Southland Integrated Transport Study

Final Report

December 2005
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Executive Summary

Venture Southland, on behalf of Environment Southland, Invercargill City Council, Southland District Council, Gore District Council, Transit New Zealand, South Port and OnTrack commissioned GHD Ltd to assess the current situation of Southland’s transport network and provide an integrated transport study for the region. Recent studies\(^1\) confirm and indications show that transport infrastructure problems that are currently evident are now being accentuated by growth in key industry sectors. Investigations predict that the Tiwai Bridge and Southland road network will be facing acute transport investment demands in the immediate future. Additionally, tourism growth is placing significant pressure on the Milford Road (State Highway 94).

The study comprised three principal stages. Stage one involved the review of information and confirmation of the issues (Southland Integrated Transport Scoping Study) and consultation with key stakeholders. Stage two involved further consultation, investigation of specific projects, the development of options to address the issues, the development of a priority action plan and the compilation of a draft report. Stage three involved consultation on the draft report with the client group, the development of funding business cases and the submission of this final report.

**Southland Transportation Network: Background**

The Southland region has one main port, South Port New Zealand Ltd, located at Bluff. It also has a number of smaller ports, primarily used for tourism and fishing, these are located at Milford Sound, Waikawa, Riverton and Oban (Stewart Island).

South Port is approximately 27 km south from Invercargill. The port is reliant on good rail and road transport links for receipt and delivery of freight.

Road travel is the most significant mode of transport with Southland being more reliant on road freight transport than New Zealand as a whole.\(^2\)

There are 7,186 km of road in the Southland Region, 1076 bridges, 486 of which are single lane and 42 of which have posted weight restrictions\(^3\). The Region’s roads are owned and maintained by Southland District Council (SDC), Gore District Council (GDC), and Invercargill City Council (ICC), with the State Highways being maintained by Transit New Zealand. The SDC’s roading network is the most extensive of all districts within New Zealand with several state highways linking areas of strategic importance.

There are three rail lines in Southland, the main trunk line which runs north from Invercargill to Dunedin, the Ohai Line which services the coal mine at Ohai and the freezing works at Makarewa, and the Bluff line which predominately services South Port. The Ohai and Bluff lines intersect with the main trunk line at Invercargill. With the exception of the tourist line in northern Southland at Kingston to Fairlight, all rail traffic in Southland is concerned with the carriage of goods and cargo rather than passenger services.

Southland has one main airport, Invercargill Airport, which is presently used primarily for passenger transport to and from Christchurch as well as small amounts of airfreight. It also offers an alternative should weather close Queenstown airport. Air New Zealand operates regular scheduled services. Stewart Island Flights offers regular scheduled services to Stewart Island. Manapouri and Milford Sound

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\(^1\) Southland Integrated Transport Scoping Study, 2004  
\(^2\) Road Freight – Its Significance for Regional Economics, April 2003  
\(^3\) Southland Integrated Transport Scoping Study, 2004
airports also operate regular services, mainly for tourism-based travel, with Manapouri offering direct charters from Christchurch to the Fiordland region.

**Key Transport Issues are depicted below:**

The following transportation issues stand out as significant (in order of priority):

- **Tiwai Point Bridge**

  New Zealand Aluminium Smelters Limited (NZAS) at Tiwai Point is New Zealand's only aluminium smelter. The metal produced at Tiwai Point is highly sought after for high quality products. The bridge servicing the smelter and providing access to the area is approximately 500m long and is made up of 27 spans, each 18m in length. The 35-year-old bridge has serious structural deterioration and will require a significant capital expenditure to ensure its survival. The bridge is fundamental to the viability of NZAS and the Southland Region and hence has a strong case for Regional (R) funding. At a minimum estimated repair cost of $2M or replacement cost of $12M, the ICC has an affordability issue with funding their share. There are a number of other possible private/public funding sources that may assist Council with this affordability issue and hence further investigation needs to be made into the viability and acceptability of all potential funding sources.

- **Ageing Roading Network**

  The road network in the Southland District comprises 77% of the Southland regional local road network and over the next 5 years parts of the network are in need of major pavement renewal as a result of low
strength sealed roads nearing the end of their lifecycle while being subjected to increasing numbers of heavy vehicle traffic. Over 60% of the local roads remain unsealed, creating problems for safety and transport efficiency. In addition there are 37 wooden bridges with weight restrictions. The extent and broad distribution of farming activities generates high percentages of heavy vehicle traffic on sealed non-arterial routes, places additional pressures on unsealed roads, with increased pavement deterioration on all roads. Over the next few years, it is predicted that a significant amount of funds will need to be spent to retain the current road level of service.

There is an issue surrounding not only the age of the network but also the forecast volumes of traffic on the roads as there is significant potential for stepped traffic growth around industries based on coal, lignite and gas. The lignite resources of the Southland Coal region make up 71% of New Zealand’s recoverable coal resources. In addition, growth in the tourism, dairy, pastoral farming and forestry sectors has, and will continue to, increase traffic volume on the road network.

Southland District has low council revenue, but high road spending. The district also has a low population relative to its land area and low population growth. As a Local Authority Funding Issues Report found, districts with issues such as these are more likely to have affordability funding issues. In addition to this, other areas such as the Far North District and Taranaki received substantial additional funds from the MED; hence the district has a strong business case for regional funding of its pavement-strengthening programme.

- **Milford Road**

State Highway 94, the Milford Road, is the only land transport access corridor to Milford Sound in the Fiordland National Park. As an iconic tourist destination, Milford Sound attracts high numbers of tourism traffic, comprised of tour buses, campervans and private vehicles. The beauty of the Milford Road corridor itself is considered a major part of the Milford Sound experience, and needs to be maintained to a high standard of safety. Currently, on average, 800 vehicles travel along this route per day, 25% of which are buses. At peak times during the day, the high quantity and combination of vehicles generates congestion at viewing areas and certain sections along the Milford Road. It appears that a progressive move to control traffic flows needs to occur over time. These options will still require the proposed highway upgrades to provide a reduced traffic safety risk.

- **Passenger Transport, Walking and Cycling**

Passenger transport consists of long distance bus services, bus services within Invercargill and ferry services between Bluff and Stewart Island. Ferry commuters (local residents) between South Port and Stewart Island believe this service should be subsidised. There is a general lack of cycling networks in the region. Road user and cyclist/pedestrian conflicts following the creation of the Rakiura National Park are an issue particularly on Stewart Island, where conflicts continue to grow in parallel with tourism growth. Stewart Island requires funding to mitigate issues surrounding pedestrian and vehicle conflicts on the roads.

- **Rail**

Coal is a significant product transported by rail. The Ohai line has a weight restriction of 16t and speed restrictions with the line travelling over three substandard bridges, while parts of the line are prone to

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4 Southland Integrated Transport Scoping Study, 2004
5 Southland Integrated Transport Scoping Study, 2004
6 Local Authority Funding Issues – Report of the Joint Central Government/Local Authority Funding Project Team, 2005
As a result of these restrictions the rail network in Southland runs at below capacity creating transport inefficiencies. There is the potential for line upgrades and to transport other bulk products, as an alternative to road freight.

- **Ports**

South Port is of regional significance to Southland and is one of 15 international ocean-going ports in New Zealand. Good road and rail access to the port is essential. The South Port harbour entrance is restricted to a maximum draft of 10 metres, thereby restricting larger ships from entering. There is significant “leakage” of containers from the region with South Port capturing only 17% of the potential total. With the current facilities provided at South Port there is capacity to handle larger volumes of cargo.

- **Tourism**

Tourist numbers are forecast to grow rapidly. In many parts of NZ, tourist traffic co-exists with heavy freight road traffic, for example around the Rotorua area. However Southland offers a ‘remote wilderness’ experience to visitors and so for Southland, tourist road traffic is less compatible with heavy freight road traffic. While the volume of heavy vehicles on the road is not significant and it is well within the capacity of the road network, tourists find it uncomfortable (as do the locals) and it lessens the “Southland Experience” to share road space with heavy traffic. For foreign tourists the roads appear to be narrow and windy and not compatible with heavy traffic. Also, the option of extending the Milford Airport runway should be investigated, which would allow for larger and fewer planes to service Milford.

- **Economic Development**

When the ability to transport is not available, development is restricted. Financing a major project requires a high degree of certainty in major risk areas and freight transport is usually the second largest cost an industry faces. Uncertainty about capital costs, plans and designs, consents, and community acceptability have the effect of undermining a venture at the financing stage. The maintenance of an efficient transport infrastructure is important, as without it this high performing region will experience significant barriers to economic growth.

**Recommendations:**

1. Proceed with the following priority projects:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Total $ required including grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiwai Bridge</td>
<td>Minimum $12,000,000</td>
</tr>
<tr>
<td>-Replacement or</td>
<td>Minimum $2,000,000</td>
</tr>
<tr>
<td>-Strengthening</td>
<td></td>
</tr>
<tr>
<td>Milford Road – Relieve congestion</td>
<td>Depends on selected option</td>
</tr>
<tr>
<td>Milford Road – Homer Tunnel Portal</td>
<td>$18,000,000</td>
</tr>
</tbody>
</table>

7 See section 11.4.1 for more information on project costs
<table>
<thead>
<tr>
<th>Issue</th>
<th>Total $ required including grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southland DC AWT Programme</td>
<td>$11,000,000</td>
</tr>
<tr>
<td>Stewart Island footpaths and walking tracks upgrades</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>New or improved cycling and walking infrastructure</td>
<td>$50,000</td>
</tr>
</tbody>
</table>

**Table 2 Affordability**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Key Drivers</th>
<th>Impacts on Council/Transit NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiwai Bridge Replacement</td>
<td>Assisting economic development</td>
<td>Affordability Issue with ICC unable to fund a project of this magnitude.</td>
</tr>
<tr>
<td>Tiwai Bridge Strengthening</td>
<td>Assisting economic development</td>
<td>Affordability Issue with ICC unable to fund a project of this magnitude.</td>
</tr>
<tr>
<td>Milford Road – Relieve congestion</td>
<td>Increasing tourist numbers lessening the visitor’s experience (improving access and mobility)</td>
<td>Pressure to improve safety and provide improved infrastructure; funding priority and affordability issues.</td>
</tr>
<tr>
<td>Milford Road – Homer Tunnel Portal</td>
<td>Safety concerns and high risk consequences to tourist industry (assisting safety and personal security)</td>
<td>Threat to New Zealand reputation as a tourist destination; affordability impact on Transit, heightened risk if delayed.</td>
</tr>
<tr>
<td>Southland DC AWT Programme</td>
<td>Early intervention will result in a cost benefit to council and road users with improved transport efficiency (assisting economic development)</td>
<td>Affordability with significant impact on rate-payers and road users if deferred.</td>
</tr>
<tr>
<td>Stewart Island footpaths and walking tracks upgrades</td>
<td>Safety and improved infrastructure for tourists (assisting safety and personal security)</td>
<td>Large impact on small rate-payer base for funding of infrastructure that services national scenic attractions.</td>
</tr>
<tr>
<td>New or improved cycling and walking infrastructure</td>
<td>Improving access and mobility</td>
<td>Minor impact provided funding programmed to match demand over several years.</td>
</tr>
</tbody>
</table>
Table 3  Funding of projects

<table>
<thead>
<tr>
<th>Issue</th>
<th>Suggested source of funding best fitting resolving this issue</th>
<th>Reason for funding source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiwai Bridge Replacement</td>
<td>R funding with private contribution to council share</td>
<td>Key component of roading network and of regional economic importance</td>
</tr>
<tr>
<td>Tiwai Bridge Strengthening</td>
<td>R funding with private contribution to council share</td>
<td>Key component of roading network and of regional economic importance</td>
</tr>
<tr>
<td>Milford Road – Relieve congestion</td>
<td>N funding from LTNZ</td>
<td>National importance of road to the tourism industry and the national economy</td>
</tr>
<tr>
<td>Milford Road – Homer Tunnel Portal</td>
<td>N funding from LTNZ</td>
<td>National importance of road to the tourism industry and the national economy</td>
</tr>
<tr>
<td>Southland DC AWT Programme</td>
<td>MED funding or R funding from LTNZ (Construction subsidy rate = 82.5%)</td>
<td>Regional economic importance; remove barrier to economic growth</td>
</tr>
<tr>
<td>Stewart Island footpaths and walking tracks upgrades</td>
<td>R funding from LTNZ</td>
<td>Regional significance and safety improvement</td>
</tr>
<tr>
<td>New or improved cycling and walking infrastructure</td>
<td>N funding from LTNZ</td>
<td>Part of normal programmed works</td>
</tr>
</tbody>
</table>

2. Roading Hierarchy:

A region-wide hierarchy needs to be agreed with universal levels of service provided. Traffic should be discouraged from using parts of the hierarchy that do not match the stated function. Planning controls on land-use/access need to reinforce and maintain the road hierarchy.
1. Introduction

1.1 Study Objectives

The ability to sustain and expand existing industry and attract new industry to the region is heavily dependent on a reliable and effective transportation network. Recent studies\(^a\) have confirmed that in the future, if maintenance issues are deferred on the transportation network in the Southland region then the transportation network in the Southland region will be a major barrier to regional and national economic growth.

Venture Southland, on behalf of Environment Southland, Invercargill City Council, Southland District Council, Gore District Council, Transit New Zealand, South Port and OnTrack have contracted GHD to investigate and prepare the Southland Integrated Transport Study, the overall purpose of this study being to identify an appropriate Regional Integrated Transportation Network.

The study examines the major transportation issues identified by stakeholders, the extent of challenges facing owners of the transportation infrastructure, and provides recommendations with regard to necessary mitigating actions. Additionally, the project aimed to identify issues associated with the existing transportation network (road, rail, shipping, airports and cyclists/pedestrians), investigate options to address these issues, update industry consultation and investigate funding requirements for the transport options. This project is part of a coordinated effort to provide background information for a business case, to Land Transport New Zealand (LTNZ) and the Ministry for Economic Development, that responds to current and future transport demands in the Southland region.

1.2 Scope of the Study

The Integrated Transport Study will:

- Identify the networks and transport facilities required (airport, port, freight transfer areas etc) to meet forecast demand;
- Set out the most efficient manner of ensuring transport investment meets the objectives of the New Zealand Transport Strategy;
- Address how capital works should be funded and, where affordability is an issue, how funding the shortfall should be addressed;
- Give consideration to LTNZ regional funding (R funding) and determine how regional priorities might be established for maintenance and capital works;
- Review Southland’s transport infrastructure including air, land and sea;
- Identify the constraints or barriers (if any) for regional economic development caused by ageing or inefficient transport networks or by other factors;
- Investigate Southland’s regional advantage/disadvantages in regard to its transport system and ability to meet project future demand;
- Investigate safety issues which may arise for all transport users;

\(^a\) Southland Integrated Transport Scoping Study
Identify the range of options for more effectively integrating Southland’s transport networks and modes to meet industry and sector demand; and

Assess current and future demand of transport modes.

The study also identifies the potential environmental, social, cultural, community and economic development impacts and opportunities associated with:

- Increased road usage;
- Projected growth in tourism, forestry and dairy sectors;
- Increased demand for international air services;
- Local rail networks and terminus facilities; and
- Coastal and international sea freight services.

1.3 Data Collection and Stakeholder Consultation

In order to prepare this report, information was gathered in two ways. Existing information and reports were sourced from Councils and other agencies and reviewed for relevant information, and consultation was undertaken with identified stakeholders. Information from both these sources was used in the development of this report.

1.3.1 Existing Information

Information was sourced from a number of agencies and a full list of references is included within Appendix B of this report. Given the length of the study period it is possible new information has become available or existing information has been updated. Where possible and time permitting the latest and most accurate information is included in this report.

1.3.2 Stages to the Study

The study comprised three principal stages. Stage one involved the review of information and confirmation of the issues (Southland Integrated Transport Scoping Study) and consultation with key stakeholders. Stage two involved further consultation, investigation of specific projects, the development of options to address the issues, the development of a priority action plan and the compilation of a draft report. Stage three involved consultation on the draft report with the client group, the development of funding business cases and the submission of the final report.

Stakeholder changes to the regional integrated transportation network have the potential to create a number of traffic and environmental effects within the region, both actual and perceived.

For this reason alone it was considered essential to engage key stakeholders effectively in the consultation process from the outset and to channel their current base information, constraints, ideas, suggestions and other inputs into the study process and the strategy outcome.

A consultation strategy was developed for the project. Organisations that were consulted as part of this project fit within the following categories:

- Transport Agency;
- Transport Provider;
- Transport Interest Group;
The objective of consultation as part of stage one of the study was to identify existing and future demands and stakeholder issues. In order to do this, the following was undertaken:

1. Letter of Introduction and request for updated information sent to stakeholders;
2. Meetings with District Councils, Transit New Zealand and other key stakeholders;
3. Gathering of information and review;
4. Analysis of inputs; and

Although no formal consultation was expected to occur during stage two, it eventuated that a number of discussions occurred with a number of organisations with an interest in the study. This consultation occurred mainly at a one-on-one meeting opportunity, as well as an opportunity for all stakeholders to view the various draft reports and make comments. The consultation process is outlined further in Appendix C.

1.4 Report Structure

This report is presented in 13 sections as follows

1. Introduction
2. Setting the Scene
3. Roading
4. Passenger Transport
5. Cyclists and Pedestrians
6. Rail
7. Shipping
8. Airports
9. Industry Commodity Flows
10. Roading Hierarchy
11. Transport Business Case
12. Land Transport Management Act 2003 Requirements
13. Priority Action Plan and Recommendations

Sections one and two set the scene for the study and provide background information about the report and the Southland region. Sections three through eight provide more detail on each of the transport sectors. Each section begins by providing a summary of the section with key points summarised at the end of each section. Sections nine and ten look at the key components of industry commodity flows and the roading hierarchy. The final sections of the report, sections eleven through thirteen outline a priority action plan for the Southland region in relation to the transport network as well as providing a business case, Land Transport Management Act 2003 requirements as well as recommendations for a way forward.
2. Setting the Scene

Summary

- Southland covers 34,000 km², or 12.5% of New Zealand’s land area;
- Southland’s urban population is centred in Invercargill. The Invercargill city area has a population of 51,800;
- The largest National Park in New Zealand, Fiordland National Park, as well as most recent addition to New Zealand’s National Parks, Stewart Island’s Rakiura National Park, are located in Southland; and
- Southland’s economy is primarily based on commodity production from the agricultural sector, traditionally sheep and beef and more recently dairying.

2.1 Southland

Southland is the southernmost region in New Zealand with a current population of 93,800. It has a land area of 34,000 square kilometres, is the second-largest region and accounts for 12.5 percent of New Zealand’s land area. Coastal waters flank Southland to the east, south and west. Coastal Southland extends for 3100 km from Awarua Point, where it meets the West Coast Region, down the South Island’s most western coast (bounded by the Tasman Sea), and across the South Island’s most southern coast (bounded by Foveaux Strait) to Waiparau Head. The region is bounded to the north by various mountain ranges, which generally separate the region from the remainder of the South Island. Southland’s boundary with Otago extends south-east from Milford Sound, along the southern edge of Lake Wakatipu, and follows a southerly course just south of Balclutha. The region comprises Invercargill City, Gore District and Southland District (including Stewart Island).

Southland is a vast area of land, high in contrasts and has a natural and unspoilt landscape. Its southwest coast is a rugged remote region with fiords and forested wilderness. This area, known as Fiordland, covers 1.3M hectares and is the largest national park in New Zealand and one of the largest in the world. Waitutu Forest Park, around 46,000 hectares, was added to the park in 1998, and includes New Zealand’s largest remaining lowland virgin forest which had been under constant threat from logging. In contrast, most of the remainder of Southland is pastoral land of fertile alluvial plains (Southland and Waimea), laced with rivers and small towns.

To Maori, Southland is known as “Murihiku” which means the end of the tail, referring to the region’s location at the southern end of the South Island of New Zealand. The Southland region is administered by Environment Southland, three territorial authorities: the Southland District Council (SDC), Gore District Council (GDC) and the Invercargill City Council (ICC) with the State Highways administered by Transit New Zealand. Adjoining the region are the territorial authorities of Queenstown Lakes, Central Otago and Clutha District Councils, whose regional authority is the Otago Regional Council, and Westland District Council, whose regional authority is the West Coast Regional Council.

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9 Information on Southland February 2004
10 Statistics New Zealand: www.stats.govt.nz
The main urban settlements of the region are Invercargill, Gore, Mataura, Winton, Te Anau, Tuatapere, Otautau, Riverton, Lumsden, Bluff and Oban.\textsuperscript{11}

2.2 Population and demographics

2.2.1 Urban / Rural Distribution

![Urban/Rural Profile Categories](image)

Figure 1 Urban / Rural Profile Categories for Southland

\textsuperscript{11} Proposed Southland Regional Transport Strategy
Territorial Authorities Population figures as at 30 June 2003 are estimated as follows\textsuperscript{12}:

<table>
<thead>
<tr>
<th>Area</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invercargill City Council</td>
<td>51,400</td>
<td>51,800</td>
</tr>
<tr>
<td>Southland District Council</td>
<td>29,300</td>
<td>29,400</td>
</tr>
<tr>
<td>Gore District Council</td>
<td>12,650</td>
<td>12,600</td>
</tr>
<tr>
<td>Total for Southland Region</td>
<td>93,350</td>
<td>93,800</td>
</tr>
</tbody>
</table>

The median income of people in the Southland Region is $17,800, compared with $18,500 for all of New Zealand. 93.4% of people in Southland Region said they belong to the European ethnic group, compared with 80.1% for all of New Zealand.\textsuperscript{13}

Invercargill is Southland's only major urban area and Gore is the only other significant urban area. The majority of areas within Southland are losing population, apart from minor urban areas such as Te Anau.

### Table 4 Urban and Rural Population Distribution for Southland

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Invercargill</td>
<td>51,540</td>
<td>49,404</td>
<td>46,305</td>
<td>-4.1</td>
<td>-6.3</td>
</tr>
<tr>
<td>Gore</td>
<td>10,956</td>
<td>10,620</td>
<td>9,927</td>
<td>-3.1</td>
<td>-6.6</td>
</tr>
<tr>
<td>Minor Urban Areas</td>
<td>7,878</td>
<td>7,887</td>
<td>*</td>
<td>0.1</td>
<td>*</td>
</tr>
<tr>
<td>Rural Centres</td>
<td>5,892</td>
<td>5,730</td>
<td>*</td>
<td>-2.8</td>
<td>*</td>
</tr>
<tr>
<td>Other Rural Areas</td>
<td>23,682</td>
<td>23,382</td>
<td>*</td>
<td>-1.3</td>
<td>*</td>
</tr>
<tr>
<td>Oceanic/Inlet</td>
<td>3</td>
<td>78</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Southland</td>
<td>99,951</td>
<td>97,101</td>
<td>91,081</td>
<td>-2.9</td>
<td>-6.2</td>
</tr>
</tbody>
</table>


* Information unavailable

#### 2.2.2 Age Distribution

An important indicator of future land transport needs is the age distribution of the population. Southland has a slightly higher percentage of elderly people (13.1%) than New Zealand as a whole (12%) and corresponding lower percentages of children and adults (22.6% and 64.3% respectively, compared to 23% and 65% for the country as a whole). The proportion of the population that is 65 years and over is increasing nationally. In 1951 this age group comprised 9% of the population, while in 2001 it made up

\textsuperscript{12} Information on Southland Feb 2004

\textsuperscript{13} www.stats.govt.nz
12% of the population. By the year 2051, it is projected that 26% of the population will be aged 65 years or older. Therefore the provision of access and mobility through a reliable public transport service for use by both the elderly and the young will become important. These trends also identify a need to provide a road network that caters for the growing number of elderly drivers.

2.2.3 Vehicle Ownership

Consistent with New Zealand as a whole, the level of car ownership is increasing throughout Southland. Table 5 indicates that 88% of households in Southland have access to at least one car, while almost 9% have no car.

Table 5  Car ownership in Southland by Household – Census 2001

<table>
<thead>
<tr>
<th></th>
<th>No Motor Vehicle</th>
<th>One Motor Vehicle</th>
<th>Two Motor Vehicles</th>
<th>Three or More Motor Vehicles</th>
<th>Not Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southland District</td>
<td>510</td>
<td>3,372</td>
<td>4,290</td>
<td>2,034</td>
<td>264</td>
</tr>
<tr>
<td>Gore District</td>
<td>417</td>
<td>1,887</td>
<td>1,647</td>
<td>753</td>
<td>90</td>
</tr>
<tr>
<td>Invercargill City</td>
<td>2,370</td>
<td>8,382</td>
<td>6,168</td>
<td>2,028</td>
<td>525</td>
</tr>
<tr>
<td>Southland Region</td>
<td>3,297</td>
<td>13,641</td>
<td>12,102</td>
<td>4,818</td>
<td>876</td>
</tr>
</tbody>
</table>

Source: Statistics New Zealand

The 2001 census data on the main means of travel to work shows that the use of motor vehicles continues to be the predominant mode of land transport in Southland. Public transport remains a very low-use option in Southland at less than 1%. Bicycle use is just over 2% while over 6% of Southland’s population walk or jog to work. The high percentage of people with no motor vehicle again reinforces the increased need for public transport services in the future. There is potential to reduce the number of motor vehicles on Southland’s roads by providing improved facilities for cyclists and pedestrians.

2.3 Existing economic environment

Southland’s economy is primarily based on commodity production from the agricultural sector, traditionally sheep and beef and more recently dairying and deer.

The Southland economy has traditionally relied on the farming of its pastoral and fertile plains, in particular sheep farming. When refrigeration became available in the early 1880’s, the frozen meat industry transformed the region. Sheep were bred as much for meat as for wool. Agriculture remains the most important industry in Southland and has since diversified, as has industry in general. Important manufacturing industries include the aluminium smelter at Tiwai Point. Forestry, fishing and tourism are also significant industries. Of the estimated 5,311 businesses operating within the region, 10.2% were in the agriculture, forestry and fishing industries (compared with 4.4% nationally). There were also a

14 Southland Regional Transport Strategy
15 Southland Regional Transport Strategy
16 A Strategy for Development: Venture Southland
significantly larger proportion of business in the mining, retail trade and education industries and a much smaller proportion of business in the property and business services industry. The Manapouri hydroelectric power station in Southland is the largest hydroelectric power station in terms of both capacity and energy generation. In the year ended 30 June 1996, it had a capacity of 600 megawatts. This will be increased to a peak output of 850 megawatts following the completion of the five-year Manapouri half-life refurbishment programme, which is currently half way to completion. The total cost of the programme, which is due to be completed by late 2007, is $90M.

Southland is the third-largest coal-producing region in New Zealand after Waikato and the West Coast. The region’s main coal deposits are in the west and east of the region. In 1994, Southland produced 150,058t of sub-bituminous coal and 51,402t of lignite, accounting for 6.6% of total New Zealand coal production.

Mineral deposits are widespread throughout the region, but although there are substantial quantities, they are difficult to mine. Gold has also been found over much of Southland. Alluvial gold mining has occurred in the region - Nokomai (now closed and rehabilitated) was the fourth-largest field in New Zealand (producing around 0.75t of gold annually). Tin deposits can be found in New Zealand on the West Coast and on Stewart Island; about 1t of alluvial tin concentrate was mined there in the late nineteenth century. Southland also has large reserves of limestone.

Southland’s fertile land provides prosperous conditions for farming. Historically, settlers from Otago and gold miners after the gold rush moved to Southland to farm the land. Communities were built to service farms and were dependent on agriculture for their livelihood. Today, agriculture continues to be the region’s dominant industry. At the time of the 2001 Census, 19% of Southland’s employed population were engaged in the agriculture industry (including services to agriculture). This proportion decreased from 20.4% in 1996.

The following is an excerpt from the National Bank’s Regional Trends Report, May 2005:

“Business and consumer confidence in Southland were both markedly below the national average. The number of dwelling approvals in the region fell 17% in March. New registrations for tractors, cars and commercial vehicles declined. Partially offsetting this weakness was a large rise in commercial construction consents issued in the region in March, with the number of permits rising 36%. Accommodation guest nights were the second fastest growing across the country. In aggregate Southland registered its first decline in economic activity since June 2003, easing 0.3% in the first three months of the year.”

Figure 2 Regional Economic Activity – Year on year growth
2.4 Tourism

2.4.1 Draft Southland Tourism Strategy 2005 – 2015

The Draft Southland Tourism Strategy was prepared to identify opportunities and guide tourism development in Southland over the next 10 years. It identifies tourism as one of the top sectors in Southland’s economy and highlights the fact that it is a diverse industry that provides jobs for between 10 and 15% of the current labour force.20

The vision:

“Southland is New Zealand’s premier destination for nature, wilderness and pioneering heritage experiences – the visitor experience is at an unhurried pace, the hospitality is genuine, service is exceptional and Southland’s communities benefit.”

The goals:

- Enhance the range of tourism products on offer in order to expand existing businesses, attract new investment and spread community benefits;
- Develop a regional marketing approach that will strengthen Southland’s image, positioning and performance in its key visitor markets; and
- Provide sustainable management of Southland’s tourism destinations through strong stakeholder relationships.

2.4.2 Southland Regional Tourism Forecasts – Tourism Research Council

The following is an excerpt from the Tourism Research Council of New Zealand’s Southland Regional Tourism Forecasts21:

- International visitors made a total of 478,000 day and overnight visits to the Southland Region in 2003, staying a total of 1.1M visitor nights and spending a total of $153M. Domestic visitors made a total of 1.4M day and overnight visits to the region, staying 1.5M visitor nights and spending a total of $216M;
- In total, Southland attracted 726,000 overnight visitors in 2003, 1.2M day visitors, 2.6M visitor nights and $369M in tourism expenditure for the region. By 2010, total overnight visits to the Southland Region are expected to increase by 26.0% to 914,000 and total day visits are expected to increase by 13.0% to 1.3M. Total nights are expected to similarly increase to 3.2M (23.6%), and visitor expenditure to $572M by 2010 (55.3%);
- Southland visitor nights are dominated by holiday travellers. Holiday travellers make up 56% of the region’s nights and are projected to grow by 26.4% to 2010. By 2010, holiday nights will reach 1.9M, providing 3.2% of the total New Zealand holiday nights;
- According to the Commercial Accommodation Monitor (CAM), most of Southland’s commercial visitor nights are spent in motel accommodation (40%), followed by hotels (28%). Backpacker and hosted accommodation and caravan parks/camping grounds handle the remaining 32%. Southland Region establishments accounted for 3.2% of New Zealand’s total motel guest nights, and 2.2% of hotel guest nights in 2003;

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20 Draft Southland Tourism Strategy
21 Tourism Research Council New Zealand, Tourism Forecasts – Southland Region 2004-2010
Southland’s share of total New Zealand visitor nights and expenditure are expected to remain steady to 2010. By 2010, international visitors will account for 50% of total nights in the region (currently 43%) and 47% of total expenditure (currently 41%); the region’s outlook is for reasonably steady growth throughout the forecast period, with international tourist nights growing much faster than domestic nights. However, there is only limited change anticipated by 2010 in average length of stay and the mix of day and overnight visitors; domestic visitors spend on average a longer time in Southland (3.9 nights) than do international visitors (3.3 nights), and this pattern is expected to persist to 2010. The difference is in part due to the differences in visitor mix, with longer stay holiday travel by the domestic visitors; Southland attracts over 1.0M domestic day visits, many by residents travelling within the region. International day visits are fewer, though are by definition incidental to the overnight travel of international visitors; overall, average expenditure per visitor is expected to increase steadily, from $393 in 2003 to $499 by 2010 for overnight visitors. Average spend by day visitors is also expected to grow, to $89 per day by 2010, from the current $72; and while domestic spending rates are projected to grow faster than international, Southland’s overseas visitors still spend considerably more ($319 per visitor, 2003) than domestic ($154 per visitor, 2003).

Key Points:

1. Without making proper allowance for the projected increase in tourism numbers using the roading network, especially in the form of campervans, cyclists, buses and other tourist traffic, the Southland tourism industry could suffer; and
2. The potential conflict between heavy transport and tourist traffic is an issue.

2.5 Requirements for an efficient transport system

An effective freight system able to meet future needs depends on several factors22:

1. Availability of fixed infrastructure to meet marginal demand;
2. Ability to invest in new infrastructure without long lead-time hurdles such as RMA consents or land acquisition;
3. Access to conveyances in a reasonable timeframe eg locomotives, coastal ships etc; and
4. Competing operators OR competing modes.

South Port is a key strategic asset for the whole country, being one of 15 ports within New Zealand with international ocean-going capacity. As fuel costs increase, carbon charges take effect and demand volumes increase, there is likely to be a further move towards coastal shipping. This trend is already evident in New Zealand and other countries.

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22 West Coast Integrated Regional Transport Infrastructure Plan, GHD Ltd 2005.
The requirement for competing modes or operators requires collaboration. It is tempting for a consultant to analyse the costs of possible transport options and conclude that one option – based on its underlying economics – is the lowest cost and should be implemented.

However New Zealand is a market economy where prices are set by negotiation between users and suppliers. There is no price regulation or mechanism for price setting. Competition between operators (eg for road transport) or between modes (eg rail vs. road) is necessary for fair price setting. The ability to move bulk cargo by all transport modes is essential.

This study therefore examines all transport modes with a focus on key issues as summarised below in figure 3.

2.6 Key Transport Issues

![Diagram of Key Issues in the Southland Region]

- Key Issues in the Southland Region
- Stewart Island (Safety of pedestrians)
- Milford Road (Congestion and safety)
- South Port (Transports only 17% of Southland’s containerised produce)
- Ageing roading network combined with increase in dairy and forestry heavy traffic
- Tiwai Bridge (Strengthening or replacement)
- Rail network (Deferred capital works)
- Tourism requirements

Figure 3 Key Issues in the Southland Region

Many industries identified in regional development strategies, such as forestry, tourism, and dairying, place significant demands on transport networks. Many regional development opportunities are likely to depend to some extent on the further development of transport services, facilities, and infrastructure, particularly with regards to the key issues above.

23 Ministry of Transport Statement of Intent
A recent scoping study undertaken by GHD Ltd found the following:\(^{24}\):

The Southland region is serviced by a widespread roading network, and complemented by a regional port, air and rail services.

The network, in particular roading, is under increasing pressure from the following:

- Changes in vehicle type, especially from increases in heavy vehicles from dairy and forestry growth;
- Increases in tourism and tourist usage of rental cars, campervans and buses;
- Conflict between increasing heavy vehicle traffic, tourist traffic, and other road user groups; and
- Continued demand from traditional users for improvements in level of service.

Overall, current traffic growth is only moderate, but forecasted growth of heavy vehicles and tourism is significant.\(^{25}\) Heavy vehicles generate the bulk of the pressure on network maintenance and their numbers are increasing at a higher rate than other vehicle types.

\(^{24}\) Southland Integrated Transport Scoping Study

\(^{25}\) Statistics New Zealand: www.stats.govt.nz
3. Roading

Summary

- SDC requires significant funding to renew an ageing network that is being subjected to increasing HCVs;
- The Tiwai Bridge requires significant funding to either strengthen the existing bridge or totally replace it;
- The Milford Road is likely to be impacted by several commercial proposals. It appears that peak time congestion at viewing locations is lessening the visitor experience and some traffic controls will shortly be necessary; and
- Stewart Island requires funding to mitigate issues surrounding pedestrian and vehicle conflicts on the roads.

3.1 Background

Road is by far the most significant transport mode in Southland. This is not only because road is now the main form of transport for the movement of goods, but also because, where other forms of transport are used, they generally rely on road for part of the journey. It is anticipated that road will continue to be the predominant mode of transport in Southland in years to come.

As of June 2004, there were 7,186 km of road in Southland comprising State Highways, local roads and Special Purpose Roads. Over 50% of these roads are unsealed. Southland’s roading network forms nearly 8% of the national total.

Southland has 777.5 km of State Highways (as of June 2004). State Highway 1 provides access to Dunedin and Coastal Otago while State Highway 6 provides access to Queenstown, Central Otago and the West Coast. The rest of Southland’s nine State Highways form strategic links throughout the region.

The State Highway network carries much of the long distance traffic in the region. There are 288 bridges on the State Highway network with a total length of 4,738 metres. Of these bridges, four are single lane bridges. Southland’s State Highway network is completely sealed and there are no bridges with speed or weight restrictions. State Highway 1 carries the most traffic, with approximately 10,000 vehicle movements per day in Invercargill and 5,000 vehicle movements per day heading north. State Highway 6 also carries significant volumes of traffic between Winton and Invercargill. State Highways 90 (McNab to Raes Junction), 93 (Mataura to Clinton), 94 (Te Anau to Milford), 95 (Te Anau to Manapouri), 96 (Mataura to Ohai) and 99 (Riverton to Clifden) generally have less than 1,000 vehicle movements per day with the exception of urban areas. State Highways 94 (Gore to Te Anau), 98 (Dacre to Lorneville) and 99 (Lorneville to Riverton) range between 1,000 and 4,000 vehicle movements per day.

As can be seen from the table below, Southland has 598.8 km of urban (U) roads, 5,832.7 km of rural (R) roads and 27.6 km of Special Purpose Roads (SPR) on the local road network. The region has 1090

bridges, 473 of which are single lane and 44 of which have posted weight restrictions. (Note: The table does not include the State Highway statistics above).

Table 6  Local Roads – Physical Statistics as at 30 June 2004

<table>
<thead>
<tr>
<th>Region</th>
<th>Total length km</th>
<th>Length Sealed km</th>
<th>% Sealed</th>
<th>Total bridges</th>
<th>Single lane bridges</th>
<th>Restricted bridges</th>
<th>Timber bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No.</td>
<td>Length metres</td>
<td>No.</td>
<td>Length metres</td>
</tr>
<tr>
<td>Gore DC</td>
<td>U 83.6</td>
<td>75.7</td>
<td>90.6</td>
<td>104</td>
<td>1171</td>
<td>47</td>
<td>771</td>
</tr>
<tr>
<td></td>
<td>R 809.7</td>
<td>266.8</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invercargill CC</td>
<td>U 290</td>
<td>287.2</td>
<td>99.0</td>
<td>51</td>
<td>1436</td>
<td>12</td>
<td>291</td>
</tr>
<tr>
<td></td>
<td>R 300</td>
<td>173.7</td>
<td>57.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southland DC</td>
<td>U 225.2</td>
<td>180.1</td>
<td>80.0</td>
<td>935</td>
<td>12064</td>
<td>414</td>
<td>6573</td>
</tr>
<tr>
<td></td>
<td>R 4,723.0</td>
<td>1,753.9</td>
<td>37.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPR 27.6</td>
<td>11.7</td>
<td>42.4</td>
<td>17</td>
<td>175</td>
<td>14</td>
<td>14</td>
<td>160</td>
</tr>
<tr>
<td>Southland Region Total</td>
<td>U 598.8</td>
<td>543</td>
<td>90.7</td>
<td>1090</td>
<td>14,671</td>
<td>473</td>
<td>7635</td>
</tr>
<tr>
<td></td>
<td>R 5832.7</td>
<td>2,194.4</td>
<td>37.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPR 27.6</td>
<td>11.7</td>
<td>42.4</td>
<td>17</td>
<td>175</td>
<td>14</td>
<td>14</td>
<td>160</td>
</tr>
</tbody>
</table>

The Southland Region’s roads are owned and maintained by SDC, GDC, and ICC, with the State Highways being maintained by Transit New Zealand.

Road travel is the most significant mode of transport in the Southland region and Southland is more reliant on road freight transport than New Zealand as a whole. According to the 2001 Census, 3,294 households in Southland own no motor vehicle, 13,641 own one motor vehicle, 12,102 own two motor vehicles and 4,815 own three or more motor vehicles.

3.2 Roading Hierarchy
Section 10 of this report describes an alternative roading hierarchy based upon an integrated hierarchy definition.

3.3 Economic Importance of the Road Network
The following is an excerpt from Road Freight – Its significance for Regional Economics (Infometrics, 2003).

Road freight companies account for 61% of all land and sea transport revenue in the Southland region. For New Zealand as a whole, the comparable figure is 55%. A high proportion of Southland’s road

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29 Road Freight – Its significance for regional economics, April 2003
30 Statistics New Zealand: www.stats.govt.nz
freight business is exported from the region (i.e. services are provided to businesses based in other parts of the country).

This is an economy that relies heavily on road freight transport to get its products to market, rather than to bring products in for domestic utilization.

For most industries, the purchase of road transport services is a small part of total costs, however 13.8% of goods and services costs in the forestry industry in Southland are road freight transport costs.

The economic contribution of road freight transport in Southland for the year ended March 2001 (% of all industry total) is as follows:\[31\]

- Gross output: 2.5%
- Value added: 2.6% (at factor prices)
- Employment (FTE’s): 2.4%

### 3.4 Southland District Council

The SDC is responsible for the administration and maintenance of the District’s entire roading and bridging network.

The SDC is responsible for a roading and bridging network that has 4,922 km of roads (1,946.5 km sealed and 2975.5 km unsealed, 225 km urban and 4669.2 km rural). 27.5 km of the roads are designated ‘special purpose’. There are also 865 bridges and 99 stock underpasses. The network is maintained to a standard that provides safe and comfortable road transport, within the limit of available funds.

The Council has prepared an Advanced Roading Asset Management Plan, which sets out the basis and standard to which roads will be managed and maintained while under Council’s control.

The Southland Roading Network has been subjected to significant growth in dairying. This activity has a significant impact on the roading network for two main reasons:

1. Frequent heavy axle loads on low strength roading pavements; and
2. Unpredictable traffic trips both during the farm development and with servicing by dairy tankers, which travel the shortest and most convenient route.

Due to the natural landscape the roading network is porous in travel opportunity aspects. Hence, traffic is able to avoid the State Highway network. The result is HCVs utilising local roads, which were designed to a lower standard (the old class 2 prior to 1990) than the higher standard State Highways.

### 3.5 Gore District Council

The GDC has 893.9 km of roads, 341.3 km sealed, 552.6 unsealed, 83.6 km urban and 809.7 km rural. The road network is generally in reasonable condition, with ongoing maintenance required to upgrade wooden bridges and undertake seal widening. A program of bridge upgrades has recently been completed, with four bridges remaining with weight restrictions and five with speed restrictions. Pressure on district roads is generated by heavy traffic associated with dairy and forestry industries (particularly with metal supply associated with new

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31 Butcher and Partners in Road Freight – Its significance for regional economics, April 2003
activity for off road infrastructure development) and further strengthening of particular routes is required to increase and upgrade their carrying capacity.

There is an ongoing need for seal extensions within the district, and the Council has applied for R Funding to assist with progressing this work. The major roading issue is narrow seals. Council is developing a program of works to progressively widen seal to meet the required level of service.

The district’s industries, including tourist attractions, are generally adjacent to State Highways and hence have only a minor impact on the local network.

Council is currently developing a roading activity (asset) management plan, which is due for publication late in 2005.

3.6 Invercargill City Council

As at 30 June 2004 ICC has 590 km of roads, 460.9 km sealed, 290 km urban and 300 rural. The Invercargill road network is concentrated in the urban areas of Invercargill City and Bluff.

The key focus for the ICC is the maintenance of existing roads to ensure they meet required safety standards. Many freight and depot centres servicing the Southland region are located in Invercargill, particularly to the west between Clyde and Bond Streets adjacent to the railway. This results in heavy vehicle traffic passing through the city centre. This places pressure on the local road network and produces conflict with other road user groups. A heavy vehicle bypass is planned to redirect heavy vehicles along Bond Street (South) connecting to the Bluff Highway at Grace Street. Land has been purchased with design and construction programmed in future years.

3.7 Transit New Zealand

There are approximately 771 km of State Highways in the Southland region, which are owned and maintained by Transit New Zealand.

Transit New Zealand’s focus is on sustainability and integration. This is particularly evident adjacent to growth areas such as Te Anau.

As land use intensifies, road use by heavy vehicles will increase, especially as there are limitations within Southland to alternative forms of transport such as rail and coastal shipping.

Most state highways in Southland carry relatively low traffic volumes and no major improvements are required apart from minor safety improvements, and improvements to the Homer Tunnel on SH94. Hence, the region’s State Highway network has no major barriers hindering economic growth. Nevertheless, Southland’s economic growth, potential industrial developments, and conversion of pasture farming activity to dairying, needs to be constantly monitored to ensure that the current high levels of service on Southland Highways are maintained. There is continuing need for active management of SH94 to Milford Sound to provide an appropriate level of avalanche protection and traffic management.

The key regional transport issues in Southland include:

- Road safety;

32 Invercargill City Council
Forestry traffic;

Tourist traffic, particularly on the Southern Scenic Route to Fiordland National Park and Milford Sound; and

The increase in the number of dairy farms is increasing truck movements, particularly around the processing plant at Edendale.

With regard to road safety, Transit plans to remove the ‘out of context’ sections of state highway and roadside hazards, and provide a network of stock truck effluent disposal facilities including one near Mataura and is carrying out further investigations on the need for one at Lumsden on SH6.

Safety improvements that are progressing include the Lorneville Roundabout and River Road Realignment.

The following activity is scheduled to be undertaken over the next three years:\(^{33}\)

- SH93: River Road Realignment

A number of additional projects are proposed but are dependent on progress with other projects and the availability of regional distribution funding. These include:

- SH98: Mill Road Intersection Improvements, east of Lorneville;
- SH1: Edendale Realignment;
- SH6: Gap Road Intersection Improvements, near Winton;
- SH1: Boundary Creek Bridge Widening, north of Mataura; and
- SH1: East Road Curve Realignment, north of Invercargill.

Regarding secure routes (SH94 to Milford Sound), Transit is continuing to investigate replacing the eastern portal of the Homer Tunnel, which was damaged some years ago and is likely to need to be replaced and extended. This tunnel provides the only road access to the key tourist destination of Milford Sound.

The alignment of the State Highways in Southland is generally good but increasing passing opportunities will assist, particularly close to Invercargill. Two sets of passing lanes are proposed but are subject to the availability of regional distribution funding. They are: Dowling Road / Mona Bush Road on SH1 and Wilson’s Crossing on SH6.

Since the Land Transport Management Act (LTMA) was passed at the end of 2003, there has been very significant change at Transit – to their strategy, structure and processes. The LTMA embedded principles of the New Zealand Transport Strategy into Transit’s statutory objective, which is “to operate the State Highway system in a way that contributes to an integrated, safe, responsive and sustainable land transport system”. In doing that, Transit must exhibit a sense of social and environmental responsibility. The LTMA also:

- Required that the objectives of the New Zealand Transport Strategy be taken into account when land transport programmes are prepared – of which Transit’s State Highway Programme is the largest; and
- Enabled road tolling schemes and concession agreements.\(^{34}\)

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\(^{33}\) Extracts from Transit New Zealand’s 10-year SH Forecast 2005/06 – 2014/15

\(^{34}\) Excerpt from a Transit New Zealand brochure, *Times Have Changed at Transit*, 2005
3.8 Transport Safety

Maritime New Zealand, the Civil Aviation Authority and LTNZ all have in place regulations that apply to the use and operation of ships, aircraft and vehicles. The movement of aircraft is closely monitored, to ensure necessary safety standards during flights and landings are observed. The movement of ships into and out of ports is controlled by port authorities, and cruise ships operate under an accord with Environment Southland. These processes result in all practicable means being adopted to ensure high levels of safety are achieved, both for the movement of aircraft and ships, but also for the people being conveyed on them.

While regulations apply to the use and operation of vehicles on land, significant safety concerns arise as a result of the number of crashes that occur involving vehicles (singularly, with other road users or with trains) and trains (either by themselves or with road users).

By world standards, Southland and the rest of New Zealand has an unacceptable level of road trauma despite the considerable improvements made in safety over recent years. Out of the 28 countries on the OECD’s road and traffic database, New Zealand ranks 20th equal in terms of deaths per 100,000 people, falling well behind countries like Sweden, Australia and Italy.

Crashes and other accidents on roads is the largest cause of accidental death in New Zealand. Inattention, alcohol, speed, failure to give way or stop, and crossing the centre line are the main contributing factors. It is not possible to totally avoid crashes, but it is both practical and feasible to achieve an improvement on the existing situation. An improvement can be achieved with an integrated approach that focuses on:

- Driver skills and behaviour, including attitudes to speed, drink driving, overtaking and wearing restraints;
- The driving environment, for example the standard of roads; and
- The vehicles that use the road, including their road-worthiness.

Between 1998 and 2004 there were 152 fatal accidents involving railways in New Zealand, 55 of which occurred at level crossings – an average of 20 per year.  

The Southland region has an extensive road network with several State Highways running through it. A general trend exists for the majority of injury crashes in Southland to occur on rural roads, with 85% of all crashes in the Southland District and 60% in the Gore District occurring on rural roads in 2004. Figure 4 below shows a breakdown of where the rural injury crashes took place in 2004 in the Southland District.  

Although the majority of crashes in Southland 2004 took place on rural roads, the severity of the urban crashes increased dramatically. In 2003, 20 percent of urban crashes in the Southland District resulted in serious injuries; in

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35 National Rail Strategy to 2015  
2004 that figure was closer to 60 percent. In the ICC region the portion of urban crashes was 90%, due to the fact that the region has more urban than rural roads.

Key Points:
- Majority of injury crashes occur on rural roads as opposed to urban roads; and
- Southland is experiencing a significant increase in the number of crashes.

3.9 State Highway 6
This route is of growing importance to the tourism sector. It runs the length of the South Island from Blenheim down the West Coast, through Wanaka and Queenstown and on to Invercargill and passes through some of the country’s most visited tourist destinations. Conflicts between freight and tourist traffic on State Highway 6 need to be addressed.

3.10 State Highway 94 – Milford Road
The Milford Road poses particular operational issues to Transit due to its iconic passage through Fiordland National Park and ever increasing tourist pressures. This is covered in more detail in section 3.21 below and in the full Milford Report which can be found in Appendix E.

3.11 Traffic Volumes
The significant changing demands Southland region needs to consider are:

1. The change in the vehicle types travelling on the region’s roads, especially the increases in the heavy vehicle group. Both the dairying and forestry industries are growing and both have a high dependence on heavy commercial vehicles. Cars have very little impact on the performance of a road pavement whereas trucks, because of their comparative weight, have a disproportionate impact compared to their numbers;

2. Tourism within Southland is increasing, with travel by rental cars and camper vans being popular. Their use on a number of District roads is increasing, particularly the Southern Scenic Route (SSR) and adjacent roads leading to SSR attractions; and

3. A change in vehicle use habits. While the population is currently decreasing people are tending to use their cars more. This is likely to only result in a minor increase in total traffic over district roads.

3.12 Heavy Vehicles
The numbers of heavy vehicles are increasing on Southland’s roads. As outlined below, both the dairy and forestry industries are growing rapidly. These industries have a high dependence on heavy commercial vehicles. In addition, the economic upturn in all farming sectors has lead to increased lime and fertiliser application by heavy vehicles. The number of agricultural contracting vehicles (tractors,

37 Advanced Roading Asset Management Plan (MWH)
harvesters and ancillary vehicles) utilising the transport network is also increasing as landowners are increasing their use of contract services rather than purchasing their own equipment.

With the increases in primary production, both in timber and milk, catch-up farm maintenance and reliance upon contractors, an annual increase in heavy vehicle usage above the national average is anticipated. SDC estimates that this increase will be 11% per annum for the next two years and 9% per annum for the following 8 years resulting in an overall increase over the next ten years of 2.5 times the existing levels (SDC Advanced Roading Asset Management Plan).

Many of Southland’s sealed roads were originally constructed with only thin pavements. It was never envisaged that these thin pavements would be required to carry the heavy vehicles they do today or that which is projected in future. Cars have very little impact on the performance of a road pavement whereas trucks, because of their comparative weight, have a disproportionate impact compared to their numbers. The increasing numbers of heavy vehicles on Southland’s roads will lead to an increased rate of deterioration of road pavements.

The impacts of heavy vehicles on the roading network and its users have been more closely examined in the various industry sections below. Information relating to road user charges (RUC) for heavy vehicles in Southland can be found in Appendix F.

Figure 5 Southland Indicative Traffic Volumes

![Map of Southland traffic volumes](image)

3.13 Ageing Roading Network

The road network in the Southland District comprises 77% of the Southland regional local road network and is currently in need of major rehabilitation. Over 60% of the local roads remain unsealed, creating

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problems for safety and restricting load carrying capacity. In addition there are 37 wooden bridges with weight restrictions.

The extent and broad distribution of farming activities generates heavy vehicle traffic on non-arterial routes and places additional pressures on unsealed roads, and increases deterioration on local roads.

The graph in Appendix G is from the SDC’s Asset Management Plan (2004). It shows the date of the most recent work on their road network by number of kilometres concerned. The graph demonstrates that a large length of the SDC road network is overdue for remedial work. A lot of paved road development undertaken in the 1960’s and early 1970’s has been maintained but is now due for renewal. Generally, after around 25 years of use a road will need remedial work. In 1979 the average age of the network was 14 years. In 1999, the average age of the network was 28 years. The time-frame for remedial work depends upon the volume and type of traffic, the ground conditions and the topography. Much of the road network has not been renewed for 30 to 40 years. Over the next few years, it is predicted that a significant amount of funds will need to be spent to retain the current road conditions. The above data has been updated during 2005 and the histograms in Appendix H depict the current situation.

There is an issue surrounding not only the age of the network but also the forecast volumes of traffic on the roads as there is significant potential for traffic growth around industries based on coal, lignite and gas. The lignite resources of the Southland Coal region make up 71% of New Zealand’s recoverable coal resources. Growth in the tourism, dairy, and forestry sectors has and will continue to increase traffic volume on the roading network.

Key Points:

- Significant sections of the Southland District’s roading network, particularly those subjected to increased HCV traffic, will require renewals.

3.14 Tourism Traffic

Table 7 Southland’s Tourism Figures (2003)

<table>
<thead>
<tr>
<th>Southland</th>
<th>Overnight Visits (000’s)</th>
<th>Day Visits (000s)</th>
<th>Total Spend ($NZ M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>International</td>
<td>339</td>
<td>140</td>
<td>153</td>
</tr>
<tr>
<td>Domestic</td>
<td>387</td>
<td>1018</td>
<td>215</td>
</tr>
<tr>
<td>TOTAL</td>
<td>726</td>
<td>1157</td>
<td>368</td>
</tr>
<tr>
<td>NZ Market Shares (%)</td>
<td>2.9</td>
<td>3.0</td>
<td>2.55</td>
</tr>
</tbody>
</table>

Southland’s main tourist attractions are its natural features, including Fiordland National Park (which incorporates attractions such as the Milford Track, Milford and Doubtful Sound) and the Catlins, with Invercargill acting as a link for Stewart Island and Rakiura National Park and a southern entrance to the Queenstown area. There is limited tourism infrastructure in Southland, with only a small share of the national accommodation sector. However, significant transport activity supports visits to Milford and

39 Southland Integrated Transport Scoping Study
Doubtful Sound. Visitor use of the Milford Road is increasing at a rate of about 7% annually, meaning a doubling of numbers over the next ten years. Currently around 800 vehicles travel the Milford Road each day. This figure rises to 1200 vehicles per day during the peak summer season. Buses comprise approximately 25% of the traffic on the road. Traffic volumes and visitor numbers peak at specific times of the day. The timing of these peaks relates to the travel time from Queenstown to Milford Sound on a day return trip. The large numbers of tourist operators arriving in Milford around lunchtime, with tourists taking a boat trip before commencing their return journey, gives rise to congestion, safety and parking issues. The Homer Tunnel also gives rise to issues of concern, given its length (1200 metres) and that it is narrow, unlit and unventilated.

While buses are extensively used on the Milford Road, in other areas, motor vehicles, either cars or campervans, are the mode of choice of most tourists that visit Southland. Between 75% - 85% of all traffic generated by holidaymakers and people visiting friends and relatives enters Southland via road.\footnote{Southland Tourism Strategy 2005-2015}

Tourist numbers in the Catlins have grown over the past few years and it is estimated 100,000 visit the region each year. The figures are predicted to continue rising and it is possible that the area may see up to 300,000 visitors per year over the next 10 years.\footnote{Catlins Tourism Strategy} The sealing of the Southern Scenic Route is expected to significantly contribute to this increase in the number of visitors to the Catlins region.\footnote{Venture Southland Activities Report October – November 2004}

Southland tourism growth has surpassed all other regions in New Zealand. Most of the tourist attractions within the region are only accessible by road and the majority of visitors use private vehicles and campervans for transportation to these areas. Tourism traffic on the roads is expected to grow by 290% over 20 years based on a continued growth of 8% p.a. New tourism attractions are being built or considered throughout the region and traffic growth could grow at a rate much greater than the predicted 8% p.a.

There is thus a change in expectation of the standard of the roads. Visitors to New Zealand expect to travel on sealed roads with better information signage than is currently provided. This is particularly the case on the fringes of the network at such locations as Waikawa. In these locations, the scenic attractions are accessed by unsealed, narrow and often winding roads that have current low levels of service.\footnote{Proposed Southland Regional Transport Strategy} Issues associated with tourists who are used to driving on roads of better condition and on the other side of the road can pose a safety risk.

3.14.1 The Southern Scenic Route

The Southern Scenic Route (see figure 6 below) is the first touring route of its kind in New Zealand. It covers 440 km from Milford Sound down to Tuatapere, along the coast, through the Catlins and up to Dunedin.
Key Points:

- **Significant growth in tourism in Southland, particularly on the Southern Scenic Route and the Milford Road is forecast;**
- **Expectations of tourists has changed and many expect to travel on sealed roads and encounter signage of a higher standard than is currently provided;**
- **Many lack the skills required to drive safely on gravel roads and fail to appreciate the risks;**
- **Tourist traffic is concentrated on specific routes, such as the Milford Road, Southern Scenic Route and adjacent roads leading to attractions;**
- **There is a need for effective, consistent and safe directional signage on tourist routes;**
- **Demand for rest areas and public toilets and waste disposal facilities (and appropriate signage) for campervans**\(^{46}\);
- **Conflicts associated with heavy vehicle usage of tourist routes are increasing;**
- **Problems are associated with foreign drivers failing to keep left; and**
- **Problems are associated with the number of one-lane bridges in the region.**

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\(^{45}\) www.southlandnz.com
3.15 Dairy Industry Traffic

New Zealand is one of the top five dairy exporters in the world which supply around 90 percent of dairy products traded on the international market. The New Zealand dairy industry's major markets vary for different products. Britain and the EU are New Zealand's most valuable market for butter. The primary markets for casein and cheese are the United States, Japan, and the EU. New Zealand is the world's largest exporter of casein and caseinate products. New Zealand's most important milk powder markets are in Central and South America and South-East Asia.

The Southland economy has traditionally relied on the farming of its pastoral and fertile plains, in particular sheep farming. Agriculture remains the most important industry in Southland, however there has been a move away from sheep farming to dairying and deer farming in recent years. Between 1996 and 1999, the number of dairy cattle in Southland increased by 69% and deer numbers increased by 106%. There was a corresponding decrease in sheep numbers during the same time period.

Southland accounted for 5% of the national dairy farms for the 2003/04 season, and is expanding. There are four factors that impact on predicted future growth beyond 2004:

1. New farm conversions are controlled by the dairy company so they can ensure there is sufficient processing capacity;
2. There will be growth from increases in productivity from maturing farms and improved farm management;
3. There are seasonal swings that depend on climate; and
4. The value of the New Zealand dollar against our trading countries.

Table 8 Dairy Industry in Southland

<table>
<thead>
<tr>
<th>Southland Dairy Industry 2003/04 Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cows</td>
</tr>
<tr>
<td>Milk fat produced</td>
</tr>
<tr>
<td>Protein produced</td>
</tr>
<tr>
<td>Milk solids produced</td>
</tr>
<tr>
<td>Litres of milk</td>
</tr>
</tbody>
</table>

Fonterra’s Edendale Dairy Factory currently processes 7.5M litres of milk per day and 200,000Mt of processed goods. There are approximately 37 tankers in the fleet making 280 tanker trips to and from the factory per day from 620 suppliers in the area. 30% of finished goods were transported by rail in

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46 Proposed Southland Regional Transport Strategy
47 www.fonterra.com
48 Advanced Roading Asset Management Plan (MWH)
49 Statistics New Zealand: www.stats.govt.nz
2005. This is forecast to increase to 50% in February 2006. The majority of product (>80%) from Edendale is shipped from Port Otago in Dunedin.\textsuperscript{50}

Both Port Otago and South Port have constructed additional storage facilities in recent years to cater for the growing export trade in dairy products. Approximately 25% of the total tonnage of processed goods was transported by rail. Road transport is via the State Highway network, with State Highway 93 being used to transport goods between Mataura and Clinton as opposed to State Highway 1.

It is difficult to predict future growth in the dairy industry, as the dairy company controls the number of new farm conversions to ensure sufficient processing capacity. At a minimum, there will be growth from increases in productivity from maturing farms and from improved farm management.\textsuperscript{51}

Roads likely to be affected by dairy development have been identified. There is concern over intersection design between primary and secondary roads, which does not facilitate ease of access for milk tankers onto main highways e.g. intersection at Lorneville. In addition, these laden vehicles turning on and off the strategic roading network combined with the slow acceleration, produces conflict with other vehicles travelling at open road speeds. Heavy vehicles are also required by law to travel at a slower speed than other traffic. As a result milk tankers tend to prefer to stay on secondary roads, causing wear and tear on roads that have not been designed for the current volume of heavy traffic. These secondary roads are often narrower than the main highways and have little or no road shoulder. These geometric constraints combined with dust generation from vehicles on unsealed minor roads pose safety issues for heavy traffic and other road users. Milk tankers using these roads must travel slower than they would on primary sealed routes resulting in a lack of efficiency in the movement of milk products. In terms of conflict with other road users, increasing numbers of milk tankers could lead to convoys of these vehicles, which leads to frustration for other road users who are unable to safely overtake them.

Fonterra is trying to mitigate issues of milk tankers using secondary roads by using vehicles that are more stable, and therefore better able to handle the narrow, unsealed roads. Understandably, Fonterra would like to see all roads used by its milk tankers sealed.

The road design around the Edendale factory itself is not conducive to maintaining good safety standards. The main road, near the entrance to the factory, has a right angle bend in it and also has a rail siding to the factory through the centre of it. This is a safety issue for all vehicles, and also with possible additional use of rail on and off site in the future. Plans are underway to move traffic away from the factory by redirecting the road and altering the rail alignment as a consequence.

**Key Points:**

- *The Edendale Dairy Factory: the viability of rail to reduce the number of truck movements around the dairy processing plant at Edendale is being programmed. Transit is also investigating the possibility of a road bypassing Edendale township and the dairy processing plant;*

- *Conflicts between milk tankers and other road users: speed conflicts and lack of safe passing opportunities;*

- *Deterioration of road surfaces, from the weight and intensity of use by heavy vehicles;*

\textsuperscript{50} Source: Consultation with Edendale Site Manager

\textsuperscript{51} Southland Regional Transport Strategy
- Increased use of non-arterial roads by heavy traffic;
- Increased use of unsealed roads by heavy traffic resulting in increased dust generation;
- Noise/vibration issues associated with the transport of heavy freight; and
- “Hubbing” of milk for transportation to the dairy factory. This could involve on-loading to rail.\(^{52}\)

### 3.16 Forestry Industry Traffic

Forests cover about 30 percent or 8.1M hectares of New Zealand’s land area. Of this, about 6.4M hectares are in natural forest and 1.7M hectares in planted production forests. Of the total planted production forest estate, 91 percent is radiata pine (Pinus radiata), and 5 percent is Douglas fir (Pseudotsuga menziesii). Hardwoods comprise about 3 percent of New Zealand’s planted production forests. The most important hardwood plantation species are eucalypts originating from Australia.

New forest establishment has increased markedly during the 1990s. During 1998, 52,000 hectares of new forest planting occurred. Almost all areas of forest harvested are replanted.

The volume of wood available for export is expected to increase dramatically, with about a 74 percent increase between 1996 and 2010. This projected increase assumes 60,000 hectares of new plantings are undertaken each year.\(^{53}\)

![Figure 7: Timber Production In New Zealand (Plantation and indigenous)](source)

There are a number of areas in which there are potential problems and issues with regards the roading network and the forestry industry. Like the dairy industry above, the forestry industry relies on heavy vehicles to transport product from plantations to mills and experiences many of the same issues with regards road wear and tear and conflict with other users.

As with dairy traffic there is concern surrounding heavy vehicles at intersections between primary and secondary roads, their slower speed and safety on narrow and often dusty secondary roads.

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\(^{52}\) Southland Regional Transport Strategy

\(^{53}\) Statistics New Zealand: www.stats.govt.nz

\(^{54}\) www.stats.govt.nz
Many drivers, particularly elderly drivers, are weary of passing logging trucks, and feel intimidated by them, as there is a perception of them being dangerous vehicles. There is the potential in the future for logging trucks with increased dimensions. Trials have been undertaken where logging trucks carry longer and lower loads. This has been shown to substantially reduce the number of rollover type crashes.

3.16.1 Southland Forestry

Approximately 2.5% of the Southland region (86,166 hectares) is dedicated to planted forest consisting mostly of Radiata pine and Douglas fir. Most of Southland’s planted forest is Radiata pine, recently more Douglas fir has been planted than Radiata pine. As at April 2003, 26.6% of Southland’s forestry estate is in Douglas fir with another 15.5% in hardwoods (principally Eucalyptus nitens). Radiata pine is generally harvested between 25 and 30 years of age and Douglas fir between 45 and 50 years of age. Eucalyptus plantations are on a short rotation, designed for the production of wood chips. The following table shows that over 65% of the planted forest in Southland is under 10 years of age.

<table>
<thead>
<tr>
<th>Age Class (years)</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>22,109</td>
</tr>
<tr>
<td>6-10</td>
<td>31,213</td>
</tr>
<tr>
<td>11-15</td>
<td>6,669</td>
</tr>
<tr>
<td>16-20</td>
<td>4,157</td>
</tr>
<tr>
<td>21-25</td>
<td>708</td>
</tr>
<tr>
<td>26-30</td>
<td>141</td>
</tr>
<tr>
<td>31-35</td>
<td>50</td>
</tr>
<tr>
<td>36-40</td>
<td>75</td>
</tr>
<tr>
<td>41-50</td>
<td>86,166</td>
</tr>
<tr>
<td>51-60</td>
<td>825</td>
</tr>
<tr>
<td>61+</td>
<td>3,371</td>
</tr>
</tbody>
</table>

Source: Otago Southland Forest Industries Profile June 2004

This means that the impacts of forestry on the region’s transport network will increase over time. Around one-third of the national wood harvest is exported as logs; one third is supplied to sawmills and plywood mills, with the remaining third supplying the pulp, paper and reconstituted panel.

<table>
<thead>
<tr>
<th>Species</th>
<th>Southland (ha)</th>
<th>New Zealand (ha)</th>
<th>Southland % of NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiata pine</td>
<td>47,924</td>
<td>1,607,726</td>
<td>2.9 %</td>
</tr>
<tr>
<td>Douglas fir</td>
<td>19,061</td>
<td>102,573</td>
<td>18.5 %</td>
</tr>
<tr>
<td>Other Softwoods</td>
<td>1,478</td>
<td>34,604</td>
<td>4.3 %</td>
</tr>
<tr>
<td>Hardwoods</td>
<td>12,834</td>
<td>53,854</td>
<td>23.8 %</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture and Forestry – A National Exotic Forest Description as at 1 April 2001

Since 1990, considerable planting of Eucalyptus has been undertaken in Southland for woodchip for the markets of Japan and Korea. Harvesting of these plantings was predicted to commence from 2001. Initial

55 Otago Southland Forest Industries Profile June 2004
harvesting trials were carried out and harvesting began in 2004, with major volumes of timber being carried on District Council roads.\textsuperscript{56}

Most of the region’s planted forest can be found on inland hill country. A medium density fibreboard plant has been constructed south of Mataura. Timber is processed at sawmills in western and eastern Southland.\textsuperscript{57}

3.16.2 Timber Processing

In Southland, investment in local wood processing has increased significantly in recent years, with particular emphasis on sawmill expansion. Large sawmills in the region include Craigpine Timber Company at Winton, Brightwood NZ Ltd at Otautau and Niagara Sawmilling Co Ltd at Kennington. All three of these sawmills have undergone significant upgrades in recent years. Rayonier New Zealand Ltd commissioned its first New Zealand timber processing operation, a Medium Density Fibreboard (MDF) plant near Mataura, in 1997. Rayonier’s New Zealand MDF business has been sold to an overseas company, Dongwha Hong Kong International Ltd, subject to approval by the New Zealand Overseas Investment Commission.\textsuperscript{58} The Mataura plant was designed to process 140,000 cubic metres of product annually, however current production now exceeds 165,000 cubic metres annually. The plant has the necessary resource consents and infrastructure to build a second line that would double its output.

In Southland, the forestry industry uses transport routes from logging and planting areas to the following locations of major wood milling and processing plants:

- Winton;
- Otautau;
- Kennington;
- Awarua (wood chipping); and
- Mataura (MDF Plant).

A number of these plants also receive logs from the Otago region via road. Forestry produce is also exported from the region via road freight and sea freight facilities at Bluff.

Analysis of current wood flows in the region show that there is more processing capacity in Southland than wood resource available. The opposite is true in Otago and South Canterbury where there is a surplus of logs over current processing capacity. Currently, there is considerable movement of logs from Otago to Southland to meet this imbalance. In the next five years, it is likely that this trend will continue.

The extent of the impact on the road network, of increasing forestry development in Southland, is influenced by the specific locations of the forests and the locations of the processing facilities.\textsuperscript{59}

\textsuperscript{56} Advanced Roading Asset Management Plan (MWH)

\textsuperscript{57} Statistics New Zealand: www.stats.govt.nz

\textsuperscript{58} www.nzforestry.co.nz

\textsuperscript{59} Advanced Roading Asset Management Plan (MWH)
Most of the larger sawmilling operations in Southland run chippers supplying chip for export or to Dongwha Hong Kong International Ltd’s MDF operation. However, there is one stand-alone chipping plant operating in the region. South Wood Export Ltd’s plant at Awarua 10 km south of Invercargill has been processing logs into wood chips for export through Bluff for around 25 years. Since 1990 considerable planting of Eucalyptus has been undertaken for wood chip for the markets of Japan and Korea. Harvesting of these plantings is expected to take place from 2002 onwards.

A profile of the Otago and Southland Forest Industries produced by Otago Southland Forest Products Group Incorporated in January 2002 estimates that Southland log input to processing and log export will increase by 33% from 790,000 cubic metres in 2000 to 1,047,000 cubic metres in 2005. From the figures above, it can be seen that the forestry industry is likely to have a significant impact on the transport network in future years. This impact will increase as the forests in the region mature.⁶⁰

Southland has a maturing supply of light-coloured pine, totalling about 1M cubic metres per annum with processing infrastructure in saw milling, veneer and MDF. There are also significant plantings of short rotation eucalypts for fibre.⁶¹

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⁶⁰ Southland Regional Transport Strategy
⁶¹ A Strategy for Development: Venture Southland
3.16.3  Timber Export

South Port has indicated approximately 10% (58,000m$^3$) of the region’s logs (722,000m$^3$) are exported through the port at Bluff. Around 20% of the forest crop is exported from the region as logs via State Highway 1 for onward shipping. The remaining portion is further processed within the region and is distributed equally to the sawmills, veneer plant and medium density fibreboard industry. At present, Southland also provides processing services to the Otago forestry industry.\textsuperscript{62}

![Forest Plantings in Southland](image)

**Figure 9  Forest Plantings in Southland**

\textsuperscript{62} Southland Integrated Transport Scoping Study
Key Points:

- Impact of forestry traffic on local roads that have under strength pavements will increase;
- Forestry traffic is expected to grow by 34% over 20 years\(^63\);
- Conflicts between logging trucks and other road users;
- Deterioration of road surfaces, from the weight and intensity of use by heavy vehicles;
- Potential use of rail access. The Ohai branch line runs from Invercargill to Ohai or Wairio and could potentially be used to transport logs to processing plants and ports;
- Strong transport flows to processing plants and ports;
- Increased use of non-arterial roads by heavy traffic;
- Increased use of unsealed roads by heavy traffic resulting in increased dust generation;
- Noise/vibration issues associated with the transport of heavy freight; and
- “Hubbing” of logs for transportation to processing plants and ports. This could involve on loading to rail.

3.17 Livestock Traffic

The droving of stock along public roads can be hazardous to other road users. However, with adequate warning signage and careful management there will be instances when droving is appropriate, and, with regard to traffic volumes, a time of day when traffic movement is sporadic or ongoing. It is appropriate for such activity to be managed by territorial authorities, and SDC, GDC and ICC all have Stock Droving Bylaws in place. These bylaws, in conjunction with appropriate education, are considered the best means of minimising traffic safety effects and damage to roads resulting from stock droving.

Wandering stock can also give rise to danger to road users. The Impounding Act 1955 allows animal control officers to impound stock straying or wandering on roads. In addition, the Transit New Zealand Act 1989 and Local Government Act 1974 allow road controlling authorities to require landowners to adequately fence land adjacent to roads where public safety or convenience renders it expedient. In some regions of New Zealand, territorial authorities also have in place bylaws to penalise owners who allow sub-standard fencing to give stock access to public roads. Over the past ten years there has been a considerable increase in farmers seeking to move stock across roads. This is particularly evident in the dairying sector. As such stock movement can occur daily and over a period of several hours, it is highly desirable for road underpasses to be used. Road controlling authorities provide a subsidy for the provision of stock underpasses on existing roads. This is up to 25% of the total construction costs.

The riding of horses along public roads is increasing in popularity, but is still minor. Territorial authorities need to consider whether any control of this activity is required.

\(^63\) Based on MAF Harvest Predictions
Figure 10  New Zealand Farm Land by Farm Type

Probably New Zealand's best-known statistic is that it has more than 20 times as many sheep as people (actually now close to 13 times as many). Grasslands have been developed to the extent that the best sheep farms can carry up to 25 sheep per hectare throughout the year. The best dairy farms carry 3.5 cows per hectare throughout the year. Trends in livestock numbers are largely determined by world market prices for farm products, including meat, wool, dairy products and, more recently, venison, and goat fibre.

Over the last 14 years the Ministry of Agriculture and Forestry (MAF) records that the sheep population has declined from 70.3M at June 1982 to stand at around 46.2M at June 1999. The beef cattle population was around 4.4M at June 1999 and the total number of dairy cattle at June 1999 is estimated to have also risen to being around 4.4M. There are currently around 1.2M deer in New Zealand.64

Although there is a move away from pastoral (sheep and beef) farming towards dairy in the Southland region, there is still significant demand placed on the road network to service the delivery of livestock to the meat processing plants (road) and the onward movement of meat for export (rail). In fact the major user of road freight services in Southland is the meat processing industry. According to Butcher Partner’s estimate, nearly a quarter of all demand for road freight services comes from the meat processing industry.65

Key Points:

- Livestock continues to generate significant HCVs that have an impact on the local road network and road users.

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64 Statistics New Zealand: www.stats.govt.nz

65 Butcher and Partners estimate in Road Freight – Its significance for regional economics, April 2003
3.18 Mining Traffic

Figure 11 shows the location of New Zealand’s coal resources.

(Note: production numbers are from 2002.)

- All North Island coal is sub-bituminous in rank;
- West Coast coal is bituminous;
- Virtually all of the Southland/Otago coal is lignite; and
- The Canterbury deposits are not significant.

Mining costs for lignite are usually lower than those for bituminous and sub bituminous coals as lignite coals are usually nearer the surface. Transport costs do not vary with coal type; they are similar on a per tonne/km basis. However, lignite has the highest water content, typically 45%. Southland Coal Region has New Zealand's largest coal resource, mostly in the extensive lignite deposits of Eastern Southland. The region has an in-ground resource of 9,392 Mt, representing 60% of New Zealand's total resource; the recoverable resource of 6,256 Mt is 71% of the New Zealand recoverable total.66

Table 11 below shows New Zealand’s recoverable coal reserves, and illustrates Southland’s significant coal reserves. They are split by coal type.

Table 11 New Zealand’s Recoverable Coal Reserves67

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Recoverable</th>
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<th>Sub Bituminous (Mt)</th>
<th>Bituminous (Mt)</th>
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<td><strong>323</strong></td>
</tr>
</tbody>
</table>

66 Source: Solid Energy
67 Source: Crown Minerals Website
3.18.1 New Developments

The L & M Group is planning future explorations of mining opportunities in the South Island. Coal seam gas exploration licences are held in three North Island areas and eight in the South Island. The potential gas resources of the licences have been estimated at more than 500 PJ. Drilling these areas started in 2002 and will continue for several years. If the gas potential can be firmly established it might supply up to ten percent of the current New Zealand market.

The coal deposits, which contain the gas deposits, are strategically located close to urban and industrial sites perceived to require energy in the latter part of the decade when a shortage of natural gas is anticipated.

The exploration sites most relevant to this report are the black coal mines in Ohai and Kaitangata, the Kaitangata, Mataura and Ohai coal seam gas resources and the Waiau Basin conventional gas and oil resources, and the development of a lignite (brown coal) mine in Ashers Waituna.

In addition exploration work is well advanced with some $30M currently committed to on shore investigations. Development proposals for new and emerging industries are well developed which have capital investment requirements of between $850M and $8.5B.

**Ohai – East Coal Mine**

The mine has the potential to proffer 60,000 to 80,000t of coal per annum. There are two options for the transportation of the coal. The coal could be transported by rail to Canterbury or South Port. This would have negligible impact on the rail network, which would easily absorb the additional traffic. The second option is to transport the coal by road to Canterbury or South Port in 30 tonne trucks. This would result in an additional 5000 truck movements each year in the region which would significantly impact the region’s aging and congested roading network.

**Kaitangata Coal Mine Deposits**

L&M is currently investigating the use options for coal in the Kaitangata field (near Balclutha). The transport of coal from Kaitangata would most likely be by rail through South Port and is discussed in section 6.3 below.

**Mataura Coal Seam Gas**

Exploration drilling for gas is underway at Mataura. If the resource is developed it is likely that the gas would be piped and distributed locally. However, it is also a possibility that, if yields are low, compressed gas could be transported via trucks to Invercargill.

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\[68\] Source: consultation with Dave Manhire of The L&M Group
**Ohai Coal Seam Gas**

Exploration drilling and preliminary modelling has been completed for the Ohai coal seam gas resource and pilot development planning is currently underway. Distribution of the processed gas could be by truck (perhaps as far as Wanaka and Queenstown), by pipeline or to a local power plant.

**Waiau Basin Petroleum Resources**

The Waiau Basin is located West of Invercargill. Exploration drilling is scheduled for early 2006. The basin has good indication that hydrocarbons are present but few wells have been drilled to date. In a frontier basin the chance of success in early weeks is 15-20%.

**Ashers Waituna Lignite Mine**

Exploration in the 1980's has established the presence of a substantial resource of lignite at Ashers Waituna. The total in-ground resource is in the order of 1000Mt and the recoverable resource is in excess of 500Mt. L&M has carried out further appraisal of the resource including further drilling and modelling. The company is engaged in pre-feasibility studies to determine the viability of a large-scale coal to gas to liquid project.

This project could produce up to 50,000 barrels per day of diesel or equivalent liquid from a mine producing up to 20Mt per year. The method of transporting the fuel oil from the mine site to South Port has yet to be identified. However, if the roading network is utilised, the requirement would be equivalent to approximately 300 to 400 truck movements one way per day. The demands resulting from the Asher Waituna lignite mine would have significant impacts, and place further stress, on the ageing roading network from east of Invercargill to South Port.

Figure 12  *Southland Mining Developments*
3.19  Bridges

Within the Southland District, the Council owns and maintains a range of structures spanning waterways and railways and acting as stock crossings. There are 42 posted bridges out of 935 total (excluding stock underpasses). A six-year review currently underway may result in more additional postings. The bridge network is in generally good condition due to a regular inspection and maintenance programme that has identified faults, and repairs have been made before they threaten the capacity of the structure. The ICC maintains 51 bridges with a total length of 1436 metres. The bridges vary in size from small single spans to large multi span concrete bridges. The bridges form a vital link in the roading network and any damage or problems with them can cause disruption to many sectors of the community. All ICC bridges are inspected regularly for any damage or change such as the condition of the road surface, missing or damaged sign markers, safety of railings and guardrails.

There are 104 bridges in the Gore District, 3 of which are not on maintained public roads. Approximately 22 are constructed of timber, 3 of which have steel beam components.

3.19.1  Tiwai Bridge

New Zealand Aluminium Smelters Ltd (NZAS) is New Zealand’s only aluminium smelter, producing 350,000t of aluminium each year, including the highest purity aluminium in the world. The metal is highly sought after for high quality products including 40% of the capacitors for cell phones worldwide and the wings of the Airbus A380. As well as being a significant contributor to the national economy, the contribution of NZAS to the Southland regional economy is clearly significant and a large number of people owe their employment either directly or indirectly to the presence of NZAS.

Access for employees and maintenance services to the NZAS is via the Tiwai Bridge, which runs off Tiwai Road, over Awarua Bay. The bridge is approximately 500m long and is made up of 27 spans approximately 18m long each. The 35-year-old structure is subject to serious structural deterioration and will require a significant capital expenditure to ensure its survival.

In a report conducted by MWH, initial testing and inspection of the bridge showed that there is significant deterioration of the bridge in a number of areas including the pile caps, deck beams, deck side

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69 Advanced Asset Management Plan (MWH)
70 Advanced Asset Management Plan (MWH)
71 www.icc.govt.nz
72 MWH Tiwai Bridge Evaluation and Repair Design November 2004
protection and protective abutment sea wall and sheet pile walls. MWH recommended the 80% Class I restriction should be placed on the bridge to ensure the safety of the users of the bridge and this restriction, with a 30 km/hr limit, is currently in place on the bridge.

These posting limits have a severe impact on NZAS’s operations and require a change in operating procedures until strengthening or replacement can be carried out. As a direct consequence of the bridge restrictions NZAS is incurring approximately $30,000 a month in additional outgoing freight charges and NZAS have made it quite clear that the present deteriorated state of the bridge requires urgent attention.

It appears likely from subsequent MWH reports that the bridge is in need of full replacement, at a cost in excess of $10M. Current estimates put this figure at $12M.73 If this is the case, the issue is obtaining funding for such a replacement. A coarse benefit cost analysis indicates that a total bridge replacement based on a capital cost of $10M is greater than 1.0. The bridge is fundamental to the viability of NZAS and the Southland region and hence has a strong case for R funding. There are a number of other possible private/public funding sources and further investigation needs to be made into the viability and acceptability of all potential funding sources.

For further information, please see the Tiwai Bridge Report in Appendix I.

Key Points:
- The Tiwai bridge either requires substantial strengthening works or replacement; and
- Obtaining the necessary funding for the Tiwai Bridge replacement or strengthening is paramount.

3.20 Milford Road (State Highway 94)

State Highway 94 is the only road access corridor to Milford Sound in the Fiordland National Park and begins in the gateway community of Te Anau. As an undoubted iconic tourist destination, Milford Sound attracts high numbers of tourism traffic, comprised of tour buses, campervans and private vehicles. The beauty of the Milford Road itself is considered a major part of the Milford Sound experience, and needs to be maintained to a high standard of safety. Currently, on average 800 vehicles travel along this route per day, 25% of which are buses. At peak times during the day, the high quantity and combination of vehicles generates congestion at parking areas and certain sections along the Milford Road.

The majority of tourists travelling by bus usually come by day from Queenstown, leaving early morning and returning in the evening, an 11-hour trip. Because of the distance most buses and vehicles end up travelling along the Milford Road at the same time, between 10am and 4pm, causing major congestion issues. It must be highlighted that the congestion issue is only relevant for a small number of summer months in the year. However, it is apparent that visitor numbers and traffic volumes on the Milford Road will continue to increase resulting in a diminishing visitor experience, and increased congestion and safety risk.

Other issues associated with the Milford Road corridor include safety, especially during the winter months and at the Homer Tunnel, concerns about the lack of driver awareness of difficult road conditions, and conflicts between vehicles, particularly buses and light traffic.

73 Figures are taken from the Southland Regional Land Transport Committee letter to LTNZ regarding regional recommendations for the allocation of R funding.
There are currently a number of alternative options being considered that attempt to enhance the Milford Sound transport experience. These options have been evaluated against certain criteria to determine their feasibility, suitability and acceptability. The Department of Conservation Draft Fiordland National Park Management Plan also outlines a series of criteria, working closely with Transit NZ, to which various proposals regarding access to the Fiordland National Park would be evaluated. There are also a number of possible funding options surrounding these proposals.

Various proposals such as the commercial developments of a Gondola and/or Monorail will either proceed or not depending on normal commercial and consenting approval processes. It is the view of the majority of those consulted that the proposed link roads are unlikely to proceed due to a failure to gain funding and consenting approvals. The upgrade of the highway and airport will proceed as demand and funding allows. The Park and Ride and Booking System are considered viable options.

For further information, please see the Milford Report in Appendix E.

It appears from stakeholder consultation that a progressive move to control of traffic flows will occur over time. These options would still require the proposed highway upgrades to provide a reduced traffic safety risk.

**Key Points:**

- Congestion at viewing points is lessening the visitor experience;
- A progressive move to control traffic flows is desirable;
- There are currently a number of alternative options being considered to enhance the Milford Sound transport experience. The proposed link roads are unlikely to proceed. The commercial operations are not true transport alternatives but rather different tourist experiences; and
- There are safety concerns associated with the Homer Tunnel.

### 3.21 Stewart Island

MWH has produced a detailed Stewart Island Roading Strategy.\(^{74}\)

The roading network on the island links a series of small bays. The access to the Island is by boat or plane and the network links the sea and airports with the township, scattered housing and access to various tourist interest points and track entries. The township of Oban is the hub of this network and it is the location of the Island’s community services, commercial and industrial areas. The roading network is built on weak soils and either hugs the coastal strip (that is prone to damage during \(^{74}\) MWH Southland District Council Stewart Island Roading Strategy, June 2003
storms) or sidles along ridges and up steep faces. For these reasons the network is very prone to coastal erosion or slips. With higher than the national average rainfall (1500mm per year) good drainage is essential.

The island was historically used as a fishing base but has developed into a key tourist destination and numbers on the island will continue to grow as increased numbers of people migrate to the island to service the rapidly expanding tourism industry. The island has had a base of tourism that consisted of mainly New Zealanders coming to the island for fishing, hunting, tramping or relaxing. The objectives of the roading strategy are to:

- Describe the network function, together with the physical, economic and social environment surrounding it;
- Identify current and future needs of the network, including land use changes and traffic pattern changes as a result of the Rakiura National Park development;
- Identify lengths of roadway that are affected by or susceptible to erosion or slumping from geological, stormwater or coastal influence;
- Identify and assess efficiency and safety deficiencies, both for current and future road users and prioritise improvements to address these deficiencies;
- Identify and assess road user services, community services and environmental issues associated with the network; and
- Develop strategies to manage land use and environmental issues associated with the network.

There are a number of potential issues surrounding the Stewart Island transport network. There are increasing numbers of tourists arriving on the island following the creation of the Rakiura National Park. Visitor nights on the island are expected to grow from 38,000 to 77,500 by 2015. An improved passenger ferry service is placing pressure on the roading and pedestrian infrastructure on Stewart Island. There is a lack of pavements for walking and as a result many tourists walk on the road creating safety and vehicle/pedestrian conflict issues.

The number and location of Boat Ramps should be investigated to see if the problems of overcrowding and parking that are evident at Thule ramp (at the end of Rankin Street) can be overcome. Increased parking area at the Thule ramp should be constructed. An alternative option to improve this situation would be to encourage the use of another site.

There is a need for long term parking of vehicles, boats and trailers. There is one project that provides for long term paid parking opposite the Community Centre on Ayr Street. As future demand increases for short-term car parking, the area opposite the Community Centre should be used for this parking. Preferably long-term parking should be provided for in an industrial area.

There is a major problem with congestion at the wharf especially with parked vehicles. There have been several options proposed. The parking solution proposal in the “Guidelines for Development” will go some way towards solving the parking issue but time limits should be set on parking at this location.

There is a conflict on Stewart Island between maintaining character and integrity, and providing safety.

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75 Stewart Island Tourism Trends – Venture Southland Report
Key Points:

- There are increasing numbers of tourists arriving on the island;
- Vehicle/pedestrian conflict issues;
- The number and location of Boat Ramps requires rationalisation;
- There is a need for long term parking of vehicles, boats and trailers; and
- There is a major problem with congestion at the wharf especially with parked vehicles.
4. Passenger Transport

Summary

- Passenger transports consist of long distance bus services, bus services within Invercargill and ferry services between South Port and Stewart Island; and
- Ferry commuters between Bluff and Stewart Island believe this service should be subsidised.

The Southland passenger transport system consists of a number of long distance bus services that operate within the region as well as public transport services that operate within Invercargill. Public transport services are difficult to sustain within the region as only Invercargill has the size and density to enable timetabled bus services to attract sufficient patrons. Environment Southland transferred its passenger transport function to ICC in April 2001 because it was unwilling to continue to rate all the region’s ratepayers to administer a predominantly Invercargill based service. The transfer included the responsibility to prepare a Regional Passenger Transport Plan and to manage the total mobility schemes within the region.

A ferry service operates between Stewart Island and Bluff, connecting the island with the mainland. This ferry, the ‘Stewart Island Experience’, operates daily scheduled ferry services between Bluff and Stewart Island. Currently there is an issue with locals commuting to Stewart Island by way of the ferry as they believe that the ferry trip should be subsidised, in a manner similar to other subsidised transport. The current cost of a trip on the ferry for adults is $45, and for children, $22.50. Subsidising the ferry trip has been ruled out by LTNZ.

Public sector involvement is desirable in subsidising services for the transport disadvantaged, both in urban areas (with ICC currently managing total mobility schemes with both Invercargill and Gore) and in rural areas. Provided that funding is made available, retention and possibly expansion of total mobility services can be anticipated in the future. Tourism related passenger transport is also anticipated to grow in importance.76

Public or passenger transport vehicles include the timetabled bus service, school buses, regulated transport services between towns and regions (including buses and shuttles), and passenger rail, boat and air services. It is an important mode of transport for the region. It reduces air emissions and provides residents who cannot drive or are without cars with access to the region’s facilities and other centres.

Passenger transport assists in reducing the number of people walking, cycling or travelling along roads, either as individuals or small groups. As a consequence, passenger transport assists in improving road safety and reducing energy consumption. These benefits are perceived as greatest in urban areas, although only within Invercargill are timetabled bus services provided. This is a contracted service, and

76 Southland Regional Transport Strategy
subject to the Regional Passenger Transport Plan prepared by the ICC. To be successful, contracted services need to:

- Travel routes, and at times, that suit potential passengers;
- Provide vehicles that are convenient to use and safe; and
- Generate revenue at a level that justifies the continuation of the service.

The Regional Passenger Transport Plan also deals with the implementation of ‘Total Mobility’ services for those people with disabilities in Invercargill and Gore. The Plan does not however consider the ways to assist people with disabilities in the rural areas of Southland.

A report into accessible public land transport\(^{77}\) has found that barriers in one form or another unfairly prevent many disabled people from using public land transport to go to work, to go to school, to enjoy community activities and fully participate in society. At the same time, the report highlighted that there is growing public acceptance that improving the accessibility of public land transport will benefit both disabled people and all New Zealanders. The report recommends changes to legislation, regulations, policies, procedures for funding arrangements and improvements that can be achieved in the short term with minimal expenditure. These recommendations are aimed at complementing and giving practical effect to the New Zealand Disability Strategy and the New Zealand Transport Strategy.

Where passengers wait to use public transport, associated facilities are required, in the form of vehicle stopping areas, passenger shelters and other associated facilities.\(^{78}\)

Encouraging passenger transport and developing passenger transport networks of high standard are integral to achieving Governments five objectives for transport detailed in the New Zealand Transport Strategy (2002), these being:

- Assisting economic development;
- Assisting safety and personal security;
- Improving access and mobility;
- Protecting and promoting public health; and
- Ensuring environmental sustainability.

The National Land Transport Programme 2005/06, has allocated passenger transport funds as follows:\(^{79}\)

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<tr>
<th>Area</th>
<th>Amount</th>
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<td>Environment Southland</td>
<td>$200</td>
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<td>Invercargill City</td>
<td>$751,400</td>
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**Key Points:**

- **Locals desire that the Stewart Island Ferry be subsidised in a manner similar to other subsidised transport.**

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\(^{78}\) Southland Regional Transport Strategy, June 2003

\(^{79}\) National Land Transport Programme 2005/06
4.1 Invercargill City Passenger Transport

The ICC Roading Facilities and Services department is responsible for the provision of public transport as a discretionary activity. The Council contracts out the bus service and Passenger Transport Ltd currently holds this contract. Owing to high public demand and a growth in people using public transport, the Council has introduced a number of new services. These include additional bus routes, a free daytime bus service, and buses with low floors which allow people to enter at footpath level, making entering and leaving the bus easier for people with disabilities, young children, prams and walking frames and the elderly.

Passenger transport figures in Invercargill City have shown a steady increase over the last three years:

- 2002/03: 488,750
- 2003/04: 491,750
- 2004/05: 525,218

The ICC’s objective, as stated in the 2003/04 Annual Plan, is to ensure that an appropriate level of public transport is available to assist everyone to fully partake in the community’s activities. The strategy for achieving this objective is to continue to investigate improvements to the current bus routes and services.

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80 Invercargill City Council LTCCP 2004/05 – 2013/14
81 Invercargill City Council website: www.icc.govt.nz
82 Personal communication: Tom Greenwood, Invercargill City Council
5. Cyclists and Pedestrians

Summary

- There is a general lack of cycling networks in the region; and
- Road user and cyclist/pedestrian conflicts are an issue particularly on Stewart Island.

A concerted and collective action is required to ensure that walking and cycling can flourish as modes of transport and that our transport systems support and encourage their use. The policy framework for *Getting there – on foot, by cycle* is provided by the *New Zealand Transport Strategy (2002)*.

Walking is the most common active leisure activity among New Zealand adults, while on-road cycling features in the active leisure of one in five young people. Because the road environment is a common setting for leisure-oriented walking and cycling, improving the on-road environment for pedestrians and cyclists is expected to benefit those who walk and cycle for leisure.\(^{83}\)

In the ICC region the number of pedestrian casualties fell to 22 in 2004. At eight percent of all casualties this is the same as the national rate. However, as with other user groups, the 15 to 19 year age range is over-represented in Invercargill. More than twice as many pedestrians of this age have been injured over the last five years than any other age group. For the third consecutive year the number of cyclists injured fell and, at 13, is now below the national average for the first time in 10 years. The 10 to 14 year age group has made up nearly one third of cyclists injured since 2000, a figure slightly higher than for the rest of the New Zealand.\(^{84}\)

For the same year (2004) in the Gore District three cyclists and one pedestrian were injured, representing a downward trend. In the Southland District three cyclists and seven pedestrians were injured, the highest number in 20 years.\(^{85}\)

Increasing numbers of tourists, following the creation of the Rakiura National Park and improved passenger ferry services, is placing pressure on the roading and pedestrian infrastructure on Stewart Island.

5.1 Walking

The 1997/98 New Zealand Household Travel Survey estimated that in Southland only one in eight trips are made on foot, compared to Wellington and Taranaki where one quarter of trips are made on foot. This is primarily due to Southland’s significant rural population.

Within the urban areas of Southland, the majority of short distance trips are undertaken by walking. Even where other modes of transport are used, the journey frequently begins and ends with walking. Over 6% of Southland’s population walk or jog to and from work and considerably more children walk to and from school. Many people also walk for pleasure, and to improve their fitness (either on footpaths, beaches or walking tracks). The greatest issues for walkers are:

\(^{83}\) *Getting there – on foot, by cycle 2005*

\(^{84}\) *Land Transport New Zealand Safety Issues Reports 2005 - Invercargill*

\(^{85}\) *Land Transport New Zealand Safety Issues Reports 2005 - Southland, Gore and Invercargill*
• Protection from weather, particularly in shopping areas, where verandas are able to be provided;
• Avoiding conflict with other road users, with footpaths being required; and
• Safety outside daylight hours, particularly in winter months with lighting being required on frequently used routes.

By addressing these issues, encouragement would be given to greater numbers of people to adopt walking as a mode of transport in the future.

5.1.1 Tramping

Some parts of Southland are not served by road, and tramping provides the one means of access. Tramping is environmentally friendly and has minimal impact. In areas where wilderness, isolation and natural values are to be protected then tramping may be the only form of access that is appropriate. Certainly, Southland contains some of the premiere tramping tracks in the world, including the Milford, Routeburn, Kepler and Hollyford tracks. The Department of Conservation maintains 199 walking tracks within Southland totalling 1,166 km. This network includes: 114 huts, and 3,650 structures (such as bridges and sections of boardwalk). Over time increasing use of these tracks and tramping activity can generally be expected. That will bring with it issues that the Department of Conservation will need to consider.86

5.1.2 Footpaths

The footpath area is defined as being the area between the property boundary and the kerb and channel. The purpose of footpaths is to provide a safe and efficient network of access ways catering for the movement of pedestrians. The need to provide footpaths is based on a combination of the traffic volume, road width and pedestrian demand. They also fulfil a social function providing areas with a sense of community.87

The age profile for footpaths within the Southland District is based on the construction dates, which range between the 1950’s and 2003, with the bulk of the asset being dated between the 1980’s and the mid 1990’s.88

Footpaths in the Gore District have a greater age range with some very old coal tar asphalt footpaths still in service. Gore District has a continuing programme of replacement of faulty footpaths. A limited amount of new footpaths are also constructed each year.

There are 494 km of footpaths within Invercargill City with a replacement cost of $28.9M.

5.2 Cycling

The beneficial effects of cycling are widely recognised:

• It is environmentally friendly and sustainable;
• It is a viable alternative to motor vehicles, particularly on short trips where terrain is flat;
• It offers health benefits by providing physical activity; and

86 Proposed Southland Regional Transport Strategy
87 Advanced Asset Management Plan (MWH)
88 Advanced Asset Management Plan (MWH)
- It is cost effective.

As a mode of transport, however, cycling is not presently extensively used in Southland. The results of the 2001 Census indicate that only 2% of people use a bicycle to travel to work in Southland. In 1996, this figure was 3%. However, significantly greater numbers of school children cycle to and from schools throughout the region. Small numbers of tourists travel by cycle.

Given the relatively flat terrain of much of Southland, cycling offers a viable mode of transport. Increased use of cycles would be achieved by the provision of dedicated cycle lanes and consideration of the needs of cyclists on strategic roads (State Highways). Wider carriageways and smoother shoulders on main roads and tourist routes would alleviate perceived and actual safety concerns.

There are plans in place to extend the recently completed $170,000 Otepuni cycle way, which runs along the Otepuni Stream from Rockdale Road to Elles Road, right into Forth Street in Invercargill city. In the Southland District the route between Mt Nicholas and the Mavora Lakes is becoming a popular mountain bike attraction. The Southern Scenic Route is being promoted as a route not only for vehicles but also cyclists.

LTNZ are funding cycle ways and cycle lanes within Invercargill, having spent $120,000 painting markings on the roads in 2004. Transit has widened several narrow bridges and other bridge widening work is proposed. The main driver for these works is safety, with increased bridge width also improving cyclist safety. The widening of key sections of Southland’s State Highways would increase safety for cyclists.

**Key Points:**

- *Projected increases in heavy vehicle movements would heighten safety concerns for other users, including cyclists and pedestrians;*
- *Widening of key sections of State Highways necessary;*
- *Lack of cycling networks and infrastructure to meet sports, leisure and tourist demand;* and
- *Road user and pedestrian conflicts on Stewart Island.*

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89 Proposed Southland Regional Transport Strategy
90 Invercargill City Council News 27/04/2004
6. Rail

Summary

- Coal is a significant product transported by rail;
- The Ohai line has a weight restriction of 16t with the line travelling over three substandard bridges while parts of the line are prone to damage from flooding; and
- There is the potential for upgrade and an increase to transport other bulk products.

The existing rail freight service in Southland is limited to the South Island Main Trunk Line and the Ohai Branch Line. Notwithstanding the limited area served, rail is a significant carrier of freight into and out of the region. Short haul services are also available, particularly to and from the Port of Bluff. A number of Southland's large industries have sidings providing direct access to their site.

The South Island Main Trunk Line is the main rail route in Southland. It runs from the Port of Bluff for 110 km to the regional boundary at Arthurton, generally following the same alignment as State Highway 1. The Ohai Branch Line runs for 79 km from Invercargill to Ohai. The line is a significant freight route, with principal freight including refrigerated meat products for export from the Makarewa and Lorneville freezing works, and coal from Ohai to supply markets in Otago and Canterbury. The line is generally in a poor state of repair and is operated on a maintenance only basis partly because of the decrease in rail freight due to the increased trucking of freight by road. However, there is considerable scope for future traffic growth on this line mainly from development of further long-term coal reserves at Ohai. The recent discovery that the Maui gas reserves are lower than originally estimated may well impact on coal production levels at Ohai and thus increase volumes on the rail line.

A small tourist line operates between Fairlight and Kingston, where the steam train the Kingston Flyer operates. With the exception of this passenger service, all train traffic in Southland relates to the carriage of goods and cargo. However, the presence of rail lines enables the reintroduction of passenger services at any time in the future. Venture Southland holds the view that with a sound marketing strategy a passenger rail service, predominantly for tourists, could operate successfully between Invercargill and other main centres of the South Island.

Rail provides an alternate and sometimes more economic means of moving freight and it can also assist in reducing the number of heavy vehicles carrying freight on roads. Therefore future traffic growth may occur on both the Main Trunk Line and the Ohai Branch Line as a result of increased public demand for improved road safety and environmental concerns. In November 2002, the Transfund Board approved $10,000 for the evaluation of options for the existing rail access to the Edendale Dairy Factory, with the other half of the evaluation being jointly funded by Environment Southland, SDC, New Zealand Milk Products and Toll. The project has the potential to reduce the amount of bulk milk currently being
transported by road to and from the factory.\textsuperscript{91} If this project is to proceed it will need to be funded by OnTrack as LTNZ is no longer funding the alternatives to road (ATR) scheme. The project will tie into Transit New Zealand's Edendale realignment project.

Increasing the amount of freight and number of commuters using rail, is the focus of The National Rail Strategy to 2015, which was launched recently. The aim of the strategy is to move people out of cars for urban journeys, and freight off roads, wherever possible. The development of rail can help deliver gains in terms of economic growth, reduced congestion, safety, personal security and health. The Strategy provides a framework to develop rail in order to realise these potential benefits.\textsuperscript{92}

The Strategy’s priorities include:

\begin{itemize}
  \item Improving safety;
  \item Upgrading the network;
  \item Improving rail’s contribution to regional economic development;
  \item Optimising the use of rail within the wider transport network; and
  \item Improving access to rail users.
\end{itemize}

With the exception of the tourist line at Kingston, all rail traffic in Southland is concerned with the carriage of goods and cargo rather than passenger services. There is potential to develop the lignite resources of the Southland coal region, which makes up 71% of New Zealand’s recoverable coal resources. This would have secondary effects on the transport network in terms of transportation of coal.

As land use intensifies road use by heavy vehicles will increase, especially as there are limitations to alternative forms of transport such as rail and coastal shipping.

There are three rail lines in Southland, the main trunk line which runs north from Invercargill to Dunedin, the Ohai Line which services the coal mine at Ohai and the freezing works at Makarewa, and the Bluff line which predominately services South Port. The Ohai and Bluff lines intersect with the main trunk line in Invercargill. Figure 13 over shows the Southland rail network.

\textsuperscript{91} Proposed Southland Regional Transport Strategy

\textsuperscript{92} MOT Report July 2005
6.1 The Ohai Line

Current Situation

The Ohai line runs for 79 km from Invercargill inland to Ohai. This line is currently fit for use but does not meet main line standards and includes weight-restricted bridges (Bridge 9 Branxholme; Bridge 22 Aparima). The line is primarily used to transport coal from the Ohai Coal Mine and refrigerated meat products from the meat processing works located near Makarewa (west of Invercargill). Currently one coal train per day (to Ohai return) and two shunt services to the freezing works use the line.

Axle loads on the line are restricted to 16t axles due to the lightweight 70-pound rail. The line from Invercargill to Wairio (66 km) is subject to 40 km/h speed restrictions due to the condition of the track. The line from Wairio to Ohai (13 km) is subject to 25 km/h speed restriction due to the condition of the track.

Approximately 90% of production from the Ohai mine is supplied to Fonterra at Clandeboye (South Canterbury). Coal trains are loaded at Ohai and run to Temuka where the demountable containers are transferred to truck and transported to Clandeboye (Fonterra factory). This is a one-way trip of 530 km. The main line to which the Ohai line joins, has an axle load of 18t so wagons are not fully loaded due to the 16t restriction on the Ohai line, creating an inefficient operation.

There are several bridges on the line. Bridge 9 at Branxholme is wooden and is closed when floodwaters reach a specified risk level. Bridge 5 is a road underpass that has been hit several times by over height vehicles passing underneath. Bridge 22 is similar in size to bridge 9 and crosses the Aparima River. In 1984 the Aparima River flooded and washed away significant sections of the track. The risk of further flooding and damage to the line is an ongoing risk for the line.
Despite rail running inefficiently due to axle restrictions, speed restrictions, high costs of bridge maintenance and the risk of flooding on the Ohai line, rail is still a cheaper mode of transport when compared to roading 90% of the Ohai mine product 530 km to Clandeboye.

If this line were repaired and transfer facilities in place then more goods could be carried by rail. There is potential for logs to be transported and for use as a heritage tourism product.

**Ohai Mine**

Ohai Opencast Mine, at Ohai in Southland, is the replacement for the Wairaki No. 6 Underground Mine, which closed in August 2003. In February 2003 W Stevenson & Sons Ltd (Ohai Mining) won the contract to prove the long-term commercial viability of an opencast mine at Ohai, carrying out overburden stripping and the initial coal winning in a pilot area. The Ohai mine produces approximately 140,000 tpa (tonnes per annum) of black coal and an extensive drilling programme completed in early 2003 confirmed resources of 2 Mt, enough to supply existing Ohai coal customers for 15 years. Sales figures are forecast to remain close to 140,000 tpa over the next few years.

**New Developments**

**Ohai – East Coal Mine**

L & M Mining is planning future explorations of mining opportunities in the South Island; most relevant to this report is the possible development of a coal mine in Ohai. L&M is currently exploring on the site and advise that the mine has the potential to produce 60,000t to 80,000t of black coal per annum.

There are two options for the transportation of the coal from Ohai. Firstly, the coal could be transported by road to Canterbury or South Port. The second option is to transport the coal by rail to Canterbury or Southport. Subject to the availability of suitable rolling stock, this additional volume would have negligible impact on the rail network, which would absorb the additional rail traffic.

**6.2 The Main South Line**

This is the main rail route in Southland and runs between Invercargill and Dunedin generally following the route of State Highway 1 and then northwards to Christchurch and Wellington. The line provides a freight transport service.

The line has an 18 tonne axle capacity. The only significant line restriction is on the height of containers at one tunnel just north of Dunedin at Purakanui, through which 9’ 6” containers (on standard container wagons) cannot pass.

**6.3 New Developments**

**Kaitangata Coal Mine**

L & M Mining has completed a preliminary appraisal of a coal mine at Kaitangata and has scheduled exploratory drilling at the site. It is estimated that the site will produce 100,000t to 150,000t of black coal if mining of the site proceeds. Transportation options for the coal have been briefly investigated. The barging of the coal across the Clutha River mouth at Balclutha is not a viable option and has been dismissed. Instead, it is likely that the coal will be transported by rail to South Port. It is anticipated that the existing line would easily absorb the additional rail traffic.
6.4 Bluff Line

This line is 26.5 km long and runs between Invercargill and Bluff to service South Port, also providing a freight transport service. The line services light traffic and is maintained at branch line standards.

The line has an 18t axle capacity and can carry 9’ 6” containers. The line is subject to 40 km/hr speed restrictions due to track condition.

Key Points:

- The main line to which the Ohai line joins, has an axle load of 18t so wagons are not fully loaded due to the 16t restriction on the Ohai line, creating an inefficient operation;
- There are several bridges on the line that pose risks due to flooding and other damage;
- Despite rail running inefficiently due to axle restrictions, speed restrictions, high costs of bridge maintenance and the risk of flooding on the Ohai line, rail is still a cheaper mode of transport when compared to roading product to Clandeboye;
- If this line were repaired and transfer facilities in place then more goods could be carried by rail. There is potential for some logs and milk to be transported and for use as a heritage tourism product; and
- Addressing the issues associated with this line would take traffic off roads, especially logging and dairying traffic. The potential for a hub at Otautau would alleviate some of this pressure. These options are currently being considered by Stakeholders along with other alternatives to service the Edendale Dairy Factory.
7. Shipping

**Summary**

- South Port is of regional significance to Southland and is one of 14 international ocean-going ports in New Zealand;
- Good transport links to the port are essential;
- The South Port harbour entrance is restricted to a maximum draft of 10m; and
- There is significant “leakage” of containers from the region with South Port capturing only 17% of the potential total. A coastal feeder system would help South Port compete for containerised shipping.

New Zealand has a relatively large number of ports, with 14 of them referred to as ‘main ports’.\(^93\) Table 12 below shows how they can be categorised as either major commercial ports able to handle large ocean going ships (handy-size or larger), small commercial ports handling coastal and Trans-Tasman trades, or smaller ports servicing fishing, small coastal or recreational/tourist needs.

The large ports have generally been that way since Europeans first settled in New Zealand.

Many of the third category were formerly in the middle (Coastal/Trans Tasman) group but have declined in significance since then, often in the 1960’s and 1970’s as coastal shipping was overtaken by deregulated road transport and rail. In some areas such as Wanganui, local groups are trying to resurrect their ports.

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<tr>
<th>Port</th>
<th>International Ocean Going</th>
<th>Large coastal/Trans Tasman</th>
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\(^93\) Transporting New Zealand
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<th>Port</th>
<th>International Ocean Going</th>
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A plot of the geographic distribution of the large ports is also interesting for Southland. The illustration above shows the major ports with 150 km radii drawn around them.
The following points should also be kept in mind:

- Ports are facilities with lifetimes measured in hundreds of years and contain classes of assets with lifetimes of scores of years. Shorter-term fluctuations in perceived demand for their services should not allow their long-term futures to be compromised;
- New industries can emerge to replace traditional cargos at a port e.g. logs replacing meat, dairy products replacing wool;
- All industries based on minerals tend to have transport as a critical cost element. This is true for cement manufacture (product to market), gold mining (ore for processing) and coal (product for processing and to market); and
- Improvements in ship design and port management can drastically alter shipping economics.

The economic wellbeing of a region is a national issue and these assets should not be allowed to decline or disappear.

7.1 Shipping in the Southland Region

The major port within the region is South Port (Bluff), which in 2004 catered for 2.15 Mt of cargo. Approximately 50% of this figure was New Zealand Aluminium Smelters cargo (alumina and aluminium product). Other commodities include forest products (365,000t), petroleum imports (225,000t) and fertiliser imports (265,000t). Smaller ports, primarily used for tourism and fishing are located at:

- Milford Sound;
- Waikawa;
- Riverton; and
- Oban (Stewart Island).

Bluff is the main fishing port in Southland, being the base for 92 registered vessels in 2002. There are also fishing ports established at Milford Sound, Waikawa, Riverton and Oban at Stewart Island. The port of Milford was the base for 9 registered fishing vessels in 2002, while the ports of Riverton and Oban were the bases for 33 and 24 registered vessels respectively.

Much of the water transport in the region is associated with tourism with:

- Overseas cruise ships visiting New Zealand waters, principally Fiordland and to a lesser extent Stewart Island and Bluff. Environment Southland’s code of conduct for cruise ships applies to their activities in Fiordland;
- Regular passenger services between Bluff and Oban; and
- Scenic and other tourist operations at Oban, Milford, Doubtful Sound, Manapouri and Te Anau.

These activities are all important for the economy of Southland. They can be expected to increase in the future, probably in proportion to increases in the number of international tourists coming to New Zealand.\textsuperscript{94}

\textsuperscript{94} Proposed Southland Regional Transport Strategy
7.2 South Port (Bluff)

South Port New Zealand Ltd operates the major seaport servicing the Southland region at Bluff, approximately 27 km south of Invercargill. The port uses rail and road transport links with Invercargill for the receipt and delivery of freight. The port has three cold stores, which have a storage capacity of 10,000t. One of these stores is used exclusively by NZMP Edendale for storage of cheese destined for the Japanese market. South Port owns 56 hectares of land with 15 hectares of this land available for future industry growth.

The port facilities are situated less than 2 km inside the entrance to Bluff Harbour, providing safe berthing in all weathers for a number of large vessels, fishing vessels and oyster trawlers. The depth of water in the port limits the size and range of vessels that can enter the harbour.

7.2.1 Access to South Port

From South Port’s perspective the quality of the associated infrastructure, the roads and rail, are critical to the ongoing growth of the port at Bluff and the overall economy. Given the limitations of rail and coastal shipping, it is inevitable that more intensive use of the land will increase the use of the road by trucks. Customers need to be able to access the port without undue delay or cost therefore the quality of the roads and rail is critical to the ongoing growth of the port. Should the road and rail struggle to meet with demand, this could have a negative impact on South Port operations.

Road transport is the major logistical partner for the port. South Port is also very supportive of rail and the services provided by rail to South Port are a key part of the region’s infrastructure.

The Tiwai Bridge is also an issue for South Port in that the restrictions placed on the bridge result in the inability to transport full truck loads of export product to port facilities, which is increasing freight and transport costs and reducing competitiveness.95

Road traffic accesses the port from the east via State Highway 1 and then uses the Kennington / Bluff Highway, enabling heavy traffic to bypass the city. From the north, heavy traffic must currently use the State Highway 6 / Victor Avenue / Bond Street route which passes through the city. Land has been designated for the extension of Bond Street to divert heavy traffic away from the city centre. Construction of the extension is programmed for late 2005.

In the reverse direction, phosphate is brought through Bluff to the fertiliser works, with further distribution then occurring throughout the rural community.96

7.2.2 South Port Characteristics

The physical characteristics of the port play a large role in operational considerations. The maximum draught of ships is 9.7m at ordinary high water and up to 10m at high water spring tides. The maximum vessel length is 200m with a beam of 34m. Vessels up to 225m and 34m will be restricted by wind/tide conditions. Ships can be loaded with up to 35,000t of cargo at South Port. The South Port harbour entrance is restricted in terms of a maximum draft of approximately 10m. The harbour bed comprises hard bedrock and an extensive drill and blast programme would be required to improve the draft. It would be cost prohibitive to carry out such a project as the costs are estimated in excess of $100M. There are berths available for up to 10 large overseas vessels and ships are serviced by 2 tugs, with bollard pull of

95 See Appendix I - Tiwai Bridge report.
96 Invercargill Traffic Study: Roading Network Options and Implications
30t and 35t. There is 10,000m$^2$ container storage and servicing area with 18,000m$^2$ dry warehousing on
the wharf and 39,500m$^2$ of cold storage. Figure 15 below shows the location of customers whose goods
are shipped from South Port. There is potential for expansion of the facilities at South Port by
developing the remaining 13 hectares of the 56-hectare site. This could enable South Port to handle
more cargo and product, in particular timber.

Figure 15 Southern Region Production Locations

7.2.3 South Port Users

Figure 16 shows the breakdown of cargo through South Port. The main users of the port are NZAS and
NZAS imports make up 40% of cargo through the port with NZAS exports an additional 13%. NZAS is
licensed to operate a South Port owned wharf on the opposite side of the harbour to the main port. The
wharf is approximately 200m long with a 1200m approach.

Major products through the port include fuel oils, agricultural
fertilizers, wood chip, seafood, milk powders and container products. Subject to international market conditions coal has also been
shipped, the coal being transported to the port by truck.

Fishing is also a significant industry in Southland. The main species
cought commercially are blue cod and crayfish. The oyster beds of
Foveaux Strait are a major economic resource. Salmon farming is an
established industry on Stewart Island (Rakiura) and mussel farming
is increasing within the region.

Figure 16 South Port Cargo Breakdown

97 South Port Annual Report 2004
South Port is also the calling point for some passenger cruise ships as well as a ferry service to Stewart Island (see section 4 above).

### 7.2.4 Current Situation and Industry Trends

Cargo volumes in the 12 months to 30 June 2004 registered at a record level of 2.15 Mt. This was the third successive year where more than 2 Mt of cargo was handled through the port. According to South Port, it will only be a matter of time before a more extensive coastal shipping network develops in the NZ shipping environment. South Port has been evaluating a coastal container feeder model involving key container ports. A coastal feeder service would be reactive in that it would rely on others for trade. International shipping trends support the increased use of trans-shipment; i.e. smaller vessels feeding to larger port hubs with cargo being transferred to other vessels several times before reaching its final destination. It is South Port’s view that the coastal feeder mode of transport is a viable option for international carriers of containerised cargo. This option would work in tandem with the inland transfer of containers by rail and road, providing prudent international shipping lines with a viable service.

![Baltic Dry Index](image_url)

Figure 17 shows a graph of the Baltic Dry Index, which is an indicator of international ship and cargo movement demand. It shows that currently there is very high demand for ships worldwide; reducing the number that are available for service and increasing vessel charter rates. It was largely the economic and industrial activity in China that drove vessel charter rates to these record levels. As a consequence, shipping companies were forced to look at ways of reducing the number of ships they had operating on the water. One method of achieving this was to cut back on the number of port calls serviced in a particular shipping rotation. South Port has been disadvantaged by this form of rationalization, in particular the loss of the Trans-Tasman Butterfly Service Link in January 2004.98

As a result of the loss of the Trans-Tasman container service, the volume of containers handled at South Port has dropped. Producers have sourced containerised shipping from other ports resulting in a “leakage” of containers out of the region, with approximately 83% of all container traffic heading out of Southland, north to Port Otago, PrimePort Timaru or Lyttelton Port. It is estimated that the Southland market produces 35,000 TEU99 per annum. However, currently only 5,000-6,000 TEU p.a. are shipped via South Port. A minimum of 18,000 TEU would have been achieved during 2004, however the loss of the container service at the time saw container shipments drop. South Port would like to see more of this container cargo passing through South Port, and they believe they have the appropriate infrastructure to handle and service such larger volumes of containerised cargo. The development of a more extensive coastal feeder shipping network would enable South Port to better compete for container cargo volume with northern ports, at the same time creating more transport options for Southland producers. Because of Bluff’s physical environment and the trend towards further port consolidation, it is more logical for South Port to accommodate a coastal feed of containers as opposed to servicing direct international ship calls.

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99 TEU = 20 foot equivalent unit is the international standard measure of containers.
The current international trend reflects shipping companies remaining committed to a “bigger ships, fewer ports” strategy, which will drive further cargo consolidation. Ship operators and owners are ordering new ships in record numbers and in ever increasing size. The flow-on from this will see ships currently considered mid-sized (3,000 – 5,000 TEU) on key east-west routes (Europe, Asia, North America) redeployed to run north-south routes (Australasia, Latin America and inter-regional). A direct consequence of larger ships servicing New Zealand waters is that they will schedule fewer calls and focus on the overall transportation cost which will balance the higher domestic costs required to aggregate export cargos into key international ports. The shipping lines will increasingly concentrate on three or four key New Zealand ports, being Ports of Auckland, Port of Tauranga, Lyttelton Port of Christchurch and possibly Port Otago.

Regional ports such as South Port will face either losing services or providing feeder services to the international ports. This will facilitate the “bigger ships, fewer ports” trend referred to above, while the domestic feeder services are expected to reinvigorate the coastal shipping industry.

7.2.5 South Port’s transport dilemma:

- The timing of when the coastal feeder model will take hold in New Zealand is unclear although changes over a 5-year horizon are not considered to be unrealistic;
- South Port currently has container-handling infrastructure which is under utilised (shore based cranes, large heavy-lift forklifts etc) and these assets cannot be retained over the medium to long term at the current usage levels;
- Whilst South Port has been actively promoting itself as a coastal feeder option, to date it has been unable to attract this type of service for the region; and
- Some of the larger impediments of establishing such a service are:
  - The cost of relocating a suitable container feeder vessel into the New Zealand market (ex Asia or Europe estimated cost $1M); and
  - Absorbing the likely short-term commercial reaction from the existing rail operator.

The recent demise of ATR funding presents a barrier to the shipping industry in terms of funding available for projects such as the coastal feeder service. Currently funding from the Ministry for Economic Development (MED) is provided via LTNZ but on the advice from the MED. This money is locked up for Tairawhiti and Northland until 2006/7.
Key Points:

- Access to the port by road and rail is crucial to the port’s operation;
- The South Port harbour entrance is restricted in terms of a maximum draft of approximately 10m. The harbour bed comprises hard bedrock and an extensive drill and blast programme would be required to improve the draft. It would be cost prohibitive to carry out such a project as the costs are estimated in excess of $100M;
- The development of a more extensive coastal feeder shipping network would enable South Port to better compete for container cargo volume with northern ports, at the same time creating more transport options for Southland producers; and
- The Tiwai Bridge is also an issue for South Port due to weight restrictions placed on the bridge.\(^{100}\)

\(^{100}\) See section 3.20 on Tiwai Bridge issues.
8. Airports

Summary

- Invercargill Airport has recently gained international status and is recognised as providing significant benefit to the region’s economy in terms of both business and increasing tourism growth.

8.1 Background

Invercargill airport is the principal airport in Southland, although a number of tourists visiting the region utilise the airport at Queenstown. Air New Zealand operates regular scheduled services from Invercargill to Christchurch and beyond. Regular scheduled services to Stewart Island are operated by Stewart Island Flights. Freight carried by aircraft in Southland is generally not significant because of the change by the airlines in 1995 from jet aircraft to smaller turbo prop aircraft. This change significantly reduced the available capacity for airfreight and led to a considerable reduction in the amount of freight carried by the smaller aircraft out of Invercargill airport. However there is ongoing demand for increased airfreight capacity out of Invercargill from exporters especially from the fish and flower exporters. The major role of Invercargill airport is as a service centre to other national destinations (via Christchurch), and a feeder to international flights from Auckland and Christchurch. Growth in passenger numbers is encouraging as inbound and outbound passengers totalled 201,402 in the year to June 2003, up 8.7% on 2002.101

The airport has one sealed runway and three grass runways. The sealed runway has a new length of 2210m, with the extension project recently completed, and the runway strength has been assessed as capable of accepting up to Boeing 767 type aircraft. The airport has international arrival and departure facilities and occasionally receives charter flights from Australia. It is also used by Qantas for diverted flights between Australia and Queenstown if Queenstown airport is inoperable due to adverse weather conditions.

The region’s other significant airfields are located at Ryans Creek (Stewart Island), Milford and Gore. Milford, and to a lesser extent Ryans Creek, are primarily utilised for the movement of tourists. Milford airport has approximately 16,000 aircraft movements per year.102 Most of these landings are associated with scenic flights from Queenstown. Air services in the Te Anau basin will progressively become centralised on the Manapouri airfield, which is now owned by SDC.

Further information about Milford Sound Airport, including more on the recent Draft Fiordland National Park Management Plan with regards aircraft movements in the area can be found in the separate Milford Report in Appendix E.

There are also approximately 150 - 200 landing strips within the region, most of which are used for aerial topdressing purposes. Southland’s airfields are also utilised on occasion by the Royal New Zealand Air Force (RNZAF) for exercises involving air transport.

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102 Source: Airways Corporation of New Zealand, 2004
Invercargill airport presently is used primarily for passenger transport to and from Christchurch. There are small amounts of airfreight. Air New Zealand operates regular scheduled services and Origin Pacific operates charter services to Christchurch and beyond. Regular scheduled services to Stewart Island are operated by Stewart Island Flights.

The airport has a modern terminal building and international arrival and departure facilities are also available. Not only does the airport currently receive occasional charter flights from Australia, it is also used by Qantas for diverted flights between Australia and Queenstown if Queenstown airport is inoperable due to adverse weather conditions.

Air transport is essential to the tourist industry in Southland also in terms of scenic flights:
- Queenstown to Milford Sound;
- Queenstown to Manapouri Airport (Te Anau); and
- Invercargill to Stewart Island.

8.2 Current Situation

Venture Southland’s *Strategy for Development* outlines the fact that the development of package tours for special interest groups can be affected by current limitations imposed by the availability of air transport. Investigations are being made into attracting more tourists through improved air services to the region, especially direct services from the east coast of Australia. Invercargill airport has been mandated by the Southland region as the number one priority for regional development. Its location on the southern coast of the South Island and its close proximity to the Australian eastern seaboard cities of Hobart, Melbourne and Sydney make it a potential entry/exit point for tourists from Australia visiting the tourist attractions of Stewart Island, Fiordland (Milford Sound) and Queenstown.

Distances from Invercargill are as follows:
- Hobart 913 nautical miles
- Sydney 1,082 nautical miles
- Melbourne 1,147 nautical miles
- Brisbane 1,350 nautical miles

The Invercargill airport runway extension project is underway and is 80% complete with full completion planned for December 2005. This will increase the capacity of the airport to handle Airbus and B737-300 aircraft to land, enabling direct flights from Australia. Two flights per week from Sydney and Brisbane are planned for the first 1-2 years. Recent business case studies indicated that investment in extending the Invercargill airport would add significant benefit to the Southland economy as well as remove a barrier to tourism growth and provide a route to market for perishable freight. The creation of

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103 Venture Southland “A strategy for development” 2002-2005
104 Invercargill Airport Ltd
105 Southland Tourism Strategy 2005-15
an international airport in Invercargill will stimulate investment of new accommodation, activities, attractions and travel itineraries, rental cars and vans and other visitor services. In time it has the potential to strengthen and diversify the flow of visitor traffic in and around the region. This will send a very positive message to the Southland tourism industry and potential investors.

From consultation with stakeholders there has been a suggestion that with three other international airports in the South Island (Dunedin, Queenstown and Christchurch) it is doubtful as to whether a fourth in Invercargill is necessary, considering the proximity of Dunedin and Queenstown. Freedom Air operates direct B737 flights from Dunedin year round to destinations such as Sydney, Melbourne, Brisbane and the Gold Coast. Direct flights from Queenstown to Australia operate during the ski season from July through September. Both Qantas and Air New Zealand operate B737-800 aircraft direct to Sydney and Brisbane during these months.

The success of Invercargill International Airport will be dependant on the success of Southland's tourism operators and promoters to get visitors to fly directly into Invercargill as opposed to Dunedin, Queenstown or even Christchurch.

It is also questionable as to whether an international airport in Invercargill would be used more by overseas tourists arriving into New Zealand or by Southlanders travelling directly to Australia.

Key Points:

- The success of Invercargill International Airport will be dependant on the success of Southland’s tourism operators and promoters to encourage visitors to fly directly into Invercargill as opposed to Dunedin, Queenstown or even Christchurch.
9. Industry Commodity Flows

Summary

- The largest commodity generating areas are Invercargill and Tuatapere, followed by the Toetoes ward;
- The largest commodity attracting areas are Gore, Invercargill and the Wallace ward;
- Forestry has the largest effect on the transport network in the Southland Region followed by fertiliser due to its ubiquitous distribution across the district; and
- Dairy has a comparatively reduced affect on the transport network, in comparison to its production tonnage.

9.1 Introduction

There is anecdotal evidence that the Southland region's local road network is suffering from increased heavy commercial vehicles. The State Highway network has been built to higher standards than local roads and hence consultation revealed that the State Highway was providing a good level of service in terms of capacity and pavement strength.

To assist with understanding heavy traffic flow effects on the local roading network, a commodity flow investigation was undertaken, with focus on the Southland District only. This investigation focused on the current situation, and was based on data available in the public domain. The points outside the boundaries of the Southland District are simply external nodes, for example the Gore District, ICC and the Queenstown Lakes District. Transport of commodities to these external points do not reflect actual road locations as the model only shows a basic heavy vehicle traffic flow from point to point.

9.2 Methodology

To simplify the model the Southland District ward system was used as a basis for the analysis. The centroid of each ward was linked to its neighbours. The actual transport route taken by the commodity is naturally the shortest main roading link between the locations. Below is a series of diagrams showing the results of the analysis. A larger copy of each diagram is available in Appendix K.

9.2.1 Network description

The SDC was broken down into eleven discreet wards. In addition, Invercargill, Gore and Queenstown were incorporated as ‘external’ wards in order to determine the impact of traffic to SDC wards. Figure 18 below shows the SDC ward network.
9.2.2 Land use

These wards were analysed to determine land use percentages, which was derived from SDC's GIS system. Land uses were associated with different types of commodities and research was undertaken to determine how much of each commodity was produced. Note: the large forest area in Fiordland appears to be an error within the SDC GIS data.
Figure 20  Dairy Industry Land Use

Figure 21  Livestock Industry Land Use

Figure 22  Wool Industry Land Use
9.2.3 Traffic Flows

Figure 24 visually illustrates the comparative demands on individual roads and State Highways within Southland, based on Annual Average Daily Traffic (AADT) counts. State Highway 1 has the highest AADT count, acting as the main transportation route for industry traffic and light vehicles between the Southland region and northeast to Dunedin. State Highway 6 functions as the main arterial route connecting Queenstown and Invercargill. Tourist traffic accounts for the comparatively heavy traffic flows on State Highway 94, with significant flows between Manapouri and Te Anau. State Highway 99 between Riverton and Invercargill also experiences above average traffic flows. This route acts as a conduit to service areas west of Invercargill.
Figure 25 visually illustrates the comparative demands on individual roads and state highways within Southland, based on Heavy Vehicle Annual Average Daily Traffic (AADT) counts. State Highway 94 leading into Te Anau from the east currently transports between 1400 and 1600 heavy vehicles per day. Other significant transportation routes for heavy traffic include State Highways 1, 6 and 98. High traffic volumes are apparent adjacent to major townships.

**Figure 25**  Southland Roading Network  
– Heavy Vehicle AADTs

### 9.2.4 Commodity Flows

The following diagrams show the commodity flow data for the SDC. These diagrams show the flow of goods around the SDC, broken down into the key transport industries: forestry, dairy, livestock (including meat and wool), and fertilizer (excluding limestone).

The commodity volume originating from each ward was known either from the total production or attraction of the commodity to the location. The volume transported was calculated on the basis of land use distribution in each ward. For example with fertilizer, the total factory production was known and distribution volume to each ward (attraction) was calculated on the basis of land use. The opposite method was used for forestry where the volume of product processed at the mills was known (attraction) and hence volume transported from each ward was calculated by land use (production).

**Figure 26**  Forestry Industry Commodity Flows
Figure 27  Dairy Industry Commodity Flows

Figure 28  Fertiliser Industry Commodity Flows
9.2.5 Total Traffic Movements

The above data was put into the model based on a commodity/origin/destination tonnage matrix. A stylised network was developed between each ward and commodities were assigned to routes between wards. The commodity tonnage was converted to an equivalent 'trucks per day' figure. These trucks were then assigned to the network via known routes between each ward.

Figure 31 below depicts the total heavy traffic movements throughout the District.
Figure 31  Total Heavy TrafficMovements

Figure 32 below shows the production by commodity and the actual network affects that the commodity produces. Mining has not been modelled as the existing commodity is currently hauled by rail.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production per year (tonnes)</th>
<th>Commodity Network Affects (relative to others)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy Products</td>
<td>300,000</td>
<td></td>
</tr>
<tr>
<td>Fertiliser</td>
<td>400,000</td>
<td></td>
</tr>
<tr>
<td>Livestock</td>
<td>500,000</td>
<td></td>
</tr>
<tr>
<td>Meat</td>
<td>600,000</td>
<td></td>
</tr>
<tr>
<td>Forestry</td>
<td>700,000</td>
<td></td>
</tr>
<tr>
<td>Timber Milling</td>
<td>800,000</td>
<td></td>
</tr>
<tr>
<td>Wool</td>
<td>900,000</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 32  Commodity flow effects on networks

9.3  Summary of Analysis

The commodity analysis was undertaken only on selected commodities with known production volumes transported on the SDC roading network. To fully understand such a complex regional roading network a significant transportation model and data collection exercise would need to be undertaken. However the
commodities selected are the more significant for the region and indicate important regional transport routes.

One commodity not modelled is tourism. However, tourism appears to have a very minor effect on the transport network apart from the road from Te Anau to Milford/Manapouri and in and around Te Anau village. Also it is assumed that no modelled commodities go to or from Queenstown.

The analysis revealed the following with regards the key transport industries:

- The highest commodity-generating ward is Invercargill; the next highest is Tuatapere and third is Toetoes;
- The highest commodity-attracting ward is Gore; the next highest is Invercargill and third is Wallace;
- Forestry has the largest effect on the transport network, generating approximately 25% more traffic effects than the next highest which is fertiliser. Forestry is also likely to have the greatest effects on the District roads as the routes from forestry to milling are typically via local roads and collectors rather than state highways;
- Confirmation of anecdotal evidence that forestry has a significant impact on local and collector roads in SDC particularly in the Wallace and Toetoes wards;
- Fertiliser has large transport effects because the commodity enters at South Port and is distributed to every ward. Dispersion of the commodity is significant as the wards requiring the largest volumes are farther from the source. In comparison to Livestock (red lines only), the total generated commodity flow pattern is similar;
- Dairy, whilst having the third largest production in Southland, has a comparatively reduced effect on the transport network;
- Traffic volumes are greatest north of Invercargill and on the State Highways;
- The farming industry is the dominant user of the SDC roading network with farming commodities transported over the whole network (excluding the National Park);
- The mining industry has only a minor impact on the roading network; and
- Rail is a significant transporter of processed commodities such as meat and diary products.

Note: This analysis was used to assist with developing the roading hierarchy.
10. Roading Hierarchy

10.1 Current situation

Southland councils regularly review the classification of their roading hierarchy and make submissions as appropriate. The following sets out this procedure:

Transit New Zealand is the Crown Entity that can classify a road as a State Highway or a Special Purpose Road. All other roads are local roads controlled by territorial authorities.

Transit assesses proposals for state highways and special purpose roads against specific criteria. Only the Transit New Zealand Authority can declare or revoke the status of a road as a state highway or special purpose road. The following criteria must be met:

**State Highways:**

A state highway should form part of an integrated national network of roads that:

Are strategic inter-district routes connecting locations of national economic significance such as:

- Significant centres of population;
- Major ports and airports;
- Major industrial, forestry and agricultural areas;
- Major tourist areas; and
- With a minimum number of parallel or alternative routes.

AND provide:

- The most convenient, efficient and safe route for through traffic; and
- A minimum restraint on traffic capacity and legal weight and dimensional constraints for heavy commercial vehicles.

OR in major urban areas, are arterials that:

- Carry traffic traversing a significant distance through the urban area;
- Connect with the existing state highway network; and
- When integrated with the existing state highway network would significantly improve the overall performance and management of the state highway network.

10.2 Road Classification Definition

Many different classification systems have been developed and used for various purposes. This study has adopted the functional classification as outlined below. A road network is provided for the effective movement of road users whilst minimising any adverse effects created by this movement on an area wide basis.

The functional hierarchy of roads stems from the need to reconcile the functions of providing for the efficient movement of vehicles with those of other transport and non-transport uses. It is strongly influenced by the idea that any vehicle travelling between a particular origin and destination should
intrude as little as possible into the neighbourhoods and living areas that it has to pass through on its journey.\textsuperscript{106}

10.3 Discussion

In determining the hierarchy in the first instance we have used a “reactive” approach as the current landuse has resulted in traffic following certain routes. The commodity flow analysis demonstrates the concentration of heavy commercial vehicles on the State Highways and between areas of production, industry and internal servicing or export from the region (generally via South Port or State Highway 1). This is also the basis of the hierarchy in the current asset management plans. The above commodity analysis generally confirms this hierarchy. In terms of proactive planning there are certain routes that should be discouraged. Individual councils need to recognise this issue and consult with industry and the community on the proposed hierarchy.

However, if the above definition is used then the levels within the asset management plans are overstated. This proposed highway consists of the State Highway network with arterials connecting larger townships to the State Highway. All other roads are deemed collectors. Details are provided in larger scale map form and tables in Appendix D.

The higher-level road hierarchy is depicted below:

Figure 33 Southland Roading Hierarchy

- Regional Arterials – State Highways and parts of the Southern Scenic Route
- Arterials – roads connecting Wyndham, Waikawa, Otautau, Mossburn and Invercargill.

\textsuperscript{106} Highway Capacity Manual (Institute of Highway and Transport – USA); Transport for Urban Environment (Department of Transport and Institute of Highways Engineers – UK); Transit New Zealand SH Geometric Design Manual.
10.4 Recommendations

- The above hierarchy be adopted with agreed levels of service provided by councils;
- No significant changes in the current hierarchy are proposed;
- Completion of Bond Street heavy vehicle bypass with Invercargill priority;
- The need for an eastern Invercargill bypass should be investigated;
- Tourists be encouraged to use the Southern Scenic Route and State Highways 6 and 94; and
- Heavy commercial vehicles are encouraged to use State Highways, arterials and collector roads.
11. Transport Business Case

Summary

- Available funding options include National (N), Regional (R), Crown (C) and Regional Development funding. N and R are viable alternatives that need to be pursued. C and regional development funding should be pursued but will require strong local support to be successful;
- The Tiwai bridge replacement or strengthening should be funded from R funding with part of the local share assisted by stakeholders;
- The SDC pavement renewal programme has a strong case to be funded from R funding. C funding for this category would set a national precedent and as such has a lower chance of success;
- The Homer Tunnel East Portal Avalanche Protection project should be N funded due to its national importance; and
- The region should obtain funding from LTNZ for its cycling and walking projects.

11.1 Overview

11.1.1 Future Strategy

According to LTNZ, transport will become more energy efficient and environmentally sustainable. Negative local and global environmental effects of transport will be reduced through education, regulation, technology and investment.

Enhanced mobility for people, goods and services within New Zealand and between New Zealand and overseas will be achieved through creative responses that meet people’s needs with minimal adverse effects on the environment. Improving the efficiency of existing road and rail networks, promoting alternatives to roads, and reducing traffic growth will be key elements in minimising the adverse effects of land transport.

Southland is one of the few regions within NZ that has “true” broadband capabilities. This technology is expected to substantially contribute to commercial growth in the region.

Transport policy will reflect New Zealand’s commitment to energy efficiency, and to the Kyoto Protocol and the Framework Convention on Climate Change, and will recognise the role transport plays in meeting this commitment.107

For the Southland region the movement of bulk goods is predominately by road. Hence efficiency of the existing road network is a key element of the strategy, particularly considering the significant development proposals that are planned to be operating by 2010/2012 (investments between $850M and $8.5B).

107 New Zealand Transport Strategy
11.1.2 Sustainable Management of Transport Networks

The region is committed to the sustainable management of its transportation network. There are a number of specific examples that illustrate this commitment. One such example is the SDC’s differential roading rating approach, through which the Council has taken a lead nationally in this method of sustainable funding that targets the specific users that generate specific demands on the network. The model analyses the impacts on the roads of various sectors and targets those sectors to pay their fair share of the costs in maintaining the network based on their impacts. In addition, the uniform annual charge (UAC) allows “fixed costs” and non-traffic impacts to be charged across all users.

The consultative approach taken by Council in establishing a working party of representatives from the various sectors working together and providing information about their specific sectors – present needs, trends, future demands - enhances the sustainability of maintaining the network by being able to plan, provide and fund for the future. The model will also enable SDC to predict impacts on the network through identifying the localities of the specific sectors and their routes and use of the network through the land-use categories. This system can also be kept “live” by monitoring land-use changes through the rating system.

These are good examples of an innovative approach to sustainability, in addition to having a good typical engineering approach to robust asset management.

The sustainable management of transportation networks also involves the protection of the strategic functions of these networks, through the promotion of appropriate land use development that sustains the network capacity and develops appropriate State Highway and local roads hierarchy.

11.2 Funding Options

11.2.1 National Land Transport Programme (NLTP)\textsuperscript{108}

This year’s NLTP outlines the funding for New Zealand’s land transport system for 2005/6. This national allocation includes Crown (C) and Regionally (R) distributed funds. The 2005/6 NLTP sets out a programme of land transport activities that aims to integrate different modes of transport to optimise New Zealand’s land transport system.

a) National Land Transport Fund (N funding)

National land Transport Programme (N) funding is available for roads, cycle projects, walkways and rail passenger transport. N funding is nationally prioritised through the National Land Transport Account excluding the 5 cents per litre increase in petrol tax and equivalent in road user charges (RUC) for vehicles up to 5t from 1 April 2005.

b) Regional Funding (R funding)

R funding comes from the five cents per litre increase in petrol tax and RUC for vehicles up to 5t from 1 April 2005, resulting in approximately $207M per annum over ten years and distributed based on population by region. See Appendix L for information on Southland’s share of LTNZ’s R funding until 2014. A total of $41.5M has been programmed over 10 years from 2004-2014.

The Government has made it clear to LTNZ that funding for freight on the rail network and shipping is the sole prerogative of the Government and is not a LTNZ responsibility.

\textsuperscript{108} National Land Transport Programme Document, 2005/06
The following is an excerpt from the National Land Transport Programme 2005/06:

**Issues with provisional R allocations:**

The proposed funding allocations are based on the information provided. They were made on the understanding that there is considerable uncertainty about which of the projects submitted to LTNZ as part of a Land Transport Programme will actually proceed in the near future. There were also few 10 year works programmes or R funding recommendations available. The proposals are not completely balanced over the 10-year period in all regions. We expect that as the proposed programmes are reviewed and project details refined more certainty will be possible. R funds have been provisionally over-allocated to projects in the Auckland, Waikato, Bay of Plenty, Wellington and Canterbury regions. This is because there is more forecast expenditure within the 10-year period on nominated projects, than there is funds available, and the duration of some projects extends beyond the 10-year period for which R funds are expected to be available.

For full details on the above see the National Land Transport Programme 2005/06.

The financial assistance rate will depend on the road type on which the fundable benefits accrue. The proportion of costs equating to the fundable benefits that accrue:

- On State Highways, will be funded at 100%; and
- On local roads, will be funded at the applicable FAR for the territorial authority.

c) **Crown Funding (C Funding)**

Crown funding is allocated from the Crown fund. Crown funding has been set aside for Auckland ($49M) for bus and rail infrastructure projects including western line track duplication and rolling stock improvements. The Wellington region will receive Crown funding for the refurbishment of its trolley bus network and other projects that are yet to be committed ($10M). The allocation of R and C funds to projects is indicative. Final decisions will only be made when funding is approved for a project. Crown funding has currently been allocated for strategic projects in Auckland ($900M) and Wellington ($225M).

d) **Regional Development Funding**

Funding from the MED is provided via LTNZ but on the advice from the MED. This activity class is focussed on regions with acute transport needs. The two regions eligible for regional development funding in 2005/06 are Northland and Tairawhiti. In these regions projects were identified in agreed regional transport plans notified to LTNZ in October 2002 by the Minister of Transport. Project prioritisation and programming is guided by the priorities outlined in each regional transport plan and by the relevant regional industry prioritisation group. To be approved for funding, a project must:

- Provide or improve access in such a way that it will encourage direct additional investment in the region
- Significantly reduce travel costs for industry
- Mitigate adverse effects on safety, environment and amenity including conflicts with tourist traffic; and/or reduce travel costs.

Funding will be provided for regional development projects in other regions not covered above in exceptional circumstances only. LTNZ has set aside an allocation of $15M in the 2005/06 programme for funding approved projects. This is based on the $20M funding level signalled by the government less the extra $5M that was allocated in 2004/5. The allocation includes $1.66M for continuing work.
Key Point:

- *The region should focus its efforts on securing funding from National, Regional, Regional Development and Crown allocations.*

11.3 Business Case

11.3.1 Key Drivers

The key drivers for an improved transport infrastructure network are the following industries:

- Dairy Industry;
- Forestry Industry;
- Tourism; and
- Future energy based projects.

Figure 34 below demonstrates that the agriculture and tourism industries carry much of Southland’s GDP share. Agriculture is growing nationally, particularly in Southland with primary processing sectors also showing growth. The nature of agriculture is such that small growth in the industry translates to a large increase in transport of goods over the network, which is matched by the large growth in the processing sector.

Figure 34 Shares of nominal national GDP (y-axis) and regional GDP (x-axis), averaged across March years 2000-2004

![Graph showing GDP shares](http://www.med.govt.nz/irdev/reg_dev/rep-report/final/final-07.html#P840_126582)

Note:

- The square scatter plots are industries that are fast-growing at a national level. The red diamond scatter plots are industries that are slow-growing at a national level. Fast-growing regions tend to have a high proportion of their regional economies focused on fast-growing sectors.

Southland's economy is highly reliant on agriculture and its associated primary processing sectors (labelled FBT manufacturing) both in an absolute sense and relative to the New Zealand economy. The region is under-represented in the various services sectors.

The above graph treats NZAS as a separate identity. Infometric's January 2005 Assessment of the Economic and Social Impacts of Tiwai Point Aluminium Smelter on the Southland Economy estimated that NZAS actually contributed 18% of GDP to the Southland region.

### 11.3.2 Projected economic contribution of an improved Southland Roading Network

In most developed nations there has historically been a strong relationship between economic growth and transport activity. The provision of physical infrastructure is generally recognised as being of vital importance to economic development. Despite recent increases in New Zealand's road funding levels, New Zealand's level of annual spending on road infrastructure is still below the OECD average of 1.3% of gross domestic product (GDP). The Allen Consulting Group undertook a study investigating the potential net benefits that may accrue to New Zealand by undertaking further investment in road transport infrastructure. In the study the direct and indirect impacts of four proposed land transport infrastructure packages were quantified using both standard cost benefit analysis and computable general equilibrium (CGE) modelling techniques. It was established that further investment in New Zealand's land transport infrastructure would involve four broad direct impacts:

- Accident cost savings
- Travel time savings
- Project capital costs and financing impacts
- Vehicle operating cost impacts

An Australian study using a general equilibrium analysis identified the main measurable benefits from new road construction, or the improvement of existing road facilities, as including: vehicle operating cost benefits, travel time benefits, accident benefits, environmental benefits and other productivity and indirect benefits. Accounting for the flow-on of these direct benefits throughout the economy reveals that investment in improved road infrastructure has two broad effects. The consequent productivity improvements in freight and passenger transport increase income and lower costs to using industries. They thus expand national economic output, with the size of the gain depending on the initial productivity improvement and the market characteristics faced by the industries which benefit from the productivity improvements.

One of the infrastructure packages in the study looked at the possible construction of a Tauranga strategic roading network. The results of the study showed that the construction and use of such a strategic roading network is expected to result in substantial economy wide benefits in the year 2012 - $439M annually. Applying an 8% discount rate to expected benefits and costs of the project reveals that the strategic roading network package has a benefit cost ratio of 6.5.

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110 Information sourced from “Benefits of Investing in New Zealand's Road Infrastructure” – The Allen Consulting Group, 2004

111 The four packages were: the passing lanes package, the Auckland western ring route package, the Tauranga strategic roading network package and the Wellington regional land transport package.
Comparisons between the Tauranga roading network and a similar roading network project in Southland could be made, resulting in similar economic benefits. Southland’s total nominal GDP is $3,453,000; that equates to 9.6% of the South Island nominal GDP and 2.5% of New Zealand nominal GDP.\(^{112}\)

The bulk of roading improvement projects would facilitate more efficient transportation particularly as road transport is a key factor for industries in Southland. Such industries include dairy farming, forestry and mining. Investment confidence in the development of new facilities, i.e. a new Ashers Waiutana lignite mine, would be greatly increased should there be a high level of roading infrastructure to adequately support such an investment. The same could be said for the dairy industry in terms of dairy farms and dairy processing facilities as well as in tourism with accommodation and service providers. The flow on effects from such industry investments to the Southland community would be substantial; for example the creation of new jobs in the region and providing opportunity for encouraging people to live in Southland.

Such studies indicate that if action is not taken to improve the transport infrastructure then the region will suffer a decline in the GDP figures. In particular the growth in dairy commodities and forestry will not be able to sustain potential economic growth with possible flow on effects in terms of roading level of service to other industries.

### 11.3.3 Milford Road – Homer Tunnel Avalanche Portal Upgrade – funding issues

Transit New Zealand has identified in its 10-year-plan that $18M is to be spent upgrading the avalanche portal at the Homer Tunnel on the Milford Road. The $18M is planned from R funding. Consultation with key stakeholders revealed that many were of the view that this funding should come from N funding as the road is of national significance and much of the economic benefit of the road is of national value.

The effect of channelling a large portion of Southland’s R funding to the Homer Tunnel is significant as it comprises a large portion of the region’s roading budget in one project from which the Southland region would not receive a proportionate return on its ‘investment’. It can be argued that this is a special case, in that the Milford Road is purely a tourist route, of undoubted national significance (see separate Milford Report in Appendix E) and should therefore be eligible for N funding.

Tourism New Zealand, the Department of Conservation and the SDC all agree that the Milford Road is of national significance. In a recent media release, the SDC stated that maintenance and upgrades of the road should therefore be derived from national funds.

To determine the priority and ranking of projects a comparison should be made on the effect of spending $18M into other areas in the region such as Southland’s roading network. Should these funds be spent in this manner then it would be possible for a number of the weight restricted bridges to be upgraded or replaced, and the existing LOS of main freight routes maintained, thereby improving the efficiency and safety of the network. The general equilibrium analysis outlined above suggests that the benefits to the Southland region would be more significant for the region than expenditure on the Homer Tunnel project.

### 11.3.4 Tiwai Bridge

The Tiwai Bridge was built to service NZAS. NZAS provides 900 onsite jobs, and in the wider Southland region this amount extends to 2600 full time jobs and an estimated net economic contribution of in excess of $100M per annum to the New Zealand economy. The smelter contributes $499M to regional GDP, about 18% of total Southland GDP. The economic significance of the bridge and the impacts on

\(^{112}\) The Press, 13 July 2005
the Southland region should the bridge continue to operate below par are detailed in the Tiwai Bridge report found in Appendix I.

11.3.5 SDC’s AWT programme

The SDC has identified the need for major rehabilitation including resealing, pavement treatment, seal widening and bridge renewal (SDC Annual Plan 2003/4). There is also a planned response to the demands from transport growth particularly tourism and heavy commercial vehicles. The comparatively low population density and broad spread of local road network in the Southland District limits population based rate funding mechanisms to cover the cost of road maintenance and renewal.

The following is an excerpt from the SDC roading issues paper:

Southland District is significantly affected by development through economic growth. Over recent years land use changes bought about by farming conversions from sheep farming to dairying have had significant impacts on road deterioration. The healthy economic climate that has enabled or driven these changes has been good for the District and New Zealand as a whole. But that economic growth has come at a cost to the infrastructure.

R funding has been granted to Northland because it meets the criteria of needing roading infrastructure to assist economic growth. Southland District case is different to Northland. In Northland the lack of roads prevents development. In Southland it is the renewal of roads as the result of development that is the major hurdle.

How then does Council meet its obligations to manage the assets properly if the funding requirements to power that asset management are unpalatable to the ratepayers? Central Government must accept that the impact on GDP from the economic growth in Southland has been very valuable. Recognising this benefit to the nation/Central Government through the Regional Development Fund can support Southland by granting payment to cater for the increased renewals necessary.

11.3.5.1 Economic Contribution

In order for the Southland region to continue its economic contribution to the nation, the current roading level of service must be maintained. Hence, the need to fund a bow wave of pavement renewals is compelling. This issue is not new and has been openly discussed within council and with LTNZ. Although Southland District is not alone with this issue, it is of significantly greater importance than some other regions due to:

1. The age profile and dTIMs analysis provides clear evidence of the substantial size of renewals which is beyond the limit that Council can afford to fund;

2. Much of the affected network was not built to the strengths necessary to cater for imposed and predicted loadings (class 2 type roads were an acceptable fit for purpose philosophy prior to 1990);

3. Portions of the Southland network are built on soft, swampy terrain with poor drainage characteristics. These sub grade conditions, in combination with annual heavy rain weather conditions, heavy loads and sections of pavements past their design lives, indicate that funds for strengthening become critical;

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114 dTIMs = delightons Total Infrastructure Management. This is modelling system that uses algorithms to predict pavement behaviour and wear patterns to determine appropriate responses.
4. Defect indicators such as rutting are increasingly reflecting that current intervention levels are insufficient; and

5. Case projects, such as Grove Bush Road and Black Mount / Redcliffe Road, where Council has spent in excess of $1M to upgrade and strengthen short lengths of the network are indicators that council does not have the funds to rectify all under strength pavements.

6. Stepped traffic growth from new industries and/or the dynamic nature or the forestry industry has and in the future is likely to have an immediate impact on the roading network. Hence previous traffic growth figures are likely to understate traffic growth.

7. The high volumes and long trip average trip length (25 km) of forestry HCVs as evident from the commodity analysis (refer to section 9) have a significant impact on the whole roading network.

The SDC has recognised this funding issue for several years. One initiative has been to implement a differential rating system, which targets the users more directly than a land rating system. While the merit of such a system continues to be modified and debated, the Council is clearly attempting to provide equity to ratepayers, users and funding providers.

Economic Impacts of AWT programme

The economic value of the AWT programme is not in question. The ability to fund is the issue. As shown by the Allen Report the wider economic benefits to the nation’s GDP highlight the importance of national funds for this project.

11.3.5.2 Local Authority Funding Issues

Of all the districts analysed, Southland and Gore districts rank low in terms of percentage of sealed roads, with 39% sealed for the Southland District and 38% sealed for the Gore District. The Southland District has a greater number of kilometres of unsealed roads than any other councils’ total roading network.

Grants are given to local authorities from the land transport fund, which collects revenue from road users through road user charges, vehicle registration fees, and a portion of petrol tax. On average these grants provide 50% of the funding of approved maintenance programmes on local authority roads, but the financial assistance rate (FAR) for individual authorities varies from a minimum of 43% for local authorities assessed as most able to fund for themselves, to 68% for local authorities least able to fund for themselves. A principal determinant of a local authority’s ability to afford its transport network programmes is the nature of transport network expenditures, which reflect the extent of the locally managed network relative to the area of the territory as well as the growth in demands and the extent of any backlog. The Southland region has high network expenditure, coupled with growth in transport demand from major industry sectors combined with a significant amount of cyclic pavement renewals in the Southland District. The local government sector has stated that the cost of new or replacement infrastructure driven by cost escalation and higher environmental and health standards is a driver of increasing demands placed on local authorities.
Figure 35 above shows how a selection of local authorities would be ranked, from lowest to highest, on the basis of 8 different descriptive characteristics that could be considered indicators of ability to pay for local transport network expenditures. The SDC is one of the 8 local authorities selected in this example.

Southland District has low TLA revenue, but high road spending (for the years 2001/02). The district also has a low population and population growth. As a Local Authority Funding Issues Report found, a local authority that has affordability issues is more likely to:

- Have lower population densities than higher (which makes the cost of infrastructure and services higher per person).
- Have significantly higher than average rates of population growth or by contrast population decline (which reduces the rating base available to fund investment).
- Have lower holdings of revenue-producing assets such as port and airport company shares;
- Have more substantial amounts of land that is exempt from rates;
- Face substantial needs for new or replacement capital works on the existing stock of infrastructure;

The Southland region as a whole fits many of the above criteria suggesting that the region will suffer from affordability issues with funding local road projects.

### 11.3.5.3 Subsidy Comparison with Other District Councils

GHD also conducted a subsidy comparison of Southland with other district councils. This investigation focussed upon the rate contribution to road maintenance, new work, and the LTNZ subsidy.

These regions were selected due to their similarity with Southland with regard to rural road network and common industry dominance.

Table 13 below summarises the results and illustrates that, although Southland District ratepayers contribute nearly $15M towards road maintenance and capital expenditure and with a total road length of 4948 km, only some $2,000 dollars are spent per kilometre of district road.

Southland District’s road network is the most extensive of all districts within New Zealand. The Far North district has the third largest road network and with ratepayers contributing almost $9M towards

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115 Local Authority Funding Issues – Report of the Joint Central Government / Local Authority Funding Project Team, 2005.
roading maintenance and capital expenditure. Although this is a smaller contribution than Southland District ratepayers, approximately $3,500 of ratepayers money is spent per kilometre of road.

Despite this inequity, LTNZ contributes about the same percentage of funding to both the Southland (55% of total roading spend, $9.8M) and Far North District (56% of total roading spend, $8.9M) Councils. In addition to this other areas such as the Far North District and Taranaki received substantial additional funds from the MED.

Of additional interest is the fact that the SDC dedicates approximately 54% of its annual budget toward roading maintenance and capital expenditure. This is the highest percentage of all councils surveyed and highlights the requirement the extensive roading network has on Council’s resources, i.e. the SDC is spending more than any other council. The required high roading funding level has an impact on council’s ability to fund local social projects.
<table>
<thead>
<tr>
<th>Council</th>
<th>Sealed Road (km)</th>
<th>Unsealed Road (km)</th>
<th>Total Council Road in District (km)</th>
<th>Total Sealed Road (%)</th>
<th>Council Spend (Operating Spend) ($)</th>
<th>Council Spend (Capital) ($)</th>
<th>Total Council Spend (Operating + Capital)</th>
<th>Percentage of Total Council Expenditure on Road (%)</th>
<th>Rates Spent on Road (%)</th>
<th>Percentage of Road Expenditure Sourced from Rates (%)</th>
<th>Percentage of Road Expenditure Sourced from LTNZ / Transfund (%)</th>
<th>Number of Rateable Properties in District</th>
<th>Road Rates per Rateable Property ($)</th>
<th>Total council Reading Expenditure per km of Road ($)</th>
<th>Road Rates per km of Road ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivercargill</td>
<td>$8,350,583</td>
<td>$5,079,370</td>
<td>$13,430,435</td>
<td>76%</td>
<td>$2,316,500</td>
<td>$1,175,000</td>
<td>$3,491,500</td>
<td>62%</td>
<td>45%</td>
<td>47%</td>
<td>41</td>
<td>$1,750</td>
<td>$1,175,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southland</td>
<td>$8,350,583</td>
<td>$5,079,370</td>
<td>$13,430,435</td>
<td>76%</td>
<td>$2,316,500</td>
<td>$1,175,000</td>
<td>$3,491,500</td>
<td>62%</td>
<td>45%</td>
<td>47%</td>
<td>41</td>
<td>$1,750</td>
<td>$1,175,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invercargill</td>
<td>$8,350,583</td>
<td>$5,079,370</td>
<td>$13,430,435</td>
<td>76%</td>
<td>$2,316,500</td>
<td>$1,175,000</td>
<td>$3,491,500</td>
<td>62%</td>
<td>45%</td>
<td>47%</td>
<td>41</td>
<td>$1,750</td>
<td>$1,175,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 36: SDC Roading Expenditure and Income

Southland Districts’s Roading Expenditure

- **Maintenance - Sealed Roads**: 22%
- **Capital - Roading**: 49%
- **Capital - Bridges**: 4%
- **Maintenance - Unsealed Roads**: 20%
- **Maintenance - Bridges and Culverts**: 4%
- **Other**: 1%

Southland District's Roading Income

- **Rates**: 36%
- **LTNZ Subsidy**: 55%
- **Interest**: 3%
- **Loans Raised**: 5%
- **Other**: 1%
We conclude that unless the Council maintains its expenditure at an appropriate level the road network will deteriorate. Research\(^{116}\) has shown that Southland faces far higher transport costs than most other regions in the country. Moreover, the region is highly dependant on the road network to transport produce to the factories from where it can be exported.

11.3.5.4 SDC’s Management Strategies

**User Pays Rating System**

To assist the Council fund the expenditure from ratepayers in the fairest manner, the Council has introduced an innovative rating system, which is outlined in 11.1.2 above.

**Performance Based Delivery**

In addition, the Council has moved to performance-based contracts for the management of its road network, these have generally resulted in a 10% to 20% reduction in costs while giving a higher quality result. Unfortunately, these savings are not enough to provide affordability.

**Pavement Renewal Strategy**

The Council has considered four pavement renewal strategies. Due to affordability issues council has embarked on a high-risk pavement renewal strategy, approved in the LTCCP. This strategy sees basic expenditure on Capital and Operations with a high risk of necessary expenditure exceeding funds allocated. This high-risk strategy has no contingency for stepped traffic growth (from new industries) nor for current forecast traffic growth.

The funding problem facing Southland is demonstrated by figure 37 below. A loan will be required until 2012 to fund this level of expenditure.

Figure 37: Road Network Expenditure: High Risk Scenario\(^{117}\)

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\(^{116}\) Transport Costs, By Infometrics for the Road Transport Forum

\(^{117}\) Source: SDC’s LTCCP and Advanced Roading Asset Management Plan
The graph shows that in the high-risk expenditure profile the SDC has cut back expenditure from what would be prudent (the normal risk scenario) to achieve affordability for ratepayers. Loan funding is used to smooth out the initial peak in local contribution in the high-risk scenario (until 2013).

The funding risk to the council of adopting this scenario is explained within the Advanced Road Asset Management Plan and include:

a) **Area Wide Pavement Treatment (AWPT) – Sealed**

The risk relates to the potential that the budget projections from the scenario under consideration would be exceeded.

On balancing up these risks with affordability issues Council has chosen to hold increasing the quantum of AWPT for 2004/2005 above the current 30 km per year level with an increase to 40 km per year and progressing from this to 45 km per year over five years. This level of AWPT per year helps balance Councils overall budget, especially given the high quantum of reseals required over the next three years.

Should the high-risk scenario lead to budget problems, options include lowering the levels of service on various parts of the network.

b) **Changes in Land Use/Production Output (no allowance)**

Land use or production changes can result in increases or reductions in heavy traffic. As heavy traffic is the primary cause of structural deterioration of the network this can have a significant effect as evidenced by the dairy expansion in Southland over the last 10 years. The proposed high-risk scenario does not make an allowance for any further increase in heavy traffic.

c) **Environmental Issues**

Environmental issues such as weather, have direct effects on the roads (in terms of durability and maintenance requirements) and land production (quantities produced and transported). Periods of sustained dry weather are good for sealed roads (which are the most expensive to maintain) and can reduce primary production and therefore heavy traffic volumes on the roading network. Conversely very wet conditions, while not good for roads can also reduce production and the loads on the roads. Extended periods of frost, snow and ice as well as flooding can lead to significant additional funding being required.

The high-risk scenario assumes good weather conditions prevail which will in turn result in cost savings over the current situation.

d) **Cost of Delaying Critical Works**

Higher maintenance requirements are necessary if critical major treatments are not carried out at the ideal time. Such delays in pavement renewals flow on to inefficiencies to transport operators with consequential impacts on the local economy. Hence such delays place economic barriers on the local economy and threaten the viability of new economic initiatives such as those discussed in section 3.18 (Mining).
11.4 Business Case Summary

11.4.1 Key Issues

The key issues investigated were:

- Tiwai Bridge – replacement or strengthening;
- Milford Road – assessment of transport options and Homer Tunnel;
- SDC’s backlog of Area Wide Treatment;
- Stewart Island – footpaths and walking tracks to service growing tourist numbers; and
- Need for new or improved cycling and walking infrastructure.

The above issues pertain to roads and the road corridor. These roading related issues have been investigated below. Other transport infrastructure such as rail and ports are not directly owned and managed by councils or Transit and hence have not been investigated further then as outlined in sections 6 and 7 respectively.

Table 14 Estimated Costs of Projects

<table>
<thead>
<tr>
<th>Issue</th>
<th>Funding Shortfall in 2006/07</th>
<th>Future Funding Shortfall in 2007/08</th>
<th>Balance needed in subsequent years</th>
<th>Total $ required including grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiwai Bridge - Replacement</td>
<td>$5,100,000†</td>
<td>$5,100,000†</td>
<td>$12,000,000†</td>
<td></td>
</tr>
<tr>
<td>- Strengthening</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milford Road – Relieve congestion</td>
<td></td>
<td></td>
<td>Depends on chosen option</td>
<td></td>
</tr>
<tr>
<td>Milford Road – Homer Tunnel Portal</td>
<td>$18,000,000</td>
<td>$18,000,000</td>
<td>$18,000,000†</td>
<td></td>
</tr>
<tr>
<td>Southland DC AWT Programme</td>
<td>$1,250,000</td>
<td>$1,300,000</td>
<td>$1,500,000 - $2,000,000</td>
<td>$11,000,000</td>
</tr>
<tr>
<td>Stewart Island footpaths and walking tracks upgrades</td>
<td>$870,000*</td>
<td>Nil</td>
<td>Nil</td>
<td>$2,000,000*</td>
</tr>
<tr>
<td>New or improved cycling and walking infrastructure</td>
<td>To be determined</td>
<td></td>
<td></td>
<td>$50,000</td>
</tr>
</tbody>
</table>


† Figures taken from the Southland Regional Land Transport Committee letter to LTNZ regarding regional recommendations for the allocation of R funding.
* Figures taken from the Southland Regional Land Transport Committee letter to LTNZ regarding regional recommendations for the allocation of R funding. Includes roads on Stewart Island, not just pedestrian and cycling infrastructure. The total improvement project list from the Stewart Island Roading Strategy 2003 is $1,737,230, including roading and pedestrian infrastructure improvements. From this report $187,380 is small improvement projects to protect assets or pedestrians.

**Table 15  Current Management Strategies**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Burden of Funding is Currently With</th>
<th>Suggested Source of Funding to Best Fit the Issue</th>
<th>Reason for suggested funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiwai Bridge Replacement</td>
<td>Regional (R) or National (N) funding from LTNZ</td>
<td>R funding with private contribution to council share</td>
<td>Key component of roading network and of regional economic importance</td>
</tr>
<tr>
<td>Tiwai Bridge Strengthening</td>
<td>R or N funding from LTNZ</td>
<td>R funding with private contribution to council share</td>
<td>Key component of roading network and of regional economic importance</td>
</tr>
<tr>
<td>Milford Road – Relieve congestion</td>
<td>N funding from LTNZ</td>
<td>N funding from LTNZ</td>
<td>National importance of road to the tourism industry and the national economy</td>
</tr>
<tr>
<td>Milford Road – Homer Tunnel Portal</td>
<td>R funding from LTNZ</td>
<td>N funding from LTNZ</td>
<td>National importance of road to the tourism industry and the national economy</td>
</tr>
<tr>
<td>Southland DC AWT Programme</td>
<td>N funding from LTNZ</td>
<td>MED funding or R funding from LTNZ</td>
<td>Regional economic importance; remove barrier to economic growth</td>
</tr>
<tr>
<td>Stewart Island footpaths and walking tracks upgrades</td>
<td>N funding from LTNZ</td>
<td>R funding from LTNZ</td>
<td>Regional significance and safety improvement</td>
</tr>
<tr>
<td>New or improved cycling and walking infrastructure</td>
<td>N funding from LTNZ</td>
<td>N funding from LTNZ</td>
<td>Part of normal programmed works</td>
</tr>
</tbody>
</table>

**Table 16  Affordability**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Key Drivers</th>
<th>Impacts on Council and/or Transit NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiwai Bridge Replacement</td>
<td>Assisting economic development and removal of barriers to export product.</td>
<td>Affordability Issue with ICC unable to fund a project of this magnitude.</td>
</tr>
<tr>
<td>Tiwai Bridge Strengthening</td>
<td>Assisting economic</td>
<td>Affordability Issue with ICC unable to fund a project of this magnitude.</td>
</tr>
<tr>
<td>Issue</td>
<td>Key Drivers</td>
<td>Impacts on Council and/or Transit NZ</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Milford Road – Relieve congestion</td>
<td>Increasing tourist numbers lessening the visitor’s experience (improving access and mobility) and adverse environmental effects.</td>
<td>Pressure to improve safety and provide improved infrastructure; funding priority and affordability issues.</td>
</tr>
<tr>
<td>Milford Road – Homer Tunnel Portal</td>
<td>Safety concerns and high risk consequences to tourist industry (assisting safety and personal security)</td>
<td>Threat to New Zealand reputation as a tourist destination; affordability impact on Transit, heightened risk if delayed.</td>
</tr>
<tr>
<td>Southland DC AWT Programme</td>
<td>Early intervention will result in a cost benefit to council and road users with improved transport efficiency (assisting economic development) and reducing barriers to economic growth.</td>
<td>Affordability with significant impact on rate-payers and road users if deferred.</td>
</tr>
<tr>
<td>Stewart Island footpaths and walking tracks upgrades</td>
<td>Safety and improved infrastructure for tourists (assisting safety and personal security)</td>
<td>Large impact on small rate-payer base for funding of infrastructure that services national scenic attractions.</td>
</tr>
<tr>
<td>New or improved cycling and walking infrastructure</td>
<td>Improving access and mobility and reducing transport energy use and encouraging health lifestyle and tourism potential.</td>
<td>Minor impact provided funding programmed to match demand over several years.</td>
</tr>
</tbody>
</table>
12. Land Transport Management Act 2003 Requirements

The Land Transport Management Act 2003 (LTMA) requires that in preparing a land transport programme an approved organisation must take into account how each activity or activity class meets the following objectives of the New Zealand Transport Strategy:

- Assists economic development;
- Assists safety and personal security;
- Improves access and mobility;
- Protects and promotes public health; and
- Ensures environmental sustainability.

The following A3 table outlines how the twelve key issues named in the priority action plan (section 13) meet the above objectives as well as looking at affordability, alternative options considered and the relevant sections of the Southland Regional Transport Strategy.
13. Recommendations

Table 17  Priority Action Plan

<table>
<thead>
<tr>
<th>Key Issue</th>
<th>Transportation Network Involved</th>
<th>Estimated Cost</th>
<th>Options to Meet demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Smelter access</td>
<td>Road – Tiwai Bridge</td>
<td>$2-12M</td>
<td>Strengthen or replace Tiwai Bridge to allow efficient transportation of goods to and from Tiwai Aluminium Smelter; pursue R funding and part private funding for ICC share.</td>
</tr>
<tr>
<td>Backlog of pavement renewals in SDC</td>
<td>Roads</td>
<td>$11M</td>
<td>Pursue all available funding options including MED and/or R funding. Present business case to LTNZ.</td>
</tr>
<tr>
<td>Lowering of visitor experience – perceived congestion</td>
<td>Road – State Highway 94</td>
<td>N/A</td>
<td>Consider a planned approach to controlling congestion on the Milford Road by the introduction of a booking system followed by a Park &amp; Ride system or alternative moves to control traffic flows.</td>
</tr>
<tr>
<td>Pedestrian Access</td>
<td>Footpaths and walking tracks on Stewart Island</td>
<td>$2M</td>
<td>Provide business case to LTNZ to source R or MED funds for upgrades.</td>
</tr>
<tr>
<td>Cycling and walking transport utilisation</td>
<td>Road</td>
<td>$50,000</td>
<td>Develop a regional cycling strategy and individual council plans; these should be focussed on current tourist routes.</td>
</tr>
<tr>
<td>Rail Infrastructure</td>
<td>Rail</td>
<td>N/A</td>
<td>Provide support to On-Track to strengthen rail infrastructure and to provide alternative transport freight options to the region.</td>
</tr>
<tr>
<td>South Port utilisation</td>
<td>Shipping - South Port</td>
<td>N/A</td>
<td>Provide support to South Port to increase the throughput of container transport and emerging industries transport needs by providing appropriate road and rail infrastructure to the port. Investigate Central Government policy on support for coastal feeder systems.</td>
</tr>
<tr>
<td>Homer Tunnel East Portal Avalanche</td>
<td>Road – State Highway 94</td>
<td>$18M</td>
<td>Provide business case to Transit and LTNZ of the national importance of this project. Secure high priority National Land</td>
</tr>
</tbody>
</table>
The Southland region has over the last few years experienced sustained economic growth from the agricultural, forestry and processing industries. This sustained growth is now under threat from the need to upgrade and maintain existing infrastructure. To avoid these barriers to economic growth R and N funding must be secured for key projects, integrated transport options must be encouraged and future works programmed as detailed below.

Funding agencies are requiring robust data and analysis before providing funding support and approval. There is much anecdotal evidence backed by research (by the Allen Report) and our own analysis of production from land use (commodity flow analysis). However there is little actual survey data of transportation methods, traffic mix and growth prediction from land use. Hence this study relies upon national data for much of the freight prediction movements.

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<table>
<thead>
<tr>
<th>Key Issue</th>
<th>Transportation Network Involved</th>
<th>Estimated Cost</th>
<th>Options to Meet demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection</td>
<td></td>
<td></td>
<td>Transport (N) funding for the project.</td>
</tr>
<tr>
<td>SH Projects</td>
<td>Roads</td>
<td>$27M&lt;sup&gt;118&lt;/sup&gt;</td>
<td>Gain national priority for these projects to allow R funding to be utilised to improve the networks efficiency and safety.</td>
</tr>
<tr>
<td>Regional Road Hierarchy</td>
<td>Roads</td>
<td>N/A</td>
<td>Obtain regional agreement on hierarchy with associated LoS and funding priority. Communicated objectives to the community.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bond Street extension to complete heavy vehicle bypass.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>To date the need for an eastern bypass is not proven in the foreseeable future. Traffic volumes would have to increase significantly from either a change in current transport patterns and/or the effects of a new industry (such as mining or significant commercial enterprise).</td>
</tr>
<tr>
<td>Invercargill Airport</td>
<td>Airport</td>
<td>N/A</td>
<td>Promote the airport to Southland’s tourism operators and promoters.</td>
</tr>
<tr>
<td>Milford Sound Airport</td>
<td>Airport</td>
<td>N/A</td>
<td>Promote plans to extend airport runway to allow larger, quieter aircraft to land at Milford Sound.</td>
</tr>
</tbody>
</table>

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<sup>118</sup> Figure from Transit New Zealand Southland State Highway Projects Forecast for 2005/6 – 2014/15 in the Transit New Zealand 10-year State Highway Forecast 2005/6 – 2014/15
A region-wide transportation model would provide improved knowledge of the current freight and vehicle movements while providing robust future traffic predictions based on factual data and agreed assumptions.

13.1 Funding

The region has several large projects that are of national significance in terms of tourist interest, economic benefit or safety. The funding of these projects is an affordability issue for individual councils. The funding gap necessary for the following projects to proceed in a timely manner will require national assistance in the form of financial grants:

- Tiwai bridge strengthening or replacement;
  - The project should be funded from a combination of R funding and local share (ICC) and/or loan (with stakeholder funding of part of the local share);
- SDC’s pavement renewal programme;
  - The project should be funded from R funding or alternatively MED funding. A specific business case would be required to obtain MED funding; and
- Pedestrian works on Stewart Island.
  - Funds from R funding or from the National Walking and Cycling Programme.

13.2 Integrated Transport Options

- Plan towards a joint management structure of the Milford Road and a controlled traffic regime in terms of the preferred options (that generally excludes private vehicles perhaps at certain times of the year);
- Maintain secure, high standard road and rail links to South Port to improve regional and interregional efficiencies;
- Output is facilitative rather than determinative i.e. making acceptable, economic, timely solutions possible rather than dictating how and where transport activities will take place. It is possible to analytically determine “best solution” BUT not to implement these solutions as they are commercially driven. Councils can impose planning or other constraints but they cannot require prices and service levels of the industry or transport operators;
- Provide a high level of roadside infrastructure to cater for expected growth in tourism (view points, rest areas, sign postings, cycling infrastructure); and
- Adopt a region wide roading hierarchy.

13.3 Recommended Future Work

- Undertake a region wide transportation model in conjunction with user consultation and surveys.
- Complete a detailed plan of cycling and walking infrastructure for the region.
- Provide detailed business cases to LTNZ for regional and MED funding of the above projects.
# Appendix A

## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AADT</td>
<td>Annual average daily traffic</td>
</tr>
<tr>
<td>ATR</td>
<td>Alternative to Road</td>
</tr>
<tr>
<td>AWT</td>
<td>Area Wide Treatment</td>
</tr>
<tr>
<td>AWPT</td>
<td>Area Wide Pavement Treatment</td>
</tr>
<tr>
<td>CGE</td>
<td>Computable General Equilibrium</td>
</tr>
<tr>
<td>C funding</td>
<td>Crown funding</td>
</tr>
<tr>
<td>CAM</td>
<td>Commercial Accommodation Monitor</td>
</tr>
<tr>
<td>dTIMs</td>
<td>deightons Total Infrastructure Management</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographical Information System</td>
</tr>
<tr>
<td>GDC</td>
<td>Gore District Council</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>FAR</td>
<td>Financial Assistance Rate</td>
</tr>
<tr>
<td>FBT</td>
<td>Primary Processing Sectors</td>
</tr>
<tr>
<td>ICC</td>
<td>Invercargill City Council</td>
</tr>
<tr>
<td>LTMA</td>
<td>Land Transport Management Act 2003</td>
</tr>
<tr>
<td>LTNZ</td>
<td>Land Transport New Zealand</td>
</tr>
<tr>
<td>M</td>
<td>Million</td>
</tr>
<tr>
<td>MDF</td>
<td>Medium Density Fibreboard</td>
</tr>
<tr>
<td>MED</td>
<td>Ministry for Economic Development</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
</tr>
<tr>
<td>N funding</td>
<td>National funding</td>
</tr>
<tr>
<td>NLTP</td>
<td>National Land Transport Programme</td>
</tr>
<tr>
<td>NZAS</td>
<td>New Zealand Aluminium Smelters Ltd</td>
</tr>
<tr>
<td>NZEIR</td>
<td>New Zealand Institute of Economic Research</td>
</tr>
<tr>
<td>R funding</td>
<td>Regional funding</td>
</tr>
<tr>
<td>RMA</td>
<td>Resource Management Act 1991</td>
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<td>RUC</td>
<td>Road User Charges</td>
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<tr>
<td>SDC</td>
<td>Southland District Council</td>
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<tr>
<td>SH</td>
<td>State Highway</td>
</tr>
<tr>
<td>SSR</td>
<td>Southern Scenic Route</td>
</tr>
<tr>
<td>t</td>
<td>Tonne</td>
</tr>
<tr>
<td>TA</td>
<td>Territorial Authority</td>
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<tr>
<td>TEU</td>
<td>20 foot equivalent unit is the international standard measure of containers</td>
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<tr>
<td>TLA</td>
<td>Territorial Local Authority</td>
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<tr>
<td>tpa</td>
<td>Tonnes per annum</td>
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<td>UAC</td>
<td>Uniform annual charge</td>
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## Appendix B

### References

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<tr>
<th>Report Name</th>
<th>Authors</th>
<th>Date</th>
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<tbody>
<tr>
<td>Road Freight – Its significance for regional economics</td>
<td>Infometrics</td>
<td>April 2003</td>
</tr>
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<td>New Zealand Regional Tourism Forecasts - Southland Region</td>
<td>Tourism Research Council, New Zealand</td>
<td>September 2003</td>
</tr>
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<td>Southland Regional Transport Strategy</td>
<td>Southland Regional Land Transport Committee</td>
<td>June 2003</td>
</tr>
<tr>
<td>Southland Integrated Transport Scoping Study</td>
<td>GHD Ltd</td>
<td>August 2004</td>
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<td>Information on Southland</td>
<td>Unknown, provided by Venture Southland</td>
<td>February 2004</td>
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<td>Transit New Zealand 10-year State Highway Plan 2004/5-2013/14</td>
<td>Transit New Zealand</td>
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<td>Transit New Zealand 10-year State Highway Forecast 2005/6-2014/15</td>
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<td>Land Transport Management Act 2003</td>
<td>New Zealand Government</td>
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<td>Times Have Changed at Transit - Brochure</td>
<td>Transit New Zealand</td>
<td>2005</td>
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<tr>
<td>Management of the Environmental Effects Associated with the Tourism Sector</td>
<td>Office of the Parliamentary Commissioner for the Environment</td>
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<td>Milford Sound Concept Plan – A vision for the future development and management of Milford Sound</td>
<td>Milford Sound Planning Group</td>
<td>1999</td>
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<td>MOT Report</td>
<td>Ministry of Transport</td>
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<td>New Zealand – A Regional Profile (Southland)</td>
<td>Statistics New Zealand</td>
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<td>New Zealand Transport Strategy</td>
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<td>National Land Transport Programme 2005/06</td>
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<td>National Rail Strategy to 2015</td>
<td>Ministry of Transport</td>
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<td>Southland District Council Stewart Island Roading Strategy</td>
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<td>ITOC Update – Online News</td>
<td>Inbound Tour Operators Council</td>
<td>15 April 2005</td>
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<td>Southland District Council Roading Issues Paper, prepared for Hon Paul Swain’s Southland Visit</td>
<td>Southland District Council</td>
<td>January 2004</td>
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<td>A Strategy for Development</td>
<td>Venture Southland</td>
<td>July 2002</td>
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<td>Southland District Road Safety Issues</td>
<td>Land Transport Safety</td>
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<td>South Port New Zealand Ltd Annual Report 2004</td>
<td>South Port NZ Ltd</td>
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<td>Transporting New Zealand</td>
<td>Ministry of Transport</td>
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<td>Invercargill City Council News</td>
<td>ICC</td>
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<td>Southland Community Outcomes Report</td>
<td>Southland DC, Environment Southland, Gore DC and Invercargill CC.</td>
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<td>Stewart Island Tourism Trends</td>
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<td>Catlins Tourism Strategy</td>
<td>University of Otago and Department of Tourism</td>
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<td>Summary of Activities for Venture Southland October – November 2004</td>
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<td>December 2004</td>
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<td>Southland Energy Strategy</td>
<td>Venture Southland</td>
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<td>Local Authority Funding Issues – Report of the Joint Central Government / Local Authority Funding Project</td>
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<td>The benefits of investing in New Zealand's road infrastructure. A report for the New Zealand Automobile Association</td>
<td>The Allen Consulting Group / Infometrics</td>
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<td>A National Exotic Forest Description (as at 1 April 2001)</td>
<td>Ministry of Agriculture and Forestry</td>
<td>February 2002</td>
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<td>Otago and Southland Forest Industries Profile</td>
<td>Southern Wood Council Incorporated</td>
<td>June 2004</td>
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<td>West Coast Integrated Regional Transport Infrastructure Plan</td>
<td>GHD Ltd and Option One</td>
<td>June 2005</td>
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In addition to the reports above, information from the following websites has been used in this report:

- [www.invercargillairport.co.nz](http://www.invercargillairport.co.nz)
- [www.stats.govt.nz](http://www.stats.govt.nz)
- [www.icc.govt.nz](http://www.icc.govt.nz)
- [www.nationalbank.co.nz](http://www.nationalbank.co.nz)
- [www.venturesouthland.co.nz](http://www.venturesouthland.co.nz)
- [www.es.govt.nz](http://www.es.govt.nz)
- [www.goredc.govt.nz](http://www.goredc.govt.nz)
- [www.fonterra.com](http://www.fonterra.com)
- [www.ltsa.govt.nz](http://www.ltsa.govt.nz)
- [www.coalnz.com](http://www.coalnz.com)
Appendix C

Consultation Process
Appendix D

Roading Hierarchy
Appendix E

Milford Report
### Appendix F

**Heavy Vehicles**

<table>
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<th>REGION</th>
<th>TERRITORIAL LOCAL AUTHORITY</th>
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<td>1222</td>
<td>560</td>
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<td>Southland</td>
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<td>TOTAL</td>
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<td></td>
<td>6679</td>
<td>3195</td>
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### RUC Kilometres Purchased by Trucks in the Period 1 July 2004 to 30 June 2005

(LIGHT = Up to 3,500kg in gross vehicle mass, HEAVY = Over 3,500kg)

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<tr>
<th>REGION</th>
<th>TERRITORIAL LOCAL AUTHORITY</th>
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Appendix G
Southland District Council Asset Management Plan Graph 2004
Appendix H

Southland District Council Projected Pavement Strengthening Histograms

(Derived from 2005 dTIMS analysis)
Appendix I

Tiwai Bridge Report
Appendix J

Southland District Council Commodity Flow Analysis Schematic Diagram
<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
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<tbody>
<tr>
<td>Generation</td>
<td>Divide commodities into major industry classifications.</td>
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<tr>
<td></td>
<td>Research industry groups for expected production in each model year.</td>
</tr>
<tr>
<td>Distribution</td>
<td>Consider industry locations against Southland District Council wards.</td>
</tr>
<tr>
<td></td>
<td>Consider industry production movements to secondary production sites, destination wards or external locations.</td>
</tr>
<tr>
<td></td>
<td>Assemble commodities by industry and distribution matrices based on industry production units e.g. m(^3) tonnes etc.</td>
</tr>
<tr>
<td></td>
<td>Convert commodities to transport units e.g. m(^3) to truck and trailers.</td>
</tr>
<tr>
<td>Assignment</td>
<td>Assign vehicles to probable transportation networks.</td>
</tr>
<tr>
<td></td>
<td>Check that measured AADT is similar to commodity flow assigned traffic flows.</td>
</tr>
<tr>
<td>Analysis</td>
<td>Calculate change in traffic flow in model years.</td>
</tr>
<tr>
<td></td>
<td>Consider effects of traffic in each model year.</td>
</tr>
</tbody>
</table>
Appendix K

Commodity Flow Diagrams
Appendix L

Regional Funding 2004-2014
Appendix M
National Stakeholder Strategies and Plans

Summary
- This Appendix outlines some of the key stakeholders’ strategies and plans that must be taken into account in the planning and implementation of transport infrastructure upgrade options. The relevant sections of the District Plans, Annual Plans and Long Term Council Community Plans for the various District and Regional Councils are found in Appendix N.

Land Transport Management Act 2003

The *Land Transport Management Act 2003* (LTMA) aims to provide an integrated approach to land transport funding and improve the planning, management and investment of land transport in New Zealand. LNZ is the government-funding agency that allocates funding to land transport programmes. Section 20 of the LTMA requires LNZ to make an assessment of a particular proposal before granting funding and each proposal must therefore demonstrate how it achieves the following outcomes:

- Assists economic development;
- Assists safety and personal security;
- Improves access and mobility;
- Protects and promotes public health; and
- Ensures environmental sustainability.

LTNZ must also consider whether a land transport programme is consistent with current national land transport strategies, relevant regional transport strategies and National Energy and Conservation Strategies. In order for road controlling authorities to receive funding, they must satisfy LNZ on the above requirements.

New Zealand Transport Strategy

The *New Zealand Transport Strategy 2002* (NZTS) sets out the government’s vision for transport and must be used to guide future policy decisions about transport. It describes how the transport system in New Zealand can respond to the social, economic, and environmental needs of the country. It takes a holistic view of the transport system, recognising all modes and users of transport. In particular, it recognises that, while roads are likely to remain the main focus of government land transport expenditure, there is a need for a more
balanced consideration of other transport modes. The NZTS guides decision-making on transport by central government agencies and provides a reference for local government, business, and communities.

The NZTS is based on four key principles that include:

- **Sustainability**
  Principles of sustainability, integration and transport policy must enhance economic, social and environmental well being, and promote resilience and flexibility. Consideration of the needs of future generations and medium- and long-term costs and benefits is also important.

- **Integration**
  Transport policy will help create an efficient and integrated mix of transport modes by achieving co-operation and collaboration between stakeholders and efficient use of existing and new public investment.

- **Safety**
  Achieve safety, health and personal security for all transport users and providers.

- **Responsiveness**
  The diverse needs of urban and rural communities need to be recognised. All government agencies must be responsive to different transport needs.

The main objectives of the NZTS are to:

- Assist economic development;
- Assist safety and personal security;
- Improve access and mobility;
- Protect and promote public health; and
- Ensure environmental sustainability.

The vision of the NZTS is that New Zealand will have an affordable, integrated, safe, responsive, and sustainable transport system by 2010.

**National Land Transport Programme**

The National Land Transport Programme (NLTP) is the mechanism through which LTNZ allocates funds across the following activity classes:

- maintenance of the local roading network
- maintenance of the state highway network
- local road construction
- state highway construction
- passenger transport
- rail and sea freight
- LTNZ’s operating expenditure
- transport demand management
- travel behaviour change
- regional development
- walking and cycling
- research, education and training
- administration and project control

LTNZ provides financial assistance to the following approved organisations:

- Territorial authorities (comprising city and district councils) to jointly fund maintenance and construction of local roads, passenger transport infrastructure and promotion of walking and cycling. LTNZ provides a
national average of 50 percent financial assistance for maintenance programmes and an additional 10 percent for construction projects, with local rates and other local authority revenue providing the balance.

- Territorial authorities in the Northland and Tairawhiti areas for regional development roading. LTNZ fully funds this activity.
- Regional councils for the provision of passenger transport services, and transport demand management, rail and sea freight. The level of financial assistance from LTNZ varies.
- Transit New Zealand (Transit) for New Zealand’s state highway system, including maintenance and construction of state highways, promotion of walking and cycling, and passenger transport-related state highway projects. LTNZ fully funds work on the state highway system.

The allocations to activity classes are announced annually prior to the financial year beginning 1 July. Some activities are approved for funding at this time; others are approved during the year. Also, not all planned activities proceed according to the expected timeframe or cash flow requirement. Consequently, the NLTP is an ongoing programme through which activities are approved for funding throughout the year and allocations to activity classes are adjusted.

To have activities approved for funding during the year, approved organisations must include them in their land transport programme or long-term council community plan. Generally these activities must also be accepted by LTNZ and included in its NLTP, though LTNZ may add activities to the NLTP during the year.

**National Energy Efficiency and Conservation Strategy**

New Zealand’s *National Energy Efficiency and Conservation Strategy (2001)* promotes energy efficiency, energy conservation and renewable energy within the context of achieving a sustainable energy future. This strategy is closely linked with New Zealand’s climate change response and the NZTS and the NZ Sustainable Development Strategy.

The National Energy and Conservation Strategy aims to achieve the following goals:

- Reduce carbon dioxide emissions;
- Improve economic productivity;
- Improve economic resilience;
- Reduce local environmental impacts;
- Promote industry development; and
- Improve health and welfare.

Within each goal there are a number of projected outcomes proposed for 2012 that aim to improve urban air quality, increase the economic development of sustainable industries, increase the reliance on renewable energy and improve the health of citizens.

**Road Safety 2010**

The *Road Safety 2010* Strategy was released in 2003 and provides a direction for road safety in New Zealand that is focussed on engineering, education and enforcement. The road safety strategy is important in achieving the New Zealand Transport Strategy goal of an affordable, integrated, safe, responsive and sustainable transport system.

The government’s transport vision is that ‘by 2010, New Zealand will have an affordable, integrated, safe, responsive and sustainable transport system’. A main theme of the Road Safety 2010 strategy is:
“A more systemic approach to transport management should build safety in, not add safety on. Safety should be considered in all transport decisions and designed into our infrastructure. “

The Strategy aims to provide a road network and land use planning environment that reduces road deaths and injury and accommodates the safety needs of all users — pedestrians, cyclists, public transport users and motorists.

**National Rail Strategy to 2015**

The *National Rail Strategy to 2015* was released in May 2005. It aims to realise the full potential of rail as a properly integrated part of the nation's transport infrastructure. The strategy outlines national rail objectives for each of the 5 key National Transport Strategy objectives as follows:

- **Assisting economic development**
  To enhance rail’s contribution to sustainable economic development

- **Assisting safety and personal security**
  To improve rail safety and personal security

- **Improving access and mobility**
  To maintain and develop access to rail passenger services

- **Protecting and promoting public health**
  To promote rail’s contribution to positive health outcomes

- **Ensuring environmental sustainability**
  To achieve a sustainable transport system that uses land, energy and other resources effectively.

As far as assisting economic development is concerned, the National Rail Strategy outlines several priorities to achieve its objective of enhancing rail’s contribution to sustainable economic development:

- Upgrade the national rail network;
- Improve the contribution of rail to regional development – transport is a critical factor affecting regional growth and development. Growth opportunities have been identified in the coal and dairy sector and in container traffic;
- Encourage more freight to be carried by rail; and
- Optimise the use of the rail network as part of the wider transport network; increased integration of transport modes includes development of innovative and flexible approaches, for example ‘inland ports’ or transport hubs.

Key initiatives of the government include:

- Government investment of $200M to restore and upgrade network;
- Investigations into development of the network; and
- Promote integration between rail and other networks.

As far as improving access and mobility is concerned the objective of the government is to maintain and develop access to rail passenger services including long distance passenger rail.

In terms of ensuring environmental sustainability the negative environmental impacts associated with rail transport are small when compared to road. Rail freight uses 4% of freight transport energy. Road freight
accounts for 91% and coastal shipping 5%. A key initiative is to encourage a sustainable modal shift from road to rail where appropriate.

**Transit New Zealand 10-year State Highway Plan 2004/5 – 2013/14**

The following information is taken from the Transit New Zealand 10-year State Highway Plan 2004/5 – 2013/14. Transit anticipates it will have further expenditure from regional distribution funding, but this is yet to be determined. These forecasts of expenditure are based on a 10-year plan of maintenance and improvements, including commitments. The timeframe for the development and construction of the improvements proposed in the 10-year plan is indicative only, and is likely to change depending on the use of regional distribution funding to advance projects.

The Southland State Highway 10-year plan seeks to protect and preserve the existing asset, improve the security and efficiency of transport corridors into and out of Southland, and improve road safety.

Major features of the plan are:

- Three safety improvements, for construction in the next three years, comprising:
  - SH1: East Road Curve Realignment, north of Invercargill
  - SH98: Mill Road Intersection Improvements, east of Lorneville
  - SH94: Hamilton Creek Bridge Widening
- Two more stock effluent disposal facilities west of Gore on SH1 and Lumsden on SH6.

Transit is continuing to investigate improvements to the eastern portal of the Homer Tunnel for avalanche protection.

One large improvement project (with construction costs more than $3M) is included in the 10-year plan, and small and medium-sized projects (with construction costs of less than $3M) have been planned for three years.

Key regional issues identified in the Plan for Southland are:

- Forestry traffic;
- Dairying traffic – increase in the number of dairy farms is increasing heavy vehicle movements particularly around the processing plant at Edendale;
- Tourist traffic, particularly on the Southern Scenic Route and to the Fiordland National Park and Milford Sound; and
- Road safety.

**Transit New Zealand’s 10-year State Highway Forecast 2005/6 – 2014/15**

Transit’s forecasts of expenditure in Southland for the next 10 years are set out in figure 38 below. For forecast purposes only, Transit has made an assessment of regional distribution funding that will be available for State Highways. These will be determined annually. These forecasts of expenditure are based on a 10-year plan of maintenance and improvements, including projects for which funding is already committed. The timeframe for the development and construction of the improvements proposed in the 10-year forecast is indicative only, and is likely to change depending on the project’s importance within the context of the regional land transport strategy, its national priority, the resolution of any local concerns and property issues.

The Southland 10-year State Highway forecast seeks to protect and preserve the existing asset, improve the efficiency and safety of transport corridors into and out of Southland, and improve road safety generally.
Major features of the forecast are:

- Eight safety improvements, for construction in the next three years;
- Two passing lanes; and
- Stock effluent disposal facilities.

Transit is continuing to investigate improvements to the eastern portal of the Homer Tunnel for avalanche protection.

Figure 38 Forecasts of Expenditure on Maintenance and Improvements – Southland Region

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<th>Maintenance</th>
<th>05/06 ($M)</th>
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Southland Regional Transport Strategy

Over the next 10 years Southland’s transport network will come under pressure from a number of directions. The dairy, forestry and tourism industries are expected to grow. At the same time, Statistics New Zealand predicts that Southland’s population will decline. This Strategy identifies and prioritises means of responding to Southland’s future transport needs. While the Strategy is based around a 10-year planning framework, its strategic focus looks beyond to a 20-year planning horizon. The Strategy will be renewed at least once every three years.

Southland Energy Strategy

Venture Southland has identified that: “There is a lack of available energy for current and projected demand and this is a major barrier to regional and national economic growth. The ability to sustain and expand existing industry and attract new industry is dependent on a reliable and affordable energy supply. In Southland national power grid transmission constraints also limit the ability to deliver robust, high capacity, power supply to developing existing industry and new industry. Current issues relating to diminishing gas reserves and low lake storage exacerbate these problems. Venture Southland established a working group, which has assessed current and projected demands and proactively investigate opportunities to overcome the above limitations. This project is consistent with the Venture Southland Strategic Plan and is a major regional focus for 2004 and 2005. Low energy costs have in the past been one of New Zealand’s major economic advantages, however, in the past there has been inefficient use of these energy sources, largely because of
our lifestyle and historic factors surrounding the very low cost of energy. This situation is changing and Southland as a region has the opportunity to address the impending energy shortages and the vagaries of climatic change, spot market pricing and increasing energy use. Southland has the potential to proactively manage its local energy needs and apply surplus energy towards facilitating the development of existing and new industry as well as potentially contributing to the national grid requirements.” At its meeting on 20 November 2003 the Venture Southland Regional Energy Project Group approved the Southland Regional Energy Assessment Report. The group also recommended the establishment of a Regional Energy Strategy based on the above document. The Southland Energy Assessment has since been published and has attracted significant interest from the energy sector. Venture Southland is currently working with groups interested in gas exploration, fossil fuel generation, wind generation and alternative energy technology development. Venture Southland is also working with Energy Efficiency and Conservation Authority to explore opportunities for conservation initiatives.

The Southland Regional Energy Strategy is based on the following principles:

- Southland has diverse energy resources that can be utilised to improve community and economic growth in the Region.
- A secure and cost effective energy supply is achievable by implementing an integrated regional energy strategy.
- Future demand can be met by:
  - Promoting energy efficiency.
  - Encouraging the effective use of energy resources.
  - Investment in local exploration and generation opportunities.
  - Construction of new generation plant to meet growth.
- Energy conservation practices and alternative energy technologies offer significant opportunity for users.
- The Region should utilise fossil fuel energy for local benefit and to secure local industry and develop new industry opportunities.
- A variety of energy resources should be developed.
- That there is a need for strong advocacy and proactive planning practices to facilitate improvements to transmission and electricity generation opportunities.

**Key Agencies**

The following are the key agencies that have responsibilities and roles in relation to Southland’s transport network:

**Southland Transport Network Key Agencies**

<table>
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<tr>
<th>Agency</th>
<th>Key Responsibilities</th>
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<tr>
<td>Ministry of Transport</td>
<td>- Provides transport policy advice to the Minister of Transport;</td>
</tr>
<tr>
<td></td>
<td>- Prepares National Land Transport Strategy; and</td>
</tr>
<tr>
<td></td>
<td>- Contracts and monitors a number of transport agencies including most of the</td>
</tr>
<tr>
<td></td>
<td>following agencies.</td>
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</table>

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| **Land Transport New Zealand** | LTNZ allocates funding for:  
- Construction, maintenance and improvement of state highways and local roads;  
- Passenger transport services and projects;  
- “Alternative to road” projects (Rail and sea freight)  
- Regional development (funded by MED, allocated by LTNZ);  
- Promotion of cycling and walking; and  
- Administration and Project Control  
LTNZ also:  
- Develops and monitors land transport safety standards  
- Prepares and manages New Zealand Road Safety Programme  
- Manages vehicle, driver and operator licensing and registration  
- Collects road user charges  
- Manages driver licensing and road user education |
| **Environment Southland** |  
- Establishes Regional Land Transport Committee;  
- Prepares Regional Land Transport Strategy;  
- Prepares Regional Programme; and  
- Prepares and administers Regional Policy Statement and Regional Plans under RMA. |
| **Territorial Authorities**  
(Southland District Council, Invercargill City Council and Gore District Council) |  
- Prepare District Roading Programmes and Asset Management Plans;  
- Constructs and maintains roads which are not part of the state highway network;  
- ICC administers the subsidised funding of public passenger transport in Southland under a transfer agreement from Environment Southland;  
- Prepares and administers District Plans under RMA; and  
- Considers resource consents for land use activities under the RMA. |
| **Transit NZ** |  
- Operates a safe and efficient state highway system  
- Prepares State Highway Programme |
| **New Zealand Police** |  
- Enforces and educates on road safety laws  
- Carries out road crash and incident investigations  
- Provides search and rescue services |
| **Civil Aviation Authority** |  
- Establishes civil aviation safety and security standards, and monitors adherence to those standards  
- Carries out accident and incident investigations  
- Provides search and rescue services |
<table>
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<th>Organization</th>
<th>Activities</th>
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<tr>
<td><strong>Maritime New Zealand</strong></td>
<td>- Provides search and rescue services</td>
</tr>
<tr>
<td></td>
<td>- Develops maritime safety rules and marine protection rules</td>
</tr>
<tr>
<td></td>
<td>- Investigates maritime accidents and conducts safety inspections of ships</td>
</tr>
<tr>
<td></td>
<td>- Licenses seafarers and registers ships</td>
</tr>
<tr>
<td></td>
<td>- Provides navigation aids, a coastal maritime safety and distress radio service and participates in maritime searches and rescues</td>
</tr>
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<td></td>
<td>- Maintains the New Zealand marine oil spill response strategy and national contingency plan and administers the New Zealand Oil Pollution Fund</td>
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<tr>
<td>Invercargill Airport Ltd</td>
<td>- Manages the operation of Invercargill airport</td>
</tr>
<tr>
<td>South Port Ltd</td>
<td>- Operates port activities at Bluff</td>
</tr>
<tr>
<td>On Track</td>
<td>- Maintains and operates Southland’s rail network</td>
</tr>
<tr>
<td>Toll</td>
<td>- The rail network operator</td>
</tr>
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Appendix N

Annual Plans, District Plans, Long Term Council Community Plans
Appendix O

National Land Transport Programme 2005/06
Fact-sheet
GHD Limited
Level 4
148 Victoria Street
Christchurch
T: 64 3 377 8076   F: 64 3 377 8575   E: ChcMail@ghd.co.nz

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Document Status

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<td>Jim McNeill</td>
<td>Les Dowdle</td>
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