunately this research was unable to ascertain whether or not the AA was a replacement or a catalyst for Antarctic tourism, however information gathered suggests that a vicarious Antarctic tourism experience is indeed a replacement for travel to Antarctica. Certainly current legislation in the Antarctic Treaty prohibit the development of tourism in Antarctica, and through the stakeholders, it was deemed that this would be the case in the foreseeable future. The current cost of Antarctic travel is perhaps the foremost factor in deterring people from visiting the white continent, and thus the AA goes a long way to providing this second-hand experience. However, the interview results deemed that perhaps a small number of visitors to the AA would be inspired and would perhaps pursue actually visiting Antarctica in-situ, however there is no doubt that the AA is in reality the best form of environmental tourism.

Antarctic overflights are today commonplace in the sphere of Antarctic tourism. Air New Zealand of course once ran overflights from Christchurch airport before the Mount Erebus tragedy in 1979 befell all 257 persons onboard the Air New Zealand DC-10. The stigma attached to the Antarctic overflights is a critical component when asking whether or not this form of Antarctic tourism would be
re-instated from Christchurch. However it seems that this view may not be as important as first thought. It was the common opinion of the identified stakeholders that the New Zealand government’s anti-tourism sentiments was the real hurdle with regard to Antarctic overflights, furthermore, one stakeholder suggested that “no-one in their right mind is going to set-up anything to do with tourism in the Antarctic because the New Zealand government is not going to approve it, and unfortunately this tends to stifle growth” (Participant C4). Although this may be the case, despite the fact that overflights are a form of Antarctic tourism, they are perhaps “not the best tourist experience you could think of” (Participant C3).

5.1.3 Inter-Organisational Networking

As has been discussed above, the three national Antarctic programmes based at the IAC are very closely tied. However interviewee insights into the relationships of Antarctic-related entities in Christchurch divulge a range of both formal and informal inter-organisational networks.

Antarctic Link is the cornerstone of Christchurch’s Antarctic networking and, although rather informal, it seeks to strengthen the links between Antarctic related organisations in Canterbury. Christchurch Interviewee 2 suggests that the network is more about gathering Antarctic-related organisations together in order to leverage off each other. Further suggestions are that “the CEO of the City Council is trying to put it into a more formalised structure; we are trying to bring together Lyttelton, the Polar Trail, the Museum, Antarctica New Zealand, Antarctic Attraction and the Art Gallery” (Participant C2).

The IAC is at the centre of Christchurch’s Antarctic network, but more specifically is ANZ & the USAP. ANZ have a range of both formal and informal relationships and “get around to seeing the bodies about every two or three months” (Participant C2), but instead of attending an annual cluster meeting, the informal nature sees the majority of these businesses working individually with one another. The U.S. Antarctic Program is indeed the main reason that Christchurch’s businesses want to be involved in any such network, and the outcome is beneficial to all. For example, if the USAP need to repair a piece of high-tech equipment, “generally
they find that they can get it repaired in Christchurch, rather than sending it home" (Participant C3).

The AA works very closely with Christchurch Canterbury Marketing and ANZ with regard to current Antarctic issues. For example in mid-2004, ANZ gave advice on some technical aspects to assist with AA's upgrade of their Scott Base area of the attraction.

Christchurch interviewees acknowledged that the inter-organisational ties of Antarctic-related entities were somewhat informal, however the strengthening and formalising of these ties is deemed important in terms of the long-term economic development of the gateway and its ancillary infrastructure, and it is expected that this will take place in conjunction with the outcomes produced through Project Antarctica. What was apparent from the interviews was that the most formal relationships were with stakeholders overseas.

Indeed Christchurch interviewees 1, 3 & 5 all commented that they had close ties with the AAD with regard to operational and logistical procedures, but that ANZ particularly was very closely tied. Furthermore, interviewee 1 conferred that ANZ also have had occasional interactions with the likes of Estonia and have also had proposals from the Russian, Canadian, Belgium and Malaysian Antarctic programmes. Recent collaboration with the AAD has taken place where both parties have been sharing information in order to assist the AAD with the progression of the proposed Inter-Continental Airlink.

Certainly the New Zealand MFAT network with the AAD and the Australian Department of Foreign Affairs and Trade regularly and they collaborate with them towards formulating policies. Both countries are ATS signatories and they subsequently attend the annual ATCM's, however if issues arising from these meetings are not solved at the time, disagreeing parties establish Inter-Sessional Consultative Groups (ICG's). Recently, as interviewee 5 alluded to, the MFAT and the AAD have been working closely on an Australian proposal for a scheme to accredit tour operators who go beyond environmental requirements.
5.1.4 Marketing/Promotion of Antarctic Gateway

Of considerable interest was how Christchurch operates in terms of promoting its Antarctic connections. ANZ, being responsible for New Zealand's Antarctic interests, curiously does not promote Christchurch as an Antarctic gateway, however it is heavily involved in promoting the agency's involvement with Antarctic science, and in fact in this capacity, through public awareness, "we do it all we possibly can" (Participant C2). "We want to tell the story of New Zealand's history in Antarctica and why New Zealand takes part in an Antarctic research programme" (Participant C2).

Despite the fact that the stakeholders do not focus on promoting Christchurch as an Antarctic gateway, they were in common agreement that promoting Christchurch's Antarctic connection was a prominent feature to leverage off. The Christchurch International Airport has sought to entice other countries to either fly through, or base there Antarctic programmes in Christchurch. One interviewee was of the opinion that the American military presence in Christchurch is a positive image and one which gives the airport considerable "credibility in terms of being a safe gateway and that offers high standards" (Participant C3). Despite their efforts and the credibility of Christchurch, CIAL was unable to entice additional Antarctic programmes and subsequently failed to meet their objectives in this regard.

Remarkably, the results showed up the informal connections between the majority of Antarctic stakeholders in Christchurch. Locally, collaboration between entities was either non-existent or, at best, informal. The Antarctic Attraction, however, has in place strong collaboration with its marketing partners (Christchurch's Best Attractions) but not with the wider Antarctic community.

Finally, Christchurch Interviewee 4 highlighted the ongoing issue concerning the fundamental dichotomy in New Zealand. On one hand New Zealand seeks to promote and drive its international markets, yet when it comes to tourism in Antarctica, where New Zealand has a role in safeguarding and protecting its claim, its policy statement seeks to avoid the "promotion of any further expansion of Antarctic tourism" (Participant C5). Thus, promotion needs the support of the New
Zealand government; however, without this support the development of Christchurch’s Antarctic tourism industry is seemingly stuck in a period of stagnation.

5.1.5 Logistical Enclaves

The results gathered from the Christchurch interviewees confirm much of the theory that was discussed in Chapter 3. Furthermore, this section was important in being able to go someway towards meeting part of Objective 1 of this research. All of the interviewees agreed that, together, the IAC and CIAL as an Antarctic logistics enclave. Indeed Christchurch Interviewee 3 took this notion further suggesting the whole city was an enclave that was able to support all the Antarctic operations. However, with regard to Lyttelton, one Christchurch Interviewee considered that the port was outside this boundary, but which had, perhaps, its own Antarctic enclave due to the number and range of Antarctic related sites in and around Lyttelton.

Three main components contributed to the success of Christchurch’s enclave construction. Firstly was the issue of proximity. All three Antarctic programmes are based at the IAC. All the necessary freight is made up at the IAC, it is then transported across the road to the cargo dispatch building, located at the airport, and then it is loaded into the corresponding aircraft. “So between the administration building here, the warehousing behind us, and the dispatch hanger across the road, they make up the logistics hub for those three operations” (Participant C1).

The second component was attributed to the well established range of technological, scientific, infrastructural and logistical support that Christchurch boasted. Christchurch Interviewee 3 discussed how the USAP often complimented Christchurch with regards to the fact that the city has a high capacity to fully support the programmes needs. In order to operate an air-based gateway, the presence of aircraft maintenance/engineering facilities is essential. Indeed the presence of the Air New Zealand maintenance facilities has been important in offering this gateway function. For all of the Antarctic programmes, but the USAP
in particular, being able to repair aircraft at the airport is highly efficient. "The quality of workmanship at Air New Zealand is second to none in the world" (Participant C3) and this thus allows aircraft to be repaired in a week, rather than having to be sent back to America where the turnaround might be in the vicinity of a month.

Lastly, the international airport status that Christchurch affords is an important component in the choreographing of Antarctic logistics. For instance, when operations are so tightly managed, "you can't afford to rely on a small airport that doesn't have those international services, there's a risk" (Participant C3). The USAP is a prime example, where they have a range of visiting fellowships from around the world, and "you've got scientists coming in on the Monday, on a Tuesday they get outfitted and briefed, Wednesday their off, and the same thing when they come back" (Participant C3), therefore it is imperative that the air-based function can cope with this demand.

5.1.6 Competition Between The Gateway Cities

Without a doubt the overwhelming opinion was the fact that Christchurch, up until now, has taken its position as 'the' Antarctic gateway in Australasia for granted and that they have been resting on their laurels. Christchurch, it seems, has taken this stance because the USAP has been here since the late 1950's and they are now well established and there is almost no chance of them shifting their operations out of the city. Some mention was made that the Christchurch City Council, in the past, had seen Hobart as a direct threat and therefore were unwilling to coordinate or cooperate with its 'competition', however this view is now well and truly in the past, and not at all reflective of the present environment.

The present winds of change seem to allude to a much more proactive promotion of Christchurch as an Antarctic city. No longer taking their position for granted the stakeholders such as the Christchurch City Council and ANZ are attempting to link together entities such as the Lyttelton Museum, the Antarctic wing of the Canterbury Museum and the IAC in order to create a more holistic, historic Antarctic destination. The first step that has been taken in this initiative to become
more proactive saw the Christchurch City Council propose to host the annual season opening function which, for years, was organised and hosted by the NSF.

Of considerable interest is the attitude of the Christchurch Antarctic community on the subject of competition with Hobart. The philosophical stance is that a) the USAP is entrenched in Christchurch and b) the French are not likely to shift to Lyttelton, therefore the unanimous sentiment is to cooperate and actually create a partnership with Hobart rather than competing with them. This altered point of view is illustrated by the fact that Australian authorities attempted to entice the USAP to Hobart, in days gone by, by offering a more appealing gateway function. However, a recent visit by the Australian Minister of Antarctic Affairs, Hon Lara Giddings MHA, was implemented as a means to learn more about Christchurch's operations and this was subsequently emulated when ANZ CEO, Lou Sanson, and Christchurch Mayor Garry Moore visited Hobart during 2004.

5.1.7 Policy & Implications

The New Zealand government’s stance on tourism in Antarctica is quite clear, the Policy Statement on Tourism states that “New Zealand will work within the Antarctic Treaty System to limit tourism and other non-governmental activities in Antarctica...” (Ministry of Foreign Affairs And Trade 2004). In addition to this, the policy includes words such as ‘avoiding’, ‘opposing’ and ‘limiting’, the sentiment of which would indicate that New Zealand is very much against tourism in Antarctica, and this was the opinion shared by a number of individual stakeholders, however others were of the opinion that each case for a tourism venture application would be assessed on its merit and not necessarily rejected outright.

With regards to the issue of re-instating Antarctic overflights, there are a number of regulatory requirements that would have to be met in order for a proposal to be accepted. For all intents and purposes an Antarctic overflight is only a domestic flight, because they would take-off and land in New Zealand. This being the case, there are three (although only national) regulatory hurdles to overcome; the Ministry of Transport; the Civil Aviation Authority and the Ministry of Foreign Affairs & Trade. However, curious by its absence is the fact that there are currently
no overflights operating in New Zealand. Interviewee 5 elaborated on the implications of these regulations suggesting that there would not be any discrimination towards an application for Antarctic overflights, instead what the policy states is that the government “won’t get involved in promoting tourism to Antarctica” (Participant C5). Indeed New Zealand’s international search & rescue obligations would influence any such application, for example the government is responsible for search & rescue within its international waters regardless of an aircrafts country of registration. Under international law, the state in which a vessel/aircraft is registered in is subsequently responsible for that craft, however any vessel in the Ross Dependency falls under New Zealand jurisdiction. When asked the implications with regard to an aircraft registered in a country other than New Zealand, but then used for Antarctic tourist overflights to the Ross Sea, Interviewee 5 stated that this scenario “would be very tricky...that would potentially be a ‘flag of convenience’ type thing” (Participant C5). This example illustrated the potential regulatory conflicts that could potentially stifle any such proposal in the future, and indeed may be the reason why New Zealand does not offer any such tourist venture.

One question that was posed to all interviewees was whether or not they thought New Zealand and Australia’s policy on Antarctic tourism were the same. On one hand there was an overwhelming feeling that Australia’s policy was far more accepting than New Zealand’s, and perhaps this is evident by the number of Australian’s involved in the Antarctic tourism industry (and the lack of New Zealanders). However, MFAT rejected this notion suggesting that New Zealand was in no way at odds with Australia, and that, in working with the AAD, their approaches were similar (but not the same). From this, the question of interpretation of The Protocol and how it is implemented indeed seems to underpin whatever differences the two countries may have, although the MFAT offered that the two parties were working together towards standard interpretations.
5.1.8 Future Outlook

When asked what shape the future might take for the Antarctic Gateway of Christchurch, interviewees unanimously stated that the re-instating of Antarctic overflights was probably, not definitely, an unrealistic supposition. There were two reasons for this; firstly the PR aspect of such a proposal would heavily impinge on its success (or failure) and secondly, the current stance of New Zealand’s Antarctic tourism policy would deter any such attempt to re-establish this form of tourism.

Aside from the move, by Christchurch stakeholders, to take the initiative in promoting Christchurch’s Antarctic connections, there was very little optimism that Christchurch would see any growth in the Antarctic sector. Gateway Antarctica, the Centre for Antarctic Studies and Research at the University of Canterbury, has become an important feature in the Antarctic community and is expected to continue its success in years to come. The key to the AA’s success has been its ability to move with the times and to offer a product that is new and entertaining, and according to the AA, change and development will be a cornerstone of its operations. However, in the short term, there appears to be little chance of new international Antarctic programs establishing themselves in Christchurch, and therefore no substantial economic impacts.

5.1.9 Summary

The above section has given a summary of the main results obtained from the Christchurch interviewees. These interviewees put forward their view that Christchurch’s Antarctic mobility operations were cost efficient, a small number of staff could support a large number of scientific and support staff, each dollar producing more ‘bang for your buck’. Stakeholders also confirmed that the logistics pool enabled for more flexible movements of personnel, enabling the Antarctic programmes to attract high quality Antarctic scientists. It was however acknowledged that ship-based mobility was still a component in these operations, although the sea-borne activities were more scientifically focussed.
New Zealand's contribution to Antarctic tourism is internationally insignificant, the focus being towards vicarious Antarctic experiences as opposed to 'in situ' tourism. Interviewees put forward that New Zealand's policy towards Antarctic tourism was passive and that its interpretation of The Protocol is rigid. The crux of its stance perhaps lies in the domestic policy whereby the limits on visitors to the sub-Antarctic Islands dictates, to a large extent, the numbers of tourist, from New Zealand, to the Ross Sea. This dichotomous stance therefore seems to have shaped the promotion, or perhaps lack of, Christchurch as an Antarctic gateway, however the interviews seemed to suggest that this approach was soon to change, a more proactive position was seen to be on the horizon.

The extent of Christchurch's inter-organisational ties appeared to be rather limited. Between the stakeholders under the IAC umbrella ties were significantly close, however external to this, relationships and networking with the Christchurch Antarctic community was sparse and informal at best. Although Antarctic Link Canterbury was is seen to be the principal formation to promote these ties, current attitude towards its implementation would suggest an under-utilisation of this entity.

Interviewees supported the theory that the IAC and adjoining airport were indeed an Antarctic logistics enclave which afforded a proficient range of ancillary support service and was a critical factor in convincing the USAP to stay in Christchurch. The CIA was seen as an important component in this enclave due to its international air-links, without which would severely hinder the efficiency as discussed above.

Lastly, the results from the primary research alluded to the fact that the two gateway cities, historically, once saw each other as a threat and subsequently did not seek to cooperate. However the views of the interviewees were such that particular stakeholders were now leveraging off parallel entities in Hobart for the betterment of both parties, and this was foreseen to only grow stronger in the future. Further to this, interviewee opinions suggested a more proactive approach to the promotion of Christchurch's Antarctic links and a closer integration of the Antarctic community.
Gateway Results: Hobart

Mobility of Antarctic Travellers

The previous chapters have alluded to the fact that the Australian Antarctic programme, currently, is entirely ship-based, and the port of Hobart continues to host this function. In the contemporary era the port is not as active as in its heyday, in fact the “port has been in decline as a commercial port, a lot of the activities have been moving up north” (Participant H2). More specifically, “Bell Bay and Devonport...take most of the big container shipping, so the port doesn’t get much” (Participant H1). Further to this, the extent of “[t]he services offered by [Hobart Ports Corporation] are normally restricted to providing pilots, lines boats to tie them up, providing wharves and storage facilities” (Participant H5). Despite its historic connections the original function of the port have been modified somewhat in the present-day. The port has seen an increase in cruise ship visitations, a handful of which are Antarctic-related, while some small tourist expedition vessels commonly frequent the harbour, such as Quark Expeditions and Heritage Expeditions, owned and operated by New Zealander Rodney Russ.

The research and transportation vessels associated with the national Antarctic programmes based in Hobart predominate the city’s seascape however. As discussed in Chapter 3, the Aurora Australis, Kapitan Khlebnikov, L’Astrolabe and Vasily Golovnin are names unto themselves and included in this fleet is the CSIRO Marine research vessel the Southern Surveyor, all of which are permanently based there. Hobart Interviewee 2 reported that the Japanese Antarctic programme calls at Hobart irregularly, “but when they pop in we just try and make them feel welcome” (Participant H2). Of considerable interest is the fact that the US Coast Guard icebreaker Polar Star uses Hobart as a re-supply base before it sails south in order to cut a channel to McMurdo Sound. The interest occurs due to the fact that this vessel does not call at Lyttelton, instead it travels direct for Hobart. Two interviewees suggested that this relates to New Zealand’s anti-nuclear stance and although all other USAP operations occur in Christchurch/Lyttelton, because the US “neither confirm nor deny on the [issue of using] nuclear-powered vessels” (Participant C1), the New Zealand government
would not allow this vessel to enter their waters, thus the USAP ‘choose’ to call at Hobart instead.

Considerable changes are currently being made in terms of the AAD’s mobility operations. Currently access to Antarctica is a) difficult and b) expensive. With the entire logistics infrastructure being ship-based it means that Antarctic travellers are covering vast distances. The closest Australian station (excluding the sub-Antarctic Islands) is Casey Station, approximately 8 days by vessel, and if the programme seeks to reach either Douglas or Mawson stations, the trip extends up to 14 days, “a major logistical exercise and it’s incredibly expensive. Half [of the AAD’s] budget each year goes on getting a ship to get our people down before we actually start producing the science...” (Participant H3).

Chapter Three discussed the fact that the AAD, in order to create a more efficient transport system, had implemented the first stage of the air transport link and discussion on this issue was prominent throughout both the Christchurch and the Hobart interviews. Currently the Airlink project has only gained federal funding for the Intra-Continental (C212) stage, however all the Hobart interviewees agreed that, when the second stage of the Airlink (the Falcon 900Ex) was approved, the credibility of the Australian Antarctic programme would be greatly improved.

Hobart International Airport (HIA) was chosen as the base for the Inter-Continental leg of the Airlink amongst some fierce competition. “Proximity and logistical expediency” (Participant H3) were the two deciding factors two locate the re-supply base at HIA. However because of their Antarctic and Southern Ocean links, the two cities of Fremantle and Albany both lobbied hard to try and secure the contract. Despite HIA possessing a more established infrastructure than its competitors, the airport still has limited facilities with which to support such a proposal. HIA has no storage facilities at present, however the AAD fit out all staff from their headquarters in Kingston thus reducing this pressure. Naturally, any such aircraft will need maintenance, however the airport does not have any facilities to accommodate this at present. Currently, if Qantas aircraft in Hobart needs repairing, they have engineers on site, however the required parts to fix any such problem have to be flown in individually. If indeed, theoretically, there were
to be engineering staff based at HIA then the need for accommodation would arise, which currently do not exist.

The improvements from the implementation of the Inter-Continental component of the Airlink will, however, only go someway to improving the current sea-based arrangement. The capacity of the Falcon jet is only sixteen, and this figure may be less if survival gear, additional fuel and scientific supplies need to be carried. The cargo capacity of the Falcon is zero, nevertheless the aim of the proposal is to transform the travel time for scientists from a long, arduous journey across the most treacherous seas in the world, to a prompt, comfortable journey to The Ice.

Further to the issue of cargo capacity, both Christchurch and Hobart interviewees held the opinion that this was a critical factor in the envisaged success of the programme. The scenario suggests that all the scientific equipment will be transported to Antarctica by ship. This idea causes some problems in that “scientists don’t travel light, sometimes they have a lot of equipment” (Participant C1), and if indeed the cargo is to be transhipped then this will mean that scientists will have to release their equipment months in advance, as well as post-data gathering which may or may not deter scientists.

5.2.2 Tourism & Non-Governmental Mobility

The footprint of Australian visitors to the Antarctic continent is considerably larger than that of its neighbour, in fact, according to IAATO, 1,485 tourists or 7.47% of all seaborne passengers who landed in Antarctica in 2003-04 were Australian (IAATO 2004) and according to IAATO’s 2004-05 forecast, this number, at a conservative estimate, could increase to 1,749 (IAATO 2004).

Australian-based operator Croydon Travel is the paramount provider of Antarctic overflights. It is predicted that approximately 1,895 passengers will fly over the white continent over the period of five flights during the 2004-05 season, accounting for approximately 6% of all Antarctic tourism. Its only competitor, Chilean based Lan Chile, propose to conduct a much larger number of flights, approximately 50 with 850 paying passengers aboard. The Croydon Travel operations occur from Melbourne and Adelaide and do not depart from Hobart.
Despite this HIA went “to a bit of trouble to try and attract them here” (Participant H1). One Interviewee continued that the theory of having the overflights stop in Hobart would be great for the city and Tasmania, providing economic benefits, while also giving Tasmanian residents a chance to participate without having to fly to the mainland hubs (Participant H1). However HIA was unable to secure this stopover which was attributed to a variety of reasons. The foremost issue in determining the feasibility was the fact that current runway length at HIA (Appendix G), at 2251m, falls short of the required distance for a Boeing 747-400 (the size of aircraft used in the overflights) in order to be able to take-off and land. The same interview participant highlighted the fact that HIA has the runway length for a Falcon, but not for the larger commercial jet’s that Christchurch is able to host. Thus, short of “extending the runway into the sea” this proposal was null and void (Participant H1). Additional factors implicating the plight of Hobart being seen as a stopover included the relatively small population (compared to mainland Australia), and, although HIAL have waived landing fees, the costs associated with landing and taking-off versus the amount of (potential) additional passengers as well as flight crew implications, combine to make this option uneconomical.

Despite Hobart Port’s decline as a commercial port, it is still the logistical port of call for a number of Antarctic and sub-Antarctic Island cruises, most notable being the *Kapitan Khlebnikov* which makes numerous visits. However, in comparison to all the Antarctic cruises that depart/arrive from New Zealand ports, Hobart entertains very few of these. Most cruises that do leave Hobart provide expeditions that seemingly follow “In The Footsteps of Mawson”. Hobart’s proximity to the vast East Antarctica is it’s strength, and is one of the reasons it possesses Antarctic Gateway status, however this part of the Antarctic continent is perhaps “the windiest place at sea level on earth” (Participant H3), therefore the appeal to visit Mawson’s hut is somewhat diminished. Although “a few tourist ships have tried to get there [both d’Urville and Mawson], less than half of them can actually get ashore there because of the appalling weather conditions” (Participant H3). It is for this reason, and the fact that the journey is incredibly arduous, that the demand for Antarctic tourism from Hobart has been limited to what it is, and that the majority of these cruises consequently occur from gateways in New Zealand.
One issue which was prominent in the Hobart interviews related to the potential use of the newly established AAD air infrastructure for tourism purposes. This was indeed a concern to the government stakeholders, however, as will be discussed further below, governmental policy denies this form of use. It was thought that once the Inter-Continental component of the Airlink was established that “there is a risk that entrepreneurs [could] use this link” (Participant H3), while it was also admitted that the AAD were not ready for such a formality. The potential problem this may occur was recently highlighted in the 2003-04 season with failed missions from aviators such as Polly Vacher, Jon Johanson and Gus McLeod, the latter of which was refused to be supplied fuel by the New Zealand government when he became stranded at McMurdo-Scott base during his cross-Antarctica flight attempt (Participant H3). Thus the new Airlink facilities are vulnerable to these cases and interviewees foresaw that national Antarctic programmes could develop a reputation as being able to provide ‘fuelling stations’.

The attention now focuses on Hobart’s land-based, Antarctic tourism industry. The city’s historical Antarctic connections are very centralised and in addition to the Antarctic vessels in Port, Hobart’s Antarctic and Southern Ocean history is omnipresent, subsequently grounding the local tourism industry in these roots. Christchurch’s success with the Antarctic Attraction (AA) has already been discussed, however Hobart’s equivalent has endured a more rocky path. Antarctic Adventure (AntAd), an Antarctic and Southern Ocean Centre, was opened in December 1997. Similar to AA, this entertainment and education centre was the front window for Australia’s Antarctic history and research, unfortunately, unlike AA, Antarctic Adventure closed its operations in 2004 due to financial problems.

Antarctic Adventure and its failure was attributed to a range of issues. Both Christchurch and Hobart interviewees suggested that the centre’s poor location was to blame. Situated in Salamanca Square (behind Salamanca Place), and adjacent to Antarctic Tasmania, although it was by no means isolated, it was indeed not central meaning that tour buses and groups weren’t able to access it easily. Instead, it seems that this may have been a mitigating factor, but certainly not the crux of its downfall. Hobart’s visitor market is substantially different to that of Christchurch’s. The garden city receives over 1 million international visitors.
a year; whereas 95% of Hobart’s visitors are Australian (Participant C4), and perhaps Tasmania’s low socio-economic status (the lowest average income of all Australian states) has also contributed to this factor. Following Antarctic Adventures closure the Tasmanian Museum & Art Gallery has been assigned to take over this role, and one interviewee put forward that they would continue to “promote people having a vicarious Antarctic tourism experience because there are still a lot of people that can’t get down there but want to learn and know about Antarctica” (Participant H2).

Whatever was attributed to Antarctic Adventures failure, local, state and federal governments continue to encourage and support Hobart’s Antarctic connection, of which, “[t]hese attributes enable Hobart to offer significant vicarious Antarctic and Southern Ocean experiences” (Antarctic Tasmania 2004, p.18). A product of this is something similar with which Christchurch is attempting to achieve. Polar Pathways is a collaboration of some of Hobart’s unique Antarctic and Southern Ocean sites. An Office of Antarctic Affairs (OAA – now Antarctic Tasmania) initiative, in brochure form, is a guide to Hobart’s Antarctic and Southern Ocean sites and since its inception the walk has become very popular, particularly during the annual Antarctic Midwinter Festival.

5.2.3 Inter-Organisational Networking

Tasmania’s, but particularly Hobart’s, long established association with Antarctica and the Southern Ocean has seen the development of a network of specialist cold climate expertise in Tasmania. Hobart’s diverse community of scientists, researchers and expedition support personnel was the catalyst for the creation of the Tasmanian Polar Network (TPN – see Appendix H). Furthermore, Hobart Interviewee 2 stated that Tasmania’s Antarctic network was so extensive that the state government “has formed policy on it” and that Antarctic Tasmania had “consulted widely on it’s development of it” (Participant H2).

Antarctic Tasmania is at the centre of this Antarctic community and affords extensive inter-organisational networks with local, state, national and international entities. Certainly one interviewee confirms that, as well as collaborating locally, Antarctic Tasmania “support[s] many international
institutions here, we act as secretariat to the TPN, which is a collection of Commonwealth agencies, state agencies and private industries, large and small” (Participant H2). Hobart Interviewee 2 provided a descriptive analysis of Antarctic Tasmania’s inter-organisational ties which follows:

“Nationally we liaise a lot with the Department of Commonwealth Foreign Affairs and Trade, we often have dignitaries that come out. International ambassadors, we deal with them on CCAMLR. A person in this office is often represented on the Australian Delegation at CCAMLR, the Australian Delegation to ATCM’s and will probably go to ACAP (Agreement on the Conservation of Albatrosses and Petrels) this year [2004]. We are engaged, at the international level, and actively at the local level including partnerships with the local councils and so forth, the university, and at the Commonwealth level we liaise a lot. But we are aware that we are not in charge of Australian Antarctic Program, we have a supporting role in many aspects, supporting the AAD in many activities, CSIRO (Division of Marine Research) so it knowing what kind of role we have and we have that clearly defined and are leading in some areas, partnering some areas and supporting other people to do their work” (Participant H2).

Hobart’s Antarctic stakeholders also possess a number of international ties with associated entities. At the Ministerial level, the AAD has very close ties with New Zealand. This relationship was made formal in 1999 when the two countries signed a statement of commitment to cooperation in Antarctica which took place at the “Ministerial on Ice” in Antarctica in January of that year, subsequently forming a framework for closer ties. One interview participant acknowledged that this agreement was special due to the close political and bilateral relationships with New Zealand, and suggests that the agreement “was picked up because, and I think it is fair to say, that the relationship with New Zealand had become, not ambiguous, but certainly less active than you would normally expect that to be” (Participant H3).

As well as fostering strong relationships with New Zealand, three Hobart interviewees confirmed that they had very good networks with non-governmental
organisations, particularly those who take a close interest in the Antarctic through the scientific community, and which were established under the Scientific Committee on Antarctic Research (SCAR). Operationally, Hobart has excellent networks with entities such as the Council of Managers of National Antarctic Programmes (COMNAP), the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and Antarctic inter-sessional contact groups. Hobart Interviewee 3 corroborates this by saying; “we believe very strongly with this notion of cooperation which is established under the [Antarctic] Treaty” (Participant H3).

With regard to HIA, it was quite apparent that a lot of networking had been undertaken in order to try and attract more planes to the airport and thus improving its ‘international’ status. As a member of the TPN, HIAL pushed its case for the Airlink, while previous to this the company had been in dialog with CIAL and both the Australian and New Zealand Tourism Commissions over a proposal to re-instate a Trans-Tasman passenger service. This proposal was discontinued due to a variety of reasons, the key performance indicators (KPI) formulated by these two entities being the deciding factor. It was, however, interesting to note that Hobart Interviewee 1 thought that “if it were going to happen, it would be more viable to go from Auckland” not Christchurch (Participant H1).

5.2.4 Marketing/Promotion of Antarctic Gateway

Hobart’s combined marketing and promotion operations are impressive. Hall (1998) asserts that “the Antarctic is a powerful brand” (cited in Hall 2000, p.158) and Hobart has indeed made the most of its historical connections with Antarctica, one interviewee declaring that “the Australians go all out with their promotion [of Hobart’s historical and contemporary Antarctic connections]” (Participant C1).

Antarctic Tasmania is the driving force behind the promotion of Tasmania as ‘the’ centre of Antarctic, sub-Antarctic and temperate marine activity. The two main mediums of focus are the TPN, and the web portal “Antarctic Gateway”. The web portal provides access to all the online resources and, like the TPN, gives access to the wide range of Antarctic expertise that makes up the Tasmanian Antarctic community. It is Antarctic Tasmania’s role to coordinate the marketing and
promotion of these mediums and they do so internationally at occasions such as the COMNAP International Trade Forum, however one event alone contributes significantly to Hobart’s image as an Antarctic gateway, the Antarctic Midwinter Festival. One opinion shared was that the Midwinter Festival is “an important sector to Tasmania” and that the Antarctic community is “a unique cluster that we should take advantage of” (Participant H2). The State government is certainly the main player in this regard; however the Hobart City Council, like the CCC, plays a small part in this, largely through the means of funding and support to events such as the Midwinter Festival, which, in 2003, received over 35,000 participants (Antarctic Tasmania 2004, p.4).

Hobart, unlike Christchurch, is able to offer a more tangible Antarctic product. “Hobart has a very eclectic waterfront [which] adds quite a lot of flavour” (Participant H4) and, with the exposure gained through the internationally renowned Sydney (and Melbourne) to Hobart yacht races, the sum presents a vibrant destination with both historical and contemporary appeal.

Of considerable note is the fact that the majority of the stakeholders sought to promote the City of Hobart through its links with the Antarctic “in vicarious ways” (Participant H3), as opposed to promoting Antarctic in the hope of enticing travellers to stopover in Hobart on the way to The Ice. As discussed below, although Australia’s Antarctic policy is seen as being more appealing to operators, the Hobart interviewees were opposed to promoting any form of tourism that was potentially detrimental to the environment.
5.2.5 Logistical Enclaves

The City of Hobart is privy to a unique accompaniment of Antarctic-related entities, and a consequence of the city’s past sees the majority of its historical components in close proximity to one another. The arrangement of its contemporary links, however, is of a much more dispersed nature. The sporadic nature, in terms of the layout of Hobart’s stakeholder facilities, was an issue which prompted the general view that dispersion did present problems. Undoubtedly the Port of Hobart is at the centre of the Australian (and others) Antarctic programme. The main player in these operations, however, is the AAD which is located some 16km south of Hobart in the suburb of Kingston. One Hobart interviewee commented that “the geographical position, I think, actually hinders our work as an Antarctic organisation and as a group of Antarctic organisations because we are so physically separate” (Participant H3). In saying that, however, “I don't think anybody in their wildest dreams expects anything like that of Christchurch” (Participant H1). The decision was made back in the 1970’s to decentralise and in order to “support the regions” the AAD was subsequently based out at Kingston and although “there are people who have very strong views about the merits of that decision”, “the effect on the AAD’s operations has never been quantified but I think that it hasn’t been terribly efficient” (Participant H3). Perhaps more interesting was the fact that “the government was offered good buildings on the waterfront, the site where CSIRO Marine is now situated. CSIRO Marine has now got that site and they park their marine research vessels at their front door!” (Participant H3). Contemporary AAD operations used to locate all their cargo in Kingston, however “one of the things we’ve done in the last two or three years is to move our cargo handling hub from the AAD down to the wharf (where we have a permanent wharf). In the past we would have all the deliveries come down by truck to Kingston, unload it, sort it out, and then take them back again” (Participant H3).

Before the advent of the AAD Airlink concept, the location of Hobart International Airport (HIA) was of little concern to the logistics of Australia’s Antarctic operations. With the advent of the Airlink, however, logistical expediency is a priority. Although travel times “are reasonably short” (Participant H1), HIA is located in the City of Clarence, 26km North East of Hobart. The development of the AAD Airlink is foreseen to be met with an array of logistical problems, apart
from the obvious proximity issues, the airport does not have any storage/warehousing facilities such as are afford at the IAC.

5.2.6 Competition Between The Gateway Cities

Hall (2000, p.164) notes that “in terms of competition for the Antarctic dollar, the greatest threats to Christchurch do not come from within New Zealand... Rather they lie in forthcoming competition with Hobart in terms of intercontinental flights and ship-based tourism.” This statement may well be factual, to some extent. Overwhelmingly, all of the Antarctic stakeholders professed that they did not view the current setting as competitive. Instead opinions echoed a tone of mutual exclusivity between the two gateways. On the one-hand “Christchurch has a reputation of the more established, more sophisticated Antarctic hub” (Participant H3), while on the other hand, the introduction of the Airlink will establish a niche operation which, no doubt, will “increase our opportunity to increase other nations to use Hobart as a stepping off point” (Participant H4). In support of this, it was the suggestion that the two cities “are probably trying to attract a different market in a sense that [Christchurch is] closer to other places than [Hobart is] and visa versa” (Participant H4). It was widely acknowledged that the introduction of the Airlink would substantially increase Hobart’s credibility/appeal to other nations wishing to make use of the city and its Antarctic facilities. One interviewee suggested; “of course if there were some niches to pinch I wouldn’t mind” (Participant H1); however the overall opinion was that the two cities were actually leveraging off each other and were also working towards similar environmental ideals.

5.2.7 Policy & Their Implications

The formation of Australia’s Antarctic policies is constructively and philosophically different to that of New Zealand’s. The Commonwealth of Australia’s Antarctic policy is formulated and implemented by the AAD, while the Tasmanian State Government’s Antarctic, Sub-Antarctic and Southern Ocean Policy is an integral component within the AAD umbrella.
With regard to tourism in Antarctica, the AAD take a philosophical approach in that they perceive the Madrid Protocol as being uniformly applicable to all activities in Antarctica, without discrimination. The AAD approach the implementation of The Protocol into the Domestic Legislation as they believe it was intended, that is they “look at the impacts and not the causes of the impacts” (Participant H3). Furthermore, “if you take a simplistic view of this, lets say that Australians were to have an impact on a seal or penguin colony, the seals themselves don’t care that they are disturbed by scientists or tourists, they just care that they were disturbed” (Participant H3). This homogenous stance is evident in the wording of their policy inasmuch as they will not promote Antarctic tourism, but if environmental protocol is adhered to, they do not seek to limit, avoid or oppose any such activities.

One of the Hobart interviewees elaborated on the Federal Government’s view on the similarities, and indeed differences, between New Zealand’s and Australia’s Antarctic policy. The rhetoric was that “we don’t see eye to eye on every policy and issue, and why should we, we do have different perspectives for whatever historical reasons and we don’t slavishly copy or support each other in their positions. We have a healthy, robust exchange” (Participant H3). Where the two approaches do differ is illustrated by the fact that Australia has a healthy Australian Antarctic tourism industry, ranging from tourists, operators and of course the Antarctic overflights. The AAD, instead of avoiding tourism altogether, seek “to be involved early on in how all those issues are managed” (Participant H3).

Taking the focus now to Hobart, the drive behind the city’s promotion as an Antarctic gateway correlates directly to the Tasmanian government’s Antarctic policy and to the impetus on tourism. “Tasmania is supportive of sustainable and responsible tourism to the Antarctic” (Participant H2) and Antarctic Tasmania, specifically, “is strongly interested in boosting the credential and reputation of Hobart” (Participant H3). Consequently, both the Federal and State governments seek to cooperate in the formulating of Antarctic policies, and what was plainly apparent was that tourism was an integral component for both parties, and was one that was seen as mutually beneficial and, if managed correctly, environmentally sustainable.
5.2.8 Future Outlook

The Hobart interviewees, on the whole, viewed the city’s position as an Antarctic gateway as strong although it is there opinion that perhaps there was not to be any substantial changes or benefits to the city. Certainly, the introduction of the Airlink was seen to be an important step for the future of Hobart’s gateway status, however it was the opinion of one interviewee that “financially I don’t think it will make a monstrous impact” (Participant H1). In terms of HIA, despite the proposed introduction of the Falcon, it seemed doubtful whether Hobart, or even the airport itself would experience any ancillary benefits due to the Airlink being very self-contained. In saying that however, “there has been a slight increase in turbo, or turbo-propped jets here so there maybe enough critical mass to start up a heavy maintenance base here for smaller aircraft” (Participant H1).

In terms of Antarctic-related services in Hobart, Tasmania’s Antarctic Policy specifies the aim for the future, however the idea of substantial diversification was rudimentary. This statement was supported by the idea that the promotion of Antarctic tourism is not “going to bring in Pandora’s box of benefits, but it’s like anything, you’ve got to really focus in on what are the really tangible economic and social benefits that are going to be realised by focussing in on those” (Participant H2). Thus, the sentiments for the future echoed the aim of consolidation. The theme of education and the University were seen to be an area of strength for Hobart and was one in which substantial growth was forecast. From the interview verbatim, the opinion on the future direction of the city’s gateway status was grounded in consolidation and to continue to aggressively promote Hobart as the pre-eminent Antarctic gateway in Australasia.

5.2.9 Summary

Hobart Port, both historically and contemporarily, is the heart of Australia’s Antarctic connection, this is evident by the eclectic array of international Antarctic programmes which based in the city. Currently the Australian Antarctic Programme is entirely ship-based, and despite its historic prowess, the port is seemingly in decline as a commercial port. Indications from the interviewees
pointed towards the port diversifying into the lucrative cruise ship market, some of which were destined for the Antarctic.

The AAD's inter-continental transport system was seen to be opening up a new and exciting chapter in Australia's and Hobart's position as the pre-eminent Antarctic gateway, however interviewees voiced concern as the efficiency and logistical expediency of the proposal. As well as the HIA lobbying hard for this air transport function, it also lobbied, although unsuccessfully, for the Croydon Travel chartered overflights to call at Hobart on their way to Antarctica. These overflights, as was acknowledged, was only one component in the large footprint that is Australian's in Antarctica. Interviewees stated that this was a critical component in the shaping and subsequent stance of Australia's State and Federal Antarctic policy's, which was seen to be comparatively liberal and philosophically grounded.

The results showed that Hobart's inter-organisational networking to be well-organized and extensive. The backbone of this network is the TPN which, although backed by State and Federal policy, wasn't as efficient as the promotion portrayed. Furthermore, despite the historical Antarctic-related entities being amassed together, the proximity of its contemporary entities are however not as efficiently located. Hobart interviewees in fact stated that the sporadic nature of the Antarctic community hinders the present Antarctic operations.
CHAPTER 6  DISCUSSION

6.0 Chapter Outline

This chapter seeks to draw on the main findings presented in the previous chapter. This discussion of the results integrates the relevant literature from the secondary research conducted throughout this study which formed the underlying conceptual framework. Most importantly, this discussion seeks to relate this framework and the results to all three research objectives. Consequently, the discussion is divided into three main sections, each of which pertains to the three original research objectives that were set out in Chapter 1 of this thesis (Section 1.2). The first section, Objective One: An analysis of the Functions of Antarctic Gateway Cities, discusses the concept of gateways and their subsequent applicability to the practical operations of Christchurch and Hobart before the functions and issues involved with the contemporary mobility of travellers in Christchurch and Hobart are incorporated. Section 6.2, Objective Two: Stakeholder Views on the Current & Future Operations of the Antarctic Gateways, then elucidates the views of the stakeholders as to the current and future operations of their respective gateways. Finally, Section 6.3, Objective Three: A Comparative Analysis of the Antarctic Gateways of Christchurch & Hobart, then presents a discussion of the two gateway cities as they relate to both the literature and the primary results, before concluding the findings from the chapter.

6.1 Objective One: An Analysis of the Functions of Antarctic Gateway Cities

This section discusses the first research objective with an analysis of the conceptual and actual functions of the Antarctic gateways of Christchurch and Hobart. Chapter Three was the main body of work that sought to review and analyse the concepts of gateways, contemporary mobility and the contemporary metropolis, however it is the intention of this section to integrate these concepts with the main findings from the interview programme thus presenting an analysis of the functions of the two Antarctic gateway cities.
The literature reviewed in Chapter Three presented an insight into the concept of gateway cities (See Section 3.1.1). The research conducted throughout this thesis has come to support a number of these theoretical concepts, indeed the results illustrated the basic definition of a travel gateway as being “a place that provides access to (and often travel services for) a destination place or region” (Lew & McKercher 2002, p.609). Both Christchurch and Hobart offer access to, and certainly a range of Antarctic-related services, however this does not theoretically entitle them to be called gateways. Matthiessen (2004, p.200) stated that a gateway is such, only when “the transport function is complimented with the hub function”. Christchurch boasts an international air-transport function and undoubtedly supports this hub function being the central point of activity for the New Zealand, U.S. and Italian Antarctic programmes. Hobart on the other hand resembles this theory of a gateway insomuch as the transport function is entirely sea-borne in nature.

The gateways of Christchurch and Hobart have become socio-technical assemblies which boast a range of operational systems focussed on organising, managing and synchronising “the precise and rapid shipment of goods, freight and people” (Graham 2001a, p.4) to and from the Antarctic. The centre of this socio-technical assembly, in Christchurch, is the International Antarctic Centre (IAC) and the adjoining airport (CIA), while the operational aspects in Hobart are focussed on the Port; however integral entities, such as the Australian Antarctic Division (AAD), and to a lesser extent Hobart International Airport (HIA), are located away from the operational centre.

Matthiessen (2004, p.200) identified that the contemporary gateway “is a centre of gravity for frontline research”. The tangible confirmation of this statement is not more clearly evident than in the results of this research which found that both gateway cities host an abundance of locally and internationally renowned Antarctic and Southern Ocean research organisations. In particular, Hobart’s infrastructure supports Matthiessen’s theory that the “head offices [and secretariats of international scientific institutions] appear in clusters” (2004, p.200) as is confirmed by the fact that “Tasmania hosts 65 per cent of Australia’s Antarctic scientists in organisations” (Antarctic Tasmania 2004, p.7). Further to this, Hobart
“is an international centre for education and research in Antarctica and Southern Ocean science” (Hall 2000, p.160) and is the core of this Antarctic cluster (see Section 3.4.2 Contemporary Hobart for a full list). The International Antarctic Centre (IAC) forms Christchurch’s Antarctic industry with clusters of offices, institutions and housing:

- The three core national Antarctic programmes: ANZ, USAP and PNRA
- International Centre for Antarctic Information and Research
- New Zealand Antarctic Society
- Antarctic Heritage Trust (New Zealand)
- Antarctic Attraction Ltd (trading as the International Antarctic Centre)
- Gateway Antarctica (Canterbury University)

The development of Christchurch and Hobart into Antarctic gateways required considerable investment and the construction of durable infrastructure, and according to Matthiessen “such projects are similar to other capital-intensive constructions such as oil fields, nuclear power plants or shipyards” (2004, p.200). Indeed Christchurch displayed a proliferation of this construction with the establishment of the infrastructure at CIA and later the IAC. Hobart’s infrastructural development, although equally capital-intensive, occurred over a much longer period of time and over a larger geographical area. Further to the discussion on the development of the Antarctic gateways, the results of the interview programme concurred with Pavlovich (2002, p.203) that “groupings of organisations cluster together to form a destination context” and in the case of this research, Antarctic logistics enclaves (for further discussion see Section 6.3).

Christchurch’s air-based infrastructure and Hobart’s sea-based infrastructure are two of the most salient types of Antarctic logistics enclaves. An integration of the research literature and results dispelled Burghardt’s (1971) concept that gateways are eccentrically located towards the periphery of an urban area. Certainly Christchurch’s location supports this notion, however Hobart’s service functions, in the capacity of the Port, are located at the centre of its tributary area. This statement, however, is not a closed case. The literature research showed that “the tendency [is] for the [contemporary] logistics nodes and airport complexes to
gravitate to the metropolitan periphery" (Hesse 1998 cited in Graham 2001a, p.7). Currently HIA is not a transport node supporting the logistics of Antarctic mobility, although the results seemingly suggest that the airport will become just as important a port with the establishment of the Inter-Continental Airlink, and thus this ‘gateway’ will be located at the metropolitan periphery.

The Antarctic logistical enclaves of Christchurch and Hobart have developed, separately, state-of-the-art transportation infrastructure which co-exist alongside supporting ancillary services. The results of which are highly flexible and efficient logistical capabilities. However the use of such infrastructure, for Antarctic mobility, was found to be limited to travellers involved with national Antarctic programmes. The literature evaluated the concept of contemporary Antarctic mobility and subsequently discovered that the classification between a ‘legitimate’ traveller to Antarctica and a tourist to be all but the same theoretically. Despite this ideology, the evidence was unequivocal that the use of current and potential transportation infrastructure was constructed, solely, for the use of these national programmes and not for use by potential commercial Antarctic tourism interests.

The above discussion draws upon the key literature of this research while integrating these with the key findings from the interview results. Sections 3.3 and 3.4, seeking to address the first objective, subsequently presented brief case studies for both Christchurch and Hobart, looking particularly at the construction and operations of their Antarctic-related infrastructure. This primarily sought to address Objective One, however it was also intended to create a platform from which the rationale for the primary research (Objective Two) would be understood.

6.2 Objective Two: Stakeholder Views on the Current & Future Operations of the Antarctic Gateways

The purpose of Objective Two was to gain an insight into the views of Antarctic stakeholder on how the gateways operate and what they anticipate the direction of future developments to be in terms of challenges and/or opportunities. The research method employed in order to meet this objective was outlined in Chapter
Four Methodology. The views of the Christchurch and Hobart stakeholders were presented in the previous chapter. The subsequent results presented a first-hand insight into how the two gateways operate. It is the intention of this section to discuss these views with regard to the conceptual framework adopted in Chapter Three.

The results from the interviewees at both Christchurch and Hobart presented a contrasting picture of the current operations and infrastructure of the two gateways, and of course their affiliated national Antarctic programmes. Firstly, with regard to Christchurch, the majority of interviewees, at both Gateways, raised the point that the air-based Antarctic mobility operations were both logistically and financially efficient. Indeed Hobart interviewees commented that, even with the proposed Airlink operations, there was no expectation to create an inter-continental air-based mobility operation that would match that of Christchurch. However, in addition to the financial efficiency and the logistical pools “bang for buck”, Christchurch’s operations provided superior flexibility for the transportation of scientific personnel to Antarctica. Hobart’s interviewees acknowledged that the current Antarctic mobility programme is not as efficient as a) Christchurch and b) it should be. It was, in fact, the programmes inflexibility and lengthy travel time to The Ice that prompted the AAD to implement the Airlink, which included both intra and inter-continental infrastructure. Hobart interviewees were certainly encouraged by the Airlink’s flexibility to be able to transport scientific personnel to and from Antarctic much faster than is currently possible. However, interviewees from both Gateways put forward their concern as to the Falcon’s zero capacity for cargo. It was surmised that expensive and important scientific equipment would still have to be transported to Antarctic by sea, potentially depriving scientists of their equipment for an inconvenient period of time. Nevertheless interviewees concluded that the implementation of the Airlink would considerably increase the credibility of Australia’s Antarctic programme which would subsequently be to the benefit of Antarctic science.

New Zealand’s preservationist stance towards Antarctic tourism and Australia’s philosophical views on environmentally sustainable tourism has contributed to the dissimilarity between their respective Antarctic tourism policies and has resulted
in the contrasting promotion of the gateways as a means to access Antarctica. Hobart stakeholders were happy with the level of promotion presently being undertaken to attract the Antarctic tourist dollar and interestingly, the AAD stated that they weren't concerned with the growth of the tourism market, instead this is the focus of Tourism Tasmania, and, as has been discussed, is a policy outcome of the Tasmanian state government. The issue of Antarctic overflights and the concept (and merits) of vicarious tourism was discussed at length with both the gateway's stakeholders. The results presented a unanimous view that Antarctic overflights were a) a good form of vicarious Antarctic tourism and b) were also a lucrative sector of 'Antarctic tourism'. Indeed Hobart International Airport (HIA) sought to have this venture call at Hobart, which, it was suggested, would have been economically beneficial for the Hobart economy. Christchurch stakeholders were more pessimistic about the benefits of overflights, and furthermore, the idea of reinstating these in New Zealand. Indeed Christchurch Interviewee Three commented that this form of Antarctic tourism wasn't the best experience you could think of. This sentiment continued throughout the Christchurch interviews; however the standout feedback regarding overflights was that they would almost certainly never be reinstated back into New Zealand because of a) the stigma of the 1979 Air New Zealand Mt Erebus disaster and b) the federal government's policy statement on tourism and other non-governmental activities in Antarctica which seeks to 'limit', 'avoid' and 'oppose' any such development.

The results from the interview programme highlighted the disparity between Hobart's Antarctic networks, formalised through the TPN, and Christchurch's currently informal inter-organisational ties and their varying strengths. The TPN's strength, as an Antarctic network, was deemed to lie in the fact that it is bolstered by the numerous internationally renowned members. However interviews with participants in both cities gave rise to a curious contrast in opinion. It was certainly the opinion of Hobart interviewees that the TPN was of substantial benefit to Hobart and the Antarctic community, so much so that, above the normal support, the Tasmanian State Government "[p]rovide[s] an annual performance-based grant of $20,000 to the Tasmanian Polar Network" (Antarctic Tasmania 2004, p.14). However, in discussing the success of the TPN, it was the opinion of Christchurch Interviewee 2 was that it may not have been as successful as its name
suggests. “The feeling I got, if you talk to the people at the top, 'yes really successful', but if you talk to some of the operators in the TPN, they're not really getting anything out of it” (Participant C2). Despite this difference of opinion regarding the local ties within each gateway, the results certainly identified that, at the ministerial level, New Zealand and Australia have entered into an era of cooperation previously unseen. Christchurch and Hobart interviewees acknowledged that the two countries shared diverging views as to the interpretation of international Antarctic law, particularly in regard to Antarctic tourism. The interviewees, however, highlighted that cross-national relationship had been made formal with the signing of a statement of commitment to cooperation in Antarctica at the “Ministerial on Ice” in 1999. This new emphasis on the bilateral relationship between New Zealand and Australia was acknowledged as being special because of the close political, bilateral and cultural relationships that the two countries share.

The three components of tourism, marketing/promotion and policy formulation were inextricably linked throughout the interview programme. Both sets of interviewees discussed Hobart’s impetus to promote its historical and contemporary links with Antarctic and the resulting benefits to the region in attracting the Antarctic tourist dollar. Hobart interviewees identified that the Antarctic and Southern Ocean promotional resources consisted of the TPN, the web portal “Antarctic Gateway” and the annual Antarctic Midwinter Festival. Hobart interviewees pressed the issue that the promotion of their Antarctic links is important for the state’s tourism industry. Conversely, Christchurch interviewees discussed the fact that, historically, the city’s focus of promotion was directed at potential national Antarctic programmes as opposed to the potential tourists. Furthermore, these participants acknowledged that this undertaking proved fruitless and that the focus had turned to the promotion of Christchurch as a destination in itself. It was made clear, by Christchurch interviewees, that the promotion of Christchurch as an Antarctic gateway was not a direction that would be taken. This was due, in part, to the federal Antarctic tourism policy, but moreover it was because of the negative connotations of the region being seen as cold or unpleasant to visit that could accompany the promotion of Canterbury’s Antarctic links.
The views of the Christchurch and Hobart interviewees were presented in Chapter Five Results. The above discussion provides a directly comparable analysis of these views, however the following section seeks to expand on these results, in a comparative nature, but as they relate to the framework of this thesis.

6.3 Objective Three: A Comparative Analysis of the Antarctic Gateways of Christchurch & Hobart

The first two objectives of this thesis research aimed at investigating the Antarctic gateways of Christchurch and Hobart, independently, and from both theoretical and empirical standpoints. This section subsequently seeks to compare and contrast how the two Gateways function in the contemporary context and their future direction in term of their Antarctic operations.

Christchurch (New Zealand) and Hobart (Tasmania, Australia) are two of five international Gateways to the Antarctic, along with Gateways in Argentina, Chile and South Africa. If this statement was to be taken at face value, the functions of Christchurch and Hobart could be deemed to mirror one another. On the contrary, the results of this research into the mobility operations of the two cities provide contradicting evidence.

Christchurch’s principal Antarctic mobility operations, based around the International Antarctic Centre (IAC) and Christchurch International Airport (CIA), are entirely air-based. Despite the Port of Lyttelton’s historical connections with the Antarctic, Christchurch’s gateway status was transformed into an air-based mobility operation with the introduction of the United States and Operation Deep Freeze in 1955. By the end of the 1980’s considerable changes had begun to take place, both with the New Zealand Antarctic Programme (NZAP) and the now well established United States Antarctic Programme (USAP). The establishment of the IAC created an operative platform for the mobility of Antarctic travellers never before seen in terms of scale and efficiency. Following the introduction of the Italian Antarctic Programme (PNRA), the three contingents established a joint air-operations pool which produced an inter-continental transportation system second
to none in the world. The IAC, and adjacent CIA, provide the precise flow of transportation and mobility logistics. The combined air-infrastructure into a logistics pool enables these programmes to operate efficiently and flexibly, the final product being an enticing lure for national Antarctic programmes and the world’s best scientists. Further to this, Christchurch’s success as an Antarctic gateway, and its operational efficiency, can be accredited, in part, to the airport’s position as an international air-transportation hub.

Conversely, Hobart’s contemporary mobility function is still firmly based in its historical connections. Australia’s gateway role has always been concentrated at Hobart, although in contrast to Christchurch, Australia’s mobility infrastructure is entirely ship-based. Stakeholders confirmed that, analogous to Lyttelton, the port has been in commercial decline, although its Antarctic-related infrastructure is prolific and predominates the Port’s façade and surrounding landscape. Compared to Christchurch, Hobart’s connection with the Antarctic is tangibly reinforced through the eclectic collection of Antarctic ice-breakers and scientific research vessels that dominate the seascape. Contemporary Hobart is a pre-eminent seaborne hub offering the strategic concentration of sea-freight transportation and mobility logistics to the Antarctic and Southern Ocean sector. The spatial concentration of Antarctic infrastructure in the port provides “excellent accessibility [to] advanced terminal and transport infrastructure, critical mass of logistics functions and attractive operating conditions” (Hesse & Rodrigue 2004, p.178). Hobart’s physical environment is indeed the major external determinant that venerates its gateway function, and akin to Christchurch, Hobart boasts a number of international Antarctic programmes which prefer to call Hobart ‘home’. Hobart, and indeed Tasmania, places a great deal of importance on the economic value of the Antarctic and Southern Ocean sector. Even the now out-of-date figure of A$95m (Antarctic Tasmania 2004) surpasses the recent figures from Christchurch which suggests that the economic importance of the sector to be NZ$80m, the estimated expenditure of the French Antarctic Programme, per visit by the L’Astrolabe, is A$535,000 alone (Antarctic Tasmania 2004).

Certainly Hobart’s and Australia’s Antarctic sea-borne operations are well established, if not equally as efficient as Christchurch. The AAD is now in the
preliminary stages of the proposed inter-continental air-transport system and, after carefully assessing the advantages and disadvantages of three locations, chose Hobart International Airport (HAI) to act as Australia’s gateway for the new Airlink. As the results showed, the AAD supported the trade-off between inventory, of which Albany was prepared to offer, and the transportation and logistical efficiency of being based at HIA. Indeed with the Airlink being based in Hobart, Australia’s Antarctic programme will be strengthened, however operational aspects such as cargo capacity was seen as a concern by both Christchurch and Hobart interviewees. Furthermore, HIA’s spatial proximity, as will be discussed below, to the operational hub will affect the efficiency and stakeholders recognised that the Airlink would never be as successful as that of its neighbour.

One of the primary concepts of this research focussed on the theory of the logistical enclave. The results subsequently confirmed Graham’s (2001a, p.4) statement that “[c]ontemporary cities can be understood as socio-technical constructions supporting mobility and flow to more or less distant elsewheres...” There were, however, some interesting contrasts between the two cities with regards to being Antarctic logistics enclaves. The study into the contemporary construction of Christchurch’s and Hobart’s Antarctic infrastructure certainly concurred with Eastling’s (1999) belief that all contemporary urban developments are dynamic sites for organising logistical processes (cited in Graham 2001a, p.4). Christchurch was found to have met the requirements for such a title. The physical (spatial) geography of its networked Antarctic infrastructure is clustered together in the precinct of the IAC and CIA, subsequently providing the seamless interconnectivity of mobility logistics for the inter-dependent Antarctic programmes based in Christchurch. Hobart does not enjoy the privileged and infrastructural connectivity that affords its competitor. Interviewees supported this notion suggesting that, because of the dispersion of Hobart’s Antarctic infrastructure, the Australian and other international programmes experienced logistical friction. It was also acknowledged that despite the introduction of the AAD Airlink, Hobart, although logistically connected, was not an Antarctic logistics enclave.

National and regional policy formulation has had significant implications for the way Antarctic programmes operate. For instance, Hobart’s decision to decentralise
the AAD operations by relocating its headquarters to Kingston, south of the city, has had considerable detrimental effects as the issue of logistical friction illustrates. Conversely, the Australian federal government's desire for pre-eminent gateway status has considerably influenced its national Antarctic policies, indeed the reinforcement of the gateway role has emerged as a policy outcome in itself (Hall 2000, p.165). Australia's Antarctic policy is philosophically dissimilar to that of New Zealand's, and which principally implicates Antarctic tourism. The results illustrated that the AAD policy is seemingly more liberal than New Zealand's; this is partly due to the diverse range of Australian's involved with Antarctic tourism and the fact that the AAD has deemed it necessary to interpret the Madrid Protocol to focus on the impacts, rather than the causes of environmental degradation in Antarctica and in doing so creating a more accepting policy for tourism.

The formulation of policy directly correlates to the way in which government, at all levels, embraces the development of the gateways in order to generate economic development (Hall 2000, p.157). Australia's and Tasmania's acceptance of environmentally sustainable tourism has aided in the reinforcement of the gateway role. Hobart's Antarctic-related tourism is concentrated on the small number of cruise ships and yacht-based expeditions that re-supply there, while the city's historical Antarctic connections are a catalyst for domestic visitation. In contrast, New Zealand's sea-borne tourism Antarctic industry is dispersed amongst a variety of sea-ports, very little of which seek to operate from Lyttelton. Furthermore, while Christchurch's historical connections are equally as robust, very little tourism is generated from heritage tourism; rather the vicarious Antarctic tourism experience offered by the Antarctic Attraction is the prevailing figure for this market, overshadowing Hobart's (Antarctic Adventure's) attempts at capturing this market.

One market that Australia has captured, and is thriving in, is that of Antarctic overflights. New Zealand on the other hand has not reinstated this form of Antarctic tourism, partly because of the stigma that accompanies the Air New Zealand, Erebus disaster, and partly because of the pragmatic stance of the New Zealand government towards conversation and preservation of the Antarctic environment. Contrary to Hall's (2000, p.164) forecast that "Christchurch will
eventually embark on attempting to attract further tourist dollars through overflights”, the results indicated that there was a very small likelihood of this occurring given the present stance of the country’s Antarctic policy.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Christchurch</th>
<th>Hobart</th>
</tr>
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<tbody>
<tr>
<td>Mobility Infrastructure</td>
<td>• Air-based; Combined logistics pool – Incorporates NZ, U.S. and Italian Antarctic programmes</td>
<td>• Sea-based; inflexible &amp; expensive</td>
</tr>
<tr>
<td>Policy on Antarctic Tourism</td>
<td>• Conservationalist approach; MFAT seeks to ‘avoid’, ‘oppose’ and ‘limit’ Antarctic tourism</td>
<td>• Philosophical approach; supports environmentally sustainable Antarctic tourism</td>
</tr>
<tr>
<td>Promotion</td>
<td>• Scientifically Focussed; promote ANZ’s influence in Antarctic science but not Canterbury’s Antarctic gateway status</td>
<td>• Focussed on gateway status and historical/contemporary Antarctic connections</td>
</tr>
<tr>
<td>Structure of Antarctic Logistics</td>
<td>• Antarctic Logistics Enclave; centred on the IAC &amp; CIA – minimal logistical friction</td>
<td>• Sporadic; contributes to logistical friction</td>
</tr>
<tr>
<td>Inter-organisationa l Networks</td>
<td>• Antarctic Link; informal &amp; semi-structured</td>
<td>• Tasmanian Polar Network; formal, structured &amp; focussed on regional economic development</td>
</tr>
<tr>
<td>Antarctic Tourism</td>
<td>• Vicariously focussed; Antarctic Attraction</td>
<td>• Focussed on ‘in situ’ tourism; Antarctic Overflights</td>
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Table 6.1 Comparative Summary of Christchurch & Hobart Antarctic Gateways

The combination of the development of inter-continental Airlink infrastructure and the ever-expanding Antarctic tourism industry has created a perceived impression of commercial and State government pressure to be able to use this infrastructure for economic development (Hall 2000, p.163). Hobart International Airport attempted to lure the Antarctic overflights to stop in Hobart, however economic expediency suggested otherwise, while logistically, runway length was also a critical factor. The research revealed that the airport would not be able to accommodate aircraft such as the Boeing 747-400, or other larger jets that CIA is able to accommodate. These issues, accompanied with the AAD’s policy assertion
that governmental facilities will not be used for commercial tourism purposes refutes the argument “that use of intercontinental air transport based in Hobart for tourism purposes is only a matter of time” (Hall 2000, p.163).

“Relationships between firms are now seen as an important component of competitive advantage” (Pavlovich 2002, p.203). The results presented the occurrence of a diverse array of relationships, both within the gateways as well as between them. Hobart’s inter-organisational networking between Antarctic-related entities has been constructed and implemented in a far more coherent manner than that of Christchurch, however “both locations [have] embraced the development of Antarctic supply networks” (Hall 2000, p.157). Formalised through Tasmanian state policy, and coordinated through Antarctic Tasmania, the TPN is the focal point for all Antarctic-related organisations in Tasmania. Hobart’s network construction resembles what Matthiessen (2004, p.200) describes as being a strategic vacuum. Furthermore, Hobart’s ambition “to take take the winner’s role as a gateway [attempted to advance] ahead of the competition by creating the foundation for such strategic alliances” (Matthiessen 2004, p.200). Across the Tasman, Christchurch’s development as an Antarctic gateway seemingly went ahead without any clear agreement between Antarctic-related organisations, let alone strategic alliances. There was a clear contrast between interviewees in both gateways, however despite Christchurch interviewees suggesting that the TPN was not as successful as the promotion would suggest, the city’s own network, Antarctic Link Canterbury, is perhaps still under-developed and under-utilised in comparison. Figures 6.1 and 6.2 overleaf illustrate the ties, and the strength of these ties, of the contemporary Antarctic networks of Hobart and Christchurch respectively.
Figure 6.1 Christchurch’s Antarctic Network

Glossary of Acronyms:

AA  Antarctic Attraction
AHT  Antarctic Heritage Trust (NZ)
ANZ  Antarctica New Zealand
CCC  Christchurch City Council
CIAL  Christchurch International Airport Ltd
IAC  International Antarctic Centre
LPC  Lyttelton Ports Corporation
MFAT  Ministry of Foreign Affairs & Trade
PNRA  Italian Antarctic Programme
RPSC  Raytheon Polar Services Company
USAP  United States Antarctic Program

Key:
- **Strong ties**
- **Close ties**
- Interconnected stakeholders within the Antarctic Link
- Canterbury community
- Stakeholders within the Antarctic scientific community

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Figure 6.2 Hobart’s Antarctic Network

Glossary of Acronyms:

AAD          Australian Antarctic Division
ACE-CRC      Antarctic Climate and Ecosystem Cooperative Research Centre
CCAMLR       Commission for the Conservation of Antarctic Marine Living Resources
COMNAP       Council of Managers of National Antarctic Programmes
CSIRO        Commonwealth Scientific and Industrial Research Organisation
HCC          Hobart City Council
HIA          Hobart International Airport
HPC          Hobart Ports Corporation
IASOS        Institute of Antarctic and Southern Ocean Studies
IPEV         French Polar Institute
TMAG         Tasmanian Museum and Art Gallery

Key:

Strong ties  Interconnected stakeholders within the Tasmanian Polar Network
Close ties    Stakeholders within the Tasmanian Antarctic scientific community
The concept that competition between cities is a persuasive mantra in the formulation of regional and national economic policy (Turok & Bailey 2004, p.152) is not more clearly evident than in Tasmania’s Antarctic, Sub-Antarctic and Southern Ocean Policy. Indeed the supposition of inter-gateway competition was a prominent feature of the research interviews. Historically, there is no question that the two cities treated one another as a threat and this was made clear from the primary results in section’s 5.1.6 and 5.2.6. By the beginning of the 21st Century the two gateway cities had established some clear and profound differences (See Table 6.1). Firstly, Christchurch’s dominant air-transportation infrastructure and logistical operations, due in part to the well-established presence of the USAP, had created a perceived position of ascendancy over its counterpart. Conversely, Hobart’s goal to gain pre-eminent gateway status drove policy development, insomuch as state and federal objectives were to promote the capabilities of the port in terms of offering paramount infrastructure in order to entice prospective Antarctic programmes, while also trying to attract the tourist dollar through the promotion of its historical links with Antarctica. The result of these two standpoints saw Christchurch, although secure in its setting, developed into relatively stagnant economy, whereas Hobart, although restricted by its solely sea-borne infrastructure and perhaps more vulnerable to the port’s decline, implemented an impressive campaign which witnessed the economic re-strengthening of the Tasmanian economy.

This research concurs with Hall’s (2000, p.164) statement that the greatest threat to the stability of Christchurch’s Antarctic dollar came not from within New Zealand, but rather from the “competition with Hobart in terms of inter-continental flights and ship-based tourism.” Certainly this has been the case thus far; however by 2004 the local and federal governments of the two countries had ushered in a new era of cross-national relationships. Acknowledgement was given to the fact that both gateways were mutually exclusive of each other, both specialising in areas of competitive advantage (See Table 6.1). Additionally, the slight divergence with regard to policy on Antarctic tourism has consequently determined that a) competition for the ‘in situ’ Antarctic dollar is not likely to increase in the foreseeable future and that subsequently b) competition for niche markets, solely from the commercial sector, will be dominated by Australian
interests. Thus the contemporary relationships between the two gateways are stronger than ever. Both entities are seeking to assist one another in areas of weakness, while also leveraging off each other for the betterment of their respective cities, as well as for Antarctic science.

This research identified a clear disparity between the two gateway cities in terms of the marketing and promotion of their Antarctic connections. The results and discussion of this thesis have come together in agreement that the Tasmanian state government has implemented “the conscious interweaving of place promotion and government policy in an attempt to encourage regional development” (Hall 2000, p.158). Indeed “Tasmania, with the support of successive Australian federal governments, has been extremely aggressive in its quest to attract Antarctic-related business and visitors” (Hall 2000, p.159). The driving force behind this statement is the State’s Antarctic policy. Hobart has successfully sought to “raise the profile of, and celebrate, Hobart’s contemporary and historic links to the Antarctic” (Antarctic Tasmania 2004, p.11) and has done so through the networking of the TPN, strategic alliances with the Tasmanian tourist board and through its showcase event, the Antarctic Midwinter Festival. Christchurch, in comparison, has been tardy in implementing a comprehensive and integrated promotional strategy. Certainly the national government, encouraged by Antarctica New Zealand, offers scholarships and fellowships as a way of creating awareness of New Zealand’s role within the Antarctic scientific and political communities; although there has been no effort to promote Christchurch’s historical and contemporary links in terms of the development of the regions economy. The interview results however identified a new impetus to toss away the shackles of the past, whereby Christchurch’s status as an Antarctic gateway will no longer be taken for granted, instead key political stakeholders in New Zealand have actioned the production of a strategy and action plan to maximise the economic benefits to the Canterbury region through its involvement with Antarctic businesses and to reconfirm its gateway status. Project Antarctica is a welcome, but long overdue, premise by which Christchurch and its surrounds will finally be able to develop a significant promotional strategy, one that may even match that of Hobart.
The socio-technical constructions that are Christchurch and Hobart have been found to be in a period of consolidation. This research has further deduced that each gateway is fundamentally different in terms of their infrastructure and objectives. From a relational perspective, ties between Christchurch and Hobart have never been closer and rather than competing against each other, the two gateways are seeking to co-evolve, leveraging off one another's the strengths for mutual benefit. Certainly Christchurch's Antarctic mobility infrastructure is the envy of Hobart; however there has been considerable cross-national cooperation in order to assist with the efficient creation and implementation of the AAD's Airlink. For example ANZ provides over various logistical aspects of the flight pool and the logistical systems in place in order to assist the AAD with the efficient implementation of their proposed programme. The future outlook for Hobart, in terms of its mobility infrastructure, presents an exciting new era for Antarctic mobility. It is anticipated that considerable changes in Australia's Antarctic programme will occur; however because of the proposed self-reliant nature of the Airlink, it is doubtful that the wider Hobart or Tasmanian community will gain significant economic benefit as there will seemingly be little demand for ancillary services. Additionally, the inescapable logistical barriers presented by HIA's runway length certainly discount the possibility of Hobart offering the function of an air-hub in the future. Conversely, Christchurch's mobility infrastructure is substantial and the results suggest that there is little chance of further development in the foreseeable future.

The future stance and corresponding levels of promotion for the gateways by local and federal governments have been determined to be significantly different between the two countries. Closer collaboration between the Christchurch City Council, Antarctica New Zealand and the New Zealand Government has been identified, which has resulted in a strategy to substantially enhance the image of Christchurch's Antarctic connections. This impetus will, in-turn, aim to bring all of the city's, and Lyttelton's, Antarctic-related sites and attractions into a coherent cluster for what is hoped will be an Antarctic trail to match Hobart's Polar Pathways. Further to this, it is anticipated that Project Antarctic will identify a comprehensive plan as to how best to maximise the economic potential of Christchurch's historical and contemporary Antarctic connections.
The vicarious Antarctic tourism experience will be a central focus for any future tourism development. The primary research indeed indicated that Christchurch’s Antarctic Attraction will seek to retain its position as a premier New Zealand paid attraction by continually diversifying and upgrading its centre. Hobart too will invest in this lucrative market. The Tasmanian Antarctic Policy confirms this notion as it aims to “provide [A]$600,000 to create a permanent Antarctic, sub-Antarctic and Southern Ocean exhibition centre at the Tasmanian Museum and Art Gallery (TMAG)” (Antarctic Tasmania 2004, p.19). However, in terms of ‘in situ’ Antarctic tourism, the formation of Australian and Tasmanian policy, identified in this research, would seem to refute Hall’s (2000, p.162) view that “the use of [governmental] intercontinental air transport based in Hobart for tourism purposes is only a matter of time.” Certainly current tourism trends would support the opinion that both commercial and local government interests will seek to pressure federal governments for access to Antarctic through the gateways in order to reinforce their status. However the use of national Antarctic programmes mobility infrastructure is prohibited through the ATS, The Madrid Protocol and subsequent national legislation. Therefore it is envisaged that any future development of Antarctic travel will be independent of the aforesaid infrastructure.

6.4 Chapter Summary

The discussion identified that, despite similar historic Antarctic connections and functions, the construction and functions of the two gateways have developed differently in the post-heroic era and which have subsequently presented an array of contrasts. The results confirmed the theory that Christchurch’s Antarctic operations form an Antarctic logistics enclave with its main operational functions being air-based. In contrast Hobart, like Christchurch, was identified as supporting an abundance of Antarctic scientific organisations. However, because of the lack of spatial proximity of its primary logistical and operational entities, the research deduced that Hobart, although smaller in scale, was indeed an Antarctic logistics enclave. However, Hobart’s Antarctic logistical operations was found to operate with greater logistical friction and reduced efficiency compared to that of Christchurch.
The comparative analysis of the operational aspects of the two gateways offered an interesting insight into both the similarities but also of the unique differences that occur at both local and governmental levels. It was identified that governmental attitudes towards the development of their respective gateways differed substantially and which subsequently influenced the level of promotion, or lack thereof in the case of Christchurch. Furthermore, federal, and in the case of Hobart, state government policy formulation was directly responsible for the proliferation of the city’s Antarctic-related tourism industry. Hobart was seen to have constructed an economically important Antarctic tourism industry through its gateway function, whereas Christchurch’s Antarctic Attraction was the city’s sole entity with any economic significance outside the limited contribution afforded by Antarctic tourist vessels that call at the port of Lyttelton. Lastly, the discussion identified the contemporary relationships between the two gateways and their governing bodies. While it agreed with Hall (2000) that, historically, the two gateways were in competition with one another, the interviews revealed a new outlook of cooperation and cohesiveness.
CHAPTER 7 CONCLUSION & RECOMMENDATIONS

7.0 Chapter Outline

This chapter provides a final unifying summary of this thesis and its major findings. Firstly, Section 7.1 presents a summary of the structure and progression of the thesis research before the main research findings accrued from this study are identified and discussed in Section 7.2. The chapter then furthers these main findings by presenting a discussion on the recommendations and their implications for further research into Antarctic gateway cities before a final statement concludes the chapter and this thesis.

7.1 Summary of Research

This thesis sought to answer the three research objectives, set out in Chapter One, and was conducted in three stages. Firstly, a review was undertaken of the literature relating to Antarctic travel, the implications of Antarctic law on Antarctic Treaty signatories, and relevant theory which provided a framework for an analysis of contemporary gateway cities. Secondly, a qualitative study, based around the primary research technique of semi-structured interviews, was conducted at two cities which boast both historical and contemporary links as gateways to the Antarctic. Ten in-depth interviews were carried out with representatives of key gateway stakeholders at Christchurch - New Zealand, and Hobart - Australia, respectively. The raw data collected through these interviews was analysed through the method of thematic analysis, and the findings were subsequently coded into the eight a priori based topics. Finally, the main findings that arose from the thematic framework were presented in a comparative discussion that also integrated the key issues that had been identified in the research background and literature review. While the previous chapter presented a conclusive discussion of the results, it did so by addressing the three research objectives. This chapter, however, concludes this thesis by drawing on the major findings, discussing the recommendations and necessity for further research in the area of Antarctic gateways and offers concluding remarks.
7.2 Major Findings

At the outset of this research, it was surmised that because Christchurch and Hobart were both gateways to the Antarctic with similar historical connections, that the results would afford analogous findings. This research, however, has presented several major, and contrasting, findings. The correlation between the literature and the results corroborate Graham's (2001a) theory on networked mobilities and the contemporary metropolis and have proved that the contemporary Antarctic gateways of Christchurch, and to a lesser extent, Hobart, are socio-technical assemblies which organise, manage and synchronise the precise and rapid shipment of goods, freight and people to and from Antarctica. This research subsequently furthered Graham's fundamental concept by defining the Antarctic gateway cities of Christchurch and Hobart as socio-technical assemblies, constructed around the primary transport infrastructure, that perform complex intercontinental transport flows through the multifunctional operations of the surrounding and interdependent metropolis.

Despite the two gateways sharing similar historical connections with Antarctic, moreover sea-borne mobility, the research identified that Christchurch and Hobart's contemporary mobility infrastructural scapes were uniquely and distinctly constructed. The centre of Christchurch's socio-technical assembly for its Antarctic mobility operations is located at the International Antarctic Centre (IAC) and the adjoining Christchurch International Airport (CIA). Developing on the established presence of the United States Antarctic Program (USAP) in Christchurch, Christchurch International Airport Ltd (CIAL) constructed the IAC in order to create one, unifying base in which the combined Antarctic operations of New Zealand, the United States and Italy could operate together. The resulting combined air-based logistics pool between these three programmes created two distinct benefits and subsequent advantages over Hobart. The air-operations pool now provides increased cost efficiency, more 'bang for your buck' and logistical expediency to the respective national programmes. The almost entirely air-based mobility operations dramatically increased the flexibility and speed by which scientific personnel can be transported to and from Antarctica. This mode of mobility was also acknowledged as being an influential, and competitively
superior, factor in terms of attracting world-class scientists to Christchurch. The comparative analysis of the two cities identified that Hobart's mobility functions were still based in its historical sea-borne infrastructure. Although the hub of Australia's Antarctic mobility is the port, its Antarctic infrastructural scape presents a comparatively sporadic model to that of Christchurch. The heart of Australia's operations is based in Kingston, located south of Hobart and, while not currently a pressing issue, Hobart International Airport (HIA) is located in Clarence, west of the city. This comparison, however, gave rise to a contrasting picture of logistical friction between the operations of the two gateways and the creation of the concept of an Antarctic logistical enclave.

The primary results substantiated Graham's (2001a) theory that Christchurch's air-based infrastructure and Hobart's sea-based infrastructure are two of the most salient types of Antarctic logistics enclaves. Each respective gateway, however, has developed unique Antarctic mobility infrastructure which co-exist in a uniquely constructed metropolis. It was concluded that both gateways were indeed Antarctic logistical enclaves with one distinct difference. Christchurch's enclave precinct, that is the IAC and adjacent CIA, is able to provide the precise flow of transportation and mobility logistics with almost no logistical friction. Hobart, conversely, is a pre-eminent sea-borne hub which offers the strategic concentration of sea-based transportation and mobility logistics to the Antarctic and Southern Ocean sectors, but which, due to the spread of this infrastructure, experiences a much high degree of logistical friction and thus does not emulate Christchurch's "precise flow".

The statement that "[t]he gateway function will vary according to the nature of the transport network to Antarctica, and will change over time according to changes in transport technologies and levels of supply and demand" (Page 1995 cited in Hall 2000 p.159) was confirmed in both the primary and secondary results. Due to changes in technology and the demand for a more efficient mobility function, the Australian Antarctic Division (AAD) have created an inter-continental air-transport system which, although not currently fully integrated, is proposed to dramatically enhance Australia's Antarctic mobility operations. Despite this, the interviewees indicated concern over the extent of the programmes proposed
efficiency and, among others, the issue of the AAD's Airlink proximity to the logistical hub. The addition of this mobility infrastructure will indeed support the conclusion that Hobart mobility operations display significant logistical friction compared to Christchurch.

The implications of policy formulation have been highlighted throughout this research. Indeed the results confirmed Hall's (2000) assertions that the Australian federal government's desire for pre-eminent gateway status has considerably influenced its national Antarctic policies, indeed the reinforcement of the gateway role has emerged as a policy outcome in itself. Furthermore, the results identified that policy formulation directly correlates to the way in which government, at all levels, embraces the development of the gateways in order to generate economic development. The two core issues of this argument were that of promotion and tourism. Australia's stance on these two issues was in direct contrast to that of New Zealand. The AAD's philosophical interpretation of The Madrid Protocol, coupled with their and Tasmania's comparatively liberal acceptance of environmentally sustainable tourism has been responsible for the success of Hobart's marketing and promotion and consequent reinforcement of the city's gateway status. New Zealand's policy on Antarctic tourism, guided by the Ministry of Foreign Affairs & Trade (MFAT), was found to be dissimilar than that of its neighbour. However MFAT's preservationalist views and, arguably, 'anti-tourism' stance has subsequently impacted on, and indeed been detrimental to the development and status of Christchurch as an Antarctic gateway which boasts both significant historical and contemporary connections.

Intrinsic to the formulation of policy, this research concluded that policy directly correlates to the way in which government, at all levels, embraces the development of the gateways in order to generate economic development. However, a clear disparity between the two gateway cities in terms of the marketing and promotion of their Antarctic connections and gateway status to attract the Antarctic tourism dollar was identified. Tasmania, through "the conscious interweaving of place promotion and government policy"(Hall 2000, p.158), has been aggressive in this respect, and the Antarctic tourism industry has been a major component in the strengthening of the regions economy. The industry of Antarctic overflights, run by
Croydon Travel from mainland Australia, is a big player in the Antarctic tourism industry, however Hobart’s economy does not benefit from these activities. In comparison, Christchurch, inherently, and seemingly detrimentally, bound by New Zealand’s domestic policy, has been tardy in implementing a comprehensive and integrated promotional strategy. Subsequently, the economic benefit to Christchurch and surrounding region from its Antarctic-related tourism industry is dwarfed by that of its competitor. Hobart’s promotional strategy has given rise to a flourishing sea-borne tourism industry and hosts a variety of vessels which range from small privately owned yacht’s to large, corporate ice-breaker tour vessels. In addition to the traditional ‘in-situ’ Antarctic tourism industry, this research identified and explored a new component of this industry sector, that of vicarious Antarctic tourism. Once again the results highlighted a disparity between the two gateways. Christchurch’s Antarctic Attraction is the world’s pre-eminent vicarious Antarctic tourist attraction, is one of New Zealand’s most visited paid attractions and is an important component of both Christchurch’s tourism industry and the IAC from where it operates. Despite Hobart’s prominent Antarctic tourism industry, their attempt at a vicarious Antarctic tourism experience lags behind that of its counterpart. Since Antarctic Adventure’s demise in 2004, the city has no vicarious experience. However, in order to combat this, Tasmania’s Antarctic policy has provided A$60,000 to create a permanent attraction within the Tasmanian Museum & Art Gallery (TMAG).

Further to this issue of competition for the Antarctic tourism dollar, this study identified a new era of trans-Tasman relationships between both the local and federal governments of New Zealand and Australia. It was acknowledged that while, historically, the two gateways had seen one another as threats to economic and scientific development, Antarctic stakeholders in New Zealand and Australia accepted that their respective cities were mutually exclusive of each other in terms of their Antarctic infrastructure and tourism outlook, each city specialising in areas of competitive advantage. Christchurch offers pre-eminent air-based mobility infrastructure, while Hobart possesses an influential sea-based industry and infrastructure. Hobart specialises in ‘in-situ’ Antarctic tourism infrastructure, while Christchurch offers first-class vicarious or ‘off-ice’ tourism experiences. However the foundation of this conclusion lies in the new emphasis on bilateral
relationships between New Zealand and Australia. The signing of a statement of commitment to cooperation in Antarctica at the “Ministerial on Ice” in 1999 (MFAT 1999) between the federal governments of New Zealand and Australia, despite their divergent views and subsequent policy on Antarctic tourism and non-governmental activities, has created a fresh platform to strengthen the contemporary and future relationships between the two countries and their Antarctic gateway cities.

An analysis of the inter-organisational networks throughout this thesis presented a contrast of the relationships between Antarctic stakeholders within the respective gateway cities. Hobart’s Antarctic network was found to be strategically organised. Formalised through the Tasmania state policy, the TPN has been coherently implemented in order to advance the industry’s success over its competitor. The success of the industry’s networking was attributed to the Tasmanian policy formulation and the importance paid to it by the State. Christchurch’s inter-organisational network was found to be in stark contrast to that of Hobart. Unlike Hobart, Christchurch’s development as an Antarctic gateway seemingly went ahead without any clear agreements or alliances. Antarctic Link Canterbury was, however, established in order to organise and strengthen the links between Antarctic related organisations in Canterbury. Despite this ‘formalisation’ of the regions Antarctic links, the potential of the network was found to be under-developed and under-utilised compared to Hobart.

Finally, the results of this research presented an exciting future for both Christchurch and Hobart in terms of building on their individual strengths, while assisting one another to enhance their respective areas of weakness. The anticipated implementation of the AAD’s intercontinental Airlink will exponentially enhance Australia’s Antarctic mobility operations, while the potential for supporting and ancillary infrastructure for the Airlink presents an outlook for further economic growth and prosperity for Hobart and its surrounding regions. Another area of identified growth for Hobart is intended to be in the realm of Antarctic education. 2005 will see the University of Tasmania offer their first ever undergraduate course in the Bachelor of Antarctic Studies, and
the results identified that Antarctic education will be an area of strong growth for Tasmania and Hobart in the future.

Compared to Hobart, the results for Christchurch did not present any substantial development of the city's Antarctic mobility infrastructure in the foreseeable future, while its scientific and educational institutions were identified as continuing to have an influential role in the future development of the gateway. However this research identified the need and subsequent potential for the development Christchurch's Antarctic-related tourism industry. Project Antarctic was found to be the catalyst by which the city and surrounding region would be able to identify potential tourism ventures and thus construct and implement a promotional strategy to take advantage of underdeveloped Antarctic tourism industry as a way to boost the region economy.

7.3 Recommendations

Clearly, the Antarctic gateway cities of Christchurch and Hobart possess both unique and contrasting socio-technical constructions, functions and operations. Furthermore this research has identified that each gateway operates in areas of mutual exclusivity and subsequently cooperation and cohesiveness between Christchurch and Hobart is at an unparalleled high. Indeed this study has highlighted the potential to co-evolve and leverage of the respective strengths of the two gateways for mutual benefit. In order to assist in the future development of each gateway, recommendations are made as to specific areas in which the respective cities of Christchurch and Hobart may seek to strengthen.

7.3.1 Christchurch

Christchurch's Antarctic-related inter-organisational networking was identified as being the gateways biggest weakness and is an area in which, if strengthened, would drastically increase the regions economy for both its scientific and tourism related communities. The results showed that Tasmania's Polar Network has been successful in the strengthening of ties between Antarctic-related entities and the promotion of Hobart as 'the' gateway for Antarctic and Southern Ocean science.
However any such advancement would need to be coherent, and as Tasmania has done, a promotional campaign would need to be incorporated into local, and perhaps even federal policy.

The results also highlighted the disparity between Tasmania's drive to promote its historical links in order to attract the Antarctic tourism dollar, and their subsequent success. Christchurch boasts a long and proud connection with Antarctic however the current level of economic revenue from the 'Antarctic tourism dollar' comes almost solely from Antarctic Attraction. This statement does not detract from the substantial spending that occurs through the personnel involved with the U.S. and Italian Antarctic programmes, however this research has identified that these employees are not tourists. Certainly it is hoped that Project Antarctica will act as the catalyst for the development of this sector of the gateway, however there is no question that a marketing strategy needs to be implemented in order to promote, and capitalise on Christchurch's Antarctic links. It is suggested that the region's links should be reinforced regularly, such as an Antarctic weather section in local papers, or brief articles on issues/events concerning New Zealanders in Antarctica. The integration of the key Antarctic-related visitor attractions and the creation of an Antarctic link/heritage trail brochure, analogous to Hobart's Polar Pathways, is strongly recommended in order to present a cohesive and alluring package for Canterbury's already thriving tourism industry. However the main recommendation for the enhancement and reinforcement of Canterbury's Antarctic connections is through a keystone event such as an Antarctic midwinter festival. Certainly a proposal such as this would require a great deal of investment and infrastructure, however, as Hobart has already shown, such an event has the potential for a profitable return on its investment.

7.3.2 Hobart

The benefits that will accompany the implementation of the AAD's Airlink have been identified. However the results suggested that there would be little, if any, economic or social benefit to the local community. It is thus suggested that, in
conjunction with the State's policy to decentralise in order to strengthen the outlying regions, serious attention should be paid to the potential development of HIA and the surrounding city of Clarence with regard to the creation of supporting and ancillary infrastructure. The results identified that, at present, the Airlink base at HIA will seemingly be self sufficient. It is thus a recommendation to, where possible, assess the feasibility of strengthening the infrastructure of Hobart 'International' Airport through the creation of accommodation and aircraft maintenance facilities on and adjoining HIA.

The issue of the sporadic construction of Hobart's Antarctic logistics infrastructure has been addressed throughout this research. Indeed the State's decentralisation policy (as stated above) has unquestionably been beneficial for the region Kingston where the AAD headquarters are based. However in order to reduce the logistical friction that is currently being experienced through the spread of Australia's Antarctic infrastructure, it is the recommendation of the researcher that the required logistical infrastructure for the sea-based and air-based components of the Australian Antarctic programme should be concentrated at Hobart Port and HIA respectively.

7.4 Implications for Further Research

The corpus of literature on Antarctica, and its respective and interrelated components of science and tourism, is indeed substantial. However this research subsequently highlighted that, despite the gateway's intrinsic relationship with Antarctic travel, there is a significant shortage of research on the Antarctic gateway city. Furthermore Hall's (2000) research paper that has informed, and indeed was the cornerstone of, this thesis is now several years old.

This research sought to analyse the intricacies of the Antarctic gateway cities of Christchurch and Hobart in a new and coherent framework. The component parts of this research transcended the dichotomy between the paradigms of transport geography and social science research. It subsequently utilised, what Urry (2004) describes as being, the new paradigm of mobility. This “post-disciplinary paradigm” (Urry 2004, p.1) provided a conceptual framework by which to
understand and manage the disciplines of tourism, geography, transport and social studies into the one concept of contemporary mobility.

This thesis sought to build on Hall's (2000) paper shaping, albeit focussed, research into the tourist and the economic significance to Antarctic travel gateway cities. It has attempted to present a piece of research that will have positive implications for further research into Antarctic gateways and the inherent paradigm of mobility. It would be imprudent to suggest that this research has investigated all the issues surrounding the Antarctic gateway city. Instead it is suggested that the concept of contemporary mobility, as it has been applied here, be employed in further research into Antarctic, and indeed, gateway cities in general. Certainly the use of a qualitative research technique means that the themes and issues employed by the researcher are by no means a complete framework. However they are intended to act as a guide from which further research into Antarctic gateway cities and contemporary mobility may wish to support, refute, or indeed, as it is hoped, extend upon the context of this research.

7.5 Concluding Statement

This thesis has contributed to the scarce body of knowledge on the concept of Antarctic gateway cities. Furthermore this research has subsequently highlighted the intrinsic relationship between Antarctic gateways and the new paradigm of contemporary mobility. The conceptual framework constructed throughout this thesis was due in part to the deficiency of literature on Antarctic gateway cities and contemporary mobility, and also from the subjective views of the researcher. Thus, although the results are valid and reliable, it is hoped that, while this research seeks to be a forerunner in this research phenomena, further research into Antarctic gateway cities will present new and diversified perspectives.

This thesis has identified that the two Antarctic gateway cities of Christchurch and Hobart are both socio-technical assemblies that organise, manage and synchronise the logistical operations of both governmental and non-governmental mobility to the Antarctic. The management of the national Antarctic programmes that occur within both these gateway cities have been identified as operating within the
formation of Antarctic logistics enclaves. Christchurch’s enclave construction operates with logistical efficiency, whereas Hobart, due to its sporadic location of its enclave components, experiences a higher degree of logistical friction. Both these gateways have been constructed around the respective city’s transport infrastructure, which, due to geographical and historical reasons, have been found to be two unique representatives of a small group of Antarctic gateway cities.
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Dear [INTERVIEWEE],

I am writing in regards to the research I am currently undertaking for the thesis component of the Master of Tourism degree at the University of Otago. The title of my thesis is ‘Antarctic Gateway Functions and Contemporary Mobility: A Comparative Analysis of the Two Antarctic Gateways of Christchurch and Hobart’, Please find enclosed a research outline (Attachment A).

In order to meet the three research objectives, I seek to arrange a series of one-on-one interviews to be conducted with selected stakeholders. I will be conducting a series of interviews in Hobart during the week beginning [DATE]. During this time I very much hope to be able to conduct an interview with you. For your interest I enclose an information sheet that outlines and summarises the interview process (Attachment B).

Following this initial correspondence it is my intention to contact you on [DATE] to discuss this matter in more detail.

Yours sincerely,

Michael Grace

Department of Tourism

Tel.: 64 3 479 5872
Email: grami818@student.otago.ac.nz
### Appendix B: Information Sheet

**INFORMATION SHEET FOR PARTICIPANTS**

**Antarctic Gateway Functions and Contemporary Mobility:**  
A Comparative Analysis of the Two Antarctic Gateways of Christchurch and Hobart

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Michael Grace, Phone: (03) 479 5872, e-mail: grami818@student.otago.ac.nz  
Department of Tourism, University of Otago, PO Box 56, Dunedin.

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Thank you for showing an interest in this project. Please read this information sheet carefully.

---

### What Type of Participants are being sought?

Stakeholders at the identified gateways will be key contributors in analysing (a) the specific uses of, (b) the importance that travel mobility currently holds, to these gateways, and (c) their future direction. The participants sought for this research will be both individual and group stakeholders connected with the functions and contemporary mobility of the two Antarctic gateway cities of Christchurch and Hobart.

---

### What will Participants be Asked to Do?

Should you agree to take part in this project, you will be asked to participate in an interview with the researcher. It is estimated that the interview should last no more than one hour. Once prospective participants have read this information sheet, and if they have agreed to participate, a time and venue for the interview may then be arranged.

---

### Can Participants Change their Mind and Withdraw from the Project?

Please be aware that you may decide not to take part in the project, or withdraw from participation at any time without any disadvantage to yourself of any kind.

---

### What Data or Information will be Collected and What Use will be Made of it?

Interviews undertaken throughout this research will be recorded either by analog or digital audio equipment and then transcribed. The original recordings will be subsequently destroyed. Any person(s) participating in the interviews will be offered a copy of the transcript when transcribed. The data collected will be securely stored. At the end of the project any personal information will be destroyed immediately except that, as required by the University’s research policy, any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed.

---

### What if Participants have any Questions?

If you have any questions about our project, either now or in the future, please feel free to contact either myself or:-

**Supervisors**

Dr. James Higham,  
Dr Anna Carr  
Department of Tourism  
University of Otago
CONSENT FORM FOR PARTICIPANTS

Antarctic Gateway Functions and Contemporary Mobility:
A Comparative Analysis of the Two Antarctic Gateways of Christchurch and Hobart

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:
1. my participation in the project is entirely voluntary;
2. I am free to withdraw from the project at any time without any disadvantage;
3. the audio-tapes will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed;
4. this project involves an open-questioning technique. Although a set of questions will be determined before the interview, the precise nature of the questions which will be asked as the interview develops have not been determined in advance, but will depend on the way in which the interview develops and that in the event that the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s) and/or may withdraw from the project without any disadvantage of any kind;
5. the results of the project may be published but my anonymity will be preserved.

I agree to take part in this project.

(Signature of participant) 
(Date)
Appendix C: Research Outline

RESEARCH OUTLINE

Antarctic Gateway Functions and Contemporary Mobility:
A Comparative Analysis of the Two Antarctic Gateways of Christchurch and Hobart

Michael Grace, Phone: (03) 479 5872, e-mail: grami818@student.otago.ac.nz
Department of Tourism, University of Otago, PO Box 56, Dunedin.

Research Aim:

To compare Hobart and Christchurch in terms of their development as Antarctic gateways by examining patterns of promotion, government involvement and networking. To analyse the issues involved with the contemporary mobility of both traditional and non-traditional Antarctic visitors, while also seeking to identify whether these gateways do or do not actively differentiate themselves from one another, why and how?

Objectives:

4. To review and analyse the functions of these two Antarctic gateways in order to understand the issues involved with the contemporary mobility of travellers and freight to and through the gateways;

5. To compare and contrast how the two gateways function in term of their Antarctic operations;

6. Gain an insight into stakeholder views on what they anticipate the direction of future developments to be in terms of challenges and/or opportunities.

Research Context:

Contemporary travel and tourism activities on the Antarctic continent have become a somewhat contentious issue. Traditional scientific and military personal involved with government programmes, are now joined by non-traditional visitors, particularly cruise ship based tourists who now outnumber the 5000 or so traditional staff. Empirically, this research seeks to better understand the facilitation of contemporary mobilities of Antarctic travellers moving to, and through, Christchurch and Hobart. Moreover, the research will attempt to understand the functions undertaken in the gateways and how they may change over time with regard to the opportunities and challenges in the future.

Stakeholders at the identified gateways will be a key component in analysing (a) the specific uses of and (b) the importance that travel mobility currently holds, to these gateways. Methodologically, this research will involve a series of semi-structured interviews with these stakeholders in both Christchurch and Hobart. By employing this methodology it is intended that the information gathered will be subsequently more detailed and descriptive than compared to other potential techniques. This empirical research is seen to be more pertinent to the objectives of analysing the issues of the gateways and thus will be a foundation in the field of academic Antarctic mobility literature which, largely, has been theoretical.
Appendix D: Interview Guide

Introduction

1. **Thanks** -

2. **Purpose Statement** – This interview is intended to be more of a semi-structured conversation, whereas although I have some guideline questions, these are hoped to stimulate a wider discussion of the issues. The first primary objective of this study is to gain an insight into the organisations connection with the major themes (as discussed in the Research Outline). Secondly, how they are inter-related into the wider Antarctic community within the gateway. Thirdly, do they see the gateways as being in competition or cohesion? Lastly, what are there opinions with regard to the future outlook of the gateway and Antarctic tourism.

3. **The questions** – These are organised into eight themes, however the semi-structured approach allows for the inclusion of a wider context if needed.

Questions

1. Personal Information
   - Position
   - Job description (where applicable)

2. Position Related Questions
   - e.g. Logistics, Marketing

3. Key Themes
   - Mobility
   - Inter-organisational Networking
   - Marketing/Promotion of Antarctic Gateways
   - Logistical Enclaves
   - Competition Between The Gateway Cities
   - Tourism & Non-governmental Mobility
   - Policy & The Implications
   - Future Outlook

4. Additional Information: Does the interviewee have any additional comments to make that were perhaps missed but is nevertheless pertinent to their position?

5. Thanks and regards.

6. Completed:
   - Name
   - Position
   - Organisation
Appendix E: Guidelines for Visitors to the Antarctic

Recommendation XVIII-1, adopted at the Antarctic Treaty Meeting, Kyoto, 1994

Activities in the Antarctic are governed by the Antarctic Treaty of 1959 and associated agreements, referred to collectively as the Antarctic Treaty System. The Treaty established Antarctica as a zone of peace and science.

In 1991, the Antarctic Treaty Consultative Parties adopted the Protocol on Environmental Protection to the Antarctic Treaty, which designates the Antarctic as a natural reserve. The Protocol sets out environmental principles, procedures and obligations for the comprehensive protection of the Antarctic environment, and its dependent and associated ecosystems. The Consultative Parties have agreed that, pending its entry into force, as far as possible and in accordance with their legal system, the provisions of the Protocol should be applied as appropriate.

The Environmental Protocol applies to tourism and non-governmental activities, as well as governmental activities in the Antarctic Treaty Area. It is intended to ensure that these activities, do not have adverse impacts on the Antarctic environment, or on its scientific and aesthetic values.

This Guidance for Visitors to the Antarctic is intended to ensure that all visitors are aware of, and are therefore able to comply with, the Treaty and the Protocol. Visitors are, of course, bound by national laws and regulations applicable to activities in the Antarctic.

Protect Antarctic Wildlife

Taking or harmful interference with Antarctic wildlife is prohibited except in accordance with a permit issued by a national authority.

- Do not use aircraft, vessels, small boats, or other means of transport in ways that disturb wildlife, either at sea or on land.
- Do not feed, touch, or handle birds or seals, or approach or photograph them in ways that cause them to alter their behavior. Special care is needed when animals are breeding or molting.
- Do not damage plants, for example by walking, driving, or landing on extensive moss beds or lichen-covered scree slopes.
- Do not use guns or explosives. Keep noise to the minimum to avoid frightening wildlife.
- Do not bring non-native plants or animals into the Antarctic such as live poultry, pet dogs and cats or house plants.

Respect Protected Areas

A variety of areas in the Antarctic have been afforded special protection because of their particular ecological, scientific, historic or other values. Entry into certain areas may be prohibited except in accordance with a permit issued by an appropriate national authority.
Activities in and near designated Historic Sites and Monuments and certain other areas may be subject to special restrictions.

- Know the locations of areas that have been afforded special protection and any restrictions regarding entry and activities that can be carried out in and near them.
- Observe applicable restrictions.
- Do not damage, remove, or destroy Historic Sites or Monuments or any artifacts associated with them.

Respect Scientific Research

Do not interfere with scientific research, facilities or equipment.

- Obtain permission before visiting Antarctic science and support facilities; reconfirm arrangements 24-72 hours before arrival; and comply with the rules regarding such visits.
- Do not interfere with, or remove, scientific equipment or marker posts, and do not disturb experimental study sites, field camps or supplies.

Be Safe

Be prepared for severe and changeable weather and ensure that your equipment and clothing meet Antarctic standards. Remember that the Antarctic environment is inhospitable, unpredictable, and potentially dangerous.

- Know your capabilities, the dangers posed by the Antarctic environment, and act accordingly. Plan activities with safety in mind at all times.
- Keep a safe distance from all wildlife, both on land and at sea.
- Take note of, and act on, the advice and instructions from your leaders; do not stray from your group.
- Do not walk onto glaciers or large snow fields without the proper equipment and experience; there is a real danger of falling into hidden crevasses.
- Do not expect a rescue service. Self-sufficiency is increased and risks reduced by sound planning, quality equipment, and trained personnel.
- Do not enter emergency refuges (except in emergencies). If you use equipment or food from a refuge, inform the nearest research station or national authority once the emergency is over.
- Respect any smoking restrictions, particularly around buildings, and take great care to safeguard against the danger of fire. This is a real hazard in the dry environment of Antarctica.

Keep Antarctica Pristine

Antarctica remains relatively pristine, the largest wilderness area on Earth. It has not yet been subjected to large scale human perturbations. Please keep it that way.

- Do not dispose of litter or garbage on land. Open burning is prohibited.
• Do not disturb or pollute lakes or streams. Any materials discarded at sea must be disposed of properly.
• Do not paint or engrave names or graffiti on rocks or buildings.
• Do not collect or take away biological or geological specimens or man-made artifacts as a souvenir, including rocks, bones, eggs, fossils, and parts or contents of buildings.
• Do not deface or vandalize buildings, whether occupied, abandoned, or unoccupied, or emergency refuges.

Source: http://www.l笃o.org/visitors.html
Appendix F: Guidance for those Organising and Conducting Tourism and Non-Governmental Activities in the Antarctic

Antarctica is the largest wilderness area on earth, unaffected by large scale human activities. Accordingly, this unique and pristine environment has been afforded special protection. Furthermore, it is physically remote, inhospitable, unpredictable and potentially dangerous. All activities in the Antarctic Treaty Area, therefore, should be planned and conducted with both environmental protection and safety in mind.

Activities in the Antarctic are subject to the Antarctic Treaty of 1959 and associated legal instruments, referred to collectively as the Antarctic Treaty system. These include the Convention for the Conservation of Antarctic Seals (CCAS’ 1972), the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR’ 1980) and the Recommendations and other measures adopted by the Antarctic Treaty Consultative Parties under the Antarctic Treaty.

In 1991, the Consultative Parties to the Antarctic Treaty adopted the Protocol on Environmental Protection to the Antarctic Treaty. This Protocol sets out environmental principles, procedures and obligations for the comprehensive protection of the Antarctic environment, and its dependent and associated ecosystems. The Consultative Parties have agreed that, pending its entry into force, as far as possible and in accordance with their legal systems, that the provisions of the Protocol should be applied as appropriate.

The Environmental Protocol designates Antarctica as a natural reserve devoted to peace and science, and applies to both governmental and non-governmental activities in the Antarctic Treaty Area. The Protocol seeks to ensure that human activities, including tourism, do not have adverse impacts on the Antarctic environment, nor on its scientific and aesthetic values.

The Protocol states, as a matter of principle, that all activities are to be planned and conducted on the basis of information sufficient to evaluate their possible impact on the Antarctic environment and its associated ecosystems, and on the value of Antarctica for the conduct of scientific research. Organisers should be aware that the Environmental Protocol requires that "activities shall be modified, suspended or cancelled if they result in or threaten to result in impacts upon the Antarctic environment or dependent or associated ecosystems."

Those responsible for organising and conducting tourism and non-governmental activities must comply fully with national laws and regulations which implement the Antarctic Treaty system, as well as other national laws and regulations implementing international agreements on environmental protection, pollution and safety that relate to the Antarctic Treaty Area. They should also abide by the requirements imposed on organisers and operators under the Protocol on Environmental Protection and its Annexes, in so far as they have not yet been implemented in national law.

**KEY OBLIGATIONS ON ORGANISERS AND OPERATORS**

1) Provide prior notification of, and reports on, their activities to the competent authorities of the appropriate Party or Parties.
2) Conduct an assessment of the potential environmental impacts of their planned activities.

3) Provide for effective response to environmental emergencies, especially with regard to marine pollution.

4) Ensure self-sufficiency and safe operations.

5) Respect scientific research and the Antarctic environment, including restrictions regarding protected areas, and the protection of flora and fauna.

6) Prevent the disposal and discharge of prohibited waste.

PROCEDURES TO BE FOLLOWED BY ORGANISERS AND OPERATORS

A) When planning to go to the Antarctic Organisers and operators should:

1) Notify the competent national authorities of the appropriate Party or Parties of details of their planned activities with sufficient time to enable the Party (ies) to comply with their information exchange obligations under Article VII(5) of the Antarctic Treaty. The information to be provided is listed in Attachment A.

2) Conduct an environmental assessment in accordance with such procedures as may have been established in national law to give effect to Annex I of the Protocol, including, if appropriate, how potential impacts will be monitored.

3) Obtain timely permission from the national authorities responsible for any stations they propose to visit.

4) Provide information to assist in the preparation of contingency response plans in accordance with Article 15 of the Protocol; waste management plans in accordance with Annex III of the Protocol; and marine pollution contingency plans in accordance with Annex IV of the Protocol.

5) Ensure that expedition leaders and passengers are aware of the location and special regimes which apply to Specially Protected Areas and Sites of Special Scientific Interest (and on entry into force of the Protocol, Antarctic Specially Protected Areas and Antarctic Specially Managed Areas) and of Historic Sites and Monuments and, in particular, relevant management plans.

6) Obtain a permit, where required by national law, from the competent national authority of the appropriate Party or Parties, should they have a reason to enter such areas, or a monitoring site (CEMP Site) designated under CCAMLR.

7) Ensure that activities are fully self-sufficient and do not require assistance from Parties unless arrangements for it have been agreed in advance.

8) Ensure that they employ experienced and trained personnel, including a sufficient number of guides.
9) Arrange to use equipment, vehicles, vessels, and aircraft appropriate to Antarctic operations.

10) Be fully conversant with applicable communications, navigation, air traffic control and emergency procedures.

11) Obtain the best available maps and hydrographic charts, recognising that many areas are not fully or accurately surveyed.

12) Consider the question of insurance (subject to requirements of national law).

13) Design and conduct information and education programmes to ensure that all personnel and visitors are aware of relevant provisions of the Antarctic Treaty system.

14) Provide visitors with a copy of the Guidance for Visitors to the Antarctic.

B) When in the Antarctic Treaty Area

Organisers and operators should:

1) Comply with all requirements of the Antarctic Treaty system and relevant national laws, and ensure that visitors are aware of requirements that are relevant to them.

2) Reconfirm arrangements to visit stations 24-72 hours before their arrival and ensure that visitors are aware of any conditions or restrictions established by the station.

3) Ensure that visitors are supervised by a sufficient number of guides who have adequate experience and training in Antarctic conditions and knowledge of the Antarctic Treaty system requirements.

4) Monitor environmental impacts of their activities, if appropriate, and advise the competent national authorities of the appropriate Party or Parties of any adverse or cumulative impacts resulting from an activity, but which were not foreseen by their environmental impact assessment.

5) Operate ships, yachts, small boats, aircraft, hovercraft, and all other means of transport safely and according to appropriate procedures, including those set out in the Antarctic Flight Information Manual (AFIM).

6) Dispose of waste materials in accordance with Annex III and IV of the Protocol. These annexes prohibit, among other things, the discharge of plastics, oil and noxious substances into the Antarctic Treaty Area; regulate the discharge of sewage and food waste; and, require the removal of most wastes from the area.

7) Co-operate fully with observers designated by Consultative Parties to conduct inspections of stations, ships, aircraft and equipment under Article VII of the Antarctic Treaty, and those to be designated under Article 14 of the Environmental Protocol.

8) Co-operate in monitoring programmes undertaken in accordance with Article 3(2)(d) of the Protocol.
9) Maintain a careful and complete record of their activities conducted.

C) On completion of the activities

Within three months of the end of the activity, organisers and operators should report on the conduct of it to the appropriate national authority in accordance with national laws and procedures. Reports should include the name, details and state of registration of each vessel or aircraft used and the name of their captain or commander; actual itinerary; the number of visitors engaged in the activity; places, dates and purposes of landings and the number of visitors landed on each occasion; any meteorological observations made, including those made as part of the World Meteorological Organization (WMO) Voluntary Observing Ships Scheme; any significant changes in activities and their impacts from those predicted before the visit was conducted; and action taken in case of emergency.

D) Antarctic Treaty System Documents and Information

Most Antarctic Treaty Parties can provide, through their national contact points, copies of relevant provisions of the Antarctic Treaty system and information about national laws and procedures, including:

- The Antarctic Treaty (1959)
- Convention for the Conservation of Antarctic Seals (1972)
- Protocol on Environmental Protection to the Antarctic Treaty (1991)
- Recommendations and other measures adopted under the Antarctic Treaty
- Final Reports of Consultative Meetings

ATTACHMENT A

INFORMATION TO BE PROVIDED IN ADVANCE NOTICE

Organisers should provide the following information to the appropriate national authorities in the format requested.

1. name, nationality, and contact details of the organiser;
2. where relevant, registered name and national registration and type of any vessel or aircraft to be used (including name of the captain or commander, call-sign, radio frequency, INMARSAT number);
3. intended itinerary including the date of departure and places to be visited in the Antarctic Treaty Area;
4. activities to be undertaken and purpose;
5. number and qualifications of crew and accompanying guides and expedition staff;
6. estimated number of visitors to be carried;
7. carrying capacity of vessel;
8. intended use of vessel;
9. intended use and type of aircraft;
10. number and type of other vessels, including small boats, to be used in the Antarctic Treaty Area;
11. information about insurance coverage;
12. details of equipment to be used, including for safety purposes, and arrangements for self-sufficiency;
13. and other matters required by national laws.

Source: http://webhost.nvi.net/aspire/sendoc.pls?li=1994&dh=1
Appendix G: A COMPARATIVE OVERVIEW OF CHRISTCHURCH & HOBART AIRPORTS

HOBART INTERNATIONAL AIRPORT

Airport Technical Information

Location
Lat: 42 50' 16" S
Long: 147 30' 32" E
Elevation: 3.96m
Runway Length: 2251m

Distance from city: 17 km E of Hobart

Passengers: ('04)
Total: 1,220,000
Airport Technical Information

Location
Lat: 43° 29' 20" S
Long: 172° 32' E
Elevation: 37.49 m
Length 3,288 m

Distance from city: 8 km WNW of Chch

Passengers ('04)
Domestic: 3,944,895
International: 1,191,180
Total: 5,136,075
### Appendix G: Tasmanian Polar Network Members

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