

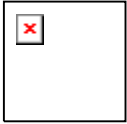


Far North District Council

Road Improvement Strategy

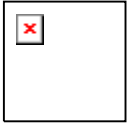
Report

July 2005



Contents

1.	Introduction	4
1.1	Road Improvement Strategy Objectives	4
1.2	Development of the Strategy and Base Line Report	5
1.3	Legislative Requirements	5
1.4	Report Structure	6
2.	National and Regional Legislation and Policy	7
2.1	Local Government Act 2002	7
2.2	Land Transport Management Act 2003	7
2.3	Resource Management Act 1991	8
2.4	New Zealand Transport Strategy	8
2.5	Road Safety Strategy 2010	8
2.6	Northland Regional Land Transport Strategy 2003 -2008	9
2.7	Northland Integrated Transport Study 2002	9
2.8	Northland Regional Transport Plan	10
3.	Far North District Plans and Policy Documents	12
3.1	Far North District Draft Long Term Council Community Plan July 2004 - June 2014	12
3.2	Far North District Land Transport Programme	12
3.3	Roading Asset Management Plan	13
3.4	Far North District Council Safety Management System	13
3.5	Growth Management Strategy Project	13
3.6	Existing Roothing Projects	13
4.	Overview of the Far North	15
4.1	The Place	15
4.2	The People	18
4.3	The Economy	20
5.	The Existing Road Network	22
5.1	State Highways	22
5.2	Local Roads	22
5.3	Use of the Road Network	23
5.4	Integration with Alternative Modes of Transport	25
5.5	Funding of the Road Network	27



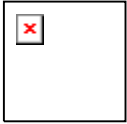
6.	Potential Future Growth Areas	29
6.1	Forestry	29
6.2	Agriculture	31
6.3	Tourism	31
6.4	Aquaculture	33
6.5	Horticulture	34
6.6	Residential Development	35
6.7	Population Change	35
6.8	Future Demands on the Road Network	36
7.	Key Issues for the Road Network	38
7.1	Unsealed Roads	38
7.2	Road Safety	38
7.3	Provision for Pedestrians and Cyclists	39
7.4	Road User Conflicts	39
8.	Identifying the Strategic Road Network	41
9.	Assessment Framework for Potential Improvements	50

Table Index

Table 1	Population Projections	18
Table 2	Road Categorisation	22
Table 3	Far North District Growth Areas and Roading Infrastructure Needs	36
Table 4	Main Land Uses	37
Table 5	The Strategic Road Network	42
Table 6:	Weighting Scale for Assessing Projects	50
Table 7	Northland Regional Transport Plan Projects in the Far North District	62

Appendices

A	References
B	Key Stakeholders
C	Key Objectives of the Northland Regional Land Transport Strategy
D	Regional Development Fund Projects
E	Far North District Land Use
F	Strategic Road Network



1. Introduction

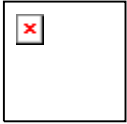
The Far North District Council (FNDC) has undertaken to develop a Road Improvement Strategy (RIS) that will provide a guiding framework for transport decisions within the Far North for the next 15 – 20 years. It is intended that the RIS will be used to develop Council's Roding Capital Works Programme and be reviewed and updated each year with a major review every five years.

This Baseline Data and District Overview Report (Baseline Report) is the first stage in the development of the RIS. It will provide the general background that is needed to identify the key existing and future demand transport issues facing the Far North District. The development of the RIS is to be based on fundamental links made between the strategy, land use development, economic development plans, and regional and national transport policies and legislation. This Baseline Report identifies these links. It provides a review of relevant policy and strategies at a National, Regional and District level and identifies areas of present and future economic and social importance throughout the District. It will outline a strategic roading network that will feed into the regional network developed through the Northland Integrated Transport Strategy.

1.1 Road Improvement Strategy Objectives

The objectives of developing a RIS will be to:

- ▶ Identify a strategic transport network to provide for the future needs of the District
- ▶ Take account of the transport economics and the economic development opportunities of the District
- ▶ Provide for future growth
- ▶ Identify implementation mechanisms
- ▶ Achieve stakeholder acceptance
- ▶ Recognise the diversity of the region in terms of demographics, land use and settlement patterns and topography
- ▶ Identify and evaluate social, cultural, economic and environmental issues associated with achieving the identified strategic network
- ▶ Develop an assessment framework to evaluate potential projects against in order to ensure the integrity of the strategic network development is maintained
- ▶ Identify and provide future policy and funding information requirements in order to implement the strategy
- ▶ Develop a five year implementation plan with a list of capital works projects, including estimated costs.



1.2 Development of the Strategy and Base Line Report

This Baseline Report will be used to assist in the development of the RIS, which will occur in the following five stages:

Stage 1

Data Collection and Research – during this stage existing and future demands will be identified as well as stakeholder issues. Consultation with stakeholders will provide input into the Baseline report.

Stage 2

Defining Objectives for the network, or the 'strategic direction' for the RIS.

Stages 3

Developing an Assessment Framework for evaluating proposed projects against to ensure they are meeting the strategic transport objectives of the District.

Stage 4

Development of a draft RIS that will be approved by Council and released for public consultation.

Stage 5

Public consultation period, including submissions, hearings & decisions culminating with Council's adoption of the RIS.

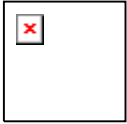
The Base Line Report has been developed out of stage one; the data collection and research stage. It has included comprehensive consultation with identified stakeholders listed in Appendix B and a review of relevant policy and research. The Base Line Report will be used as a consultation tool and distributed widely to identified stakeholders for their comment and feedback on the important transport issues facing the District. The Baseline report presents a picture of the District and its people.

1.3 Legislative Requirements

The development of a Road Improvement Strategy for the Far North District is not a mandatory requirement under the Land Transport Act 1998 or Local Government Act 2002. Through its development the Council is taking a proactive approach to transport decision-making within the District.

Roading and transportation provision are 'significant' issues within the Far North and therefore the use of special consultative procedures for consulting land transport users and providers, affected communities, and public and consultation with Maori are considered appropriate. The consultation procedures defined in the Local Government Act 2002 are being followed in the development of the RIS.

The Land Transport Act 1998 requires that a regional land transport strategy must not be inconsistent with regional policy statements, or any plan, or any national land transport strategy. Following this requirement the Far North RIS will be consistent with the Regional Land Transport Strategy for Northland.



1.4 Report Structure

Following this introduction, **Section 2** provides an outline of National and Regional legislation and policy that is relevant to the development of a Far North Road Improvement Strategy.

Section 3 of the report sets out the relevant District plans and policy documents

Section 4 gives an overview of the Far North District in terms of its natural and physical resources, demographics, and the main industries that are important for the districts economy.

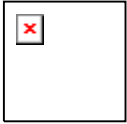
Section 5 overviews the key features of the Far North land transport system in terms of road, rail, coastal and air.

Section 6 includes predicted future trends for land transport and development in the Far North.

Section 7 overviews the key issues for the Road Network.

Section 8 provides a conclusion to the report and identifies the Strategic Road Network.

Section 9 presents the Assessment Framework.



2. National and Regional Legislation and Policy

There are a number of legislative and statutory planning documents at the National and Regional level that support the development and implementation of a Road Improvement Strategy (RIS). An outline of these follows, showing their context and a summary of some relevant information which they contain.

2.1 Local Government Act 2002

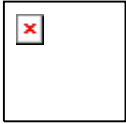
The Local Government Act 2002 (LGA) is based on sustainable, effective, responsible, responsive and accountable local government being fundamental to achieving the long-term well-being of communities. The LGA outlines the responsibilities of local authorities and the decision making process for activities undertaken on behalf of their community, primarily through the requirement to adopt a Long Term Council Community Plan (LTCCP). Councils are encouraged by the LGA to identify overall long-term priorities and to plan for the future. Although it is not given as a legislative requirement, this approach supports the development of a strategy that identifies and prioritises roading projects for future development.

The LGA also recognises that partnerships are required between district and regional governments, local organisations, central government agencies and the community. It requires that Council's consult and seek participation of the communities on decisions being made. The development of the Road Improvement Strategy is consistent with this approach. It follows, as a guide, the consultation requirements detailed in the LGA for the development of the LTCCP and works to complement the Northland Regional Transport Strategy.

2.2 Land Transport Management Act 2003

The purpose of the Land Transport Management Act 2003 (LTMA) is to:

- ▶ Provide a integrated approach to land transport funding and management
- ▶ Improve social and environmental responsibility in funding, planning and management of land transport
- ▶ Improve long term planning and investment in land transport
- ▶ Ensure land transport funding is cost effective
- ▶ Improve flexibility of funding including enabling land transport infrastructure to be built on a tolled or public/private partnership basis or combination of these.
- ▶ The LTMA also requires the Council to consult with a wide range of parties when developing the annual land transport programme and requires that the programme is consistent with the RLTS.



2.3 Resource Management Act 1991

Any transport strategy must assess the economic benefits of road transport and the rights of people to freedom of movement and association, within the context of environmental considerations set out in the Resource Management Act (RMA).

2.4 New Zealand Transport Strategy

All projects seeking funding from the National Land Transport Fund have to take account of the objectives of the New Zealand Transport Strategy. These are to:

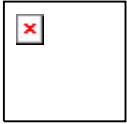
- ▶ Assist economic development
- ▶ Assist safety and personal security
- ▶ Improve access and mobility
- ▶ Protect and promote public health and
- ▶ Ensure environmental sustainability.

2.5 Road Safety Strategy 2010

The Land Transport Safety Authority (LTSA) has released a Road Safety Strategy 2010. This document aims to reduce road fatal casualties to no more than 300 per year and hospitalisations to no more than 4500 per year nationwide by 2010. (*Source: RLTS*). The Strategy introduces a Safety Management System approach that recognises that drivers' behaviour contributes to most crashes but that it may be more effective to improve the road than educate the driver.

The Safety Management System includes the following recommendations for road improvement:

- ▶ Road hierarchy based on traffic volumes and future needs with levels of service for each type of road;
- ▶ Provision of high and consistent levels of street lighting, delineation, surface friction and road markings on the routes at the top of the hierarchy;
- ▶ A priority list of sites for investigation into specific remedial action;
- ▶ A sealing and resealing programme including extending sealing of unsealed roads;
- ▶ Creation of a hazard register eg power poles and trees too close to the carriageway, and implementation of a regular inspection programme;
- ▶ Provision of bridge guardrails and clear zones or guard railing along identified routes;
- ▶ Improved visibility through vegetation control at intersections to maintain sightlines;
- ▶ Defined tourist routes separate from heavy vehicle routes;
- ▶ Improved crash reporting to assist in attracting maximum road funding to resolve safety issues; and



- ▶ Temporary Traffic Management Plans in place at roadworks sites and regularly audited.

2.6 Northland Regional Land Transport Strategy 2003 -2008

The Regional Land Transport Strategy for Northland 2003-2008 (RLTS) developed by the Northland Regional Council sets out regional priorities for a wide variety of mainly land-based transport options over the next five years. Air and sea transport are not covered in detail but their importance is noted.

Far North District Council were consulted during the preparation of the RLTS and have representation of two members on the Northern Regional Land Transport Committee who oversaw the preparation of the Strategy.

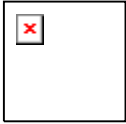
This Strategy also encompasses the findings of the Northland Integrated Transport Study 2002, which includes recommendations for development of a transport network to meet the foreseeable social and economic development needs of the region. Included in the strategy are project priorities, road safety, the views of affected communities, the need to consider alternatives to roading eg rail and barging and the need to minimise adverse effects on the environment.

The FNDC are required to implement the Strategy through their district land transport programme. In order to do so the RIS must be consistent with the objectives of the strategy. A full list of the key objectives of the RLTS is included in [Appendix C](#).

2.7 Northland Integrated Transport Study 2002

The purpose of the Northland Integrated Transport Study was to develop a strategy to address the immediate and future transport needs of Northland for all modes of transport. As outlined above the findings of the study were incorporated into the RLTS. The Study covers a 10 year period from 2002 to 2012 and recommends a regional integrated transport network including:

- ▶ That the port at Marsden Point is the sole log and wood products export port for Northland
- ▶ That whenever possible forestry traffic is separated from local and tourist traffic
- ▶ That the Twin Coast Discovery Route be maintained as the primary tourist route in Northland
- ▶ That a central route comprising Mangakahia Road and Otaika Valley Road become the heavy traffic route for traffic to and from Marsden Point to north of Whangarei and Kaikohe
- ▶ That a barging operation between Kaimaumau and Marsden Point be investigated
- ▶ Recognition that the roading network needs improvement to meet the increase in volumes of logs and wood products
- ▶ Recognition that the port of Marsden Point will become the primary port servicing the Northland region and beyond



- ▶ That the existing rail network in Northland be retained due to it maintaining linear continuity and its strategic importance to the national network
- ▶ That air transportation is a component of the overall transportation network but its impact on the physical road infrastructure is minimal
- ▶ That the bridging of the Hokianga Harbour is included in the Regional Integrated Transportation Network and completed by 2005; and
- ▶ That the western route to Kaitaia via Paponga Road and Kaitaia Awaroa Road is progressively upgraded to meet the impact of logging as it arises.

The anticipated benefits of the network include:

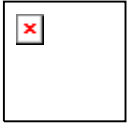
- ▶ A reduction in the peak daily flows of forestry traffic from 2011
- ▶ Significant savings in road maintenance costs and a reduction in road construction costs from the lower number of heavy vehicles on the road network
- ▶ A significant reduction in travel distance and times for traffic to and from the North Hokianga area wanting to travel east and south
- ▶ A separation of heavy and tourist traffic by designating heavy traffic routes with appropriate signage
- ▶ Improved road alignments and gradings increasing road safety, and
- ▶ Regional and national benefits

The total funding required for the proposed integrated transportation network, including roads, rail and barging, is \$500 million over the next 20 years. In 2002, the requirement for roading in the Far North between 2002-2012 was estimated as being \$96.3 million.

2.8 Northland Regional Transport Plan

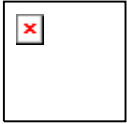
The Northland Regional Transport Plan is developed and reviewed annually by the Northland Regional Council. It is the key mechanism for achieving the objectives of the Northland Regional Land Transport Strategy and contains a prioritised list of projects eligible for regional development funding from Land Transport New Zealand. The plan has no statutory status but is a requirement to receive regional development funding. Indicative Northland Regional Transport Plans 2004-2005 and 2005-2006 include projects within the following roads in the Far North District:

- ▶ West Coast Road
- ▶ Kohukohu Road
- ▶ Mangakahia Road
- ▶ Rangiahua Road
- ▶ Mangamuka Road
- ▶ Purerua Road
- ▶ Omahuta Road



► Taheke Road

The available funding is less than the cost of the proposed work so it is likely that only some of these projects will receive funding in the year requested.



3. Far North District Plans and Policy Documents

The previous section has detailed how the development of the Road Improvement Strategy (RIS) is consistent with both national and regional policy and plans. The RIS also fits within a framework of Far North District Council plans and policies. The following section outlines the relevant District planning documents and outlines how the RIS is consistent with these documents.

3.1 Far North District Draft Long Term Council Community Plan July 2004 - June 2014

The Far North District Draft Long Term Council Community Plan (LTCCP) was developed in 2004 to meet the requirements of the Local Government Act (2002). The Draft LTCCP sets out the Council's priorities over the medium to longer term. It explains how the Council intends to contribute to community well being over the life of the plan. It provides a basis for decision-making and accountability and an opportunity for public participation in the decision making process. The purpose of the Draft LTCCP is to articulate and align Council activities with what the community needs and can afford.

Roading is specifically addressed in the Draft LTCCP as a key issue for Council to address and the development of the RIS is outlined as a method for the management of the Districts Road network as follows:

Council will develop a 10 year strategy for roading that focuses first and foremost on maintaining and renewing existing assets and priorities strategic capital works based on:

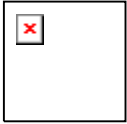
- *The availability of subsidy*
- *Improvements to key arterial routes*
- *Routes of strategic importance*

(LTCCP, 2004 p. 7).

The intention of the RIS, as outlined in the LTCCP, is to consolidate and improve the existing network with a commitment to road improvements to develop an improved strategic roading network. The objectives of the RIS, as outlined in Section 1.1 of this report, reinforce this intention of the LTCCP. The RIS will identify a strategic transport network that provides for the future social and economic needs of the District.

3.2 Far North District Land Transport Programme

Under the Land Transport Management Act 2003, councils must prepare an annual land transport programme if they wish to have activities included in central Government's programmes for National Land Transport or Safety Administration. (These programmes form the basis of the any Central Government subsidies for local road works). As detailed in the LTCCP it is the intention that the Far North District Council Land Transport Programme will be developed in conjunction with the RIS.



The FNDC Land Transport Programme will prioritise land transport improvement initiatives and detail how each of these projects contribute to the purpose of the Land Transport Management Act. The RIS will provide a framework for the prioritisation of roading projects to be incorporated in the Land Transport Programme.

3.3 Roothing Asset Management Plan

In addition to the Land Transport Plan and the RIS, Council is developing a Roothing Asset Management Plan. The Roothing Asset Management Plan will provide a long-term indication of sustainable management of the roading asset and detail work programmes incorporating levels of service, risk, growth and demand, maintenance, renewal and new works plans, processes, and practices, financial analysis.

3.4 Far North District Council Safety Management System

A Safety Management System is currently being developed for the Far North District, which has implications for the both the design of road improvements and the identification of those roads that are below safety standards. The safety management system for roads will be based on the recommendations of the New Zealand Road Safety Strategy as outlined in section 2.5 of this report.

“The system approach seeks to ensure that road controlling authorities use consistent standards and policies. Having systems in place and a means of auditing them will lead to a more consistent and safer road network.” (Source: Northland Regional Road Safety Plan).

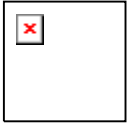
3.5 Growth Management Strategy Project

The Far North District Council has commenced a Growth Management Strategy Project which aims to gain an improved understanding of the growth issues that face the District. It is anticipated that the strategy will feed into the Long Term Council Community Plan. A Growth Forecasts report for the period between 2001-2021 has been prepared and used to inform this baseline report.

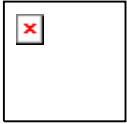
3.6 Existing Roothing Projects

The following projects have at this stage been proposed for the Far North District:

- ▶ Hokianga Bridging – viability of road and bridge links across the Hokianga Harbour. (RLTS Northland P 33)
- ▶ Kerkeri Heritage Bypass – detailed design and construction is currently underway.
- ▶ Special roading initiatives - for example, forestry roading. Highest priority forestry routes are currently upgraded via the Regional Development Programme at 100% subsidy from Land Transport. Council funds some upgrades of lower priority roads that provide forestry and community benefit through its annual roading programme.



- ▶ Tourist route upgrades. – Indirect benefits for the District resulting from tourist route upgrades will be assessed. Where there is a high degree of benefits Council will consider carrying out improvements or new works.
- ▶ Strategic programme of roading improvement priorities in the Bay of Islands and Kaikohe areas.
- ▶ First Response Works contingency fund to deal with emergency works.



4. Overview of the Far North

In accordance with the objectives of the LTCCP, the Road Improvement Strategy is to identify areas of the existing road network for improvement where there is a demonstrated need (LTCCP, 2004 p.8). In order to do so a review of the District is required to establish the location and type of activities, which are dependant on the existing road network. This section provides an overview of the District in terms of its resources, population and industry. The information contained in this section has been sought from a review of relevant reports, policies, statistical information¹ and interviews with identified stakeholders.

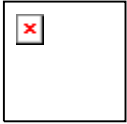
4.1 The Place

The Far North District is the northernmost district in New Zealand with a land area of 6,822 square kilometres, making it the second largest district council in terms of land area. It has 1,756 kilometres of coastline, on both the east and west coasts, and features eight major harbour systems.

Figure 1: Locality Map



¹ The statistical data available specifically for the Far North District is limited due to the collection of data by Statistics NZ and other agencies mainly in the context of Northland. Far North District specific data would enable more accurate economic forecasting for the District.



4.1.1 The Land

The land resources of the Far North are significant both naturally and culturally as well as providing an important resource for the economic development of the district.

The district has a total land area of 6,822 square kilometres and is dominated by a coastal environment. Significant landscape features include; coastal areas, for example North Cape coastal headland and Morimotu Island; natural harbours, for example Whangape Harbour and Hokianga Harbour; Wetland areas, for example the Waitangi wetland and Taikirau wetland; Volcanic cones, for example at Tauanui and Hariru Pa. (Source: *Far North Revised Proposed District Plan, 2003*).

The Far North District is characterised by soils of low to medium natural fertility. A study of the District estimated that no more than 130 square kilometres is of high agricultural value for sustainable food production. This constitutes less than 2% of the total land area. These soils have been identified near Kaitaia and up to Pukenui, and in the vicinity of Kaikohe and Waimate North. (Source *FNDC, Draft LTCCP 2004-2014*).

4.1.2 The Coast

The Far North District has 1,756 kilometres of coastline, on both the east and west coast of New Zealand. Retaining and enhancing the natural character of the coastal environment are key outcomes that Council is working towards. Council has adopted environmental standards for the coastal environment so that the natural character of the coastal environment is preserved and protected from inappropriate subdivision, use and development. The Proposed District Plan (2003) includes a section devoted the management of the coastal environment. This section is used in line with and to achieve the objectives of the Proposed Northland Regional Coastal Plan (1994).

4.1.3 The Atmosphere

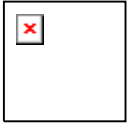
Despite the difficulty of forecasting climate change, NIWA staff is able to provide the following broad guidelines to assist with planning in the short term:

- ▶ High average mean temperatures are likely to continue.
- ▶ This will result in increased heavy rainfall incidents in the long-term.
- ▶ Flooding events are likely to be sporadic but concentrated in particular seasons.
- ▶ Northland is susceptible to these flooding events during strong La Nina climate patterns.

Anecdotal evidence indicates that continued structural and infrastructure damage due to weather patterns is likely to occur over the planning horizon and adequate resources are required to prevent the loss of life and minimise property damage.

Climatic change will have a greater impact on the region in the long term. Some of the impacts will include:

- ▶ Increasing agricultural production potential as the temperatures become more moderate
- ▶ New horticultural industries introduced as the region becomes more sub tropical



- ▶ Changing tourism patterns as snowfields and glaciers retreat, visitors will visit other regions including the Far North
- ▶ Rising sea levels, predicted to rise between 2 and 35 cm by 2050 which will negatively impact on productivity of low-lying coastal land and aquatic fresh water systems due to saline intrusion
- ▶ Increased impact of wave damage and erosion
- ▶ Changing wind patterns will result in higher rainfall on the west coast and a decrease on the east coast
- ▶ Increasing possibility of “100 year” flooding events
- ▶ The impact on freshwater and near-shore fisheries has a planning implication for infrastructure development

(Source: FNDC External Environment Overview Review 2000)

4.1.4 Heritage Values

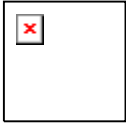
Historically and archaeologically, the Far North is richly endowed with a wealth of assets, many of which are nationally important. eg the Treaty House at Waitangi. There are also a diverse range of European archaeological sites and historic places in the District including, the Stone Store and pear tree at Kerikeri, the King Paddock at Te Waimate and Christ Church Heritage Precinct in Russell. Effects on heritage items (buildings, trees and cultural and archaeological sites) need to be considered in respect of any improvements to the land transport network. Notable trees, historic sites, archaeological sites, heritage precincts and sites of cultural significance to Maori are contained in Chapter 11 of the Revised Proposed District Plan. Council are working with tangata whenua to identify sites of cultural significance.

4.1.5 Land Use

Land use in the Far North District is characterised by the predominance of countryside and open space. The majority of the District's land area is rural with no single dominant urban area. Urban development is generally spread through the larger towns including Kaitaia, Kaikohe, and Kerikeri with populations between 1,000 - 6,000. Although areas along the east coast are growing faster than in other areas. Tourism, pastoral farming, forestry and horticulture are the major land uses in the District. Section 4.3 of this report provides further detail on each of these land uses and the areas of the District which are important to the economy.

The Far North District Council administers 1150 ha of reserve land for esplanade, recreation, local or scenic purposes. Council intends to use and develop its recreational assets in accordance with local and District Recreational Plans. A District Recreational Plan is due for completion at the end of 2004. High use recreational areas for both passive and active recreation include:

- ▶ Waipapa Sports Ground
- ▶ Lindvart Park and Central Rugby Ground in Kaikohe



- ▶ Centrepark in Kaitaia
- ▶ Kerikeri Domain
- ▶ Centennial Park in Kaitaia
- ▶ Memorial Park in Kaikohe
- ▶ Maritime Lawn in Paihia
- ▶ Paihia Village Green
- ▶ Johnson Park Kawakawa
- ▶ The Strand in Russell

4.2 The People

At the 2001 Census, the Far North District ranked 17th in size of the 74 territorial authorities in New Zealand, with 1.5% of New Zealand's population. There is an estimated 7.5 people per square kilometre in the Far North compared with the New Zealand average of 14.1 people per square kilometre. There is a significantly higher proportion of Maori in the Far North District than the 15% proportion of population for New Zealand. In the Far North 44% are Maori and 51% European. Population projections for the Far North District out to year 2021 are shown in the table below.

Table 1 Population Projections

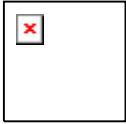
	Total Population		Total Growth		Growth from Natural Increase		Growth from Net Migration
2001	56,400	2001-2011	7,100		3,100		4,000
2011	63,500	2011-2021	6,400		2,400		4,000
2021	69,900	-	-		-		-
Total		-	13,500		5,500		8,000

Source: Far North District Council, Growth Management Strategy Project: Growth Forecasts, December 2004, p.12.

According to the medium projection series of Statistics NZ, the resident population of Far North District is projected to increase by around 13,500, from 56,400 in 2001 to 69,900 in 2021. This is a 23 percent increase and compares with the projected national increase of 16.1 percent during the same period. In 2001 Far North District represented 1.5 percent of New Zealand's resident population. In 2021 the District is projected to represent 1.4% of New Zealand's resident population (*Statistics New Zealand Sub National Population Projections, 2001(Base)-2021*).

4.2.1 Households

The number of households in the District in 2001 was 20,213 with an average household size of 2.5 people. The latest statistics available for the December 2003 quarter show that there have been 432 new dwellings authorised for construction in the



past year. This represents a rise of 28.6% new dwellings from the previous year and an increase of 14% floor area from the previous year compared with a national increase of 15.5%. It is estimated that from 2001 to 2021 there will be an additional 5,400 household units in the District (*Far North District Council, Growth Management Strategy Project: Growth Forecasts, December 2004*).

4.2.2 Ethnicity

At the 2001 Census, 44.7% of the District's population indicated that they belonged to the New Zealand Maori ethnic group compared with 14.7% nationally. The Far North District has 4.1% of the Maori population of New Zealand. Pacific Island people (2.7%) and Asian people (1.3%) have a smaller representation compared with that of the whole of New Zealand (at 6.5% and 6.6% respectively).

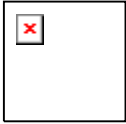
4.2.3 Age Structure

The median age of people in the Far North is 36.6, compared with 34.8 for all of New Zealand. Twelve and half percent of people (6,825) are aged 65 and over and 26.3% (14,370) is aged under 15 years. The population of the Far North are rapidly aging. Over the next 25 years the age profile of the District will change substantially. The number of school going children will see little growth and continue to reflect the higher population levels. School leavers will increase markedly making the need for local employment crucial. The most increase though occurs in the group of people over 55 years of age and the large portion of the community that will be retired. Depending on the degree of affluence of this group, issues like pensioner housing, health care, emergency services, recreational needs and public transport will take on new priorities. (*Source : FNDC Eternal Environment Overview Review 2001*)

4.2.4 Work

The size of the Northland regional labour force totalled 60,959 during the March 2004 quarter. For that quarter the unemployment rate for the region was 4.2% compared with the New Zealand unemployment rate of 4.6%. The most popular occupational group in the Far North District is in agriculture and fishery. The main activity in the rural areas is grassland/pastoral farming and exotic forestry is a significant and growing rural activity. The largest industry in terms of full time equivalents (FTE) in February 2003 was the retail trade, which employed 15.1% of all FTEs in the District. The manufacturing and health and community services industries both employed 11.5% of total FTEs in the District. There has been a significant fall in unemployment levels for Northland where in June 1999 the level was 13.1%, by March 2001 this had fallen to 7.7% and to 4.2% in March 2004.

The national unemployment rate stands at 4.6% for the March 2004 quarter. The unemployment rate for Northland stands at just under this rate at 4.2%. (*Statistics NZ Far North District Quarterly Review March 2004*)



4.2.5 Wealth

The median income for people in the Far North District is \$14,100 compared with \$18,500 for all New Zealand. (Source: FNDC LTCCP 2004-2014) In December 2003 males and females earned an hourly rate of \$18.81 and \$16.52 respectively, representing an increase of 1.2% for males and an increase of 0.4% for females from September 2003.

4.3 The Economy

Major revenue earning industries for the Far North are forestry, agriculture, horticulture, and tourism. In addition there is potential growth in the aquaculture and commercial industries.

4.3.1 Forestry

Approximately one sixth of the District area is in production forestry making it a key revenue earning industry in the Far North. Forty six percent of the Northland plantation estate is in the Far North District. Logs are transported to Marsden Point and to mills in Whangarei and towns in the Far North District including the Triboard mill at Kaitaia and the wood processing facilities at Kerikeri. It is expected that forestry, in particular, will prove to be a growth industry, especially with wood prices rising and total estimated production increasing sharply over the next 10-15 years. There is generally a north to south movement of logs using the state highways in the Far North. A small amount is sent by rail from Otiria to the chipper at Portland.

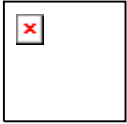
4.3.2 Agriculture

The dairy industry plays a major role in the Northland Region given the steady growth in returns, dairy cow numbers and processing investment. There has also been an expansion in alternative forms of farming, including deer." (Source: *Northland Sustainable Economic Development Strategy, 2002*). The Far North is a large producer of beef and there has been a 2-3% increase in milk production in the Far North over the last few years.

The agricultural industries main impact on the transport network is from milk tanker movements that are focused on State Highways 1,10 and 12. In addition, stock truck movements are focussed on the routes to the Kaikohe saleyards and the Moerewa freezing works but the majority of processing does not occur in the Far North. These movements vary during the year due to seasonal dairy operations. The highest movements are in the summer period.

4.3.3 Horticulture

The Horticulture industry is a growing industry in the Far North District. At present it is centred on the export industry in Kerikeri where kiwi fruit, avocados, squash, flowers and citrus are grown. Horticulture is poised to make huge increases in production based on newly developed export varieties. (Source *Northland Sustainable Economic Development Strategy, 2002*)



4.3.4 Tourism

Tourism is a key revenue earning industry in the Far North District. It contributes an estimated \$230-500 million to the Northland economy and employs around 10% of the entire Far North workforce. The concentration of tourism activities are focused on the coastal areas in the east, most significantly in the Bay of Islands and the Doubtless Bay areas. The Kerikeri Township and 90 Mile Beach are also significant tourist 'hot spots' in the District.

The Twin Coast Development Project (TCDP) has worked towards enhancing the tourism industry in the District. It has improved movement of tourists from the Whangarei and Kaipara Districts to the Far North and has worked towards distributing tourism receipts more evenly through out the Northland Region. The majority of tourist traffic however, is still concentrated on State Highways 1 and 10.

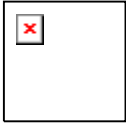
4.3.5 Aquaculture

The fishing and aquaculture sector holds significant potential for the Far North due to the existence of natural sites for coastal shellfish farming. Aquaculture, mostly based in the Far North District, directly employs around 400 people (320 FTE) and earns more than an estimated \$20 million a year for the Northland Region.

At present commercial aquaculture in Northland is dominated by Pacific oyster production, mostly in the Bay of Islands, Whangaroa, Houhora, and Parengarenga Harbours. There is a relatively small scale but well established mussel farm industry in Houhora Bay. NIWA has established an aquaculture research and development centre near Ruakaka, which has the potential to help bring new aquaculture ventures to the Northland Region. Most seafood products leave the District by road, usually for Auckland where they are often processed or prepared for export. Substantial seafood processing plants are also present in Kaeo and near Kaitaia.

4.3.6 Retail and Commercial development

Retail trade in Far North is steadily growing largely driven by population growth. Retail trade was the largest industry in terms of FTEs employing 15.1 % of all the FTE in the District at February 2003.



5. The Existing Road Network

5.1 State Highways

Transit New Zealand maintains 490 km of road in the Far North, being State Highways or strategic routes. The Northland region is serviced by the following state highways:

- ▶ **SH1** is located within the eastern section of the region to Kawakawa, then through the central section of the region to Kaitaia then along the eastern side of the northern region to the top of the North Island. The highway passes over the Brynderwyn Hills, south of Whangarei and the Maungataniwha Range north of Kaitaia.

The Brynderwyn Hill has a passing lane on the northern flank for southbound traffic and two passing lanes which cover approximately 50% of the length on the southern flank. The highway over the Maungataniwha Range is two lanes and contains steep grades and substandard curves.

- ▶ **SH 10** is located along the eastern section of the region from Kaitaia joining SH1 near Kawakawa. This route provides access to numerous coastal communities and holiday areas. Commercial traffic along the route is light.
- ▶ **SH 11** provides the access to the Bay of Islands from SH1 at Kawakawa.
- ▶ **SH 12** starts at the Brynderwyn junction with SH1, through Dargaville, then up the western side of the region through the Waipoua Forest to the Hokianga Harbour then eastwards through Kaikohe to join back into SH1 at Ohaeawai.

5.2 Local Roads

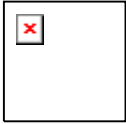
The Far North District Council maintains 2,510 kilometres of local roads. The major local arterials are:

- ▶ Kohukohu Road and Kaitaia Awaroa Road which is part of the Twin Coast Discovery Route.
- ▶ Mangamuka Road which provides a link between SH1 and the Twin Coast Discovery Route on the southern side of the Mangataniwha Range.
- ▶ Mangakahia Road (approximately 33% of its total length) which provides a central route for traffic travelling south from Kaikohe that does not pass through Whangarei.

Far North's road hierarchy is made up of the following classes of roads, listed in order of importance in terms of vehicle volumes and strategic importance:

Table 2 Road Categorisation

Category	Descriptions	Number of km	Percentage of km sealed
Strategic	Roads of strategic importance	36km	44%



Category	Descriptions	Number of km	Percentage of km sealed
	nationally		
Arterial	Roads of regional importance	160km	100%
Collector	Roads of local significance	445km	61%
Local	All other roads maintained by Council	1,869km	14%

(Source: FNDC Draft LTCCP 2004-2014)

5.3 Use of the Road Network

It is estimated that the existing relative significance of different modes in terms of vehicle movements on roads in the Far North District is as follows. These estimates are expressed as a percentage of total heavy traffic movements in the Far North on all major routes.

- ▶ Forestry 43%
- ▶ General freight 39%
- ▶ Agriculture 4.2%
- ▶ Tourism 4.5%
- ▶ School buses 9.6%

(Figures based on data from Northland Regional Council Heavy Traffic Volumes Northland).

5.3.1 Public Transport

The public passenger transport system in the Far North District is made up mainly of ferry and bus services. Private operators run nearly all the services on a commercial basis. There is no Total Mobility Scheme for those with disabilities and special needs. The rail network does not carry passengers, however an enthusiast group has maintained a tourist train between Kawakawa and Opuia in the past. This is presently not operational.

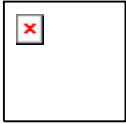
Ferries

The following ferry services operate in the Far North. For the Bay of Islands, a passenger and vehicular service operating between Opuia and Okiato Point and a passenger service from Paihia to Russell. In the Hokianga there is a passenger and vehicular service between Rawene and Rangiora. These ferry services are mostly tourist based and do not attract patronage funding.

Buses

There are regular bus services to and from the Far North including:

- ▶ Inter-city Coachlines who provide bus services from Auckland to Kawakawa, Paihia, Kerikeri, Kaikohe and Kaitaia.



- ▶ Kiwi Experience Services to the Bay of Islands
- ▶ Northliner Express Coach Service to the Bay of Islands and Kaitaia
- ▶ Magic Bus Services to the Bay of Islands
- ▶ Great Sights
- ▶ Fullers Bay of Islands Tours
- ▶ Awesome Adventures NZ

No public bus services operate in the Far North District. Any future demand for bus services would be driven by the community through the Far North District Long-Term Council Community Plan process.

A heavy user of the state highway and arterial routes in the Far North are school buses. Approximately 114 trips are made each school day. These are broken down into 92 trips for the Kaikohe and Bay of Islands area and 22 trips for the Kaitaia area. A majority of these trips are operated during peak periods. These figures were provided in July 2001 by the Multi Serve Education Trust who administer services on behalf of the Department of Education. The Ministry for Education advise that school bus routes will be changeable over the next 15 years. Data of current routes is available from the Northland Regional Council.

There are a number of operators who carry passengers to the tourist attractions of the Far North, including:

- ▶ Kings Tours and Dolphin Cruises
- ▶ Harrisons Caper Runeer
- ▶ Paradise Connexion
- ▶ Kiwi Eco Tours
- ▶ Dunerider and Paihia Duck

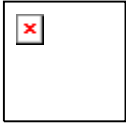
Rental cars are also a form of transport for the independent traveller and taxi services operate in Kaitaia, Kerikeri and Paihia.

5.3.2 Pedestrians and Cyclists

Provisions for cyclists and pedestrians in the Far North are at present very limited. Many of the roads have narrow carriageways, little or no shoulders and support high volumes of heavy vehicles. The Council maintains approximately 139 km of footpaths throughout the District but there is presently no cycle network developed for the Far North District.

Transit NZ has a proposed programme of pedestrian/cyclist facilities for State Highways. These include the following projects in the Far North, Coopers to Taipa WC, Moerewa WC, Ohaewai WC, Waima Bridge, Kawakawa SW WC , Kawakawa Township WC.

The Far North District Council has yet to develop a strategic plan for walking and cycling facilities. At present the Council prioritise the building of new footpaths



according to location (eg close to schools and hospitals have higher priority than other areas), traffic density of the area and whether the berm is suitable for pedestrians without constructing a formal footpath.

There are a number of recreational walking tracks operated by the Department of Conservation the major ones include the Cape Brett Walkway, Cape Reinga Coastal Walkway and the Golden Stairs Track from Hokianga Harbour to Whangape Harbour.

Cycling is one of the most sustainable forms of transport providing benefits for personal health and the environment. The Northland Regional Land Transport Policy Four states "To recognise and provide for safe cyclist mobility and access to cycling". As an action of this policy it is intended to conduct a cycle/walkway network study for Northland in the next two to three years.

5.4 Integration with Alternative Modes of Transport

A key component of the Northland Regional Land Transport Strategy is the integration of the differing modes of transport. Although focused on roading the RIS will be developed to ensure that it is integrated with and provides connections to alternative modes of transport.

5.4.1 Rail

The Far North District is served by the Auckland to Whangarei line with a shunt line between Whangarei and Otiria, which operates freight services only. The present rail system has plenty of future capacity for freight movement.

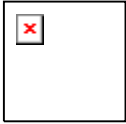
At present there is no rail link to Marsden Point Port. Whangarei District Council and the Northland Regional Council have completed an investigation into the feasibility of a rail link to the Marsden Point Port. This study shows that the construction of this link is uneconomic at this stage (*pers communication Dave Macdonald, Land Transport*). Without this link the impact on the Far North roading network from the transportation by road of timber and freight will continue to increase.

The rail track and infrastructure is returning to Government ownership on 1 July 2004. Future funding of the service may come from companies and local authorities wishing to use the track. It is not proposed to introduce passenger services in the next 15 years. Formation of a track North to Okaihau is supported by industrial interests and may become a reality within 10-15 years.

5.4.2 Coastal

There is no active barging operation in the Far North District. The majority of Coastal Ships use the Marsden Point Port located outside the Far North District, in Whangarei. Opuia is used for berthing cruising yachts and receiving passengers from cruise liners which anchor off Russell during the summer months.

The cruise ship market has developed rapidly in recent years with 24 cruise ship visits in the 2002/03 season and the Bay of Islands is rated as one of the favourite ports of call in New Zealand. Visits typically occur in the high summer season when



infrastructure is stretched and many attractions are fully booked. Infrastructure improvements to wharfage and berthing facilities are required to relieve loading and congestion problems and meet visitors' expectations.

The Far North District has also been successful in capturing customs clearance, refurbishment and maintenance of a significant number of privately owned superyachts and overseas yachts visiting New Zealand. Currently 90-95% of foreign yachts visiting New Zealand are clearing customs at Opuia. It is important that facility improvement continues to develop to maximise the attractiveness of the district to capture the economic impacts of these visitors, including vessel refurbishment and provisioning (Source: Northland Tourism Strategy 2003).

It is expected that the cruise ship market will develop slowly when the international political scene and terrorist activity subsides. The Australasian cruise routes are expected to be patronised by passengers who are presently travelling in the United States, Caribbean and Alaska markets. There is an anti terrorism programme in place for Waitangi which has been approved by American authorities and development has been completed of the Waitangi Wharf and bus turning circle. Cruise liners can clear customs in a dedicated customs area of the bay off Opuia. (pers comm. Malcolm Nicholson, Far North Holdings Limited)

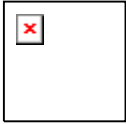
There are a number of parking issues at marine facilities. The most severe site is Mangonui Wharf where a wharf development plan is being prepared for a larger carparking facility. Other sites with issues include Mill Bay (severe parking and access issues), Opuia, Kerikeri Inlet and others identified in the Northland Regional Council Coastal Plan. Resolution of these issues may require road widening, land reclamation for carparking or possible removal of wharf ramps and re-development at an alternative site with adjacent parking.

5.4.3 Air

The main commuter airports in the Far North are located at Kerikeri and Kaitiaki. There is no dedicated airfreight service for the Far North. There are thirty commercial flights to Kerikeri and Kaitiaki airports each week. The average passenger loadings are estimated at 14 passengers per flight. This equates to 5,040 per annum (Source RLTS). Council leases the Kaitiaki airport from the Crown. Whereas the Kerikeri Airport is owned by Far North Holdings Limited, the Council and the Crown in parts. There is a smaller airport located at Kaikohe which is predominantly used for recreational flying.

The effect of air transport on the physical transportation network is negligible in comparison to the goods and people moved using the other modes of transport. (Source: Northland Integrated Transport Study 2002).

Far North Holdings Limited have a 20 year projection structure plan for Kerikeri Airport produced in 2000. The growth numbers in that plan have already exceeded predictions in the first four years. It is now predicted that the number of scheduled flights will increase to be in the range of 10-15 per day over the next 15 years. This summer it is expected that there will be 6 flights per day. Air New Zealand is currently assessing a number of 40 seat configuration aircraft as opposed to the present 19 seaters utilised.



In the future the Kerikeri Airport may operate aircraft of up to 65 seats capacity. Dependent on the 40 seater aircraft selected there may be a need to lengthen the runway. This would necessitate a drop in height of Wairoa Road. Designs for increasing the size of the terminal are also being developed. Should the terminal be relocated then access changes would be required also from Wairoa Road.

It is not expected that there will be any change to the Kaitaia Airport in the next 10-15 year period. There is community will for the airport to be developed into an international facility. This would necessitate the lengthening of the current runway which would require some minor road alignment on Quarry Road. *(pers comm. Malcolm Nicholson FNHL).*

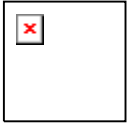
5.5 Funding of the Road Network

Funding of the Far North's land transport network is achieved primarily through a series of land transport programmes. Transit New Zealand (for State Highways), Council (for local roading) and the Regional Council (for any regional land transport projects, including passenger transport and rail) prepare land transport programmes each year. These programmes set out funding requirements for the year and are forwarded to Land Transport New Zealand with a request for funding. Land Transport funds 100% of some projects under its Regional Development Output Group and subsidises others depending on local authorities providing funds to match the allocations available from Land Transport. The Far North District will receive 56% financial assistance for local roading maintenance in the 2004/05 financial year and 66% for construction of new roads. Subsidy rates are based on the ratio of programme expenditure to rateable land value in each district. Transit New Zealand and the Waitangi National Trust projects are funded 100%. The Trust's roads are special purpose roads through the Trust area and these are administered by the Far North District Council.

Another possible funding option for future road upgrading works may be the forestry industry particularly where the only beneficiary of a road upgrading is the forest owners.

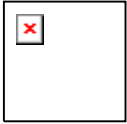
“Projects funded by the Regional Development Output Group are for forestry roading mainly and must:

- ▶ Provide or improve access in such a way that will encourage direct additional investment in a 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. “(Source RLTS).
- ▶ Alternatives to roading and barging proposals can also be considered and promotion of walking and cycling, including development of walking and cycling strategies, promotion of walking and cycling activities in a region and infrastructure projects. (Source RLTS).



A RIS provides an opportunity to consider the benefits of alternative forms of transport and the cost effectiveness of various options. An example is the cost effectiveness of road upgrades to cope with increased demand, versus putting equivalent funding into public transport.

The implementation methods will be dealt with as part of the Far North District Council's funding policy for specific projects and undertaken through Council's Annual Plan and Long Term Council Community Plan processes. Each separate project requires a cost/benefit analysis to ensure that the expenditure is financially justified in terms of the benefits derived.



6. Potential Future Growth Areas

The Northland Regional Council's economic strategy concludes, "the provision of appropriate Northland regional infrastructure will underpin the drive for regional economic prosperity" (Northland Sustainable Economic Development Strategy, 2002). Roothing infrastructure is essential to supporting economic growth in the District and therefore an objective of the RIS is to develop a road network which provides for future growth in the Far North District.

This objective is supported by the Far North District Council's Growth Management Strategy Project which aims to forecast growth in the District so that it can anticipate the future infrastructure needs of the District and synchronise the development of infrastructure necessary to service growth with land use. It is essential therefore that the RIS is linked to the findings of the Growth Management Strategy and that it anticipates the demands placed on the District's roading resource as a result of the growth forecasts.

This section identifies potential areas of growth in the Far North and their potential effects and demands on the road network. A land use map included in Appendix E illustrates these areas of growth.

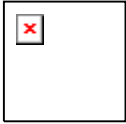
6.1 Forestry

The volume of forestry woodflow in Northland, including logs and wood products is forecast to increase generally from the present (2002) 1.5 million tonnes per year to 4 million tonnes in 2011. (Source: GHD, *Integrated Transport Strategy*). Longer-term forecasts predict a second major increase in production coming on stream after 2030 that will more than double the 2005 output levels. (Source: *FNDC External Environment Overview Review 2001*).

It is anticipated that the majority of the product will be exported. The development of Marsden Point provides a fully functional log export port. Logs for export are to be transported direct to the port at Marsden Point for loading onto ships. Primary and secondary processing of raw logs into finished wood products is presently undertaken at Kaitaia and Kerikeri. It is expected that in the next two years that there will be logging operations in the Kerikeri area that will be processed at Kaitaia.

A proposal to develop a barging operation from north Kaitaia to Marsden Point was investigated for transporting unprocessed logs and finished timber product from Kaitaia. There was also the possibility of a barging operation for logging trucks across the Hokianga Harbour (Source GHD study). These barging operations have been fully investigated with the forestry industry in 2004 but there does not appear to be demand for barging transportation at this stage.

The industry has acknowledged the need for Northland to identify further processing opportunities within the region, otherwise the benefits of the forest resource will leak out of the region. (*Northland Sustainable Economic Development Strategy, 2002*). Further processing of wood in the Far North is a possibility.



6.1.1 Impact on the Road Network

As the majority of the product for the forestry industry in the Far North is transported by Road, this anticipated increase in volumes will have a substantial effect on the operation of the road network. This impact has already been recognised for the Northland Region as a whole as part of the Northland Integrated Transport Study (GHD, March 2002). This study highlights the importance of improving the regional road network to meet the increase in transportation of logs and wood products.

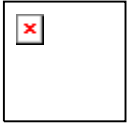
Enterprise Northland Forestry Development Group in their Draft Northland Forest Industries Strategy, endorse that the changes required to the roading network to meet the needs of the developing forest industry are covered in the Northland Integrated Transport Study (GHD, March 2002). Key points include:

- ▶ Recognition that the roading network needs improvement
- ▶ Whenever possible, separate local from tourist traffic
- ▶ Retain the existing rail network
- ▶ Mangakahia Rd and Otaika Valley Rd become the primary route for heavy traffic to and from Marsden Point
- ▶ A rail link from Oakleigh to Marsden Point is provided by 2005
- ▶ A Hokianga bridge is completed by 2005; and
- ▶ A western route to Kaitaia via Paponga and the Kaitaia/Awaroa Roads be upgraded.

As a result of the Northland Integrated Transport Study (GHD, March 2002) upgrades to the roads identified as important routes for the Forestry industry can request funding under the Regional Development Fund. Appendix D outlines the forestry routes that have been identified for Regional Development Funding in the Far North District.

The Forestry Industry is also working towards improving the planning for and maintenance of key routes. The forestry industry has commenced work with the Northland Regional Council and MAF and Agriquality to collate a database of harvest intentions. The database will contain location of forest, expected harvest and routes required for transporting the logs. It is expected that this database will contain information by the end of 2004 and this will be released to the affected local authorities for land transport planning purposes. This is in recognition that the Council needs time in which to plan. Expected volume of truck movements will also be available from the database. It is imperative to regularly update the forecast woodflows from all forestry owners to minimise the risk of non-effective allocation of roading funding resources because tactical forest harvesting is carried out.

A reduction in the volume of trucks on the road network could result from additional wood processing in the District. This would potentially reduce the road maintenance costs as well as the number of accidents, travel times, vehicle operating costs and congestion. (Source: GHD, Integrated Transport Strategy) The availability of the necessary transportation network, along with skilled labour, energy and water would all



need to be considered to support further processing plants. (Source GHD -- NRC Integrated Transport Study).

6.2 Agriculture

The agricultural industry is expected to grow by a 4-5% increase in productivity and the 2-3% increase in milk production over the last few years is expected to continue with the increased confidence in the industry. Despite this level of growth anticipated, the Far North District is expected to see a decrease in the amount of land, which is utilised for dairying. This land will be sold for alternative farming production and there is potential for this to be for horticulture production.

Even though dairy farms will be fewer it is expected that the improvements in technology will lead to the increase productivity. There is potential to lift the (Northland) farming sector's economic performance by 10 – 15% through the implementation of existing technology and best practice across a larger number of farm businesses, alternative land uses and niche marketing of innovative products (eg ostrich and emu farming).

6.2.1 Impact on the Road Network

The ability to grow the dairying industry and encourage the development of dairy factories in the Far North is hindered by roading, particularly the number of unsealed roads, and energy issues. (*pers com Ian Walker, Federated Farmers*). In order to encourage improvements in technology, the road network will need to meet the demand from the agricultural industry.

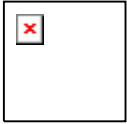
There will be continued stock truck movements to the Kaikohe saleyards and the Moerewa freezing works but the majority of processing will remain outside the Far North. There will be a minor increase in road transport of milk to other factories than Kauri and Maungaturoto in the peak season and the increase in finished product from Kauri and Maungaturoto will be transported by rail. (*Source: GHD, Integrated Transport Strategy*).

6.3 Tourism

The Northland Tourism Strategy 2003 has the following growth target objectives set for Northland tourism from 2001 actuals to December 2008.

- ▶ 17% increase in domestic visitors to 1,522,000
- ▶ 45% increase in international visitors to 485,000

By 2008, international visitors are forecast to contribute 53.2% of all overnight visitor expenditure in Northland, up from 44.9% in 2001. Domestic tourism is the base of the Northland tourism industry. However in the period 2001 to 2008 domestic visitor nights are expected to reduce from 75% to 70% of total nights with overnight expenditure increasing from \$227 million to \$278 million. Where as international visitor nights are expected to increase from 25% to 30% of total nights and expenditure increase from \$185 million to \$316 million.



An additional \$129 million is expended on day trips to and within Northland. (*Source: Northland Tourism Strategy 2003*). Total visitor nights to Northland are predicted to increase from 6,026,000 in 2001 to 7,470,000 in 2008. This is a 24% increase. Statistics New Zealand's accommodation survey indicates that visitor numbers peak during December and January when close to 200,000 people arrive in Northland. The two months preceding and three months following the peak period are also substantially busier than the low season with on average 67,000 people arriving per month compared with 34,000 in the low season.

The majority of these visitors are likely to arrive from four directions:

- ▶ From Auckland, via tourist buses, camper vans and rental and private cars
- ▶ From Opuia via yacht
- ▶ From the Bay of Islands via cruise liners
- ▶ By air via Kerikeri and Kaitiaki airports

Further strong growth is expected due to a range of factors including marketing of the region by Destination Northland, improved road access from Auckland and the effects of the Twin Coast Development Project (TCDP) distributing tourism receipts more evenly through out the region. The TCDP provides the opportunity for Northland to enhance existing tourism businesses and develop new tourism while enhancing the development of the towns and communities of the District.

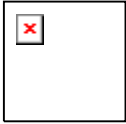
Growth in air travel is expected to continue from both visitors and Northlanders. Further research is required into understanding the impact that improved air transport or promotion of existing services could have on visitor demand for short break holidays. This needs to be developed through better research and understanding of passenger preferences. The tourism sector needs to form closer links with Far North Holdings Limited to ensure that the tourism sectors needs are fully considered and included in FNHL infrastructure development plans. (*Source Northland Tourism Strategy 2003*).

6.3.1 Impact on the Road Network

A high proportion of visitors to the Far North are "free independent travellers". As such traffic includes tour buses, camper vans and rental cars. Figures supplied by Destination Northland indicate that 30% of visitors arrive by tourist buses, 62% by car or campervan and 8% by air or boat. (*Source: GHD, Integrated Transport Strategy*). These figures show a focus on road as a method of transport for tourism industry. Therefore the anticipated increase in the industry will have an increasing impact and demand on the road network.

The Northland Tourism Strategy 2003 identified a series of roading issues and projects with particular tourism impacts and interest to tourism development. These included:

- ▶ FNDC investigate the feasibility of constructing a coastal link road between Paihia and Kerikeri
- ▶ Kerikeri Bypass construction



- ▶ FNDC extend operating hours and increase frequency of vehicular ferry from Rawene to Kohukohu
- ▶ A recommendation be made by the tourism industry in response to the Hokianga Vehicle Ferry and proposed bridge development
- ▶ Upgrade of Kawakawa to Paihia road
- ▶ Paihia to Puketona Junction support transfer of responsibility from FNDC to Transit NZ
- ▶ Pungare Road needs sealing as an important tourist route.

6.4 Aquaculture

Aquaculture is growing in the Far North, doubling its total turnover in the past decade. There is excellent potential for the development of aquaculture because the area has a very good range of growing conditions, existing infrastructure and candidate species as well as an established local aquaculture industry. Estimates have put the potential for the industry to grow to \$100 million in ten years, a growth rate of around 20% per annum. It is expected that the industry would then employ 2,000 people and generate a further 700 jobs indirectly. (Source: NIWA, *Assessment of the Potential for Aquaculture Development in Northland*) Economic studies indicate that aquaculture is likely to indirectly stimulate economic activity of around another \$20 million and generate at least a further 100 jobs.

Maori are extensively involved in the industry and the opportunity exists for further iwi investment of Treaty of Waitangi fisheries settlement money. Tourism also provides excellent opportunities to promote aquaculture products and activities and develop new and novel opportunities for tourist aquaculture ventures and outlets.

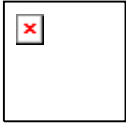
The Northland Regional Council has identified potential Aquaculture Management Areas (AMA) for the Northland Region. The majority of these areas are located in the Far North and include the following:

Intertidal (suitable for oysters and similar species)

- ▶ North of Kaipohu Island and Taraere Point and south of Tiawhakangari Point (Parengarenga Harbour) (25 hectares)
- ▶ North of Green Point (Houhora Harbour) (15ha)
- ▶ Eastern side of Mangonui Harbour (35ha)
- ▶ West of Dead Whale Reef, southwest of Ti Tii (Te Puna) (25ha)
- ▶ Between Te Karaka Point and Te Mata Point (Hokianga Harbour) (25ha)

Longline (suitable for mussels)

- ▶ North of Stanley Point within Houhora Bay (11ha)
- ▶ Within Motukahakaha Bay, south of Wekarau Island (35ha)
- ▶ Between Matanaohinihi Point and Pa Island off Frear Bay (Whangaroa Bay (40ha)
- ▶ West of Stephenson Island (58ha)



- ▶ West of Flat Island (70ha)
- ▶ Between Rangihoua Bay and Hauai (Whale) Bay (36ha)
- ▶ Elliot Bay and Taupiri Bay (354ha)

Finfish

- ▶ North of Whau Bay near Te Ngaire Bay (10ha)
- ▶ North of Koutu Point (Hokianga Harbour) (10ha)
- ▶ (Source: Northland Regional Council Aquaculture Update April 2004)

A further proposal has been received by the Northland Regional Council of an individual oyster farmer in Whangaroa Harbour. The implementation of these AMA's will largely determine extent and pattern of growth for the industry over the next two decades or more.

However, the Northland Regional Council has called a temporary halt to further strategic planning on AMA until Central Government reveals new aquaculture legislation. This may not be known for some months yet. At this stage Central Government says it plans to lift the moratorium on new marine farm development on 31 December 2004. Unfortunately Central Government's present moratorium on AMA has dampened enthusiasm for aquaculture development. (pers communication John Hulse Enterprise Northland).

Final formal designation of AMAs will require a change to the Northland Regional Council's Proposed Regional Coastal Plan. Depending on any appeals this Plan change process could take two to three years. The process of changing the Plan would only commence when the aquaculture law reforms have been concluded.

6.4.1 Impact on the Road Network

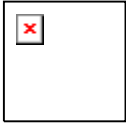
Although growth in the industry is on hold until the aquaculture law reforms have been finalised an adequate level of service is required to accommodate any increase in vehicles associated with the aquaculture industry to support potential growth in this area.

6.5 Horticulture

Horticulture production is expected to increase significantly in the Far North District. Areas identified for potential horticulture development are in the Kerikeri and Motutangi area.

6.5.1 Impact on the Road Network

The annual horticulture production rates do not contribute significantly to cargo movements in the District. Growth in the industry this will increase localised truck movements but is not expected to significantly impact the main routes.



6.6 Residential Development

A significant pressure on the district's land resource is the increasing levels of residential development and subdivision. It is predicted that the number of household units in the Far North District will increase by 65% from 2001 to 2021 (*Far North District Council, Growth Management Strategy Project: Growth Forecasts, December 2004*). Coastal settlements, especially on the eastern and north-eastern coasts, are growing at a faster rate than the District average. Areas where substantial growth in residential development is occurring and is expected to continue include; the Coopers Beach and Cable Bay area, Kerikeri, and Paihia. Future growth is anticipated in the coastal areas between Whangaroa and Matauri Bay and in the Toerau Beach area as redevelopment of roads and other infrastructure in these areas makes them more accessible. Most inland settlements, such as Kawakawa, Moerewa and Kaikohe, have relatively stable populations.

Developments in the Far North tend to be larger lifestyle lots from 4000m² to 4 hectares as well as many applications below the minimum lot size of 4000m² for rural areas and 20 hectares for coastal areas. Recent applications have generally been in the rural areas and on the coast.

In addition to the growth in resident population, the Far North receives a large influx of holiday makers and tourists, particularly in the summer season. The populations of some coastal settlements more than triple during the summer holiday period.

6.6.1 Impact on the Road Network

Subdivisions and development trends are not expected to have a major effect on the District's (major) transport network as most of the impacts are localised. Some additional traffic may be generated on the state highways on the weekends and holiday seasons as some properties are owned by persons who live outside the District. (*Source GHD – Integrated Transport Study 2002*)

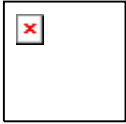
6.7 Population Change

Population projections for the Far North District are given in Section 4.2 of this report. The number of school going children in the Far North will see little growth, however school leavers will increase markedly making the need for local employment crucial. The most increase though occurs in the group of people over 55 years of age and the large portion of the community that will be retired. External migration during the year ended to December 2003 resulted in a net decrease of 29 people to the District.

6.7.1 Impact on the Road Network

The future needs of transport will be influenced by the growth in population by age group. Depending on the degree of affluence of the increasingly aged population, issues like public transport will take on new priorities.

Statistics also show that personal mobility is increasing in Northland. Car registrations for new and ex overseas cars registered for the Whangarei Postal District during the December 2003 quarter have increased by 10.3% compared with the December 2002



quarter. (Source: *Statistics NZ Quarterly Review Dec 2003*). (Figures are not available specifically for Far North District.) Issues associated with personal mobility include operating costs, standard of the roads, lack of transport for some, the age of vehicles makes them sometimes unreliable.

6.8 Future Demands on the Road Network

The Far North District Council's Growth Management Strategy Project has identified the roading infrastructure needs for areas within the District based on levels of anticipated growth and current infrastructure provision. The table below presents these findings. 'Historical Catch-up' refers to an area where an upgrade to roading infrastructure is required to meet the demand generated by existing development. 'Growth related infrastructure' refers to those areas where upgrades to roading infrastructure is required to meet the demand for anticipated future development and 'increased level of service' refers to those areas where an upgrade to roading infrastructure is required to meet modern standards.

Table 3 Far North District Growth Areas and Roothing Infrastructure Needs

Growth Areas	Historical Catch-up	Growth related Infrastructure	Increased level of Service
Kerikeri-Waipapa	✓	✓	
Mangonui-Taipa		✓	
Toerau-Whatuwhiwhi			✓
Russell			✓
Pahia-Opua		✓	✓
Ahipara	✓	✓	
Pukenui-Houhora		✓	
Opononi-Omapere	✓		

Source: *Far North District Council, Growth Management Strategy Project: Growth Forecasts, December 2004, p.10.*

The areas identified in Table 3 where growth related infrastructure is required have been determined by way of predicted levels of population growth, visitor growth and land-building development. The research undertaken for this Baseline Report has also identified routes that are significant to industries and land uses which are experiencing growth. Based on this information, Table 4 demonstrates the main land uses or industries that are predicted to affect the Far North's road network.

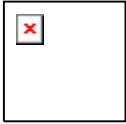
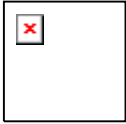


Table 4 Main Land Uses

Land use / Industry	Primary Origin	Primary Destination
Heavy traffic for Forestry & General Freight	Kohukohu Rd Mangamuka Rd, Te Pua Rd, Mangakahia Rd, Ngapipito Rd, Matauraua Rd, Picadilly Rd, Pipiwai Rd, West Coast Rd, Te Iringa. State Highways 1,10 and 12 Broadwood Rd, Fern Flat Rd, Gammon Rd, Giles Rd, Humphreys Rd, Lovatt Rd, makene Rd, Matawera Rd, Ninihi Rd, Omahuta Rd, Orakau Rd, Otaenga Rd, OtangaroaRd, Paponga Rd, Patutahi Rd, Pokapu Rd, Rangiahua Rd, Spirits Bay Rd, Takehe Rd, Tipene Rd and Wood Rd.	Hokianga Harbour Marsden Point Auckland, Marsden Point port Forestry Blocks
Agriculture (Milk tankers and stock transport)	Far North agriculture areas – State Highways 1,10 By rail from Maungaturoto and Kauri	Maungaturoto and Kauri, Moerewa, Kaikohe Kaitaia (Town milk) Auckland &Tauranga
Aquaculture	Parengarenga Harbour Houhora Harbour Mangonui Harbour Hokianga Harbour	Processing plants at: Auckland Kaeo Kaitaia
Tourism (tourist buses)	Auckland, Whangarei	Twin Coast Discovery Route including - Kaitaia-Awaroa Rd, Awaroa Rd, Kohukohu Rd, Puketona Rd and State Highways 1,12,10,11
Commuters (school buses and public transport)	Residential areas in the Far North	Various
Recreation and retail activities	Residential areas in the Far North	Various



7. Key Issues for the Road Network

In addition to the demands placed on the road network from areas of growth outlined in the previous section, the research undertaken for the development of this Base Line Report has identified the following key road transport issues for the Far North District.

7.1 Unsealed Roads

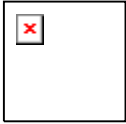
As outlined in the previous section, only 29% of the total length of roads that are managed by the Far North District Council are sealed compared to the national average of 60%. The standard of the unsealed roads is such that an increase in heavy traffic movement will cause rapid deterioration of the carriageway and result in unsafe driving conditions.

To reach the national level of sealed roads over ten years would require Council to seal over 800 km at an estimated local, unsubsidised share of \$5.5 million per year at current funding assistance levels. This is not affordable when balanced against other priorities for the District. Council's roads are relatively low trafficked, often servicing isolated areas. Much of the District is hilly and unstable with prolonged wet conditions. Combined with the low use density, the unit cost (per vehicle per ratepayer) is very high. The Council continues to lobby funding agencies for increased level of subsidy. (Source: FNDC Draft LTCCP 2004-2014)

7.2 Road Safety

It should be noted that 4.8% of New Zealand's injury crashes are fatal crashes compared to 10% for Northland. In the Far North during 1998-2002, 73 people (annual average of 15 people) were killed in 63 fatal crashes. The Police reported 1,799 crashes of which 556 involved injury. The LTSA has estimated that the social cost of crashes in Northland in 2001 as \$166.2 million. Around 10 per cent of urban and 20% of rural crashes in Northland during the period 1997 to 2001 involved the road as a contributing factor. Loss of control crashes on bends account for 47% of Northland injury crashes compared to the national figure of 28%. This information is based on reported crashes only and may under represent the actual number. (Source RLTS Northland and LTSA, Far North District Road Safety Issues). These figures demonstrate that safety on the District's Roads is a significant issue that must be addressed by the RIS.

As outlined in Section 2 of this report, both national and regional strategies encourage the development of a safer road network. The Land Transport Safety Authority's Road Safety Strategy 2010 introduces a Safety Management System approach that recognises that drivers' behaviour contributes to most crashes but that it may be more effective to improve the road than educate the driver. The Northland Regional Road Safety Plan 2004-2010 requires that each road controlling authority establishes a Safety Management System which ensures that those authorities use consistent



standards and policies. As outlined in Section 3 Council is currently developing a Safety Management System for the Far North District.

Roadsafe Northland continues to develop and implement regional and local road safety community development projects and programmes in partnership with stakeholders and communities. The Roadsafe Northland Safety Co-ordinator is based in the Far North District and oversees several community projects that are likely to run for the next 1-3 years. These projects are developed or approved by LTSA and are designed to be delivered by community providers in a local setting. These also help to foster regional and local coordination and provide a road safety focus for communities and agencies. Funding for Maori projects has increased and seen an increase in community-based activities.

Roadsafe Northland would like to see all schools teaching road safety. They also support a broad range of community-based driver education programmes (eg driver licencing, repeat drink driver, advanced driver). Enforcement of road rules is important to achieve consistent road behaviour. In recent years the Police and LTSA have focussed efforts on areas of risk and have increased speed and drink driving enforcement in rural areas.

7.3 Provision for Pedestrians and Cyclists

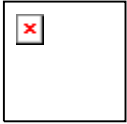
The particular needs of cyclists and pedestrians and their conflicts with other forms of traffic need further consideration through the districts planning process. As outlined in 5.3.5 of this report the Far North District Council is yet to develop a strategic plan for walking and cycling facilities.

Provision for cyclists and pedestrians is increasingly urgent in east coast communities experiencing high rates of urban development, including Russell. The safety of pedestrians is of concern in communities that are experiencing growth without the provision of footpaths, such as Opononi and Omapere. (*Source: Northland RLTS*). In the period 1998 – 2002 pedestrians made up 4% and cyclists made up 1% of road casualties in the Far North.

7.4 Road User Conflicts

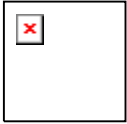
As highlighted in Section 6 of this report there are a number of different industries with different transport needs, which are dependant on the road network as well as the use of the roads by the community. There is potential for a conflict between the different road user groups.

Concern has been raised for school buses and logging trucks, milk tankers and stock trucks. This occurs because transport to and from rural schools is provided by bus services. These services are required to stop frequently on the narrow secondary roads meaning there is not enough space for other vehicles to safely pass. This results in the traffic having to frequently stop and the overall speed being governed by the bus. There is also road user conflict on a number of the roads due to the mix of tourist and heavy traffic. Upgrading of strategic and feeder routes will be required. The majority of the road network is such that travel times from the remote areas of the



District are substantially higher than the rest of the District due to the roads horizontal and vertical alignment and narrow carriageway widths. (*Source GHD -- NRC Integrated Transport.*)

It is a priority for Council to separate forestry and tourism traffic, wherever possible as tourism contributes substantially to the Far North economy. (Source: - GHD NRC Integrated Transport Study).



8. Identifying the Strategic Road Network

The first objective of the RIS as outlined in Section 1.1 of this report is to "identify a strategic transport network to provide for the future needs of the District". This base line report has reviewed the background data necessary to identify those routes which are significant now and in the future for the economy and for the needs of communities.

Table 4 below outlines the roads that have been identified to form part of the Strategic Road Network. A map which illustrates the Strategic Network is included in Appendix F. The Strategic Network is divided into the following four categories of roads:

Category 1: District Arterials

These roads have been identified as the major routes, which link communities and important areas for the districts economy. The district arterials provide important connections to the State Highways and form the 'base' of the Strategic Road network.

Category 2: Current and Requested Roads for Regional Development Funding

These roads have been identified as important routes for the Forestry Industry, where sections require upgrading to meet the industries demands. Upgrade to the roads have been identified for funding through the regional development fund which is 100% funded for by Land Transport.

Category 3: Roads of Economic and Community Importance

These are the other routes that perform an important tourism, economic or community function.

Category 4: Potential Future Routes

Identified as potential future routes that may be required in the future due to expected levels of growth.

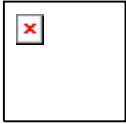
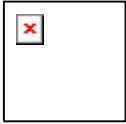
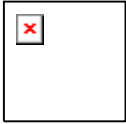


Table 5 The Strategic Road Network

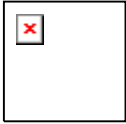
Catagory	Road Name	Explanation
1	Inland Road	<p>This is the main route from SH10 along the Karikari Peninsula. It provides access to the significant residential growth areas of Karikari and Whatuwhiwhi. Although it has not been identified for RDF funding, it is currently an important forestry route, providing access to the JNL Karikari forestry block at the top of the Peninsula. The initial parts of Inland Road are susceptible to flooding which is to be assessed through Councils Hazard Identification process. This will provide information to assess the need for an alternative more secure route.</p> <p>In the future it is anticipated that the forestry use of the road will decrease after 2009. However it will continue to be an important route to service the continuing levels of residential growth and potential development of the tourism industry expected along the Peninsula.</p> <p>Goal</p> <p>To provide a safe, efficient, and reliable 2-way sealed route for tourist and local traffic from SH10 along the Karikari Peninsula.</p>
1	Fairburn Road Peria Road Oruru Road	<p>These roads provide an alternative route between SH1 north of the Mangamuka Gorge to SH10 at Taipa. In the event of a closure along SH1 or SH10 this route is important for route security.</p> <p>This route is currently used primarily to service the horticultural and agricultural industries. It provides direct access to a various local roads which service a growing number of life style blocks to the east of Kaitaia.</p> <p>This will continue to be an important route for the horticultural and agricultural industries. It is anticipated that the development of lifestyle blocks will continue in the area.</p> <p>Goal</p> <p>To provide a two-way route suitable for heavy vehicles (acknowledging that HCV will probably need to track over the centreline).</p>



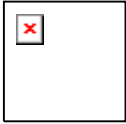
1	Kaitaia– Awaroa Road Awaroa Road Broadwood Road Mangamuka Road	<p>These roads form the eastern loop between the Mangamuka Bridge and Kaitaia through Broadwood, Herekino and Wainui Junction. The route provides an important link to the west coast communities of Ahipara and Herekino. It connects them to the state highway network and to the centres of Kaitaia and Mangamuka.</p> <p>The loop is used often as an alternative route to SH1 for those travelling to and from Kaitaia. In the event of a civil defence emergency or closure along SH1 this route is important in maintaining the connection between Kaitaia and Mangamuka.</p> <p>This route is used significantly by the horticultural and agricultural industries which dominate the surrounding area. In addition it is an important route for the transport of forestry product from the West Coast and Mangamuka forestry blocks to the processing plant at Kaitaia.</p> <p>In the future this will continue to be an important route for the horticultural and agricultural industries. In addition it is part of the Twin Coast Discovery Highway and will become increasingly important for the tourism industry.</p> <p>Goal</p> <p>To provide a safe, efficient, and reliable two-way sealed route which can accommodate the needs of tourist traffic and heavy commercial vehicles and reduces travel times where possible.</p>
1	Rawene Road	<p>This is the main road which connects SH12 to the Hokianga Car Ferry. The ferry crossing is included as part of the route to demonstrate the importance of the link across the Hokianga Harbour.</p> <p>This route is part of the Twin Coast Discovery Highway and is important for the tourism industry in the Hokianga area. It is also an important link for the Rawene community.</p> <p>In the future Rawene Road will continue to be important for the tourism industry and in the maintenance of the link across the Hokianga Harbour.</p> <p>Goal</p> <p>To provide a two-way sealed route suitable for local and tourist traffic.</p>



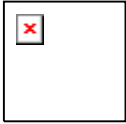
1	Taheke Road	<p>Provides an important connecting route from SH1 to SH12. It connects to key forestry routes (Rangiahua Road) and receives a considerable amount of forestry traffic.</p> <p>The forestry use of Taheke Road is anticipated to continue and there is potential for this road to form part of a link route between SH1 and SH12.</p> <p>Goal</p> <p>To provide a sealed two-way route suitable for heavy vehicle traffic.</p>
1	Te Pua Road	<p>Is used often as a main link between Kaikohe and SH1. It provides a bypass of the SH12 and SH1 intersection, connecting Kaikohe with SH1. It is also an important tourist route, forming part of the Twin Coast Discovery Highway and providing access to Lake Omapere.</p> <p>Te Pua Road will continue to be a main route between Kaikohe and SH1. With anticipated levels of growth in the tourism industry it will become and increasing important route for the industries growth.</p> <p>Goal</p> <p>To provide a sealed two-way route suitable for heavy vehicle traffic.</p>
1	Old Bay Road	<p>Receives a significant amount of traffic as an important link between SH10 and SH1. It caters to commuter traffic from the Bay of Islands through to Kaikohe.</p> <p>As the horticultural industry develops in this area Old Bay road will be an important route to service the industries growth.</p> <p>Goal</p> <p>To provide a sealed two-way route suitable for heavy vehicle traffic.</p>
1	Waiare Road	<p>The majority of the use of this road is for the agricultural and horticultural industries. It provides direct access to a various local roads, which service a growing number of life style blocks. In addition it serves as route to connect to the DoC forest and as a result receives some tourist traffic.</p> <p>It will continue to be an important route to facilitate growth in the agricultural and horticultural industries. It has also been flagged as a route that could be further developed for the tourism industry.</p> <p>Goal</p> <p>To provide a sealed two-way route suitable for tourist and heavy vehicle traffic.</p>



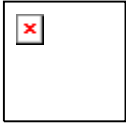
1	Pungaere Road	<p>Similar to Waiare Road, Pungaere Road is an important route which connects to a developing number of life style blocks and has potential for tourism development as it connects to the DoC forest area.</p> <p>Goal</p> <p>To provide a sealed two-way route suitable for tourist and local traffic.</p>
1	Wiroa Road and Wehirua Road	<p>These Roads connect the Bay of Islands Airport to the western part of the District. They also provide an alternative route between Kerikeri and Okaihau/Kaikohoe</p> <p>Goal</p> <p>To provide a two-way sealed route suitable for local and tourist traffic and heavy vehicles.</p>
1	Kerikeri Road	<p>Is the main road through the centre of the Kerikeri village. It is used by a substantial amount of traffic for commercial, residential and tourist purposes.</p> <p>This road will continue to be used as the main road through Kerikeri. As the tourism and horticultural industries continue to grow in the area and the levels residential growth volumes of traffic on this road are likely to increase.</p> <p>Goal</p> <p>To provide a two-way sealed route suitable for local and tourist traffic, heavy vehicles and cyclists.</p>
1	Kerikeri Heritage Bypass	<p>The Kerikeri bypass will provide a connecting route between Waipapa Road and Kerikeri Road. It is being constructed to direct traffic away from and prevent damage to the historic areas of Kerikeri in particular the Stone Store. Detailed design and construction for the bypass is currently underway.</p> <p>Once complete the bypass will become an important route connecting Kerikeri to the residential areas north of Kerikeri.</p> <p>Goal</p> <p>To provide a two-way sealed route suitable for local and tourist traffic, heavy vehicles and cyclists.</p>



1	Waipapa Road	<p>Is a main route into Kerikeri from SH10. It connects the Waipapa community and residential areas north of Kerikeri to the Kerikeri township. It has an important role in facilitating the construction of the Kerikeri bypass.</p> <p>With anticipated levels residential growth and growth in the horticultural industry Waipapa Road will continue to be an important route to and from Kerikeri.</p> <p>Goal</p> <p>To provide a two-way sealed route suitable for local and tourist traffic, heavy vehicles and cyclists.</p>
2	Iwitaia Road	<p>Is an important road for servicing the White Cliffs and JNL forestry blocks. It also plays a key role in providing a link between SH10 and SH1 as it connects with Otangaroa Road (a category 3 road).</p> <p>Sections of Iwitaia Road have been upgraded and funded by the RDF Fund.</p> <p>Goal</p> <p>To provide a safe and reliable two-way route suitable for heavy vehicle traffic.</p>
2	Omahuta Road	<p>Omahuta Road is important for servicing the White Cliffs and JNL forestry blocks. Upgrades to Omahuta Road have been funded from the RDF Fund.</p> <p>The use of Omahuta Road will decrease as the forestry blocks reach completion. However there are several other potential forestry blocks in the region which will in the future use this as a key route.</p> <p>Goal</p> <p>To provide a safe and reliable two-way route suitable for heavy vehicle traffic.</p>
2	West Coast Road Kohukohu Road	<p>These roads form an important forestry route servicing the Mitimiti and the North Hokianga forestry blocks. In addition they provide a route that connects to several small communities on the west coast. It receives some additional tourist traffic as it connects to the Twin Coast Discovery Highway.</p> <p>Ongoing upgrades to West Coast Road have been approved as part of the RDF Fund.</p> <p>Goal</p> <p>To provide a safe and reliable two-way route suitable for heavy vehicle traffic.</p>

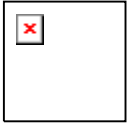


2	Rangiahua Road	<p>Is an important forestry route for a series of forestry blocks within this area. It also serves as an important route connecting SH12 and SH1 as it joins Taheke Road (a category 1 road)</p> <p>Upgrades to Rangiahua Road are under request for funding from the RDF Fund.</p> <p>Goal</p> <p>To provide a safe and reliable two-way route suitable for heavy vehicle traffic.</p>
2	Mangakahia Road	<p>Provides a central route for traffic travelling south from Kaikohe that does not pass through Whangarei. It is a key route for the forestry industry for the transport of product to North Port at Marsden Point. The section south of Piccadilly Road is under request for funding from the RDF Fund.</p> <p>In addition to the forestry traffic, it is a preferred route for the agricultural industry as providing an alternative from SH1 to Whangarei.</p> <p>Goal</p> <p>To provide a two-way sealed route suitable for local and tourist traffic and heavy vehicles which reduces travel times where possible.</p>
3	Wainui Road Matauri Bay Road	<p>Is a loop route from SH10 to Tauranga Bay and Matauri Bay. It is a developing tourist route to this part of the coast and forms part of the Twin Coast Discovery Highway. It also serves a significant amount of residential development in the area.</p> <p>Goal</p> <p>To provide a two-way sealed route suitable for local and tourist traffic and heavy vehicles.</p>
3	Pawarenga Road Runaruna Road	<p>These roads have not been identified for RDF funding but receive some forestry traffic from the forestry areas north of Hokianga. They also form an important route north of the Hokianga area and provide links to areas where there is potential to develop the tourism industry. This route is also important for providing route security and a reliable – roading network within the Hokianga area.</p> <p>Goal</p> <p>To provide a safe and reliable two-way route suitable for heavy vehicle traffic.</p>

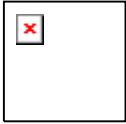


3	Otangaroa Road	Plays a key role in providing a link between SH10 and SH1 as it connects with Iwitaua Road (a category 2 road). Goal To provide a safe and reliable two-way route suitable for heavy vehicle traffic.
3	Waikaere Road Russell Road Aucks Road	These roads are a loop which provide access to the Russell Peninsula. This route includes the Opuia Car Ferry as an essential link from the State Highway network and the Whangarei District to Russell. This is a significant route for the tourism industry. Goal To provide a two-way sealed route suitable for local and tourist traffic and heavy vehicles.
3	Ngapipito Road	Is an important route for the forestry industry. There are forestry blocks on either side of the road which use it to transport products both east and west to the State Highway network. It is also an important link to the Otria Rail Head. Goal To provide a safe and reliable two-way route suitable for heavy vehicle traffic.
3	Orakau Road Matawaia Road Maromaku Road	These roads provide a link between SH1 and Mangakahia Road. The route is used significantly by the forestry industry. It is also important for accessing a number of community facilities situated along the route. Goal To provide a safe and reliable two-way route suitable for heavy vehicle traffic.
4	Opuia Lower Road	Would potentially create an alternative access to Opuia to the existing steep access gained from SH11. Goal To create efficient access from Paihia to Opuia
4	From Paihia to Kerikeri Inlet Road	Would potentially create more direct access from Paihia and Kerikeri and to that section of the East Coast. Goal To create efficient access from Kerikeri to Paihia.

There are a number of State Highway emergency detour routes within the district. Transit is currently reviewing their State Highway Emergency Detour Maps to assess each route and highlight those detour routes which are currently unsuitable for some vehicles. Improvements to identified detour routes will be prioritised according to



criteria such as the number of accidents, ability of the route to cater for different types of vehicles, etc. For example Waiotemarama Gorge Road as an alternative to SH12 and Sandhills Road (west of Kaitaia).



9. Assessment Framework for Potential Improvements

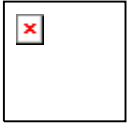
One of the key outputs from this RIS is the development of an assessment framework to evaluate potential road improvements in order to ensure the appropriate prioritisation of network improvements and the integrity of the strategic network development is maintained. This framework will also identify and provide indicative funding information requirements in order to implement the strategy, and allow forward implementation plans with a list of capital works projects, including estimated costs to be developed from further detailed investigations.

The assessment framework has been developed in a way that accounts for National, Regional, and Local objectives and priorities, before giving any detailed consideration of the funding mechanisms. This then allows a prioritised list of potential roads to be measured / scored against the key road improvement triggers for the Far North District, before further detailed investigations are undertaken to specifically define project, consider feasibility and the best funding mechanisms to pursue, and complete the works where appropriate. The rate of completion of these programmes will be directly proportional to the success in capturing appropriate funding opportunities.

Table 6 shows the scaling used to score sections of road that are potential improvement projects against each of the assessment categories. For some of the link road projects, a nominal generic section of the road has been chosen and scored so that the priority of the potential section can be compared to other roads. Hence further detailed investigations of these routes will be required to define the priority projects.

Table 3: Weighting Scale for Assessing Projects

DISTRIBUTION OF WEIGHTING SCALE									
Item	Category	Weighting	Objectives	Applicable to Sealed/Unsealed Roads	Weighting Scale				
					4	3	2	1	0
1	Safety	100	Reduce accident rates on FNDC roads.	Sealed and Unsealed Roads	Road is unsafe with official records showing a high rate of severe accidents and proposed works will improve safety and negotiability of the road.	Road is unsafe with some official records showing non-severe accidents and proposed works will improve safety and negotiability of the road.	Road is unsafe with local records showing non-severe accidents and proposed works will improve safety and negotiability of the road.	No records of accidents but the proposed works will improve safety and negotiability.	No improvement to safety or negotiability of the road.
2	Strategic Link Improvement	90	Assist economic development by providing a strong / reliable network links. Improve key access routes/linkages within district.	Unsealed Roads	Sealing would complete a sealed link in the FNDC Strategy Plan (or is part of a programme to complete the link)	Sealing would progress a link in the FNDC Strategy Plan	Sealing would complete a sealed link not in the FNDC Strategy Plan (or is part of a programme to complete the link)	Sealing would progress a link not in the FNDC Strategy Plan	Sealing would not complete a sealed link. I.e. No Exit Road
				Sealed Roads	Significant improvements needed (Gap Analysis) to a Sealed Strategic Route		Minor improvements needed (Gap Analysis) to a Sealed Strategic Route		No improvements needed (Gap Analysis) to a Sealed Strategic Route
3	Dust, Dwellings and Public Facilities	75	Protect and promote public health.	Unsealed Roads Only	Number of dwellings per km >10 and located within 50m of the road boundary AND there is a public facility within 50m of the road boundary.	Number of dwellings per km >10 and located within 50m of the road boundary OR there is a public facility within 50m of the road boundary.	10= number of dwellings per km =5 and located within 50m of the road boundary.	Number of dwellings per km =5 and located within 50m of the road boundary	No dwellings within 100m of the road boundary.
							Public facility between 50m and 100m of the road boundary.		No public facility within 100m of the road boundary.
4	Traffic Volume	65	Assist economic development, assist safety, improve access.	Unsealed Roads	Volume 200+	200-150	150-100	50-100	<50
	Traffic Volume / Sealed Width			Sealed Roads	Greater than 2.25m below standard	Between 1.5 - 2.25m below standard	Between 0.75 - 1.5m below standard	Between 0 - 0.75m below standard	Equal to Standard or better
5	Traffic Type and % Heavies	50	Assist economic development, assist safety, improve access.	Sealed and Unsealed Roads	School bus and commercial route with greater than 12% heavies	School bus and commercial route with greater than 8% heavies	School bus and commercial route with average heavies	Commercial route only with low amounts of heavies	No school bus or commercial route
6	Environmental Drainage/Water Quality	50	Ensure environmental sustainability.	Unsealed Roads Only	Sealing will have high associated benefits such as improved drainage/Water Quality of run-off. Road is very close to receiving waters (within 20m) with limited natural riparian zone vegetation etc.	Sealing will have medium associated benefits such as improved drainage/Water Quality of run-off. Road is close to receiving waters (within 50m) with limited natural riparian zone vegetation etc.	Sealing will have some associated benefits such as improved drainage/Water Quality of run-off. Road is close to receiving waters (within 100m) with limited natural riparian zone vegetation etc.	Limited associated benefits.	No associated benefits.
7	Holiday Traffic	40	Assist tourism, economic development, safety and improve access.	Unsealed Roads Only	Holiday traffic route with peak ADT >200+	Holiday traffic route with peak ADT >150 but <200.	Holiday traffic route with peak ADT >100 but <150.	Holiday traffic route with peak ADT <100.	No holiday traffic.



The relativity between scored roads at this stage of the prioritisation process is the most important issue. Once the top 10, 20 or even 30 road improvement sections for both sealed and unsealed roads are established then detailed investigations into the projects feasibility i.e. costs, constructability, legalisation, treatment options, etc are to be completed.

From this each potential improvement project road then has a weighted total score. To assist with this process an Access database system has been used. The roads can then be ranked in descending order of their total weighted score and the top 10, 20 or 30 roads can be highlighted for further investigation / progression of their feasibility, definition of project works, etc.

Typical scoring sheets for both unsealed road sections and sealed road sections are shown in Figures 2 and 3.

It is intended that the long-term projections of works that will result from the process be summarised into a 10-year FNDC Road Improvement Forecast. The term forecast will be used as this more explicitly reflects uncertainties around stakeholder alignment, results of consultation, obtaining consents, property issues, and obtaining funds. As a result, the estimated costs and timing of activities in the later years of the forecast will be less certain than in the early years. The intention is to base all estimates on 2005/06 costs with an indicative provision for escalation. A significant challenge will be to develop funding plans for the next 10 years and beyond, that will achieve an appropriate level of network improvements.

Once further investigations into the highest priority projects are completed, the forecasting of improvements will be better defined. However, the forecast will still be likely to change depending on the importance of each project within the context of the Regional Land Transport Strategy, its national priority (for subsidised funding), the resolution of any local concerns, and property issues.

Major features of roading improvement forecasting are:

- ▶ The need for further detailed investigations of sealed network realignments and seal widening to improve safety and/or route efficiency, particularly on strategic and arterial routes. The timing of such road reconstruction works, where possible, should be coordinated with the renewal needs of the pavement and surfacing.
- ▶ Sealing of high priority unsealed roads with significant growth
- ▶ The need for a discretionary quantity of improvement works that can be completed outside of this strategic framework. This allows for projects that the community and Council believe have significant justification for completion, but have not been captured within this framework due to localised social and/or cultural triggers.

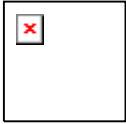


Figure 2: Typical Scoring Sheet for Sealed Route

FNDC Weight Point System for Project Prioritisation
Sealed Road Improvements

ID:

Road Name:

Description:

Start RPP: End RPP: ADI:

Length (m): Width (m): (B-4)

	Weighting	Score	Weighted Score
Safety	<input type="text"/>	<input type="text"/>	<input type="text"/>
Strategic Link	<input type="text"/>	<input type="text"/>	<input type="text"/>
Traffic Volume	<input type="text"/>	<input type="text"/>	<input type="text"/>
Traffic Type and % Heavy	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total Maximum Weighting	<input type="text"/>		
Total Weighted Score			<input type="text"/>
Weighted Index (0 to 100)			<input type="text"/>

Note: Roads with higher weighted indices shall have high priority
Weighted Points = (Weighting Scale) × (Maximum Points)
Weighted Index = (Total Weighted Points) × 100

Weighting Scale: 0,1,2,3,4 (use weighting scale for details)
Weighted Index = (Total Weighted Points) × 100

Rank: No Rank

Cost (\$000):

Funding Plan:

Current Stage:

Northland ITS Conformance:

Northland ITS Justification:

Statistics

PRI Completed:

RCR:

ICR Ranking:

Comments:

Record: 14 of 50 | Page View

Figure 3: Typical Scoring Sheet for Unsealed Route

FNDC Weight Point System for Project Prioritisation
Unsealed Road Improvements

ID:

Road Name:

Description:

Start RPP: End RPP: ADI:

Length (m): Width (m): (B-4)

	Weighting	Score	Weighted Score
Safety	100	0	
Strategic Link	90	0	
Road-Dwelling Public Facilities	75	0	
Traffic Volume	65	0	
Traffic Type and % Heavy	50	0	
Environmental	50	0	
Holiday Traffic	40	0	
Total Maximum Weighting	<input type="text"/>		
Total Weighted Score			<input type="text"/>
Weighted Index (0 to 100)			<input type="text"/>

Note: Roads with higher weighted indices shall have high priority
Weighted Points = (Weighting Scale) × (Maximum Points)
Weighted Index = (Total Weighted Points) × 100

Weighting Scale: 0,1,2,3,4 (use weighting scale for details)
Weighted Index = (Total Weighted Points) × 100

Rank: No Rank

Cost (\$000):

Funding Plan:

Current Stage:

Northland ITS Conformance:

Northland ITS Justification:

Statistics

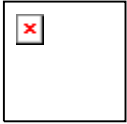
PRI Completed:

RCR:

ICR Ranking:

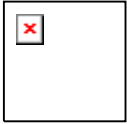
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Appendix A

References



Enterprise Northland – “Northland Tourism Strategy 2003”

Enterprise Northland Forestry Development Group – “ Draft Northland Forest Industries Strategy, February 2004”

Land Transport Management Act

Far North District Council – “External Environment Overview Review 2000”

Far North District Council –“Draft Long Term Council Community Plan 1 July 2004 – 30 June 2014”

“Far North District Council, Growth Management Strategy Project: Growth Forecasts, December 2004”

NIWA – “Assessment of the Potential for Aquaculture Development in Northland – January 2003” prepared by Andrew Jeffs

Northland Joint Consultative Committee – “The Spirit of Northland - Northland Social Development Strategy March 2002”

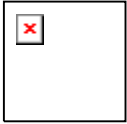
Northland Regional Council – “Northland Integrated Transport Study March 2002”

Northland Regional Council – “Regional Land Transport Strategy for Northland 2003-2008”

Northland Regional Economic Development Strategy Steering Group – “Strategy for the Sustainable Economic Development of Northland- February 2002”

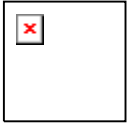
Roadsafe Northland - “Northland Regional Road Safety Plan 2004-2010”

Statistics New Zealand – “Far North District Quarterly Review December 2003”



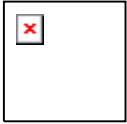
Appendix B

Key Stakeholders

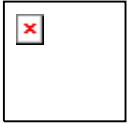


The following interested parties have been identified as stakeholders and their representatives have been consulted during the development of this report:

- ▶ Land Transport – Northern Regional Office
- ▶ Transit – Whangarei Office
- ▶ Land Transport Safety Authority – Whangarei
- ▶ Passenger transport providers eg bus and ferry services
 - Fullers Bay of Islands
 - Kings Cruises & Tours
 - Waitere Cruises
 - Bradley's Nautical School
 - Far North District Council (operator Impact Services)
 - Clarks Coachlines
 - Northliner Express
 - Inter City Coachlines
- ▶ Cycling Support NZ Inc
- ▶ Toll Holdings
- ▶ Northland District Health Board
- ▶ Kaipara District Council
- ▶ Local Members of Parliament – John Carter, Dover Samuels, Jim Peters, Sue Bradford, Muriel Newman and Rita Paraone
- ▶ New Zealand Historic Places Trust
- ▶ NZ Police
- ▶ Emergency Services
- ▶ Automobile Association
- ▶ Ministry of Agriculture and Forestry
- ▶ Ministry of Education
- ▶ Department of Conservation – Northland Conservancy Office
- ▶ Destination Northland
- ▶ Enterprise Northland
- ▶ Enterprise Northland Forestry Development Group
- ▶ Far North Holdings Limited
- ▶ Federated Farmers of NZ Northland Province
- ▶ Northern Regional Transport Association
- ▶ Northland Regional Council

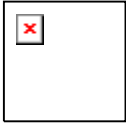


- ▶ Road Transport Association
- ▶ Whangarei District Council
- ▶ Iwi representatives



Appendix C

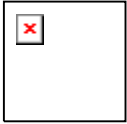
Key Objectives of the Northland Regional Land Transport Strategy



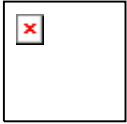
Key Objectives of the RLTS

The key objectives and policies of the Strategy to meet future land transport needs of efficiency, affordability integration, accessibility, safety and environmental quality for **Northland** are:

- ▶ A land transport network that contributes to the maintenance and enhancement of the economy of Northland by allowing the safe and efficient movement of people and goods.
 - Policy One: To maintain and enhance the existing road network
 - Policy Two: To maintain and enhance opportunities for freight transport, particularly through the use of designated heavy transport routes and the greater use of rail.
 - Policy Three: To improve tourist routes, facilities and signage.
- ▶ A land transport network for Northland that meets efficiency, safety, accessibility and environmental quality needs while being affordable and financially sustainable.
 - Policy One: To secure funding and ensure the timely implementation of this Strategy.
- ▶ A high degree of integration is achieved between the main organizations involved in the provision and administration of the land transport network.
 - Policy One: To ensure integrated strategic planning for Northland's land transport network across all relevant organisations.
 - Policy Two: To maintain effective involvement of stakeholders in strategic planning for Northland's land transport network.
- ▶ A land transport network that allows safe travel for all people in Northland.
 - Policy One: To assist with integrated initiatives across all relevant agencies aimed at improving driver attitudes, driver behaviour and the safety of identified at risk groups.
 - Policy Two: To improve the safety design aspects of the physical land transport network.
 - Policy Three: To develop systems which improve the reporting, recording and investigation of crashes.
- ▶ A land transport network that is available to all people in the region and allows access to employment, health, social, educational, recreation and other opportunities.
 - Policy One: To maintain a network of public passenger transport services including the provision of passenger facilities
 - Policy Two: To provide public passenger transport services which recognise the specific needs of the transport disadvantaged.
 - Policy Three: To provide public passenger transport services commensurate with the needs of the travelling public.
 - Policy Four: To recognise and provide for safe cyclist mobility and access to cycling.



- Policy Five: To recognise and provide for safe pedestrian mobility and access to walking.
- ▶ A land transport network that is environmentally sustainable.
 - Policy One: To avoid, remedy or mitigate the adverse environmental and health effects associated with the land transport network.
 - Policy Two: To recognise the need for a safe and efficient land transport network while limiting the negative impacts of land transport on communities.
 - Policy Three: To consult with Iwi where the construction, maintenance and operation of the land transport network is likely to have adverse effects on culturally sensitive areas, including waahi tapu, urupa and coastal areas.
 - Policy Four: To promote environmental best practice in the construction, maintenance and operation of the land transport network.
 - Policy Five: To consult with the New Zealand Historic Places Trust/Pouhere Taonga where any project may adversely affect a place on its register, or any archaeological site.



Appendix D
Regional Development Fund
Projects

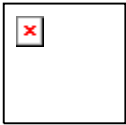
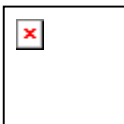
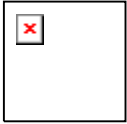


Table 7 Northland Regional Transport Plan Projects in the Far North District

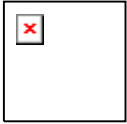
Road Name	RP start	RP end	Length of work (m)	Road width before (m)	Design as-built width (m)	Year Finished	% Work complete
Gammon	0	7100	7,100	3.5 to 5.0	4.5 and 6.0	2002/03	100
Giles	0	2,400	2,400	3.0 to 4.0	4.5 and 5.5	2002/03	100
Horeke	0	1,660	1,660	3.0 to 4.0	6.0	2002/03	100
Iwitaua	0	5,000	5,000	4.0 to 6.0	6.0	2002/03	100
Iwitaua	5,000	11,380	6,380	4.0 to 6.0	6.0	2004/05	100
Kauapepe	0	2,400	2,400	3.0 to 5.5	4.5	2002/03	100
Kohukohu	9,853	11,153	1,300	6.0 to 6.5	7.0	2002/2003/04	100
Kohukohu	12,900	13,650	750	6.0 to 6.5	7.0	2004/05	90
Lovatt	0	3,219	1,000	3.0 to 4.0	6.0	2003/2004/05	100
Makene	0	1,670	1,670	3.0	6.0	2002/03	100
Matawera	0	5,050	5,050	3.5 to 4.5	4.5 and 6.0	2003/2004/05	100
Ngapipito	0	1,660	450	4.5 to 5.0	7.0	2002/03	100
Omahuta	0	7,550	7,550	5.0 to 5.5	5.5	2004/05	80
Taheke	0	6,350	6,350	4.5 to 6.0	6.0	2002/2003/04	100
Taheke	6,350	8,000	1,000	4.5	4.5	2004/2005	60
Te Hapua/Spirits	0	11,220	11,220	3.5 to 6.5	6.5	2003/04	100



Road Name	RP start	RP end	Length of work (m)	Road width before (m)	Design as-built width (m)	Year Finished	% Work complete
Bay							
West Coast	17,080	17,320	240	6.5	7.0	2003/2004/05	100
West Coast	4,720	7,620	2,900	6.5	7.0	2002/03	100
West Coast	7,620	9,100	1,480	6.5	7.0	2003/04	100
West Coast	11,160	12,360	1,200	6.5	7.0	2003/04	100
West Coast	15,880	17,080	1,200	6.5	7.0	2002/03	100
West Coast	17,080	18,800	1,720	6.5	7.0	2003/04	100
West Coast	9,100	11,160	2,060	6.5	7.0	2004/05	50
West Coast	12,360	14,380	2,020	6.5	7.0	2004/05	50
West Coast	18,800	19,480	680	6.5	7.0	2003/2004/05	50
West Coast	14,380	15,880	1,500	6.5	TBA	2005/06	0
Rangiahua	800	5,500	1,870	6.5	TBA	2005/06	0

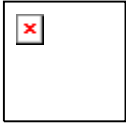


Appendix E
Far North District Land Use



Appendix F

Strategic Road Network



GHD Limited

Level 1 Merial Building

Putney Way


Manukau

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
Draft	Sue Hamilton Ruth Johnston	Julie Boucher	JB	Craig Connolly	CC	2005
Final	Ruth Johnston	Julie Boucher		Craig Connolly		July 2005